CA-IR-36

Ref: HECO T-6, Page 9, Line 12.

According to the testimony, "Other Production O&M Non-labor will significantly increase due to the need for outside services to supplement the workforce and provide specialized skills and services, i.e., generator, turbine and environmental consulting services." Please provide the following information with respect to this statement:

a. A detailed schedule comparing actual annual "outside services" costs chargeable to Production O&M accounts in 2001, 2002, 2003, 2004 and the projected test period amount, by generating station, Account, RA, payee, type of service and amount.

b. Explanations for significant (more than $250,000 per year) fluctuations among years, as well as individually significant payments (more than $100,000 to a vendor) in each year.

c. Detailed explanations for each new or changed level of activity involving outside services in the test year, relative to historical activity and cost levels set forth in the response to part (a) of this information request.

HECO Response:

a. Payments to vendors in 2001 through 2004 to supplement the workforce and to provide specialized skills and services were selected. The file is voluminous and will be provided to the CA and the Commission upon request, subject to a mutually acceptable [illegible]

the data provided in the transmittal in part a. above. Outside services costs were sorted into three categories – Support, Skill and Other. The "Support" category includes trades and craft labor that supplemented existing labor forces. The "Skill" category includes special skills and expertise such as consultants, engineers, etc., that were required to support projects and non-project work. The "Other" category includes landscaping, weed control and equipment rental expenses. The summary shows cost increasing from 2001 through 2004 due to all of the maintenance expense factors identified in HECO T-6 such as aging units, running the units harder, growing demand, etc.

CODE	LL_PERI	TransYr	AMT	Work_Order	Work_Order_Desc	Inv_No	Inv_Item_Desc	PO_No	Supplier_Name	SVC Typ
ZZZZZ501	200101	2001	78.07	HP000334	Exterminator, Weed Control Svcs-Honolulu	19033179	HONOLULU POWER PLANT - WEED (	P00350	HAWAIIAN STEAM, INC.	other
ZZZZZ501	200101	2001	442.72	HP000334	Exterminator, Weed Control Svcs-Honolulu	19033180	IWILEI FUEL OIL TANKYARD - WEED	P00350	HAWAIIAN STEAM, INC.	other
ZZZZZ501	200101	2001	781.27	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033178	LANDSCAPE SERVICES KAHE POWE	P17876	HAWAIIAN STEAM, INC.	other
ZZZZZ501	200101	2001	1,145.87	HP000335	Exterm, Weed Ctl, Landcape Svcs-Waiau St	19033181	WAIAU POWER PLANT - WEED CONT	P00350	HAWAIIAN STEAM, INC.	other
ZZZZZ501	200101	2001	3,125.10	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033182	KAHE POWER PLANT - WEED CONTI	P00350	HAWAIIAN STEAM, INC.	other
ZZZZZ501	200101	2001	4,300.58	PR010078	SWO-POND/WATERWAYS CLEANUP	18302924F	CLEAN POND AND WATERWAY OF V	P21022	PSC INDUSTRIAL OUTSOURCIN	other
ZZZZZ501	200102	2001	78.07	HP000334	Exterminator, Weed Control Svcs-Honolulu	19033211	HONOLULU POWER PLANT - WEED (	P00350	HAWAIIAN STEAM, INC.	other
ZZZZZ501	200102	2001	442.72	HP000334	Exterminator, Weed Control Svcs-Honolulu	19033212	IWILEI FUEL OIL TANKYARD - WEED	P00350	HAWAIIAN STEAM, INC.	other
ZZZZZ501	200102	2001	1,145.87	HP000335	Exterm, Weed Ctl, Landcape Svcs-Waiau St	19033213	WAIAU POWER PLANT - WEED CONT	P00350	HAWAIIAN STEAM, INC.	other
ZZZZZ501	200102	2001	3,125.10	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033214	KAHE POWER PLANT - WEED CONTI	P00350	HAWAIIAN STEAM, INC.	other
ZZZZZ501	200102	2001	4,839.00	PR016355	PARKING LOT SIDEWALK REPAIRS - REMOVI	19033203	PARKING LOT SIDEWALK REPAIRS -	P22378	HAWAIIAN STEAM, INC.	other
00243501	200102	2001	1,248.00	PR016100	Waiau 6 Boiler Chemical cleaning	18303461F	FRAC TANKS RENTAL	P23816	PSC INDUSTRIAL OUTSOURCIN	other
00243501	200103	2001	312.00	PR016100	Waiau 6 Boiler Chemical cleaning	18303560F	FRAC TANKS RENTAL	P23816	PSC INDUSTRIAL OUTSOURCIN	other
00243501	200103	2001	312.00	PR016100	Waiau 6 Boiler Chemical cleaning	18303515F	FRAC TANKS RENTAL	P23816	PSC INDUSTRIAL OUTSOURCIN	other
00243501	200103	2001	2,198.30	PR016100	Waiau 6 Boiler Chemical cleaning	18303579F	FRAC TANKS RENTAL	P23816	PSC INDUSTRIAL OUTSOURCIN	other
ZZZZ501	200104	2001	331.83	PR017675	CUT SECTION WATER WALL TUBE FOR SAM	1111149D/	SKY CLIMBER PLATFORM RENTAL 5	P24927	ATLAS SALES CO., INC. - KAPOI	other
ZZZZ501	200104	2001	781.27	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033210	GROUNDS MAINTENANCE KAHE PP ;	P24936	HAWAIIAN STEAM, INC.	other
ZZZZ501	200104	2001	781.27	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033237	GROUNDS MAINTENANCE KAHE PP ;	P24936	HAWAIIAN STEAM, INC.	other
ZZZZ501	200104	2001	1,140.66	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033280	GROUNDS MAINTENANCE KAHE PP ;	P24936	HAWAIIAN STEAM, INC.	other
ZZZZ501	200104	2001	1,145.87	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033240	HAWAIIAN STEAM 6 MONTH WEED C	P25059	HAWAIIAN STEAM, INC.	other
ZZZZ501	200104	2001	1,145.87	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033282	HAWAIIAN STEAM 6 MONTH WEED C	P25059	HAWAIIAN STEAM, INC.	other
ZZZZ501	200104	2001	3,125.10	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033241	WEED CONTROL SERVICES KAHE PI	P24937	HAWAIIAN STEAM, INC.	other
ZZZZ501	200104	2001	3,125.10	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033283	WEED CONTROL SERVICES KAHE PI	P24937	HAWAIIAN STEAM, INC.	other
00243501	200104	2001	2,133.04	PR016100	Waiau 6 Boiler Chemical cleaning	18303603F	FRAC TANKS RENTAL	P23816	PSC INDUSTRIAL OUTSOURCIN	other
ZZZZ501	200105	2001	(36.67)	PR019033	W6 Flame impingment on Ewa Furnace Wall	1114037D/	RENTAL CREDIT FOR LEASE 111384(	P26848	ATLAS SALES CO., INC. - KAPOI	other
ZZZZ501	200105	2001	1,140.66	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033302	GROUNDS MAINTENANCE KAHE PP ;	P24936	HAWAIIAN STEAM, INC.	other
ZZZZ501	200105	2001	1,145.87	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033305	HAWAIIAN STEAM 6 MONTH WEED C	P25059	HAWAIIAN STEAM, INC.	other
ZZZZ501	200105	2001	3,125.10	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033306	WEED CONTROL SERVICES KAHE PI	P24937	HAWAIIAN STEAM, INC.	other
ZZZZ501	200106	2001	1,140.66	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033359	GROUNDS MAINTENANCE KAHE PP ;	P24936	HAWAIIAN STEAM, INC.	other
ZZZZ501	200106	2001	1,145.87	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033362	HAWAIIAN STEAM 6 MONTH WEED C	P25059	HAWAIIAN STEAM, INC.	other
ZZZZ501	200106	2001	3,125.10	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033363	WEED CONTROL SERVICES KAHE PI	P24937	HAWAIIAN STEAM, INC.	other
ZZZZ501	200107	2001	1,140.66	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033398	GROUNDS MAINTENANCE KAHE PP ;	P24936	HAWAIIAN STEAM, INC.	other
ZZZZ501	200107	2001	1,145.87	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033401	HAWAIIAN STEAM 6 MONTH WEED C	P25059	HAWAIIAN STEAM, INC.	other
ZZZZ501	200107	2001	3,000.00	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033402	WEED CONTROL SERVICES KAHE PI	P24937	HAWAIIAN STEAM, INC.	other
ZZZZ501	200107	2001	1,492.16	PR010078	SWO-POND/WATERWAYS CLEANUP	18304372F	REMOVE POND VEGETATION WAIAU	P28530	PSC INDUSTRIAL OUTSOURCIN	other
ZZZZ501	200108	2001	595.00	PR015623	W7 # 71 FO Heater tube leak.	08062001	STYRENE BOX & DRY ICE FREEZE 6"	P29245	B & J INSULATION CO., INC.	other
ZZZZ501	200108	2001	1,140.66	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033448	GROUNDS MAINTENANCE KAHE PP ;	P24936	HAWAIIAN STEAM, INC.	other
ZZZZ501	200108	2001	1,145.87	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033446	HAWAIIAN STEAM 6 MONTH WEED C	P25059	HAWAIIAN STEAM, INC.	other
ZZZZ501	200108	2001	3,125.10	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033447	WEED CONTROL SERVICES KAHE PI	P24937	HAWAIIAN STEAM, INC.	other
0247501	200109	2001	145.83	PR018441	REMOVE AND REPLACE HS/LS PINS/VANS/AI	1116770D/	RENTAL SCAFFOLDING EQUIP KAHE	P28846	ATLAS SALES CO., INC. - KAPOI	other
0247501	200109	2001	212.39	PR018441	REMOVE AND REPLACE HS/LS PINS/VANS/AI	1116679D/	RENTAL SCAFFOLDING EQUIP KAHE	P28846	ATLAS SALES CO., INC. - KAPOI	other
ZZZZ501	200109	2001	1,140.66	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033509	GROUNDS MAINTENANCE KAHE PP ;	P24936	HAWAIIAN STEAM, INC.	other
ZZZZ501	200109	2001	3,125.10	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033513	WEED CONTROL SERVICES KAHE PI	P24937	HAWAIIAN STEAM, INC.	other
ZZZZ501	200110	2001	1,140.66	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033567	GROUNDS MAINTENANCE KAHE PP ;	P24936	HAWAIIAN STEAM, INC.	other
ZZZZ501	200110	2001	1,145.87	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033512	HAWAIIAN STEAM 6 MONTH WEED C	P25059	HAWAIIAN STEAM, INC.	other
ZZZZ501	200110	2001	1,145.87	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033569	HAWAIIAN STEAM 6 MONTH WEED C	P25059	HAWAIIAN STEAM, INC.	other
ZZZZ501	200110	2001	3,125.10	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033571	WEED CONTROL SERVICES KAHE PI	P24937	HAWAIIAN STEAM, INC.	other
0247501	200111	2001	212.39	PR018441	REMOVE AND REPLACE HS/LS PINS/VANS/AI	1117928D/	RENTAL SCAFFOLDING EQUIP KAHE	P28846	ATLAS SALES CO., INC. - KAPOI	other
ZZZZ501	200111	2001	1,140.66	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033618	GROUNDS MAINTENANCE KAHE PP ;	P24936	HAWAIIAN STEAM, INC.	other
ZZZZ501	200111	2001	3,125.10	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033622	WEED CONTROL SERVICES KAHE PI	P24937	HAWAIIAN STEAM, INC.	other
0244501	200111	2001	4,366.44	PR021269	W4 Boiler Chemical Clean	18305022F	2 500/BBL FRAC TANKS W4 BLR CHE	P31055	PSC INDUSTRIAL OUTSOURCIN	other
ZZZZ501	200112	2001	1,140.66	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033700	GROUNDS MAINTENANCE KAHE PP ;	P24936	HAWAIIAN STEAM, INC.	other
ZZZZ501	200112	2001	1,145.87	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033620	HAWAIIAN STEAM 6 MONTH WEED C	P25059	HAWAIIAN STEAM, INC.	other
ZZZZ501	200112	2001	1,145.87	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033703	HAWAIIAN STEAM 6 MONTH WEED C	P25059	HAWAIIAN STEAM, INC.	other
ZZZZ501	200112	2001	3,125.10	HP000336	Extermin, Weed Ctrl, Landsc-Kahe Station	19033704	WEED CONTROL SERVICES KAHE PI	P24937	HAWAIIAN STEAM, INC.	other
ZZZZ501	200112	2001	505.23	PR023350	WATER WAY BY CT's-REPLACE BOOM/CLEAI	18305356F	REMOVE &/OR SPRAY VEGETATION	P33432	PSC INDUSTRIAL OUTSOURCIN	other
ZZZZ501	200112	2001	1,665.86	PR023350	WATER WAY BY CT's-REPLACE BOOM/CLEAI	18305291F	REMOVE &/OR SPRAY VEGETATION	P33432	PSC INDUSTRIAL OUTSOURCIN	other

D	Inv Item Desc	PO No	Supplier Name	SVC Typ
58F	RENTAL 2EA 20K GAL FRAC TANKS F	P32770	PSC INDUSTRIAL OUTSOURCIN	other
55F	REMOVE &/OR SPRAY VEGETATION	P33432	PSC INDUSTRIAL OUTSOURCIN	other
	W-41 STATOR & ROTOR. RECONDITI	P23290	AMERICAN ELECTRIC LLC	skill
3D	W-9 & W-10 INTAKE SCAFFOLDING	P20872	ATLAS SALES CO., INC. - KAPOI	skill
3D	W-9 & W-10 INTAKE SCAFFOLDING	P20872	ATLAS SALES CO., INC. - KAPOI	skill
3D	W3&4 BOILER INCAPSULATION	P22108	ATLAS SALES CO., INC. - KAPOI	skill
3D	W3&4 BOILER INCAPSULATION	P22108	ATLAS SALES CO., INC. - KAPOI	skill
4D	BATCH TANK "A" SCAFFOLDING	P20340	ATLAS SALES CO., INC. - KAPOI	skill
	LEAD WASTE REMOVAL	P22032	HAZTECH ENVIRONMENTAL SE	skill
	LABOR TO REMOVE BROKEN TAP	P23398	HONOMACH INC	skill
	MACHINE TWO VALVE ACTUATOR S	P20104	HONOMACH INC	skill
	WIDEN OIL GROOVE ON #81 & #82 BI	P22437	HONOMACH INC	skill
	SERVICES CUT/BEVEL 2 31/32" OD B	P21697	HONOMACH INC	skill
	PLS. FABRICATE (2) 12" THICK BY	P23254	HONOMACH INC	skill
74F	MOVE OIL TANKER FROM OIL SPILL	P23400	PSC INDUSTRIAL OUTSOURCIN	skill
29F	PSC TO REMOVE TWO DRUMS FRO	P20637	PSC INDUSTRIAL OUTSOURCIN	skill
4F	SLUDGE DRYING BED DRAIN CLEAN	P20508	PSC INDUSTRIAL OUTSOURCIN	skill
5F	WAIAU DIESEL TANK # 1 CLEANING	P21046	PSC INDUSTRIAL OUTSOURCIN	skill
5F	CLEAN OUT GAS FREE LUBE TANK A	P22173	PSC INDUSTRIAL OUTSOURCIN	skill
0F	SERVICES FOR BLASTING W35 FWH	P21578	PSC INDUSTRIAL OUTSOURCIN	skill
0F	SERVICES FOR BLASTING W35 FWH	P21578	PSC INDUSTRIAL OUTSOURCIN	skill
4F	CLEANUP OF OIL SOAKED ASPHALT	P23103	PSC INDUSTRIAL OUTSOURCIN	skill
0F	CLEAN OUT GAS FREE LUBE TANK A	P22173	PSC INDUSTRIAL OUTSOURCIN	skill
2F	SERVICES FOR HYDRO BLASTING HI	P21025	PSC INDUSTRIAL OUTSOURCIN	skill
4F	W-8 CIRCULATING WATER PIT	P23062	PSC INDUSTRIAL OUTSOURCIN	skill
7F	PSC SERVICES TO CLEAN OUT LUBE	P20720	PSC INDUSTRIAL OUTSOURCIN	skill
0F	SERVICES FOR BLASTING W54 FWH	P21578	PSC INDUSTRIAL OUTSOURCIN	skill
0F	SERVICES FOR BLASTING W54 FWH	P21578	PSC INDUSTRIAL OUTSOURCIN	skill
5F	CLEAN USED OIL TANK AND DISPOSI	P22403	PSC INDUSTRIAL OUTSOURCIN	skill
5F	HYDRO BLAST K33 FWH FOR EDDY	P20707	PSC INDUSTRIAL OUTSOURCIN	skill
3F	WAIAU SLUDGE DRYING BEDS # 1,2,	P21611	PSC INDUSTRIAL OUTSOURCIN	skill
0F	FOR SERVICES TO PICKUP, TRANSP	P22589	PSC INDUSTRIAL OUTSOURCIN	skill
6F	PSC TO REMOVE AND TRANSFER TO	P21023	PSC INDUSTRIAL OUTSOURCIN	skill
1F	WAIAU # 7 BOILER WASH SUMP-CLE	P21908	PSC INDUSTRIAL OUTSOURCIN	skill
6F	CLEAN SLUDGE FROM BATCH TANK	P21024	PSC INDUSTRIAL OUTSOURCIN	skill
0F	SERVICES FOR CLEANING OUT LUBE	P20329	PSC INDUSTRIAL OUTSOURCIN	skill
3F	WAIAU DIESEL TANK # 1 CLEANING	P21046	PSC INDUSTRIAL OUTSOURCIN	skill
5F	SERVICES FOR W6 FWH WATER BLA	P22535	PSC INDUSTRIAL OUTSOURCIN	skill
8F	TRANSPORT & DISPOSE OF HAZARD	P21873	PSC INDUSTRIAL OUTSOURCIN	skill
7F	SERVICES FOR HYDRO BLASTING HI	P21025	PSC INDUSTRIAL OUTSOURCIN	skill
8F	SERVICES TO CLEAN DRAINAGE PIT	P21525	PSC INDUSTRIAL OUTSOURCIN	skill
5F	WAIAU SLUDGE DRYING BEDS # 1,2,	P21611	PSC INDUSTRIAL OUTSOURCIN	skill
	W-6 L.P.BORE INSPECTION (BORESC	P22011	REINHART & ASSOCIATES, INC.	skill
	H.P. BORE INSPECTION (BORESONIC	P22011	REINHART & ASSOCIATES, INC.	skill
	Waiau 6 Generator NDT	P22011	REINHART & ASSOCIATES, INC.	skill
	W-6 L.P.BORE INSPECTION (BORESC	P22011	REINHART & ASSOCIATES, INC.	skill
	H.P. BORE INSPECTION (BORESONIC	P22011	REINHART & ASSOCIATES, INC.	skill
	Waiau 6 Generator NDT	P22011	REINHART & ASSOCIATES, INC.	skill
6	H8 SCAFFOLD RENTAL FOR WATER	P21532	SAFWAY SERVICES, INC.	skill
-0	WAIAU CIRC WTR/FIRELNE PNTNG C	P19975	SPCC AND CONSULTING	skill
-0	WAIAU CIRC WTR/FIRELNE PNTNG C	P19975	SPCC AND CONSULTING	skill
-0	WAIAU CIRC WTR/FIRELNE PNTNG C	P19975	SPCC AND CONSULTING	skill
-0	WAIAU CIRC WTR/FIRELNE PNTNG C	P19975	SPCC AND CONSULTING	skill
-0	WAIAU CIRC WTR/FIRELNE PNTNG C	P19975	SPCC AND CONSULTING	skill
-0	KAHE SURFACE PREP & PAINT QC IN	P19240	SPCC AND CONSULTING	skill
	SERVICES OF GENERATOR SPECIAL	P23394	AGT SERVICES	skill
	SERVICES OF GENERATOR SPECIAL	P23394	AGT SERVICES	skill

ACCOUNT_CODE	LL_PERI	TransYr	AMT	Work_Order	Work_Order_Desc	Inv_No	Inv_Item_Desc	PO_No	Supplier_Name	SVC Typ
PIT257W06NEP0000243501	200102	2001	665.00	PR015932	W63 SEC F.O. PUMP MOTOR/LINESTR SERVI	47047	WAIAU 63 SEC. FUEL OIL 50HP 480V	P24238	AMERICAN ELECTRIC LLC	skill
PIT257W06NEP0000243501	200102	2001	665.00	PR015927	W6 HEATER DRIP PP MOTOR/LINESTR SERV	47049	WAIAU HEATER DRIP MTR. & ROTOR	P24238	AMERICAN ELECTRIC LLC	skill
PIT257W06NEP0000243501	200102	2001	820.00	PR015925	W61 SECONDARY F.O. MOTOR SERVICE	47043	WAIAU 61 SEC FUEL OIL MTR.& ROT	P24238	AMERICAN ELECTRIC LLC	skill
PIT257W06NEP0000243501	200102	2001	977.00	PR015926	W62 SECONDARY F.O. MOTOR SERVICE	47042	WAIAU 62 SEC. FUEL OIL 100HP 480V	P24238	AMERICAN ELECTRIC LLC	skill
PIT260W06NEP0000243501	200102	2001	1,055.00	PR015908	W6 TURNING GEAR DRIVE MTR/LINESTR SV	47048	WAIAU TURNING GEAR MTR. & ROT	P24238	AMERICAN ELECTRIC LLC	skill
PIT257W06NEP0000243501	200102	2001	2,740.00	PR015924	W62 CONDENSATE PUMP MOTOR SERVICE	47041	WAIAU 62 COND. MTR. 150HP 440V-F	P24238	AMERICAN ELECTRIC LLC	skill
PIT260H08NEP0000137501	200102	2001	4,299.84	PR009694	H82 AUX COOLING WTR PP MOTOR SERVICI	47008	REWIND HON. 82 AUX COOLING WAT	P22971	AMERICAN ELECTRIC LLC	skill
PIT260H08NEP0000137501	200102	2001	4,728.86	PR009693	H81 AUX COOLING WTR PP MOTOR SERVICI	47000	REWIND HON. 81 AUX COOLING WAT	P22970	AMERICAN ELECTRIC LLC	skill
PIT260W06NEP0000243501	200102	2001	7,010.83	PR016047	W6 GEN BEARING #6	EJI-6235	REBABBIT #6 GENERATOR BEARING	P23574	DIVERSIFIED ENERGY SERVICE	skill
PIT260W06NEP0000243501	200102	2001	7,010.84	PR016046	W6 GEN BEARING #5	EJI-6235	REBABBIT #5 GENERATOR BEARING	P23574	DIVERSIFIED ENERGY SERVICE	skill
PIT260W06NEP0000243501	200102	2001	124,483.15	PR016058	W6 HP Trb Outer Cyl/Blade Rings OH	MJI-6229	BALANCE: LP ROTOR, HP ROTOR, LF	P23269	DIVERSIFIED ENERGY SERVICE	skill
PIT260W06NEP0000243501	200102	2001	1,072.92	PR016067	W6 LP Cylinder/Blade Ring/Diaphrm OH	2289	MAGNETIC PARTICLE INSPECTION O	P23681	FINLAY TESTING LABORATORIE	skill
PIT260W06NEP0000243501	200102	2001	1,072.92	PR016067	W6 LP Cylinder/Blade Ring/Diaphrm OH	2289	MAGNETIC PARTICLE INSPECTION O	P23681	FINLAY TESTING LABORATORIE	skill
PIX271WFSNENPIZZZZZ501	200102	2001	346.56	PR016961	CUSA LINE: Auto Fill Piping leaking	4253	WGP AUTO FILL PIPING WAIAU PP #I	P23804	FINLAY UTILITY SERVICES, INC.	skill
PIX271WFSNENPIZZZZZ501	200102	2001	944.47	PR016961	CUSA LINE: Auto Fill Piping leaking	4256	WGP AUTO FILL PIPING WAIAU PP #I	P23804	FINLAY UTILITY SERVICES, INC.	skill
PIX271WFSNENPIZZZZZ501	200102	2001	2,375.28	PR016961	CUSA LINE: Auto Fill Piping leaking	4262	WGP AUTO FILL PIPING WAIAU PP #I	P23804	FINLAY UTILITY SERVICES, INC.	skill
PIX878WSTNENPIZZZZZ501	200102	2001	2,281.84	PR000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	19033204	FUEL OIL CLEAN-UP	P23173	HAWAIIAN STEAM, INC.	skill
PJC876PHENENPJZZZZZ600	200102	2001	960.00			001-131	PICK UP AND DISPOSE OF 55 GALLO	P23856	HAZTECH ENVIRONMENTAL SE	skill
PIX878WSTNENPIZZZZZ501	200102	2001	1,829.20	PR000255	SWO-MERCURY DISPOSAL (WAIAU)	001-118	HAZARDOUS/MERCURY WASTE REM	P23487	HAZTECH ENVIRONMENTAL SE	skill
PIX878WSTNENPIZZZZZ501	200102	2001	2,743.80	PR000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	001-118	HAZARDOUS/MERCURY WASTE REM	P23487	HAZTECH ENVIRONMENTAL SE	skill
PIK242KSTNENPIZZZZZ501	200102	2001	937.49	PR016192	LB-K5 #51 AIR HEATER AIR IN DUCT	14792	LABOR AND MATERIALS TO FABRICA	P24031	HONOMACH INC	skill
PIT260W06NEP0000243501	200102	2001	963.54	PR016058	W6 HP Trb Outer Cyl/Blade Rings OH	26307	PLS. CUT 10 FT. OF STAINLESS STEE	P23442	HONOMACH INC	skill
PIT257W06NEP0000243501	200102	2001	1,213.53	PR015951	W61 AUX COOLING WTR PP MOTOR SERVIC	26330	BORE, SLEEVE, AND MACHINE END	P23911	HONOMACH INC	skill
PIT260W06NEP0000243501	200102	2001	1,953.11	PR016070	W6 Turning Gear - Service	26324	REBABBIT (1 SET) TURNING GEAR M	P23861	HONOMACH INC	skill
PIT260W06NEP0000243501	200102	2001	3,256.23	PR016045	W6 GENERATOR ROTOR	26311	REBABBIT (1) EACH EXCITER BEARIN	P23862	HONOMACH INC	skill
PIT260W06NEP0000243501	200102	2001	3,585.06	PR016058	W6 HP Trb Outer Cyl/Blade Rings OH	26323	MACHINE FOLOWING TO SPECS.	P23859	HONOMACH INC	skill
PIT260W07NEP0000141501	200102	2001	4,363.70	PR013449	W7 CHILLER PREVENTIVE	26291	HONOMACH TO PROVIDE LABOR & M	P22767	HONOMACH INC	skill
PIT259W06NEP0000243501	200102	2001	5,098.93	PR015471	W6 REFRACTORY; INSUL; BLR CASNG REPA	14755	MATERIAL AND LABOR FOR CASING	P23240	HONOMACH INC	skill
PIX268WSTNENPIZZZZZ501	200102	2001	5,160.05	PR016979	W-3&4 40 ton Gantry Crane hook does not	26302	W-3&4 40 TON GANTRY CRANE SER	P23618	HONOMACH INC	skill
PIX268WSTNENPIZZZZZ501	200102	2001	5,998.25	PR007442	WAIAU:SERVICE GANTRY CRANES	25448	HONOMACH TO PROVIDE LABOR FO	P09110	HONOMACH INC	skill
PIT257W06NEP0000243501	200102	2001	25,114.42	PR015502	W6 CIRC WTR TUNNEL INSPECTION	14751	W-6 BARSCREE STOP LOG FABRICA	P23142	HONOMACH INC	skill
PIT260W06NEP0000243501	200102	2001	4,145.85	PR016926	W6 Clean intake tunnels of marine growth	00006815	W-6 C.W.INTAKE STOP LOG	P23613	PACIFIC DIVING INDUSTRIES, IN	skill
PIX265WT1NENPIZZZZZ501	200102	2001	348.04	PR016306	W7: DMR cation and anion vessel drain	18303183F	PHILLIPS SERVICES TO MOBILIZE AN	P22590	PSC INDUSTRIAL OUTSOURCIN	skill
PIX878WSTNENPIZZZZZ501	200102	2001	360.88	PR000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	18303184F	PHILIP SERVICES TO PROVIDE LABO	P22369	PSC INDUSTRIAL OUTSOURCIN	skill
PIT257W06NEP0000243501	200102	2001	526.95	PR015465	W6 BOILER AND AIR HEATER WASH	18303342F	PICK UP AND DISPOSE OF WAIAU 6	P22615	PSC INDUSTRIAL OUTSOURCIN	skill
PIX269WFNNENPIZZZZZ501	200102	2001	611.00	PR016853	DIESEL OIL TANK #2 - CLEAN/INSPECT	18303290F	DIESEL TANK # 2 REMOVE RESIDUA	P23273	PSC INDUSTRIAL OUTSOURCIN	skill
PIT258W06NEP0000243501	200102	2001	629.40	PR015504	W6 CONDENSER TESTING/INSPECTION	18303432F	W-6 CONDENSER HOTWELL SUMP D	P24136	PSC INDUSTRIAL OUTSOURCIN	skill
PIT258W06NEP0000243501	200102	2001	2,247.47	PR016346	W61 FWH Eddy Current Testing	18303269F	SERVICES FOR W6 FWH WATER BLA	P22535	PSC INDUSTRIAL OUTSOURCIN	skill
PIT272W10NENPIZZZZZ501	200102	2001	2,579.53	PR015341	W10: CLEAN INLET DUCT	18302923F	CT-9 INTAKE DUCT CLEAN & RECOA	P22028	PSC INDUSTRIAL OUTSOURCIN	skill
PIT272W09NENPIZZZZZ501	200102	2001	3,028.15	PR015340	W9 CLEAN INLET DUCT	18302923F	CT-9 INTAKE DUCT CLEAN & RECOA	P22028	PSC INDUSTRIAL OUTSOURCIN	skill
PIL271KTFNENPIZZZZZ501	200102	2001	4,113.70	PR016119	LB 13&14 FUEL OIL TNK DRAINLINE NEEDS T	18303188F	CLEAN OUT GAS FREE LUBE TANK A	P22173	PSC INDUSTRIAL OUTSOURCIN	skill
PIX262W08NENPIZZZZZ501	200102	2001	4,799.90	PR016295	W-8 Intake tunnel- remove shells	18302989F	PHILIP SERVICES TO PROVIDE LABO	P22368	PSC INDUSTRIAL OUTSOURCIN	skill
PIX269WFNNENPIZZZZZ501	200102	2001	5,246.87	PR016853	DIESEL OIL TANK #2 - CLEAN/INSPECT	18303270F	DIESEL TANK # 2 REMOVE RESIDUA	P23273	PSC INDUSTRIAL OUTSOURCIN	skill
PIT260W06NEP0000243501	200102	2001	9,035.01	PR016926	W6 Clean intake tunnels of marine growth	18303407F	W-6 C.W. INTAKE PIT/TUNNEL CLEAN	P23782	PSC INDUSTRIAL OUTSOURCIN	skill
PIL259K05NENPIZZZZZ501	200102	2001	12,237.42	PR017189	LB K5 Boiler has diesel fluid on boiler	18303431F	LABOR TO WASH DIESEL FROM BOIL	P24208	PSC INDUSTRIAL OUTSOURCIN	skill
PIT260W06NEP0000243501	200102	2001	29,356.36	PR016926	W6 Clean intake tunnels of marine growth	18303186F	W-6 C.W. INTAKE PIT/TUNNEL CLEAN	P23782	PSC INDUSTRIAL OUTSOURCIN	skill
PIT261W06NEP0000243501	200102	2001	1,058.00	PR016066	W6 LP TURBINE ROTOR OVERHAUL - NDE	00-2189	W-6 L.P.BORE INSPECTION (BORESC	P22011	REINHART & ASSOCIATES, INC.	skill
PIT261W06NEP0000243501	200102	2001	1,114.00	PR016057	W6 HP Turbine Rotor Overhaul - NDE	00-2189	H.P. BORE INSPECTION (BORESONIC	P22011	REINHART & ASSOCIATES, INC.	skill
PIT261W06NEP0000243501	200102	2001	1,324.00	PR016057	W6 HP Turbine Rotor Overhaul - NDE	00-2189	Waiau 6 Generator NDT	P22011	REINHART & ASSOCIATES, INC.	skill
PIT261W06NEP0000243501	200102	2001	26,450.00	PR016066	W6 LP TURBINE ROTOR OVERHAUL - NDE	00-2189	W-6 L.P.BORE INSPECTION (BORESC	P22011	REINHART & ASSOCIATES, INC.	skill
PIT261W06NEP0000243501	200102	2001	27,850.00	PR016057	W6 HP Turbine Rotor Overhaul - NDE	00-2189	H.P. BORE INSPECTION (BORESONIC	P22011	REINHART & ASSOCIATES, INC.	skill
PIT261W06NEP0000243501	200102	2001	33,100.00	PR016057	W6 HP Turbine Rotor Overhaul - NDE	00-2189	Waiau 6 Generator NDT	P22011	REINHART & ASSOCIATES, INC.	skill
PIT258W06NEP0000243501	200102	2001	3,360.00	PR015470	W6 WW/DOWNCOMER/HDR - PREDICTIVE M	D0000027	W6 SCAFFOLD/RENTAL	P22359	SAFWAY SERVICES, INC.	skill
PIX258W06NEP0000243501	200102	2001	4,622.00	PR016140	TB-W6 Blr Side (Ewa,Wal) Walls Weld	D0000026	TRANSPORT/ERECTION/DISMANTLE	P22469	SAFWAY SERVICES, INC.	skill
PIT260W06NEP0000243501	200102	2001	18,071.65	PR017070	W6 GENERATOR STATOR INSPECTION & RE	HLR224A	W6 STATOR INSPECTION SERVICES	P23891	SIEMENS WESTINGHOUSE TEC	skill
PIT257W06NEP0000243501	200102	2001	8,256.00	PR015234	W6 STACK REPAIRS	HECO00-0	W-6 STACK CONSULTING AND INSPE	P20703	SPCC AND CONSULTING	skill
PIT260W06NEP0000243501	200103	2001	443.00	PR015943	W6 GENERATOR SERVICE	47107	WAIAU 6 GEN-REINSULATE RADIAL S	P24929	AMERICAN ELECTRIC LLC	skill

Inv Item Desc	PO No	Supplier Name	SVC Typ
AIAU 61 INST. AIR COMP.25HP 440\	P24929	AMERICAN ELECTRIC LLC	skill
AIAU 61 COND. MTR. & ROTOR 150	P24238	AMERICAN ELECTRIC LLC	skill
AIAU 61 AUX. OIL PUMP 440V 1/4HF	P24929	AMERICAN ELECTRIC LLC	skill
TATION SERVICE WTR.61 50HP 440	P24929	AMERICAN ELECTRIC LLC	skill
32 CONDENSATE MOTOR	P25068	AMERICAN ELECTRIC LLC	skill
AIAU 6 HIGH SPEED FAN F.D. 600H	P24929	AMERICAN ELECTRIC LLC	skill
AIAU 6 AUX COOLING WTR. 100HP	P24929	AMERICAN ELECTRIC LLC	skill
AIAU 6 EXCITER ARM.REPAIR EQU.	P24929	AMERICAN ELECTRIC LLC	skill
RVICES TO ERECT SCAFFOLDING	P24000	ATLAS SALES CO., INC. - KAPOI	skill
S. PROVIDE (4) MILLWRIGHTS, 40	P23056	DIVERSIFIED ENERGY SERVICE	skill
RVICES FOR EDDY CURRENT TES	P22536	ENGINEERING & INSPECTIONS	skill
NKYARD #3 F.O.PIPELINE	P24891	FINLAY TESTING LABORATORIE	skill
NKYARD #3 F.O.PIPELINE	P24891	FINLAY TESTING LABORATORIE	skill
GP AUTO FILL PIPING WAIAU PP #I	P23804	FINLAY UTILITY SERVICES, INC.	skill
AIAU WATERWAY BARRICADE PR0	P25212	FINLAY UTILITY SERVICES, INC.	skill
GP AUTO FILL PIPING WAIAU PP #I	P23804	FINLAY UTILITY SERVICES, INC.	skill
GP AUTO FILL PIPING WAIAU PP #I	P23804	FINLAY UTILITY SERVICES, INC.	skill
GP AUTO FILL PIPING WAIAU PP #I	P23804	FINLAY UTILITY SERVICES, INC.	skill
TAKE BAR SCREEN PAINTING	P24099	GIORDANO'S PAINTING CO	skill
RVICES OF A 350 TON HYDRAULIC	P24424	HAWAIIAN CRANE & RIGGING L	skill
RVICES OF A 350 TON HYDRAULIC	P24838	HAWAIIAN CRANE & RIGGING L	skill
OVIDE 2 SANDBLASTERS FOR 3 W	P21905	HONOLULU SHIPYARD INC	skill
	P25012	HONOMACH INC	skill
RVICES TO ROLL 8 PERFORATED	P23819	HONOMACH INC	skill
M TO FAB SPRING RETAINING RIG	P24466	HONOMACH INC	skill
OUBLESHOOT AND REPAIR 10 TO	P24837	HONOMACH INC	skill
		OAK PARK CHIMNEY CORPORA	skill
		OAK PARK CHIMNEY CORPORA	skill
		OAK PARK CHIMNEY CORPORA	skill
		OAK PARK CHIMNEY CORPORA	skill
CIRC WATER INTAKE	P24892	PACIFIC DIVING INDUSTRIES, IN	skill
7; #71 & #72 C.W.PIT CLEANING	P23446	PACIFIC DIVING INDUSTRIES, IN	skill
8 CIRCULATING WATER PIT	P23060	PACIFIC DIVING INDUSTRIES, IN	skill
IND CLEANING	P23171	PACIFIC DIVING INDUSTRIES, IN	skill
RVICES: MODIFICATION OF JERGI	P23181	PROCESS CONTROLS, INC.	skill
OVIDE SERVICE TO CALBRATE HE	P20721	PROCESS CONTROLS, INC.	skill
EL OIL TANK #3 AUTO-FILL LINE LI	P23624	PSC INDUSTRIAL OUTSOURCIN	skill
B # 1015-02 PROVIDE LABOR/PUM	P24374	PSC INDUSTRIAL OUTSOURCIN	skill
EL OIL TANK #3 AUTO-FILL LINE LI	P23624	PSC INDUSTRIAL OUTSOURCIN	skill
6 DRAIN PLUGGED-PROVIDE SVC	P24268	PSC INDUSTRIAL OUTSOURCIN	skill
JDGE DRYING CELL #5	P24139	PSC INDUSTRIAL OUTSOURCIN	skill
B # 10010-01 SERVICES TO PROFII	P23689	PSC INDUSTRIAL OUTSOURCIN	skill
EL OIL TANK #3 AUTO-FILL LINE LI	P23624	PSC INDUSTRIAL OUTSOURCIN	skill
JDGE DRYING CELL #5	P24139	PSC INDUSTRIAL OUTSOURCIN	skill
EL OIL TANK #3 AUTO-FILL LINE LI	P23624	PSC INDUSTRIAL OUTSOURCIN	skill
EL OIL TANK #3 AUTO-FILL LINE LI	P23624	PSC INDUSTRIAL OUTSOURCIN	skill
SCAFFOLD/RENTAL	P22359	SAFWAY SERVICES, INC.	skill
3 480V BREAKER	P23397	SIEMENS WESTINGHOUSE TEC	skill
3 480V BREAKER	P23397	SIEMENS WESTINGHOUSE TEC	skill
3 480V BREAKER	P23397	SIEMENS WESTINGHOUSE TEC	skill
3 480V BREAKER	P23397	SIEMENS WESTINGHOUSE TEC	skill
3 480V BREAKER	P23397	SIEMENS WESTINGHOUSE TEC	skill
STATOR RE-WEDGE TECHNICAL	P23892	AGT SERVICES	skill
STATOR RE-WEDGE TECHNICAL	P23892	AGT SERVICES	skill
TOR STATOR & ROTOR - RECONI	P24614	AMERICAN ELECTRIC LLC	skill
CONDITION DC MOTOR FIELD & A	P25368	AMERICAN ELECTRIC LLC	skill
IAU 6 LOW SPEED FAN 440V 188A	P24929	AMERICAN ELECTRIC LLC	skill

ACCOUNT CODE	LL PERI	TransYr	AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
PIT259W06NEP0000243501	200104	2001	4,000.00	PR017036	W6 SILENCER REPAIRS	2039516D	SERVICES TO ERECT SCAFFOLDING	P24000	ATLAS SALES CO., INC. - KAPOI	skill
PIX271WFSNENPIZZZZZ501	200104	2001	173.28	PR016961	CUSA LINE: Auto Fill Piping leaking	4294	WGP AUTO FILL PIPING WAIAU PP #I	P23804	FINLAY UTILITY SERVICES, INC.	skill
PIX271WFSNENPIZZZZZ501	200104	2001	346.56	PR016961	CUSA LINE: Auto Fill Piping leaking	4322	WGP AUTO FILL PIPING WAIAU PP #I	P23804	FINLAY UTILITY SERVICES, INC.	skill
PIX262W07NENPIZZZZZ501	200104	2001	866.40	PR006027	W8:TRAVELING SCREEN SPALLING REPAIR	4331	WAIAU TRAVEL SCREEN SPALL PR0(	P21487	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200104	2001	1,039.68	SE000744	ENVIRONMENTAL COMPLIANCE T&D STORE	4320	WAIAU C&M ASPHALT PAVING #PR0	P25854	FINLAY UTILITY SERVICES, INC.	skill
PIT272W09NEP0000245501	200104	2001	300.00	PR017482	W9 COMBUSTION CANS	40501	SANDBLAST TURBINE BOLTING	P26038	GIORDANO'S PAINTING CO	skill
PIX262W08NENPIZZZZZ501	200104	2001	400.00	PR018021	W82 CIRC WATER PUMP COVER PIPE REPAI	41201	SAND BLAST AND PAINT CWP INTER	P26038	GIORDANO'S PAINTING CO	skill
PIL265KWWNENPIZZZZZ501	200104	2001	25,680.00	PR005015	kAHE STATION BATCH TANK INSP/REPAIRS	41101	KAHE BATCH TANK A-PROVIDE LABC	P26036	GIORDANO'S PAINTING CO	skill
PIX262W08NENPIZZZZZ501	200104	2001	2,617.17	PR014453	W8:#82 CWP DEFLECTOR PLATE - REPLACE	0103033	CRANE SERVICES TO PULL OUT	P25062	HAWAIIAN CRANE & RIGGING L	skill
PIX262W08NENPIZZZZZ501	200104	2001	3,114.56	PR014453	W8:#82 CWP DEFLECTOR PLATE - REPLACE	0103042	CRANE SERVICES TO PULL OUT	P25062	HAWAIIAN CRANE & RIGGING L	skill
PIX262W08NENPIZZZZZ501	200104	2001	3,312.29	PR018021	W82 CIRC WATER PUMP COVER PIPE REPAI	0104006	CRANE SERVICES FOR PUTTING BA(	P25609	HAWAIIAN CRANE & RIGGING L	skill
PIN878HSTNENPIZZZZZ501	200104	2001	250.00	PR000244	SWO-HAZARD WSTE DISPOSAL (HONOLULU	001-104	HAZTECH TO DISPOSE OF 3 EXIDE B	P22685	HAZTECH ENVIRONMENTAL SE	skill
PIX878WSTNENPIZZZZZ501	200104	2001	795.00	PR000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	001172	WASTE REMOVAL AND DISPOSAL	P25569	HAZTECH ENVIRONMENTAL SE	skill
PIX878WSTNENPIZZZZZ501	200104	2001	2,062.48	PR000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	00-154	HAZTEC TO REMOVE AND DISPOSE	P24728	HAZTECH ENVIRONMENTAL SE	skill
PIX261W08NENPIZZZZZ508	200104	2001	15,511.36	PR017680	W8 AUX TSF	001173	DISPOSAL, 1030 GALS PCB CONTAM	P25219	HAZTECH ENVIRONMENTAL SE	skill
PIX262W08NENPIZZZZZ501	200104	2001	106.25	PR018021	W82 CIRC WATER PUMP COVER PIPE REPAI	26440	PATTERN BURN (2) EA. 13" BY 8-1/4	P25608	HONOMACH INC	skill
PIT272W09NEP0000245501	200104	2001	312.50	PR017511	W9 INLET DUCT REPAIRS	14865	LABOR TO BEND 2 EA 3/16"4'X8' STL.	P25799	HONOMACH INC	skill
PIT272W09NEP0000245501	200104	2001	609.37	PR017509	W9 EXHAUST SECTION INSPECTION	14883	MATERIALS AND LABOR W9 EXPANS	P26059	HONOMACH INC	skill
PIX271WFSNENPIZZZZZ501	200104	2001	1,486.17	PR017285	#31 Heater Drip Pump (#3 FO Tank) does	26393	MOTOR REPAIR, MACHINE ROTOR, F	P24951	HONOMACH INC	skill
PIL259K03NENPIZZZZZ501	200104	2001	1,579.16	PR017242	LM K3 #31 service air comp. unloader	26409	REMACHINE COMPRESSOR VALVE S	P25685	HONOMACH INC	skill
PIX260W08NENPIZZZZZ501	200104	2001	1,291.67	PR017646	W8 CW INTAKE TUNNEL CLEANING (3/01)	00006852	W8 CIRC WATER INTAKE	P24892	PACIFIC DIVING INDUSTRIES, IN	skill
PIL259K01NENPIZZZZZ501	200104	2001	63.23	PR017998	LB K1 SH Attemp CV's (North & South)			P25871	PROCESS CONTROLS, INC.	skill
PIL259K01NENPIZZZZZ501	200104	2001	105.20	PR017998	LB K1 SH Attemp CV's (North & South)			P25871	PROCESS CONTROLS, INC.	skill
PIL259K01NENPIZZZZZ501	200104	2001	167.07	PR017998	LB K1 SH Attemp CV's (North & South)			P25871	PROCESS CONTROLS, INC.	skill
PIL259K01NENPIZZZZZ501	200104	2001	675.43	PR017998	LB K1 SH Attemp CV's (North & South)			P25871	PROCESS CONTROLS, INC.	skill
PIL259K01NENPIZZZZZ501	200104	2001	675.43	PR017998	LB K1 SH Attemp CV's (North & South)			P25871	PROCESS CONTROLS, INC.	skill
PIL259K01NENPIZZZZZ501	200104	2001	1,291.69	PR017998	LB K1 SH Attemp CV's (North & South)			P25871	PROCESS CONTROLS, INC.	skill
PIL259K01NENPIZZZZZ501	200104	2001	2,167.78	PR017998	LB K1 SH Attemp CV's (North & South)			P25871	PROCESS CONTROLS, INC.	skill
PIX271WFSNENPIZZZZZ501	200104	2001	440.69	PR016961	CUSA LINE: Auto Fill Piping leaking	18303748F	FUEL OIL TANK #3 AUTO-FILL LINE LI	P23624	PSC INDUSTRIAL OUTSOURCIN	skill
PIX878WSTNENPIZZZZZ501	200104	2001	577.08	PR000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	18303701F	PHILIPS SERVICES TO REMOVE FRO	P24985	PSC INDUSTRIAL OUTSOURCIN	skill
PIX265WWWNENPIZZZZZ501	200104	2001	790.06	PR017930	W6: Boiler Wash Sump...Philip Services	18303749F	W-6 SUMP CLEANOUT	P25366	PSC INDUSTRIAL OUTSOURCIN	skill
PIT257H08NEP0000137501	200104	2001	1,717.93	PR009380	H8 BOILER AND AIR HEATER WASH	18303514F	DISPOSEL OF H8 BOILER WASH WAS	P22614	PSC INDUSTRIAL OUTSOURCIN	skill
PIX271WFSNENPIZZZZZ501	200104	2001	3,828.68	PR016961	CUSA LINE: Auto Fill Piping leaking	18303604F	FUEL OIL TANK #3 AUTO-FILL LINE LI	P23624	PSC INDUSTRIAL OUTSOURCIN	skill
PIX271WFSNENPIZZZZZ501	200104	2001	4,451.85	PR016961	CUSA LINE: Auto Fill Piping leaking	18303601F	FUEL OIL TANK #3 AUTO-FILL LINE LI	P23624	PSC INDUSTRIAL OUTSOURCIN	skill
PIX262W08NENPIZZZZZ501	200104	2001	13,763.17	PR017646	W8 CW INTAKE TUNNEL CLEANING (3/01)	18303750F	W8 CIRC WATER INTAKE CLEANING	P24947	PSC INDUSTRIAL OUTSOURCIN	skill
PIX258W06NEP0000243501	200104	2001	501.42	PR016140	TB-W6 Blr Side (Ewa,Wai) Walls Weld	R0000038	TRANSPORT/ERECTION/DISMANTLE	P22469	SAFWAY SERVICES, INC.	skill
PIX258W06NEP0000243501	200104	2001	3,987.36	PR016140	TB-W6 Blr Side (Ewa,Wai) Walls Weld	R0000037	TRANSPORT/ERECTION/DISMANTLE	P22469	SAFWAY SERVICES, INC.	skill
PIX262W05NENPIZZZZZ501	200104	2001	4,562.48	PR010559	W5: governor speed changer sticky	HLR228A	SIEMENS WESTINGHOUSE TO REPA	P23180	SIEMENS WESTINGHOUSE TEC	skill
PIT260W06NEP0000243501	200104	2001	7,852.00	PR015944	W6 VOLTAGE REGULATOR CUBICLE	HLR238A	CALIBRATE W6 VOLTAGE REGULAT(	P23693	SIEMENS WESTINGHOUSE TEC	skill
PIT262W04NEP0000244501	200105	2001	1,000.00	PR017427	W4 GENERATOR EXCITER ARMATURE REPL	47129	RECONDITION SERVICE FOR EXCITE	P24994	AMERICAN ELECTRIC LLC	skill
PIT273W09NEP0000245501	200105	2001	1,406.00	PR017541	W9 AUX HYDRAULIC MTR/LNSTR SVC	47183	GT-9 HYDRAULIC PUMP 15HP 480VOI	P26318	AMERICAN ELECTRIC LLC	skill
PIT274W10NEP0000246501	200105	2001	2,520.00	PR017789	W10 2001 CI Contractor Services	MJI-6263	ONE WEEK TECHNICAL SERVICES B	P26373	DIVERSIFIED ENERGY SERVICE	skill
PIT274W09NEP0000245501	200105	2001	15,960.00	PR017788	W9 2001 CI Contractor Services	MJI-6252	TECHNICAL DIRECTION WAIAU 9 TUI	P25196	DIVERSIFIED ENERGY SERVICE	skill
PIX265WSTNENPIZZZZZ501	200105	2001	346.56	PR018939	WAIAU PP REPAIR DRIVEWAY SURFACES	4345	WAIAU PP DRIVEWAY #PR018939	P26616	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200105	2001	346.56	PR018938	W1&2 CLASSROOM COVER TRENCH	4354	WAIAU 1&2 CLASSROOM #PR018938	P26621	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200105	2001	1,386.24	PR018939	WAIAU PP REPAIR DRIVEWAY SURFACES	4353	WAIAU PP DRIVEWAY #PR018939	P26616	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200105	2001	1,984.15	PR018940	WAIAU C&M/SUBSTATION INSTALL RETAIN V	4356	WAIAU PP RETAINING WALL #PR018!	P26628	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200105	2001	4,613.82	PR018940	WAIAU C&M/SUBSTATION INSTALL RETAIN V	4359	WAIAU PP RETAINING WALL #PR018!	P26628	FINLAY UTILITY SERVICES, INC.	skill
PIX878WSTNENPIZZZZZ501	200105	2001	2,680.10	PR000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	001198	HAZTECH TO HANDLE AND DISPOSE	P26296	HAZTECH ENVIRONMENTAL SE	skill
PIX260W07NENPIZZZZZ501	200105	2001	1,291.67	PR018548	W7 TUNNEL CLEANING	00006877	W-7 CIRCULATING WATER INTAKE T	P26239	PACIFIC DIVING INDUSTRIES, IN	skill
PIX261WSTNENPIZZZZZ501	200105	2001	2,302.09	PR018398	W04 circulating water pump 42 reads 1/2	00006858	#42 C.W. PUMP INSPECTION	P25791	PACIFIC DIVING INDUSTRIES, IN	skill
PIX260W07NENPIZZZZZ501	200105	2001	2,854.18	PR018548	W7 TUNNEL CLEANING	00006869	W-7 CIRCULATING WATER INTAKE T	P26239	PACIFIC DIVING INDUSTRIES, IN	skill
PIL259K01NENPIZZZZZ501	200105	2001	(1,202.32)	PR017998	LB K1 SH Attemp CV's (North & South)			P25871	PROCESS CONTROLS, INC.	skill
PIL259K01NENPIZZZZZ501	200105	2001	1,202.32	PR017998	LB K1 SH Attemp CV's (North & South)			P25871	PROCESS CONTROLS, INC.	skill
PIL259K01NENPIZZZZZ501	200105	2001	1,202.32	PR017998	LB K1 SH Attemp CV's (North & South)			P25871	PROCESS CONTROLS, INC.	skill
PIX263WSTNENPIZZZZZ501	200105	2001	1,328.59	PR000016	SWO-WAIAU STATION COMMON ROUTINES	35808.1	CALIBRATE, CERTIFY & REPAIR (IF N	P23312	PROCESS CONTROLS, INC.	skill
PIX262W07NENPIZZZZZ501	200105	2001	817.67	PR019260	W7/8: clean ACW sump. PSC on station to	18304058F	PUMP OUT W-7&8 AUX COOLING WA	P27076	PSC INDUSTRIAL OUTSOURCIN	skill

ACCOUNT CODE	LL PERI	TransYr	AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
PIX260W07NENPIZZZZZ501	200105	2001	8,269.54	PR018548	W7 TUNNEL CLEANING	18304021F	W-7 CIRCULATING WATER INTAKE T	P26305	PSC INDUSTRIAL OUTSOURCIN	skill
PIN243HSTNENPIZZZZZ501	200105	2001	2,096.64	PR018145	H9 VOLTAGE REGULATOR	HLR255A	REPAIR H9 VOLTAGE REGULATOR A	P25563	SIEMENS WESTINGHOUSE TEC	skill
PIX258W08NENPIZZZZZ501	200106	2001	870.00	PR014582	W81 Svc Air Comp - Replace cables	47146	SERVICE AIR #81 75HP 480V 590 RPM	P26977	AMERICAN ELECTRIC LLC	skill
PIX259W06NENPIZZZZZ501	200106	2001	156.72	PR019033	W6 Flame impingment on Ewa Furnace Wall	1113846D/	SCAFOLDING RENTAL W6 BURNER F	P26848	ATLAS SALES CO., INC. - KAPOI	skill
PIT258W04NEP0000244501	200106	2001	304.69	PR018033	W4 REMOVE WW TUBE SAMPLE FOR ANALY	2505	X-RAY SERVICES PROVIDED 5/23/01.	P27326	FINLAY TESTING LABORATORIE	skill
PIT258W04NEP0000244501	200106	2001	304.69	PR018033	W4 REMOVE WW TUBE SAMPLE FOR ANALY	2505	X-RAY SERVICES PROVIDED 5/23/01.	P27326	FINLAY TESTING LABORATORIE	skill
PIX265WSTNENPIZZZZZ501	200106	2001	346.56	PR018938	W1&2 CLASSROOM COVER TRENCH	4364	WAIAU 1&2 CLASSROOM #PR018938	P26621	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200106	2001	597.91	PR019643	WAIAU PP:MAINT SHOP INSTALL DRIVEWAY	4381	WAIAU MAINT SHOP DRIVEWAY #PR	P27759	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200106	2001	1,325.78	PR018940	WAIAU C&M/SUBSTATION INSTALL RETAIN V	4367	WAIAU PP RETAINING WALL #PR018	P26628	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200106	2001	1,888.95	PR018940	WAIAU C&M/SUBSTATION INSTALL RETAIN V	4362	WAIAU PP RETAINING WALL #PR018	P26628	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200106	2001	4,267.26	PR018940	WAIAU C&M/SUBSTATION INSTALL RETAIN V	4361	WAIAU PP RETAINING WALL #PR018	P26628	FINLAY UTILITY SERVICES, INC.	skill
PIP877WSTNENPIZZZZZ501	200106	2001	260.41	PR018891	Collect charges for XFMR oil disposal	01214	SVCS FOR P/U AND DISPOSAL OF XF	P26492	HAZTECH ENVIRONMENTAL SE	skill
PIN878HSTNENPIZZZZZ501	200106	2001	2,550.00	PR000244	SWO-HAZARD WSTE DISPOSAL (HONOLULU	001233	HAZTECH TO REMOVE AND DISPOSE	P27433	HAZTECH ENVIRONMENTAL SE	skill
PIX878WSTNENPIZZZZZ501	200106	2001	2,840.10	PR000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	001232	SERVICE, HAZARDOUS WASTE REM	P27764	HAZTECH ENVIRONMENTAL SE	skill
PIX262W07NENPIZZZZZ501	200106	2001	251.02	PR019205	W7 Gen. Suspect Hydrogen Cooler Leaking			P27096	HONOMACH INC	skill
PIX262W08NENPIZZZZZ501	200106	2001	251.03	PR019243	W8 H2 coolers leaking water into			P27096	HONOMACH INC	skill
PIN265HWWNENPIZZZZZ501	200106	2001	472.57	PR000284	Collect $-Honolulu Stn WW Overbd Flow Mt	36298.1	CALIBRATE AND CERTIFY WASTE W.	P26035	PROCESS CONTROLS, INC.	skill
PIL265KSTNENPIZZZZZ501	200106	2001	(3,715.75)	PR019404	clean up mercury	18304160F	CLEANUP OF MERCURY FOUND IN W	P27493	PSC INDUSTRIAL OUTSOURCIN	skill
PIL265KWWNENPIZZZZZ501	200106	2001	541.99	PR005015	kAHE STATION BATCH TANK INSP/REPAIRS	18304136F	L&M TO CLEAN OUT BATCH TANK "A	P27156	PSC INDUSTRIAL OUTSOURCIN	skill
PIL265KWWNENPIZZZZZ501	200106	2001	845.90	PR005015	kAHE STATION BATCH TANK INSP/REPAIRS	18304128F	L&M TO CLEAN OUT BATCH TANK "A	P27156	PSC INDUSTRIAL OUTSOURCIN	skill
PIL265KSTNENPIZZZZZ501	200106	2001	2,230.96	PR019566	Removal of 32 drums of waste oil f/ disp	18304161F	REMOVAL FOR DISPOSAL/RECYCLE	P27493	PSC INDUSTRIAL OUTSOURCIN	skill
PIL265KSTNENPIZZZZZ501	200106	2001	3,715.75	PR019404	clean up mercury	18304160F	CLEANUP OF MERCURY FOUND IN W	P27493	PSC INDUSTRIAL OUTSOURCIN	skill
PIL878KSTNENPIZZZZZ501	200106	2001	3,715.75	PR019609	clean up mercury	18304160F	CLEANUP OF MERCURY FOUND IN W	P27493	PSC INDUSTRIAL OUTSOURCIN	skill
PIL878KSTNENPIZZZZZ501	200106	2001	11,725.98	PR019609	clean up mercury	18304166F	DISPOSE OF (3) 55 GAL DRUMS OF M	P27512	PSC INDUSTRIAL OUTSOURCIN	skill
PIX262W08NENPIZZZZZ501	200107	2001	1,411.37	PR019621	W8: #81 Screen Wash Pp motor burnt...	47237	STATOR W81 SCREEN WASH PUMP	P28107	AMERICAN ELECTRIC LLC	skill
PIN242HSTNENPIZZZZZ501	200107	2001	3,809.13	PR018684	H9 MAIN EXCITER.	47199	REPAIR BANDING H-9 GENERATOR E	P28244	AMERICAN ELECTRIC LLC	skill
PIN259H08NENPIZZZZZ501	200107	2001	146.04	PR020077	H08 WATER/WALL TUBES SAMPLES	1115556D/	PROVIDE SCAFFOLDLING FOR H8 BC	P27988	ATLAS SALES CO., INC. - KAPOI	skill
PIX265WSTNENPIZZZZZ501	200107	2001	224.22	PR019643	WAIAU PP:MAINT SHOP INSTALL DRIVEWAY	4386	WAIAU MAINT SHOP DRIVEWAY #PR	P27759	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200107	2001	684.56	PR019643	WAIAU PP:MAINT SHOP INSTALL DRIVEWAY	4391	WAIAU MAINT SHOP DRIVEWAY #PR	P27759	FINLAY UTILITY SERVICES, INC.	skill
PIL262K01NENPIZZZZZ501	200107	2001	2,250.00	PR019606	K1 & K3 LUBE OIL TANK CONTAINMENT ARE/	70101	K1 & K3 LUBE OIL CONTAINMENT AR	P27924	GIORDANO'S PAINTING CO	skill
PIL262K03NENPIZZZZZ501	200107	2001	2,250.00			70101	K1 & K3 LUBE OIL CONTAINMENT AR	P27924	GIORDANO'S PAINTING CO	skill
PIX262W07NENPIZZZZZ501	200107	2001	3,500.00	PR019641	W7 RESTORE #2 CHILLER	71001	SERVICE, #71 CHILLER / PIPING SAN	P28575	GIORDANO'S PAINTING CO	skill
PIP877WSTNENPIZZZZZ501	200107	2001	260.41	PR018891	Collect charges for XFMR oil disposal	001261	SVCS FOR P/U AND DISPOSAL OF XF	P26492	HAZTECH ENVIRONMENTAL SE	skill
PJC876PHENENPJZZZZZ600	200107	2001	860.00			001265	DISPOSAL OF 55 GALLONS OF AQUE	P28710	HAZTECH ENVIRONMENTAL SE	skill
PIX878WSTNENPIZZZZZ501	200107	2001	1,607.50	PR000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	001270	WPP HAZARDOUS & LEAD WASTE RI	P28776	HAZTECH ENVIRONMENTAL SE	skill
PIX878WSTNENPIZZZZZ501	200107	2001	1,607.50	PR000254	SWO-LEAD ABATEMENT (WAIAU)	001270	WPP HAZARDOUS & LEAD WASTE RI	P28776	HAZTECH ENVIRONMENTAL SE	skill
PIX265WSTNENPIZZZZZ501	200107	2001	3,895.85	PR010078	SWO-POND/WATERWAYS CLEANUP	00006888	PACIFIC DIVERS TO REMOVE WATEF	P27927	PACIFIC DIVING INDUSTRIES, IN	skill
PIT258K02NEP0000247501	200107	2001	281.26	PR018783	K-FWH 22-HYROBLAST/EDDY CURRENT TES	18304445F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
PIT258K02NEP0000247501	200107	2001	281.26	PR018785	HYDRO BLAST AND EDDY CURRENT FWH 23	18304445F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
PIT258K02NEP0000247501	200107	2001	281.26	PR018786	K-FWH 24 HYDROBLAST/EDDY CURRENT TE	18304445F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
PIT258K02NEP0000247501	200107	2001	281.26	PR018787	K-FWH 25 HYDROBLAST/EDDY CURRENT TE	18304445F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
PIT258K02NEP0000247501	200107	2001	281.26	PR018788	K2-AIR EJECTOR-HYDROBLAST/EDDY CURR	18304445F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
PIT258K02NEP0000247501	200107	2001	281.26	PR020186	condenser crew scrap all tubes eddy test	18304445F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
PIX266WWWNENPIZZZZZ501	200107	2001	550.85	PR016109	Sludge drying beds-Cells 1-6 Refurbish	18304229F	SLUDGE DRYING BED RE-CONDITIO	P27751	PSC INDUSTRIAL OUTSOURCIN	skill
PIT261K02NEP0000247501	200107	2001	1,124.99	PR020187	Chiller -Hydro blast and eddy	18304445F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
PIL259K06NENPIZZZZZ501	200107	2001	1,827.08	PR020318	LB K6 Gas reclrc foundation needs to be	18304359F	CLEAN GRF DUCT BASE & BERM ARI	P28479	PSC INDUSTRIAL OUTSOURCIN	skill
PIL878KSTNENPIZZZZZ501	200107	2001	2,972.00	PR000249	SWO-HAZARDOUS WSTE DISPOSAL (KAHE)	18304333F	REMOVE & DISPOSE OF HAZ. & NON	P28245	PSC INDUSTRIAL OUTSOURCIN	skill
PIX265WT1NENPIZZZZZ501	200107	2001	4,408.35	PR016306	W7: DMR cation and anion vessel drain	18304356F	PHILLIPS SERVICES TO MOBILIZE AN	P22590	PSC INDUSTRIAL OUTSOURCIN	skill
PIX266WWWNENPIZZZZZ501	200107	2001	6,870.96	PR016109	Sludge drying beds-Cells 1-6 Refurbish	18304328F	SLUDGE DRYING BED RE-CONDITIO	P27751	PSC INDUSTRIAL OUTSOURCIN	skill
PIX259W07NENPIZZZZZ501	200107	2001	7,031.01	PR015623	W7 # 71 FO Heater tube leak.	18304310F	SERVICES FOR CLEANING W7 #71 FI	P28248	PSC INDUSTRIAL OUTSOURCIN	skill
PIX259W07NENPIZZZZZ501	200107	2001	8,045.15	PR015623	W7 # 71 FO Heater tube leak.	18304309F	SERVICES FOR CLEANING W7 #71 FI	P28248	PSC INDUSTRIAL OUTSOURCIN	skill
PIT258K02NEP0000247501	200107	2001	1,177.19	PR019746	K2 STM PIPING/HANGERS/SPTS-PRED MAINT	D0000063	SERVICES ERECT SCAFFOLDING K2	P28469	SAFWAY SERVICES, INC.	skill
PIT258K02NEP0000247501	200107	2001	1,177.19	PR019750	K2 BLR FW PIPING-PREDICT MAINT.	D0000063	SERVICES ERECT SCAFFOLDING K2	P28469	SAFWAY SERVICES, INC.	skill
PIT257K02NEP0000247501	200107	2001	1,898.30	PR018528	REPLACE ENTIRE BURNER THROAT REFRAC	D0000064	FURNISH & ERECT SCAFFOLDING K/	P28775	SAFWAY SERVICES, INC.	skill
PIT259K02NEP0000247501	200107	2001	1,898.30	PR020512	WW TUBE REPLACEMENT WORK NOT COMI	D0000064	FURNISH & ERECT SCAFFOLDING K/	P28775	SAFWAY SERVICES, INC.	skill
PIX258W04NENPIZZZZZ501	200108	2001	416.64	PR018901	W4 41 HDP Motor refurbish	47211	RECON #41 HEATER DRIP 25HP MOT	P29231	AMERICAN ELECTRIC LLC	skill
PIX258W04NENPIZZZZZ501	200108	2001	416.64	PR018901	W4 41 HDP Motor refurbish	47212	RECON #41 HEATER DRIP 25HP MOT	P29231	AMERICAN ELECTRIC LLC	skill

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IX258W04NENPIZZZZZ501	200108	2001	598.92	PR018903	W4 42 PFO pump motor refurbish	47222	RECON W4 #42 HEATER DRIP WEST	P29231	AMERICAN ELECTRIC LLC	skill
IT258K02NEP0000247501	200108	2001	609.37	PR018783	K-FWH 22-HYROBLAST/EDDY CURRENT TES	21-277	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
IT258K02NEP0000247501	200108	2001	609.37	PR018785	HYDRO BLAST AND EDDY CURRENT FWH 23	21-277	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
IT258K02NEP0000247501	200108	2001	609.37	PR018786	K-FWH 24 HYDROBLAST/EDDY CURRENT TE	21-277	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
IT258K02NEP0000247501	200108	2001	609.37	PR018788	K2-AIR EJECTOR-HYDROBLAST/EDDY CURR	21-277	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
IT258K02NEP0000247501	200108	2001	1,354.16	PR018787	K-FWH 25 HYDROBLAST/EDDY CURRENT TE	21-277	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
IT258K02NEP0000247501	200108	2001	2,512.95	PR018783	K-FWH 22-HYROBLAST/EDDY CURRENT TES	21-248	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
IT258K02NEP0000247501	200108	2001	2,512.95	PR018785	HYDRO BLAST AND EDDY CURRENT FWH 23	21-248	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
IT258K02NEP0000247501	200108	2001	2,512.95	PR018786	K-FWH 24 HYDROBLAST/EDDY CURRENT TE	21-248	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
IT258K02NEP0000247501	200108	2001	2,512.95	PR018788	K2-AIR EJECTOR-HYDROBLAST/EDDY CURR	21-248	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
IT258K02NEP0000247501	200108	2001	2,979.15	PR020186	condenser crew scrap all tubes eddy test	21-277	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
IT258K02NEP0000247501	200108	2001	5,584.34	PR018787	K-FWH 25 HYDROBLAST/EDDY CURRENT TE	21-248	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
IT261K02NEP0000247501	200108	2001	9,595.77	PR020903	K2 GENERATOR H2 COOLERS IRIS TESTING	21-249	IRIS TESTING OF K2 GENERATOR H2	P29263	ENGINEERING & INSPECTIONS	skill
IT258K02NEP0000247501	200108	2001	12,285.56	PR020186	condenser crew scrap all tubes eddy test	21-248	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
IT258K02NEP0000247501	200108	2001	251.58	PR019769	K2 RHT SS TUBES/HEADERS-Predict Maint	2570	K#2 BRULS & HIEL - LOCAL RESOUR	P28246	FINLAY TESTING LABORATORIE	skill
IT258K02NEP0000247501	200108	2001	377.40	PR019741	K2 WW TUBES-PREDICTIVE MAINT	2570	K#2 BRULS & HIEL - LOCAL RESOUR	P28246	FINLAY TESTING LABORATORIE	skill
IT258K02NEP0000247501	200108	2001	377.40	PR019743	K2 ECONZR TUBES/HEADER-PREDICT MAIN	2570	K#2 BRULS & HIEL - LOCAL RESOUR	P28246	FINLAY TESTING LABORATORIE	skill
IT258K02NEP0000247501	200108	2001	377.40	PR019744	K2 PRI SS TUBES/HEADERS-Predict Maint	2570	K#2 BRULS & HIEL - LOCAL RESOUR	P28246	FINLAY TESTING LABORATORIE	skill
IT258K02NEP0000247501	200108	2001	377.40	PR019745	K2 SEC SH TUBES/HEADERS-Predict Maint	2570	K#2 BRULS & HIEL - LOCAL RESOUR	P28246	FINLAY TESTING LABORATORIE	skill
IT258K02NEP0000247501	200108	2001	377.40	PR019750	K2 BLR FW PIPING-PREDICT MAINT.	2570	K#2 BRULS & HIEL - LOCAL RESOUR	P28246	FINLAY TESTING LABORATORIE	skill
IT258K02NEP0000247501	200108	2001	377.40	PR020240	K2 CONDENSATE PIPING NDE	2570	K#2 BRULS & HIEL - LOCAL RESOUR	P28246	FINLAY TESTING LABORATORIE	skill
IT258K02NEP0000247501	200108	2001	251.58	PR019769	K2 RHT SS TUBES/HEADERS-Predict Maint	2570	K#2 BRULS & HIEL - LOCAL RESOUR	P28246	FINLAY TESTING LABORATORIE	skill
IT258K02NEP0000247501	200108	2001	377.40	PR019741	K2 WW TUBES-PREDICTIVE MAINT	2570	K#2 BRULS & HIEL - LOCAL RESOUR	P28246	FINLAY TESTING LABORATORIE	skill
IT258K02NEP0000247501	200108	2001	377.40	PR019743	K2 ECONZR TUBES/HEADER-PREDICT MAIN	2570	K#2 BRULS & HIEL - LOCAL RESOUR	P28246	FINLAY TESTING LABORATORIE	skill
IT258K02NEP0000247501	200108	2001	377.40	PR019744	K2 PRI SS TUBES/HEADERS-Predict Maint	2570	K#2 BRULS & HIEL - LOCAL RESOUR	P28246	FINLAY TESTING LABORATORIE	skill
IT258K02NEP0000247501	200108	2001	377.40	PR019745	K2 SEC SH TUBES/HEADERS-Predict Maint	2570	K#2 BRULS & HIEL - LOCAL RESOUR	P28246	FINLAY TESTING LABORATORIE	skill
IT258K02NEP0000247501	200108	2001	377.40	PR019750	K2 BLR FW PIPING-PREDICT MAINT.	2570	K#2 BRULS & HIEL - LOCAL RESOUR	P28246	FINLAY TESTING LABORATORIE	skill
IT258K02NEP0000247501	200108	2001	377.40	PR020240	K2 CONDENSATE PIPING NDE	2570	K#2 BRULS & HIEL - LOCAL RESOUR	P28246	FINLAY TESTING LABORATORIE	skill
IX265WSTNENPIZZZZZ501	200108	2001	346.56	PR021031	Locate and repair leaking underground	4428	WAIAU PP WATERLINE LEAK #PR021	P29287	FINLAY UTILITY SERVICES, INC.	skill
IX265WSTNENPIZZZZZ501	200108	2001	1,039.68	PR021031	Locate and repair leaking underground	4429	WAIAU PP WATERLINE LEAK #PR021	P29287	FINLAY UTILITY SERVICES, INC.	skill
IX265WSTNENPIZZZZZ501	200108	2001	1,308.98	PR021031	Locate and repair leaking underground	4425	WAIAU PP WATERLINE LEAK #PR021	P29287	FINLAY UTILITY SERVICES, INC.	skill
IT261K02NEP0000247501	200108	2001	1,250.00	PR020028	K2 Throttle Valves (2 each)	80901	SAND BLAST AND CLEAN VARIOUS V	P29856	GIORDANO'S PAINTING CO	skill
IT261K02NEP0000247501	200108	2001	1,250.00	PR020030	K2 REHEAT INTERCEPT VALVES (2 each)	80901	SAND BLAST AND CLEAN VARIOUS V	P29856	GIORDANO'S PAINTING CO	skill
IT260K02NEP0000247501	200108	2001	4,000.00	PR019906	K21 CIRCULATING WATER PP MOTOR SERVI	81201	PRES WASH & PAINT KAHE #11 CHIL	P29545	GIORDANO'S PAINTING CO	skill
IT260K02NEP0000247501	200108	2001	4,000.00	PR019907	K22 CIRCULATING WATER PP MOTOR SERVI	81201	PRES WASH & PAINT KAHE #11 CHIL	P29545	GIORDANO'S PAINTING CO	skill
IX262W07NENPIZZZZZ501	200108	2001	12,000.00	PR014295	W7:#71 TRAVELING SCREEN - OVERHAUL	73001	L&M #71 TRAVELING SCREEN PREP	P28926	GIORDANO'S PAINTING CO	skill
IT257K02NEP0000247501	200108	2001	23,000.00	PR021028	K2 BOILER STACK NEEDS PRESERVATION	81101	K2 STACK PRESERVATION AND COA	P29243	GIORDANO'S PAINTING CO	skill
IC876PHENENPJZZZZZ600	200108	2001	960.00			001290	DISPOSE OF ORGANIC HAZARDOUS	P29472	HAZTECH ENVIRONMENTAL SE	skill
IN268HSTNENPIZZZZZ501	200108	2001	2,587.40	PR016924	Gantry Crane #1 Plant	26489	HELP TROUBLE SHOOT PROBLEM W	P26235	HONOMACH INC	skill
IT261K02NEP0000247501	200108	2001	4,277.06	PR020028	K2 Throttle Valves (2 each)	26683	L&M TO MACHINE 2 EA K2 THROTTLI	P29777	HONOMACH INC	skill
IX262W06NENPIZZZZZ501	200108	2001	5,321.60	PR014953	W6:#61 CIRC WTR PP MTR - Repair	26639	FAB & FIT W-61 CIRC WATER MOTOF	P29129	HONOMACH INC	skill
IT261K02NEP0000247501	200108	2001	6,357.93	PR019762	K1/2 CIRC WTR TUNNEL INSPECTION			P29492	HONOMACH INC	skill
IT262K02NEP0000247501	200108	2001	6,700.00	PR020850	open and inspect and clean 11 chiller	26654	MACHINE SERVICE 11 CHILLER K2 H	P29010	HONOMACH INC	skill
IT258K02NEP0000247501	200108	2001	178.48	PR018783	K-FWH 22-HYROBLAST/EDDY CURRENT TES	18304652F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
IT258K02NEP0000247501	200108	2001	178.48	PR018785	HYDRO BLAST AND EDDY CURRENT FWH 23	18304652F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
IT258K02NEP0000247501	200108	2001	178.48	PR018786	K-FWH 24 HYDROBLAST/EDDY CURRENT TE	18304652F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
IT258K02NEP0000247501	200108	2001	178.48	PR018787	K-FWH 25 HYDROBLAST/EDDY CURRENT TE	18304652F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
IT258K02NEP0000247501	200108	2001	178.48	PR018788	K2-AIR EJECTOR-HYDROBLAST/EDDY CURR	18304652F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
IT258K02NEP0000247501	200108	2001	178.48	PR020186	condenser crew scrap all tubes eddy test	18304652F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
IT258K02NEP0000247501	200108	2001	424.18	PR018783	K-FWH 22-HYROBLAST/EDDY CURRENT TES	18304516F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
IT258K02NEP0000247501	200108	2001	424.18	PR018785	HYDRO BLAST AND EDDY CURRENT FWH 23	18304516F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
IT258K02NEP0000247501	200108	2001	424.18	PR018786	K-FWH 24 HYDROBLAST/EDDY CURRENT TE	18304516F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
IT258K02NEP0000247501	200108	2001	424.18	PR018787	K-FWH 25 HYDROBLAST/EDDY CURRENT TE	18304516F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
IT258K02NEP0000247501	200108	2001	424.18	PR018788	K2-AIR EJECTOR-HYDROBLAST/EDDY CURR	18304516F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
IT258K02NEP0000247501	200108	2001	424.18	PR020186	condenser crew scrap all tubes eddy test	18304516F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
IX265WT1NENPIZZZZZ501	200108	2001	702.00	PR016306	W7: DMR cation and anion vessel drain	18304545F	PHILLIPS SERVICES TO MOBILIZE AN	P22590	PSC INDUSTRIAL OUTSOURCIN	skill
IT261K02NEP0000247501	200108	2001	713.89	PR020187	Chiller -Hydro blast and eddy	18304652F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill

ACCOUNT_CODE	LL_PERI	TransYr	AMT	Work_Order	Work_Order_Desc	Inv_No	Inv_Item_Desc	PO_No	Supplier_Name	SVC Typ
PIL265KSTNENPIZZZZZ501	200108	2001	1,393.75	PR019300	LB Pipe trench behind K5/6 is always	18304516F	TIME & LABOR TO CLEAN OUT TREN	P29009	PSC INDUSTRIAL OUTSOURCIN	skill
PIT261K02NEP0000247501	200108	2001	1,696.71	PR020187	Chiller -Hydro blast and eddy	18304516F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
PIL265KWWNENPIZZZZZ501	200108	2001	1,851.43	PR005015	kAHE STATION BATCH TANK INSP/REPAIRS	18304671F	WASH/CLEAN KPP BATCH TANK "A" I	P30063	PSC INDUSTRIAL OUTSOURCIN	skill
PIL265KSTNENPIZZZZZ501	200108	2001	4,525.74	PR020813	LB K5&6 BOILER STRUCTURES CLEANUP OF	18304522F	L&M TO CLEAN PIGEON DROPPINGS	P29269	PSC INDUSTRIAL OUTSOURCIN	skill
PIX259W07NENPIZZZZZ501	200108	2001	6,336.05	PR015623	W7 # 71 FO Heater tube leak.	18304653F	CLEAN FUEL OIL FROM W-7 #71 HEA	P29447	PSC INDUSTRIAL OUTSOURCIN	skill
PIT261K02NEP0000247501	200108	2001	780.00	PR020923	K2 Generator Retaining Rings Inspection	01-2249	K2 NDT INSP OF GEN RETAINING RIN	P27992	REINHART & ASSOCIATES, INC.	skill
PIT261K02NEP0000247501	200108	2001	19,500.00	PR020923	K2 Generator Retaining Rings Inspection	01-2249	K2 NDT INSP OF GEN RETAINING RIN	P27992	REINHART & ASSOCIATES, INC.	skill
PIM262WSTNENPIZZZZZ501	200108	2001	1,747.20	PR008901	Westinghouse Engineering Services	HLR269A	SERVICES OF WESTINGHOUSE TO A	P26716	SIEMENS WESTINGHOUSE TEC	skill
PIM262WSTNENPIZZZZZ501	200108	2001	1,747.20	PR008901	Westinghouse Engineering Services	HLR269B	SERVICES OF WESTINGHOUSE TO A	P26716	SIEMENS WESTINGHOUSE TEC	skill
PIM262WSTNENPIZZZZZ501	200108	2001	5,241.60	PR008901	Westinghouse Engineering Services	HLR269C	SERVICES OF WESTINGHOUSE TO A	P26716	SIEMENS WESTINGHOUSE TEC	skill
PIT257K02NEP0000247501	200108	2001	420.00	PR021028	K2 BOILER STACK NEEDS PRESERVATION	08162001	KAHE 2 & 3 STACK PAINTING INSP S	P29794	SPCC AND CONSULTING	skill
PIT259K03NEP0000248501	200108	2001	420.00	PR021106	K3 STACK EXTERIOR PAINTING	08162001	KAHE 2 & 3 STACK PAINTING INSP S	P29794	SPCC AND CONSULTING	skill
PIT261K02NEP0000247501	200109	2001	597.72	PR019845	Kahe 2 overhaul Generator inspection	2000-158	KAHE 2 GENERATOR INSPECTION SI	P27931	AGT SERVICES	skill
PIT261K02NEP0000247501	200109	2001	891.80	PR019845	Kahe 2 overhaul Generator inspection	2000-156	K2 GENERATOR WEDGE WORK SUP	P27931	AGT SERVICES	skill
PIT261K02NEP0000247501	200109	2001	14,942.98	PR019845	Kahe 2 overhaul Generator inspection	2000-158	KAHE 2 GENERATOR INSPECTION SI	P27931	AGT SERVICES	skill
PIT261K02NEP0000247501	200109	2001	22,295.08	PR019845	Kahe 2 overhaul Generator inspection	2000-156	K2 GENERATOR WEDGE WORK SUP	P27931	AGT SERVICES	skill
PIT257K02NEP0000247501	200109	2001	700.00	PR019912	K2 HEATER DRIP PP MOTOR/LINESTR SERVI	47290	KAHE 2 #3 HEATER DRIP PUMP MOT	P30661	AMERICAN ELECTRIC LLC	skill
PIT258K02NEP0000247501	200109	2001	792.00	PR020395	K21 Primary FO Pump MTR SVC	47291	KAHE 2 PRI FUEL OIL PUMP MOTOR	P30661	AMERICAN ELECTRIC LLC	skill
PIT260K02NEP0000247501	200109	2001	866.00	PR019932	K21 STATION SVC WTR MOTOR SERVICE	47318	KAHE 21 STATION SVC WTR PUMP M	P30661	AMERICAN ELECTRIC LLC	skill
PIL262K06NENPIZZZZZ501	200109	2001	1,020.77	PR020961	LE #51 SSWP MOTOR & FOUNDATION REPAI	47321	RECON K51 STAT SERV WATER 135	P29937	AMERICAN ELECTRIC LLC	skill
PIT260K02NEP0000247501	200109	2001	1,310.00	PR019908	K21 CONDENSATE PUMP MOTOR SERVICE	47284	KAHE 2 #21 CONDENSATE MOTOR R	P30661	AMERICAN ELECTRIC LLC	skill
PIT260K02NEP0000247501	200109	2001	1,310.00	PR019909	K22 CONDENSATE PUMP MOTOR SERVICE	47309	KAHE 2 #22 COND PUMP MOTOR REI	P30661	AMERICAN ELECTRIC LLC	skill
PIT260K02NEP0000247501	200109	2001	1,515.00	PR019935	K21 AUX COOLING WTR PP MOTOR SERVICI	47292	KAHE 2 AUX COOLING WATER PUMP	P30661	AMERICAN ELECTRIC LLC	skill
PIT257K02NEP0000247501	200109	2001	1,515.00	PR019911	K22 SECONDARY F.O. MOTOR SERVICE	47310	KAHE 2 #22 SECND FO PUMP MOTOI	P30661	AMERICAN ELECTRIC LLC	skill
PIT257K02NEP0000247501	200109	2001	1,515.00	PR019910	K21 SECONDARY F.O. MOTOR SERVICE	47311	KAHE 2 #21 SECND FO PUMP MOTOI	P30661	AMERICAN ELECTRIC LLC	skill
PIT257K02NEP0000247501	200109	2001	1,641.00	PR019902	K2 FORCED DRAFT FAN-LS MOTOR SERVICE	47320	KAHE 2 FD FAN SLOW SPEED MOTO	P30661	AMERICAN ELECTRIC LLC	skill
PIT257K02NEP0000247501	200109	2001	2,000.00	PR019904	K21 BOILER FEED PUMP MOTOR SERVICE	47293	KAHE 2 #21 BOILER FEED PUMP MO	P30661	AMERICAN ELECTRIC LLC	skill
PIT257K02NEP0000247501	200109	2001	2,000.00	PR019905	K22 BOILER FEED PUMP MOTOR SERVICE	47319	KAHE #22 BOILER FEED PUMP MOTC	P30661	AMERICAN ELECTRIC LLC	skill
PIT260K02NEP0000247501	200109	2001	2,745.00	PR019907	K22 CIRCULATING WATER PP MOTOR SERVI	47305	KAHE 2 #22 CIRC WTER PUMP MOTC	P30661	AMERICAN ELECTRIC LLC	skill
PIX259W03NENPIZZZZZ501	200109	2001	2,260.66	PR021075	Re-Insulate East and West Windboxes/	1118345D/	SCAFFOLDING W-3 EAST & WEST W	P29725	ATLAS SALES CO., INC. - KAPOI	skill
PIT258K02NEP0000247501	200109	2001	1,894.21	PR018783	K-FWH 22-HYROBLAST/EDDY CURRENT TES	21-250	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
PIT258K02NEP0000247501	200109	2001	1,894.21	PR018785	HYDRO BLAST AND EDDY CURRENT FWH 23	21-250	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
PIT258K02NEP0000247501	200109	2001	1,894.21	PR018786	K-FWH 24 HYDROBLAST/EDDY CURRENT TE	21-250	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
PIT258K02NEP0000247501	200109	2001	1,894.21	PR018788	K2-AIR EJECTOR-HYDROBLAST/EDDY CURR	21-250	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
PIT258K02NEP0000247501	200109	2001	4,209.35	PR018787	K-FWH 25 HYDROBLAST/EDDY CURRENT TE	21-250	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
PIT258K02NEP0000247501	200109	2001	9,260.55	PR020186	condenser crew scrap all tubes eddy test	21-250	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
PIX265WSTNENPIZZZZZ501	200109	2001	(4,613.82)	PR018940	WAIAU C&M/SUBSTATION INSTALL RETAIN V	4359	WAIAU PP RETAINING WALL #PR018	P26628	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200109	2001	(4,267.26)	PR018940	WAIAU C&M/SUBSTATION INSTALL RETAIN V	4361	WAIAU PP RETAINING WALL #PR018	P26628	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200109	2001	(1,984.15)	PR018940	WAIAU C&M/SUBSTATION INSTALL RETAIN V	4356	WAIAU PP RETAINING WALL #PR018	P26628	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200109	2001	(1,888.95)	PR018940	WAIAU C&M/SUBSTATION INSTALL RETAIN V	4362	WAIAU PP RETAINING WALL #PR018	P26628	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200109	2001	(1,325.78)	PR018940	WAIAU C&M/SUBSTATION INSTALL RETAIN V	4367	WAIAU PP RETAINING WALL #PR018	P26628	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200109	2001	1,083.72	PR021911	Install Side Walk Mauka Waiau 3/4	4477	WAIAU PP3&4 CONCRETE SIDEWALK	P30949	FINLAY UTILITY SERVICES, INC.	skill
PIL262K06NENPIZZZZZ501	200109	2001	572.00	PR016666	LTK6 Both Intercept valves did not close	62901	SANDBLASTING SERVICE INTERCEP	P28315	GIORDANO'S PAINTING CO	skill
PIL262K06NENPIZZZZZ501	200109	2001	2,500.00	PR019980	K5/6 BASIN STOP LOG - REPAIR,SANDBLAST	81501	K5/6 BASIN STOP LOG - SANDBLAST	P27928	GIORDANO'S PAINTING CO	skill
PIT257K02NEP0000247501	200109	2001	6,840.00	PR018528	REPLACE ENTIRE BURNER THROAT REFRAC	82001	MISC BOILER REFRACTORY WORK K	P30143	GIORDANO'S PAINTING CO	skill
PIT260K02NEP0000247501	200109	2001	7,000.00	PR019997	K2 LUBE OIL RESERVOIR / BOWSER / FILTER	81301	CLEAN AND PAINT K2 LUBE OIL TANI	P30181	GIORDANO'S PAINTING CO	skill
PIN265HSTNENPIZZZZZ501	200109	2001	8,700.00	PR016758	WWT AREA PAINTING	90901	PREP, PRIME AND PAINT HPP WWTF	P29567	GIORDANO'S PAINTING CO	skill
PIN265HSTNENPIZZZZZ501	200109	2001	15,000.00	PR016758	WWT AREA PAINTING	82601	PREP/PAINT ACID, CAUSTIC DISTL H	P29885	GIORDANO'S PAINTING CO	skill
PIN265HSTNENPIZZZZZ501	200109	2001	26,100.00	PR016758	WWT AREA PAINTING	82701	PREP, PRIME AND PAINT HPP WWTF	P29567	GIORDANO'S PAINTING CO	skill
PIP877WSTNENPIZZZZZ501	200109	2001	260.41	PR018891	Collect charges for XFMR oil disposal	001296	SVCS FOR P/U AND DISPOSAL OF XF	P26492	HAZTECH ENVIRONMENTAL SE	skill
PIT258K02NEP0000247501	200109	2001	166.67	PR019744	K2 PRI SS TUBES/HEADERS-Predict Maint	15005	BEND 2.5" X 62" K2 BLR TUBES PER S	P29367	HONOMACH INC	skill
PIX259W07NENPIZZZZZ501	200109	2001	468.75	PR015623	W7 # 71 FO Heater tube leak.	26753	MACH. #71 F/O HTR FLOATING HEAD	P30881	HONOMACH INC	skill
PIT260K02NEP0000247501	200109	2001	1,016.14	PR019909	K22 CONDENSATE PUMP MOTOR SERVICE	26715	MACHINING, BORE & SLEEVE 2 EA EI	P30180	HONOMACH INC	skill
PIT257K02NEP0000247501	200109	2001	1,016.14	PR019911	K22 SECONDARY F.O. MOTOR SERVICE	26715	MACHINING, BORE & SLEEVE 2 EA EI	P30180	HONOMACH INC	skill
PIT262K02NEP0000247501	200109	2001	4,500.00	PR021605	K21 ACW Pump Repairs	26720	REPAIR K21 AUX COOLING WATER F	P29858	HONOMACH INC	skill
PIX262W08NENPIZZZZZ501	200109	2001	5,666.68	PR011709	W8:#82 CIRC WATER INLET INSPECT TUNNE	00006935	W-8 C.W. INTAKE DIVING/VIDEO INSF	P30186	PACIFIC DIVING INDUSTRIES, IN	skill
PIX262W08NENPIZZZZZ501	200109	2001	5,666.68	PR011709	W8:#82 CIRC WATER INLET INSPECT TUNNE	00006934	W-8 C.W. INTAKE DIVING/VIDEO INSF	P30186	PACIFIC DIVING INDUSTRIES, IN	skill

Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
LT Work order for covering purchases of	36802.1	RPR MICRO MOTION FO FLOW XMTF	P30625	PROCESS CONTROLS, INC.	skill
SWO-WAIAU STATION COMMON ROUTINES	36786.1	CALIBRATE,CERTIFY & REPAIR (IF NI	P28474	PROCESS CONTROLS, INC.	skill
W7: DMR cation and anion vessel drain	18304749F	PHILLIPS SERVICES TO MOBILIZE AN	P22590	PSC INDUSTRIAL OUTSOURCIN	skill
Chiller -Hydro blast and eddy	18304760F	PRESSURE WASHING CHILLER #12 A	P30444	PSC INDUSTRIAL OUTSOURCIN	skill
K-FWH 22-HYROBLAST/EDDY CURRENT TES	18304654F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
HYDRO BLAST AND EDDY CURRENT FWH 23	18304654F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
K-FWH 24 HYDROBLAST/EDDY CURRENT TE	18304654F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
K-FWH 25 HYDROBLAST/EDDY CURRENT TE	18304654F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
K2-AIR EJECTOR-HYDROBLAST/EDDY CURR	18304654F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
condenser crew scrap all tubes eddy test	18304654F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
W7&8:PMP OUT ELEC PIT NEXT TO TRVLSCI	18302833F	PHILIPS SERVICES TO WASH AND PI	P22376	PSC INDUSTRIAL OUTSOURCIN	skill
Sludge drying beds-Cells 1-6 Refurbish	18304673F	SLUDGE DRYING BED RE-CONDITIOI	P27751	PSC INDUSTRIAL OUTSOURCIN	skill
LE #51 SSWP MOTOR & FOUNDATION REPAI	18304769F	PUMP OUT KAHE 5&6 TRAV SCREEN	P30417	PSC INDUSTRIAL OUTSOURCIN	skill
Chiller -Hydro blast and eddy	18304654F	SEVICE HYDROBLASTING K2 OVERH	P28224	PSC INDUSTRIAL OUTSOURCIN	skill
Waiau 6 PSC SERVICES	18303510F	PSC SERVICES FOR PAYMENT OF SI	P30366	PSC INDUSTRIAL OUTSOURCIN	skill
K1/2 CIRC WTR TUNNEL INSPECTION	18304767F	K2 CIRC WATER TNL CLEAN HIGH PF	P30519	PSC INDUSTRIAL OUTSOURCIN	skill
K2 APH NDE BRULS INSPECTION	R0000073	PLANKS 8'L 20 EACH AND 10'L 30 EA	P28692	SAFWAY SERVICES, INC.	skill
K2 APH NDE BRULS INSPECTION	D0000062	PLANKS 8'L 20 EACH AND 10'L 30 EA	P28692	SAFWAY SERVICES, INC.	skill
K2 STM PIPING/HANGERS/SPTS-PRED MAINT	R0000070	SERVICES ERECT SCAFFOLDING K2	P28469	SAFWAY SERVICES, INC.	skill
K2 BLR FW PIPING-PREDICT MAINT.	R0000070	SERVICES ERECT SCAFFOLDING K2	P28469	SAFWAY SERVICES, INC.	skill
WW TUBE REPLACEMENT WORK NOT COMF	R0000075	FURNISH & ERECT SCAFFOLDING KA	P28775	SAFWAY SERVICES, INC.	skill
REPLACE ENTIRE BURNER THROAT REFRAC	R0000075	FURNISH & ERECT SCAFFOLDING KA	P28775	SAFWAY SERVICES, INC.	skill
W4 Primary FO pump # 41 M seal leaking	47342	RECND STATR/RTR W4 #41 PRI FO P	P30817	AMERICAN ELECTRIC LLC	skill
Spare Exciter "pilot exciter" outer	47335	W4 PILOT EXCITER RECONDITION &	P30968	AMERICAN ELECTRIC LLC	skill
K21 CIRCULATING WATER PP MOTOR SERVI	47306	KAHE 2 #21 CIRC WATER PUMP MOT	P30661	AMERICAN ELECTRIC LLC	skill
W6: Main exciter "Gen Field Ground"	47300	RE-WIND W-6 EXCITER	P29628	AMERICAN ELECTRIC LLC	skill
W4 FRONT WW TUBE PANELS REPLACEMEI	2045516D	INTERIOR SCAFFOLDING WAIAU 4 O	P30246	ATLAS SALES CO., INC. - KAPOI	skill
W4 FRONT WW TUBE PANELS REPLACEMEI	21-326	X-RAY SVCS OF BLR FRONT WW TUI	P31160	ENGINEERING & INSPECTIONS	skill
W4 DESUPERHEATER (ATTEMPR) Replaceme	2632	W4 ATTEMP X-RAY TESTING SERVIC	P30942	FINLAY TESTING LABORATORIE	skill
W4 DESUPERHEATER (ATTEMPR) Replaceme	2632	W4 ATTEMP X-RAY TESTING SERVIC	P30942	FINLAY TESTING LABORATORIE	skill
CUSA LINE: Auto Fill Piping leaking	4484	WGP AUTO FILL PIPING WAIAU PP #I	P23804	FINLAY UTILITY SERVICES, INC.	skill
open and inspect and clean 11 chiller	81001	BLASTING & COATING 11 CHILLER C	P29014	GIORDANO'S PAINTING CO	skill
WGP PAINT CONTROL ROOM	102301	REPAINT: W7&8 CONTROL RM & CHE	P31619	GIORDANO'S PAINTING CO	skill
WGP PAINT CHEMISTRY LABORATORY	102301	REPAINT: W7&8 CONTROL RM & CHE	P31619	GIORDANO'S PAINTING CO	skill
Prep and paint Hicks pit roll-up door &	102001	PREP & PAINT HPP ROLL-UP DR & SC	P31194	GIORDANO'S PAINTING CO	skill
PREP AND PAINT MACHINE SHOP AND HALL	93001	PREP/PAINT MACHINE SHOP & ENTR	P30370	GIORDANO'S PAINTING CO	skill
W3 Stack and Breeching Inspection	0-10514	INSPECT WAIAU 3 STACK AND BREE	P29796	HAMON CUSTODIS, INC.	skill
LM K6 #51 SSWP INSTALL	0109024	CRANE OPTR TO INSTALL KAHE #51	P30927	HAWAIIAN CRANE & RIGGING L	skill
Collect charges for XFMR oil disposal	001348	SVCS FOR P/U AND DISPOSAL OF XF	P26492	HAZTECH ENVIRONMENTAL SE	skill
Collect charges for XFMR oil disposal	001385	SVCS FOR P/U AND DISPOSAL OF XF	P26492	HAZTECH ENVIRONMENTAL SE	skill
SWO-MERCURY DISPOSAL (WAIAU)	001353	MERCURY REMOVAL & DISPOSAL W.	P31144	HAZTECH ENVIRONMENTAL SE	skill
W4 Boiler Chemical Clean	26807	MACHINE & WELD BLIND FLANGE (W	P31618	HONOMACH INC	skill
KAHE STATION BATCH TANK INSP/REPAIRS	15052	FABRICATION OF REPLACEMENT BE	P30138	HONOMACH INC	skill
LE #51 SSWP MOTOR & FOUNDATION REPAI	26724	MACH K6 #51 STAT WTR PUMP MTR	P30235	HONOMACH INC	skill
LB K02 #21 CHILLER OPEN, INSPECT, CLEAN			P30454	HONOMACH INC	skill
HPP GANTRY CRANE ANNUAL CERTIFICATIC	26757	CERTIFICATION TESTS HPP CRANES	P30335	HONOMACH INC	skill
Chiller -Hydro blast and eddy	26756	RECOND HEAT EXCHANGER KAHE C	P31275	HONOMACH INC	skill
W4 FRONT WW TUBE PANELS REPLACEMENT			P29943	HONOMACH INC	skill
LB K1-4 INTAKE BAR SCREEN REPLACEMENT			P30211	HONOMACH INC	skill
K2 Blr Drum Safety Hydroset Instruments	37219.1	REPAIR/CALIBRATE ASHCROFT DEAI	P30803	PROCESS CONTROLS, INC.	skill
LB K2 3RD DECK DRAIN PLUGGED	18304750F	HYDROBLAST / CLEAR K2&3 3RD DE	P30429	PSC INDUSTRIAL OUTSOURCIN	skill
W4 Boiler Chemical Clean	18304914F	2 500/BBL FRAC TANKS W4 BLR CHE	P31055	PSC INDUSTRIAL OUTSOURCIN	skill
WWT SLUDGE TANK REPR - REPAINT	18304888F	WASTEWATER SAND FLTR CONTEN	P30986	PSC INDUSTRIAL OUTSOURCIN	skill
K2 BOILER AND AIR HEATER WASH	18304520F	VAC K2 BOILER ASH SEND TO LAND	P29298	PSC INDUSTRIAL OUTSOURCIN	skill
KAHE MAUKA STORM DRN JETTING & CLEAI	18304835F	WATER-JETT & CLEAN KAHE STORM	P30842	PSC INDUSTRIAL OUTSOURCIN	skill
WWT SLUDGE TANK REPR - REPAINT	18304880F	WASTEWATER SAND FLTR CONTEN	P30986	PSC INDUSTRIAL OUTSOURCIN	skill
LB K6 steam leak on the reboiler drip	D0000086	FURN/INSTL SCAFFOLDING K6 RBLR	P30931	SAFWAY SERVICES, INC.	skill

	LL_PERI	TransYr	AMT	Work_Order	Work_Order_Desc	Inv_No	Inv_Item_Desc	PO_No	Supplier_Name	SVC_Typ
Z501	200110	2001	920.00	PR020707	W7/8 REPAIR/RECOAT TRENCH LINING	HECO01-0	INSP AND TEST W 7&8 TOURGH RE-I	P29857	SPCC AND CONSULTING	skill
501	200110	2001	4,140.00	PR005015	kAHE STATION BATCH TANK INSP/REPAIRS	HECO01-0	KAHE BATCH TANK A COATING INSP	P30012	SPCC AND CONSULTING	skill
01	200111	2001	916.61	PR022708	W4 RECONDITION #41 CONDENSATE PUMP	47383	W4 #41 CND MTR RECONDITION STA	P32429	AMERICAN ELECTRIC LLC	skill
01	200111	2001	2,152.99	PR013698	81 CWP DISC MOV-4	47220	REPAIR,TEST & ADJUST MOV COILS	P32435	AMERICAN ELECTRIC LLC	skill
01	200111	2001	401.04	PR021269	W4 Boiler Chemical Clean	1121336	W4 BOILER SCAFFOLD FOR SAMPLE	P31704	ATLAS SALES CO., INC. - KAPOI	skill
01	200111	2001	22,917.40	PR021769	K3 HP/IP ROTOR OVERHAUL	MJI-6333	REPAIR K3 TURBINE ROTOR DIAPHR	P32102	DIVERSIFIED ENERGY SERVICE	skill
01	200111	2001	5,726.95	PR021363	K31 CHILLER EDDY CURRENT TESTING	21-369	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
01	200111	2001	5,726.97	PR021357	K31 FWH EDDY CURRENT TESTING	21-369	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
01	200111	2001	5,726.97	PR021358	K32 FWH EDDY CURRENT TESTING	21-369	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
01	200111	2001	5,726.97	PR021359	K34 FWH EDDY CURRENT TESTING	21-369	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
01	200111	2001	5,726.97	PR021360	K35 FWH EDDY CURRENT TESTING	21-369	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
01	200111	2001	5,726.97	PR021361	K3 AIR EJECTOR EDDY CURRENT TESTING	21-369	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
01	200111	2001	6,545.10	PR021362	K3 CONDENSER EDDY CURRENT TESTING	21-369	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
01	200111	2001	310.06	PR021367	K3 STEAM DRUM - PREDICTIVE MAINTENANC	2667	KAHE #3 BRULS & HIEL INSPECTION	P31226	FINLAY TESTING LABORATORIE	skill
01	200111	2001	310.06	PR021369	K3 WW/DOWNCOMER/HDR-PREDICTIVE MAI	2667	KAHE #3 BRULS & HIEL INSPECTION	P31226	FINLAY TESTING LABORATORIE	skill
01	200111	2001	310.06	PR021370	K3 ECONZR TUBES/HEADERS-PREDICT MAIN	2667	KAHE #3 BRULS & HIEL INSPECTION	P31226	FINLAY TESTING LABORATORIE	skill
01	200111	2001	310.06	PR021371	K3 SEC SH TUBES/HEADERS-PREDICT MAIN	2667	KAHE #3 BRULS & HIEL INSPECTION	P31226	FINLAY TESTING LABORATORIE	skill
01	200111	2001	310.06	PR021372	K3 STM PIPING HANGRS/SPTS-PREDICT MAI	2667	KAHE #3 BRULS & HIEL INSPECTION	P31226	FINLAY TESTING LABORATORIE	skill
01	200111	2001	516.74	PR021373	K3 BLR FW PIPING - PREDICT MAINT	2667	KAHE #3 BRULS & HIEL INSPECTION	P31226	FINLAY TESTING LABORATORIE	skill
01	200111	2001	635.42	PR021995	REPLACE SSH DMWS	2668	RT SERVICES ON KAHE 3 SSH DISSII	P32540	FINLAY TESTING LABORATORIE	skill
01	200111	2001	310.06	PR021367	K3 STEAM DRUM - PREDICTIVE MAINTENANC	2667	KAHE #3 BRULS & HIEL INSPECTION	P31226	FINLAY TESTING LABORATORIE	skill
01	200111	2001	310.06	PR021369	K3 WW/DOWNCOMER/HDR-PREDICTIVE MAI	2667	KAHE #3 BRULS & HIEL INSPECTION	P31226	FINLAY TESTING LABORATORIE	skill
01	200111	2001	310.06	PR021370	K3 ECONZR TUBES/HEADERS-PREDICT MAIN	2667	KAHE #3 BRULS & HIEL INSPECTION	P31226	FINLAY TESTING LABORATORIE	skill
01	200111	2001	310.06	PR021371	K3 SEC SH TUBES/HEADERS-PREDICT MAIN	2667	KAHE #3 BRULS & HIEL INSPECTION	P31226	FINLAY TESTING LABORATORIE	skill
01	200111	2001	310.06	PR021372	K3 STM PIPING HANGRS/SPTS-PREDICT MAI	2667	KAHE #3 BRULS & HIEL INSPECTION	P31226	FINLAY TESTING LABORATORIE	skill
01	200111	2001	516.74	PR021373	K3 BLR FW PIPING - PREDICT MAINT	2667	KAHE #3 BRULS & HIEL INSPECTION	P31226	FINLAY TESTING LABORATORIE	skill
01	200111	2001	635.42	PR021995	REPLACE SSH DMWS	2668	RT SERVICES ON KAHE 3 SSH DISSII	P32540	FINLAY TESTING LABORATORIE	skill
01	200111	2001	144.27	PR021911	Install Side Walk Mauka Waiau 3/4	4509	WAIAU PP3&4 CONCRETE SIDEWALK	P30949	FINLAY UTILITY SERVICES, INC.	skill
01	200111	2001	500.00	PR021672	LB K1 GAGE LINE/VLV PLUGGD #11 CHILLER	110601	PREP AND PAINT 12" FLANGED ELBC	P32544	GIORDANO'S PAINTING CO	skill
01	200111	2001	5,500.00	PR019442	K3 OVERHAUL #31 CIRC PUMP BASE PRESEI	110501	SAND BLAST/PRESERVE K3 CIRC PU	P32436	GIORDANO'S PAINTING CO	skill
01	200111	2001	5,500.00	PR019443	K03 OVERHAUL #32 CIRC PUMP PRESERVAT	110501	SAND BLAST/PRESERVE K3 CIRC PU	P32436	GIORDANO'S PAINTING CO	skill
01	200111	2001	5,937.12	PR021640	LB K02 #21 CHILLER OPEN, INSPECT, CLEAN	100201	ASSIST W/ CHILLER #12 REPAIR & CI	P31064	GIORDANO'S PAINTING CO	skill
501	200111	2001	7,500.00	PR005015	kAHE STATION BATCH TANK INSP/REPAIRS	101501	ADDITIONAL PAINTING KAHE BATCH	P32438	GIORDANO'S PAINTING CO	skill
Z501	200111	2001	8,500.00	PR021567	WWT SLUDGE TANK REPR - REPAINT	1102001	CLEAN & REPAINT SLUDGE TANK W/	P30944	GIORDANO'S PAINTING CO	skill
501	200111	2001	2,600.50	PR022377	LB K1 Floor drains by GR Fan And Reboile	20846	K1/2 BLR WW DRAINS HYDROBLAST	P32467	GLOBAL ENVIRONMENTAL SVC	skill
01	200111	2001	708.29	PR021360	K35 FWH EDDY CURRENT TESTING			P32180	HONOMACH INC	skill
01	200111	2001	708.29	PR021359	K34 FWH EDDY CURRENT TESTING			P32180	HONOMACH INC	skill
01	200111	2001	1,302.00	PR019448	K3 OVERHAUL #31 SSWP BASE PRESERVATION			P31738	HONOMACH INC	skill
01	200111	2001	2,458.34	PR014295	W7:#71 TRAVELING SCREEN - OVERHAUL	00006961	WAIAU #71 TRVL SCREEN WELL CLE	P32198	PACIFIC DIVING INDUSTRIES, IN	skill
01	200111	2001	321.36	PR021269	W4 Boiler Chemical Clean	18305085F	2 500/BBL FRAC TANKS W4 BLR CHE	P31055	PSC INDUSTRIAL OUTSOURCIN	skill
01	200111	2001	503.96	PR021756	K3 GENERATOR H2 COOLERS SERVICE	18305134F	PRESSURE WASH KAHE 3 HEAT EXC	P32442	PSC INDUSTRIAL OUTSOURCIN	skill
01	200111	2001	503.99	PR021361	K3 AIR EJECTOR EDDY CURRENT TESTING	18305134F	PRESSURE WASH KAHE 3 HEAT EXC	P32442	PSC INDUSTRIAL OUTSOURCIN	skill
01	200111	2001	503.99	PR021357	K31 FWH EDDY CURRENT TESTING	18305134F	PRESSURE WASH KAHE 3 HEAT EXC	P32442	PSC INDUSTRIAL OUTSOURCIN	skill
01	200111	2001	503.99	PR021358	K32 FWH EDDY CURRENT TESTING	18305134F	PRESSURE WASH KAHE 3 HEAT EXC	P32442	PSC INDUSTRIAL OUTSOURCIN	skill
01	200111	2001	503.99	PR021755	K3 LUBE OIL COOLERS SERVICE	18305134F	PRESSURE WASH KAHE 3 HEAT EXC	P32442	PSC INDUSTRIAL OUTSOURCIN	skill
01	200111	2001	539.99	PR021359	K34 FWH EDDY CURRENT TESTING	18305134F	PRESSURE WASH KAHE 3 HEAT EXC	P32442	PSC INDUSTRIAL OUTSOURCIN	skill
01	200111	2001	539.99	PR021360	K35 FWH EDDY CURRENT TESTING	18305134F	PRESSURE WASH KAHE 3 HEAT EXC	P32442	PSC INDUSTRIAL OUTSOURCIN	skill
01	200111	2001	1,404.00	PR016306	W7: DMR cation and anion vessel drain	18305084F	PHILLIPS SERVICES TO MOBILIZE AN	P22590	PSC INDUSTRIAL OUTSOURCIN	skill
01	200111	2001	1,571.61	PR000252	SWO-WASTE OIL DISPOSAL (KAHE)	18305145F	REMOVE/DISPOSE 28 DRUMS USED	P32437	PSC INDUSTRIAL OUTSOURCIN	skill
01	200111	2001	5,263.40	PR021735	K31 CIRCULATING WATER PUMP	18305148F	HYDROBLAST K #31/#32 CWP JOB #1	P32903	PSC INDUSTRIAL OUTSOURCIN	skill
01	200111	2001	5,263.40	PR021736	K32 CIRCULATING WATER PUMP-Service	18305148F	HYDROBLAST K #31/#32 CWP JOB #1	P32903	PSC INDUSTRIAL OUTSOURCIN	skill
01	200111	2001	5,411.63	PR022317	LB K6,4,3,2 BLR WW SMP CLEANING REQUIF	18305105F	GUZZLER VAC TRUCK KPP SUMPS #:	P31778	PSC INDUSTRIAL OUTSOURCIN	skill
01	200111	2001	82,558.97	PR020745	INTAKE TUNNEL CLEANING	18305106F	L&E EVAC WATER HPP INTAKE TNL (	P30140	PSC INDUSTRIAL OUTSOURCIN	skill
01	200111	2001	378.00	PR021770	K3 HP/IP ROTOR NDE TESTING	01-2290	SOLID ROTOR NDE INSP PRIFRY COI	P31045	REINHART & ASSOCIATES, INC.	skill
01	200111	2001	378.00	PR021780	K3 LP ROTOR NDE TESTING	01-2290	SOLID ROTOR NDE INSP PRIFRY COI	P31045	REINHART & ASSOCIATES, INC.	skill
01	200111	2001	9,450.00	PR021770	K3 HP/IP ROTOR NDE TESTING	01-2290	SOLID ROTOR NDE INSP PRIFRY COI	P31045	REINHART & ASSOCIATES, INC.	skill
01	200111	2001	9,450.00	PR021780	K3 LP ROTOR NDE TESTING	01-2290	SOLID ROTOR NDE INSP PRIFRY COI	P31045	REINHART & ASSOCIATES, INC.	skill

PERI	TransYr	AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
)0111	2001	1,347.32			D0000095	FURNISH & ERECT 2 SCAFFOLDS K-3	P32123	SAFWAY SERVICES, INC.	skill
)0111	2001	1,347.32			D0000095	FURNISH & ERECT 2 SCAFFOLDS K-3	P32123	SAFWAY SERVICES, INC.	skill
)0111	2001	7,796.88			D0000099	ERECT & DISMANTLE SCAFFOLDING	P31706	SAFWAY SERVICES, INC.	skill
)0111	2001	7,796.88			D0000099	ERECT & DISMANTLE SCAFFOLDING	P31706	SAFWAY SERVICES, INC.	skill
)0111	2001	10,395.84			D0000099	ERECT & DISMANTLE SCAFFOLDING	P31706	SAFWAY SERVICES, INC.	skill
)0111	2001	920.00	PR020707	W7/8 REPAIR/RECOAT TRENCH LINING	HECO01-0	INSP AND TEST W 7&8 TOURGH RE-I	P29857	SPCC AND CONSULTING	skill
)0111	2001	4,140.00	PR005015	KAHE STATION BATCH TANK INSP/REPAIRS	HECO01-0	KAHE BATCH TANK A COATING INSP	P30012	SPCC AND CONSULTING	skill
)0112	2001	562.46	PR022121	K31 AUX COOLING WTR PP MOTOR SERVICI	47371	K31 SSWP & ACWP 125HP MOTORS I	P33484	AMERICAN ELECTRIC LLC	skill
)0112	2001	562.46	PR022121	K31 AUX COOLING WTR PP MOTOR SERVICI	47372	K31 SSWP & ACWP 125HP MOTORS I	P33484	AMERICAN ELECTRIC LLC	skill
)0112	2001	562.47	PR021743	K31 SVC WATER PUMP - SERVICE	47371	K31 SSWP & ACWP 125HP MOTORS I	P33484	AMERICAN ELECTRIC LLC	skill
)0112	2001	562.47	PR021743	K31 SVC WATER PUMP - SERVICE	47372	K31 SSWP & ACWP 125HP MOTORS I	P33484	AMERICAN ELECTRIC LLC	skill
)0112	2001	600.00	PR023261	LE,K2 bowser filter pmp has a 480V	47410	L&M:REWIND K2 BOWSER LO FILTEF	P33561	AMERICAN ELECTRIC LLC	skill
)0112	2001	833.28	PR021181	K3 MOV-16 3RD STG DRAIN CTRLS SERVICE	47434	REWIND K3 MOV-16 MOTOR	P33736	AMERICAN ELECTRIC LLC	skill
)0112	2001	892.57	PR023000	K3 BLR PILOT AIR FAN MTR REWIND/INSTALI	47389	L&M TO REPR/REWND K3 PILOT AIR	P32771	AMERICAN ELECTRIC LLC	skill
)0112	2001	909.84	PR022333	LE 32 BFP MTR -Indicate cracked rotorbar	47411	CLEAN/DIP/BAKE SPARE K3 BFP STA	P33278	AMERICAN ELECTRIC LLC	skill
)0112	2001	1,600.00	PR023226	LE K41 SCRN WASH PP MTR GROUNDED	47408	R/R 50 HP ELEC MTR K41 SCRN WAS	P33276	AMERICAN ELECTRIC LLC	skill
)0112	2001	1,237.54	PR021518	K3 HP/IP TURBINE OVERHAUL	MJI-6358	TECH SVCS ASSIST K3 TURB OVERH	P31164	DIVERSIFIED ENERGY SERVICE	skill
)0112	2001	1,237.54	PR021776	K3 LP CYLINDER/BLADE RING/DIAPHRM OH	MJI-6358	TECH SVCS ASSIST K3 TURB OVERH	P31164	DIVERSIFIED ENERGY SERVICE	skill
)0112	2001	6,664.80	PR021518	K3 HP/IP TURBINE OVERHAUL	MJI-6337	REBABBITT #2 BEARING, KAHE 3 TUI	P32547	DIVERSIFIED ENERGY SERVICE	skill
)0112	2001	7,442.95	PR021518	K3 HP/IP TURBINE OVERHAUL	MJI-6347	ADTL RPRS NEW SPILL STRPS K3 TL	P32950	DIVERSIFIED ENERGY SERVICE	skill
)0112	2001	108.00	PR018783	K-FWH 22-HYROBLAST/EDDY CURRENT TES	21-448	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
)0112	2001	108.00	PR018785	HYDRO BLAST AND EDDY CURRENT FWH 23	21-448	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
)0112	2001	108.00	PR018786	K-FWH 24 HYDROBLAST/EDDY CURRENT TE	21-448	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
)0112	2001	108.00	PR018788	K2-AIR EJECTOR-HYDROBLAST/EDDY CURR	21-448	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
)0112	2001	240.00	PR018787	K-FWH 25 HYDROBLAST/EDDY CURRENT TE	21-448	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
)0112	2001	280.00	PR021357	K31 FWH EDDY CURRENT TESTING	21-429	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
)0112	2001	280.00	PR021358	K32 FWH EDDY CURRENT TESTING	21-429	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
)0112	2001	280.00	PR021359	K34 FWH EDDY CURRENT TESTING	21-429	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
)0112	2001	280.00	PR021360	K35 FWH EDDY CURRENT TESTING	21-429	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
)0112	2001	280.00	PR021361	K3 AIR EJECTOR EDDY CURRENT TESTING	21-429	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
)0112	2001	280.00	PR021363	K31 CHILLER EDDY CURRENT TESTING	21-429	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
)0112	2001	320.00	PR021362	K3 CONDENSER EDDY CURRENT TESTING	21-429	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
)0112	2001	421.87	PR018783	K-FWH 22-HYROBLAST/EDDY CURRENT TES	21-401	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
)0112	2001	421.87	PR018785	HYDRO BLAST AND EDDY CURRENT FWH 23	21-401	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
)0112	2001	421.87	PR018786	K-FWH 24 HYDROBLAST/EDDY CURRENT TE	21-401	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
)0112	2001	421.87	PR018788	K2-AIR EJECTOR-HYDROBLAST/EDDY CURR	21-401	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
)0112	2001	528.00	PR020186	condenser crew scrap all tubes eddy test	21-448	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
)0112	2001	937.49	PR018787	K-FWH 25 HYDROBLAST/EDDY CURRENT TE	21-401	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
)0112	2001	1,120.00	PR021357	K31 FWH EDDY CURRENT TESTING	21-430	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
)0112	2001	1,120.00	PR021358	K32 FWH EDDY CURRENT TESTING	21-430	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
)0112	2001	1,120.00	PR021359	K34 FWH EDDY CURRENT TESTING	21-430	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
)0112	2001	1,120.00	PR021360	K35 FWH EDDY CURRENT TESTING	21-430	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
)0112	2001	1,120.00	PR021361	K3 AIR EJECTOR EDDY CURRENT TESTING	21-430	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
)0112	2001	1,120.00	PR021363	K31 CHILLER EDDY CURRENT TESTING	21-430	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
)0112	2001	1,280.00	PR021362	K3 CONDENSER EDDY CURRENT TESTING	21-430	EDDY CURRENT & IRIS TEST K3 HEA	P30701	ENGINEERING & INSPECTIONS	skill
)0112	2001	2,062.50	PR020186	condenser crew scrap all tubes eddy test	21-401	EDDY CURRENT TESTING KAHE UNI	P26302	ENGINEERING & INSPECTIONS	skill
)0112	2001	310.62			01-1-5021	CONSULTING		ENVIROSERVICES & TRAINING	skill
)0112	2001	312.81			01-1-5021	CONSULTING		ENVIROSERVICES & TRAINING	skill
)0112	2001	312.81			01-1-5021	CONSULTING		ENVIROSERVICES & TRAINING	skill
)0112	2001	298.96	PR021911	Install Side Walk Mauka Waiau 3/4	4566	WAIAU PP3&4 CONCRETE SIDEWALI	P30949	FINLAY UTILITY SERVICES, INC.	skill
)0112	2001	346.56	PR021911	Install Side Walk Mauka Waiau 3/4	4555	WAIAU PP3&4 CONCRETE SIDEWALI	P30949	FINLAY UTILITY SERVICES, INC.	skill
)0112	2001	700.00	PR021755	K3 LUBE OIL COOLERS SERVICE	111101	PRESERV & EPOXY COAT K3 LO CLR	P32082	GIORDANO'S PAINTING CO	skill
)0112	2001	703.08	PR020052	LB K4 #42 X-over vent pipe on top of	120901	LABOR K4 CHILLER REPAIR VALVE R	P33183	GIORDANO'S PAINTING CO	skill
)0112	2001	1,250.00	PR016706	K3 LB Overhaul-Service water pump wells	111101	EPOXY PAINT METAL BOX K3 SSWP	P32082	GIORDANO'S PAINTING CO	skill
)0112	2001	1,250.00	PR016706	K3 LB Overhaul-Service water pump wells	111201	PAINT CNTRL WELL PROTECTIVE BC	P32823	GIORDANO'S PAINTING CO	skill
)0112	2001	5,500.00	PR019246	LB K5/6 STILLING BASIN ELECTRIC HOIST	120301	L&M TO CLEAN/PAINT K5&6 HOIST S	P30055	GIORDANO'S PAINTING CO	skill
)0112	2001	6,000.00	PR020706	WGP WWT pH Adjustment TK replace lining	12401	WSTEWTR ACID & CAUSTIC TNKS RI	P33351	GIORDANO'S PAINTING CO	skill

No	Supplier Name	SVC Typ
24	GIORDANO'S PAINTING CO	skill
92	GIORDANO'S PAINTING CO	skill
41	GIORDANO'S PAINTING CO	skill
56	GIORDANO'S PAINTING CO	skill
11	GIORDANO'S PAINTING CO	skill
22	GIORDANO'S PAINTING CO	skill
	HAMON CUSTODIS, INC.	skill
	HAMON CUSTODIS, INC.	skill
	HAMON CUSTODIS, INC.	skill
88	HAWAIIAN CRANE & RIGGING L	skill
92	HAZTECH ENVIRONMENTAL SE	skill
92	HAZTECH ENVIRONMENTAL SE	skill
02	HONOLULU SHIPYARD INC	skill
65	HONOMACH INC	skill
54	HONOMACH INC	skill
40	HONOMACH INC	skill
45	HONOMACH INC	skill
89	HONOMACH INC	skill
52	HONOMACH INC	skill
45	HONOMACH INC	skill
11	HONOMACH INC	skill
87	HONOMACH INC	skill
56	HONOMACH INC	skill
65	HONOMACH INC	skill
11	HONOMACH INC	skill
33	PACIFIC DIVING INDUSTRIES, IN	skill
23	PACIFIC DIVING INDUSTRIES, IN	skill
31	PACIFIC DIVING INDUSTRIES, IN	skill
31	PACIFIC DIVING INDUSTRIES, IN	skill
31	PACIFIC DIVING INDUSTRIES, IN	skill
33	PACIFIC DIVING INDUSTRIES, IN	skill
34	PACIFIC DIVING INDUSTRIES, IN	skill
16	PROCESS CONTROLS, INC.	skill
16	PROCESS CONTROLS, INC.	skill
16	PROCESS CONTROLS, INC.	skill
16	PROCESS CONTROLS, INC.	skill
12	PSC INDUSTRIAL OUTSOURCIN	skill
12	PSC INDUSTRIAL OUTSOURCIN	skill
12	PSC INDUSTRIAL OUTSOURCIN	skill
12	PSC INDUSTRIAL OUTSOURCIN	skill
12	PSC INDUSTRIAL OUTSOURCIN	skill
12	PSC INDUSTRIAL OUTSOURCIN	skill
12	PSC INDUSTRIAL OUTSOURCIN	skill
0	PSC INDUSTRIAL OUTSOURCIN	skill
3	PSC INDUSTRIAL OUTSOURCIN	skill
4	PSC INDUSTRIAL OUTSOURCIN	skill
0	PSC INDUSTRIAL OUTSOURCIN	skill
9	PSC INDUSTRIAL OUTSOURCIN	skill
2	PSC INDUSTRIAL OUTSOURCIN	skill
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2	PSC INDUSTRIAL OUTSOURCIN	skill
4	PSC INDUSTRIAL OUTSOURCIN	skill

me	SVC Typ
ITSOURCIN	skill
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Y SERVICE	supp
n	supp
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C.	supp
C.	supp
C.	supp
TSOURCIN	supp
TSOURCIN	supp
CONTROL	supp
CONTROL	supp
Y SERVICE	supp
IG CO	supp
IG CO	supp
C.	supp
C.	supp
C.	supp
ITAL	supp

Inv Item Desc	PO No	Supplier Name	SVC Typ
ANA ENVIRONMENTAL TO PROVI	P22871	OHANA ENVIRONMENTAL	supp
ANA ENVIRONMENTAL TO PROVI	P22771	OHANA ENVIRONMENTAL	supp
CHILLER COVERS LABOR AND M	P24098	GIORDANO'S PAINTING CO	supp
HE WW BATCH TANKS - WATER B	P24531	GIORDANO'S PAINTING CO	supp
SILENCERS(RV-51,53,& 49) LABO	P24094	HAWAIIAN DREDGING	supp
ELPERS TO ASSIST W/ APH WASI	P23930	HAWAIIAN STEAM, INC.	supp
A TEMP. HELPERS FOR W6 OVER	P22538	HAWAIIAN STEAM, INC.	supp
A TEMP. HELPERS FOR W6 OVER	P22538	HAWAIIAN STEAM, INC.	supp
MOVE AND DISPOSE OF ASBESTO	P23796	OHANA ENVIRONMENTAL	supp
RFORM REMOVAL, REPAIR AND R	P24451	PETROCHEM INSULATION INC.	supp
ELPERS TO ASSIST WITH FWH TI	P24978	HAWAIIAN STEAM, INC.	supp
ELPERS TO ASSIST WITH FWH TI	P24978	HAWAIIAN STEAM, INC.	supp
EMP WORKERS/5 DAYS, W8 APH	P24976	HAWAIIAN STEAM, INC.	supp
EMP WORKERS/5 DAYS, W8 APH	P24976	HAWAIIAN STEAM, INC.	supp
PERS FOR CONDENSER CLEANI	P23919	HAWAIIAN STEAM, INC.	supp
PERS FOR CONDENSER CLEANI	P23919	HAWAIIAN STEAM, INC.	supp
PERS FOR CONDENSER CLEANI	P23919	HAWAIIAN STEAM, INC.	supp
PERS FOR CONDENSER CLEANI	P23919	HAWAIIAN STEAM, INC.	supp
PERS FOR CONDENSER CLEANI	P23919	HAWAIIAN STEAM, INC.	supp
PERS FOR CONDENSER CLEANI	P23919	HAWAIIAN STEAM, INC.	supp
INSULATION	P24973	OHANA ENVIRONMENTAL	supp
INSULATION	P24973	OHANA ENVIRONMENTAL	supp
INSULATION	P24973	OHANA ENVIRONMENTAL	supp
INSULATION	P24973	OHANA ENVIRONMENTAL	supp
INSULATION	P24973	OHANA ENVIRONMENTAL	supp
ANA ENVIRONMENTAL TO PROVI	P22871	OHANA ENVIRONMENTAL	supp
ULATORS FOR W-6 O/H PREP W	P22180	PETROCHEM INSULATION INC.	supp
ULATORS FOR W-6 O/H PREP W	P22180	PETROCHEM INSULATION INC.	supp
PERS FOR CONDENSER CLEANI	P26505	HAWAIIAN STEAM, INC.	supp
PERS FOR CONDENSER CLEANI	P26505	HAWAIIAN STEAM, INC.	supp
PERS FOR CONDENSER CLEANI	P26505	HAWAIIAN STEAM, INC.	supp
VICE, INSULATION REMOVAL AN	P25886	OHANA ENVIRONMENTAL	supp
VICE, INSULATION REMOVAL AN	P25886	OHANA ENVIRONMENTAL	supp
VICE, INSULATION REMOVAL AN	P25886	OHANA ENVIRONMENTAL	supp
VICE, INSULATION REMOVAL AN	P25886	OHANA ENVIRONMENTAL	supp
VICE, INSULATION REMOVAL AN	P25886	OHANA ENVIRONMENTAL	supp
NA ENVIRONMENTAL TO PROVI	P26002	OHANA ENVIRONMENTAL	supp
NA ENVIRONMENTAL TO PROVI	P26002	OHANA ENVIRONMENTAL	supp
VICE, INSULATION REMOVAL AN	P25886	OHANA ENVIRONMENTAL	supp
NA ENVIRONMENTAL TO PROVI	P26002	OHANA ENVIRONMENTAL	supp
VICE, INSULATION REMOVAL AN	P25886	OHANA ENVIRONMENTAL	supp
VICE, INSULATION REMOVAL AN	P25886	OHANA ENVIRONMENTAL	supp
OVE/DISPOSE ASBESTOS HECO	P26904	OHANA ENVIRONMENTAL	supp
ESTOS BIN DISPOSAL SERVICE	P27072	OHANA ENVIRONMENTAL	supp
L OIL PIPELINE INSULATION REN	P26381	OHANA ENVIRONMENTAL	supp
ARY SUPHT DRAINS	P24977	OHANA ENVIRONMENTAL	supp
ARY SUPHT DRAINS	P24977	OHANA ENVIRONMENTAL	supp
ARY SUPHT DRAINS	P24977	OHANA ENVIRONMENTAL	supp
ARY SUPHT DRAINS	P24977	OHANA ENVIRONMENTAL	supp
L OIL PIPELINE INSULATION REN	P26381	OHANA ENVIRONMENTAL	supp
NA ENVIRONMENTAL TO PROVI	P24426	OHANA ENVIRONMENTAL	supp
L OIL PIPELINE INSULATION REN	P26381	OHANA ENVIRONMENTAL	supp
NA ENVIRONMENTAL TO PROVI	P24427	OHANA ENVIRONMENTAL	supp
L OIL PIPELINE INSULATION REN	P26381	OHANA ENVIRONMENTAL	supp
L OIL PIPELINE INSULATION REN	P26381	OHANA ENVIRONMENTAL	supp
L OIL PIPELINE INSULATION REN	P26381	OHANA ENVIRONMENTAL	supp
NA ENV TO PROVIDE MANPOWE	P24847	OHANA ENVIRONMENTAL	supp

ACCOUNT CODE	LL PERI	TransYr	AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
PIL265KSTNENPIZZZZZ501	200105	2001	628.92	PR016626	LB, SS office ceiling has a leak, please	30179	LABOR AND MATERIALS TO REMOVE	P23587	PETROCHEM INSULATION INC.	supp
PIL878KSTNENPIZZZZZ501	200105	2001	5,471.10	PR002264	SWO-ASBESTOS REMOVAL/DISPOSAL (KAH	30099	ASBESTOS ABATEMAENT FUEL OIL T	P25701	PETROCHEM INSULATION INC.	supp
PIN262H08NENPIZZZZZ501	200106	2001	3,868.93	PR000260	HONOLULU STATION CONDENSER CLEANIN	19033355	HELPERS FOR CONDENSER CLEANII	P26505	HAWAIIAN STEAM, INC.	supp
PIX262W03NENPIZZZZZ501	200106	2001	7,737.85	PR000261	WAIAU STATION CONDENSER CLEANING	19033355	HELPERS FOR CONDENSER CLEANII	P26505	HAWAIIAN STEAM, INC.	supp
PIL262K01NENPIZZZZZ501	200106	2001	7,737.85	PR000264	KAHE CONDENSER CLEANING	19033355	HELPERS FOR CONDENSER CLEANII	P26505	HAWAIIAN STEAM, INC.	supp
PIX259W06NENPIZZZZZ501	200106	2001	589.64	PR019293	W6 Reblr Cross Feed isolation valve	OEC-2141	REMOVE INSULATION ON WAIAU 6 R	P27511	OHANA ENVIRONMENTAL	supp
PIX878WSTNENPIZZZZZ501	200106	2001	1,250.00	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2142	ASBESTOS BIN DISPOSAL SERVICE \	P27072	OHANA ENVIRONMENTAL	supp
PIL878KSTNENPIZZZZZ501	200106	2001	1,250.00	PR002264	SWO-ASBESTOS REMOVAL/DISPOSAL (KAH	OEC-2152	FOR SERVICES TO PICK UP AND DIS	P27717	OHANA ENVIRONMENTAL	supp
PIL878KSTNENPIZZZZZ501	200106	2001	3,483.13	PR002264	SWO-ASBESTOS REMOVAL/DISPOSAL (KAH	30098	ASBESTOS ABATEMAENT FUEL OIL T	P25701	PETROCHEM INSULATION INC.	supp
PIL259K06NENPIZZZZZ501	200107	2001	1,966.73	PR020318	LB K6 Gas recirc foundation needs to be	19033395	LABOR TO CLEAN GAS RECIRC FAN	P28284	HAWAIIAN STEAM, INC.	supp
PIL259K06NENPIZZZZZ501	200107	2001	2,950.09	PR019719	LB K6 Need to set-up for AH wash and	19033394	SERVICES 4 HELPERS FOR APH WA	P28144	HAWAIIAN STEAM, INC.	supp
PIN262H08NENPIZZZZZ501	200107	2001	3,467.90	PR000260	HONOLULU STATION CONDENSER CLEANIN	19033393	HELPERS FOR CONDENSER CLEANII	P26505	HAWAIIAN STEAM, INC.	supp
PIL262K01NENPIZZZZZ501	200107	2001	6,935.79	PR000264	KAHE CONDENSER CLEANING	19033393	HELPERS FOR CONDENSER CLEANII	P26505	HAWAIIAN STEAM, INC.	supp
PIX262W03NENPIZZZZZ501	200107	2001	6,935.80	PR000261	WAIAU STATION CONDENSER CLEANING	19033393	HELPERS FOR CONDENSER CLEANII	P26505	HAWAIIAN STEAM, INC.	supp
PIN878HSTNENPIZZZZZ501	200107	2001	10,709.62	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2182	REMOVE/DISPOSE ASBESTOS HECO	P26904	OHANA ENVIRONMENTAL	supp
PIN878HSTNENPIZZZZZ501	200107	2001	11,124.43	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2196	REMOVE/DISPOSE ASBESTOS HECO	P26904	OHANA ENVIRONMENTAL	supp
PIN259H08NENPIZZZZZ501	200107	2001	13,452.50	PR020315	H8 reinsulation of 82 bfw heater	OEC-2186	REINSULATE 82 & 83 BFW HEATERS	P28285	OHANA ENVIRONMENTAL	supp
PIN259H08NENPIZZZZZ501	200107	2001	13,452.50	PR020315	H8 reinsulation of 82 bfw heater	OEC-2197	REINSULATE 82 & 83 BFW HEATERS	P28285	OHANA ENVIRONMENTAL	supp
PIN262H08NENPIZZZZZ501	200108	2001	4,474.31	PR000260	HONOLULU STATION CONDENSER CLEANIN	19033442	HELPERS FOR CONDENSER CLEANII	P28419	HAWAIIAN STEAM, INC.	supp
PIX262W03NENPIZZZZZ501	200108	2001	8,948.62	PR000261	WAIAU STATION CONDENSER CLEANING	19033442	HELPERS FOR CONDENSER CLEANII	P28419	HAWAIIAN STEAM, INC.	supp
PIL262K01NENPIZZZZZ501	200108	2001	8,948.62	PR000264	KAHE CONDENSER CLEANING	19033442	HELPERS FOR CONDENSER CLEANII	P28419	HAWAIIAN STEAM, INC.	supp
PIT257K02NEP0000247501	200108	2001	21,004.06	PR020744	K2 BOILER AND AIR HEATER WASH	19033471	4 HELPERS KAHE 2 OVERHAUL (20 W	P28803	HAWAIIAN STEAM, INC.	supp
PIX878WSTNENPIZZZZZ501	200108	2001	397.22	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2263	W-6 ECMZR INLET STOP VALVE ASBI	P29838	OHANA ENVIRONMENTAL	supp
PIX259W08NENPIZZZZZ501	200108	2001	500.00	PR020732	W07 Steam seal Wye strainer is leaking	OEC-2268	W-7 GLAND SEAL "Y" STRNR INSUL F	P29866	OHANA ENVIRONMENTAL	supp
PIX259W06NENPIZZZZZ501	200108	2001	695.00	PR021066	W6: Economizer inlet valve packing leak	OEC-2265	W-6 ECONOMIZER INLET VALVE RE-I	P29838	OHANA ENVIRONMENTAL	supp
PIN878HSTNENPIZZZZZ501	200108	2001	833.35	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2228	REMOVE/DISPOSE ASBESTOS HECO	P26904	OHANA ENVIRONMENTAL	supp
PIN878HSTNENPIZZZZZ501	200108	2001	906.60	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2227	REMOVE/DISPOSE ASBESTOS HECO	P26904	OHANA ENVIRONMENTAL	supp
PIX259W04NENPIZZZZZ501	200108	2001	946.41	PR020452	W4 Stm Trap # 4 st 17 blowing through	OEC-2206	INSUL RMVL W6 FLASH TANK W4 ST	P28958	OHANA ENVIRONMENTAL	supp
PIX259W06NENPIZZZZZ501	200108	2001	946.42	PR019605	W6: Atmospheric blow off tank inlet line	OEC-2206	INSUL RMVL W6 FLASH TANK W4 ST	P28958	OHANA ENVIRONMENTAL	supp
PIX259W05NENPIZZZZZ501	200108	2001	992.50	PR018998	W5: #52 FWH, tube leak. Repair as needed	OEC-2269	FAB & INSTL INSULATION #52 & #54 I	P29921	OHANA ENVIRONMENTAL	supp
PIX259W05NENPIZZZZZ501	200108	2001	992.50	PR019125	W5 #54 feedwater heater has a large tube	OEC-2269	FAB & INSTL INSULATION #52 & #54 I	P29921	OHANA ENVIRONMENTAL	supp
PIN878HSTNENPIZZZZZ501	200108	2001	1,009.46	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2244	REMOVE ASBESTOS ON H8 ID FAN D	P29463	OHANA ENVIRONMENTAL	supp
PIX878WSTNENPIZZZZZ501	200108	2001	1,186.72	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2226	W-5 MAIN STEAM TRAP INSULATION	P29063	OHANA ENVIRONMENTAL	supp
PIL878KSTNENPIZZZZZ501	200108	2001	1,250.00	PR002264	SWO-ASBESTOS REMOVAL/DISPOSAL (KAH	OEC-2231	SVCS PICKUP & DISPOSE OF ASBES	P29347	OHANA ENVIRONMENTAL	supp
PIX259W04NENPIZZZZZ501	200108	2001	1,650.00	PR020452	W4 Stm Trap # 4 st 17 blowing through	OEC-2267	W-4 STEAM TRACING LINE & TRAP R	P29838	OHANA ENVIRONMENTAL	supp
PIX878WSTNENPIZZZZZ501	200108	2001	1,886.56	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2211	SERVICE, W-3 AIR HEATER EXP. JOI	P28808	OHANA ENVIRONMENTAL	supp
PIX878WSTNENPIZZZZZ501	200108	2001	1,901.86	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2248	W-4 SSH DRAIN ASBESTOS ABATEMI	P29836	OHANA ENVIRONMENTAL	supp
PIX259W03NENPIZZZZZ501	200108	2001	2,300.00	PR020705	W3 Reinsulate Air Heater to Windbox Duct	OEC-2270	RE-INSL W-3 AIR HTR/WINDBOX EXP	P29921	OHANA ENVIRONMENTAL	supp
PIX265WSTNENPIZZZZZ501	200108	2001	2,875.00	PR021276	WGP Bike path piping require insulation	OEC-2266	#1 FUEL OIL TANK SUPPLY LINE RE-I	P29866	OHANA ENVIRONMENTAL	supp
PIX878WSTNENPIZZZZZ501	200108	2001	4,955.36	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2245	SERVICE, W-3 WINDBOX DUCT ASBE	P28808	OHANA ENVIRONMENTAL	supp
PIX259W03NENPIZZZZZ501	200108	2001	7,985.00	PR021075	Re-insulate East and West Windboxes/	OEC-2275	RE-INSLUATE W-3 EAST & WEST WI	P29921	OHANA ENVIRONMENTAL	supp
PIX878WSTNENPIZZZZZ501	200108	2001	10,042.96	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2246	SERVICE, W-3 WINDBOX DUCT ASBE	P28808	OHANA ENVIRONMENTAL	supp
PIN262H08NENPIZZZZZ501	200109	2001	3,361.86	PR000260	HONOLULU STATION CONDENSER CLEANIN	19033486	HELPERS FOR CONDENSER CLEANII	P28419	HAWAIIAN STEAM, INC.	supp
PIL262K01NENPIZZZZZ501	200109	2001	6,723.75	PR000264	KAHE CONDENSER CLEANING	19033486	HELPERS FOR CONDENSER CLEANII	P28419	HAWAIIAN STEAM, INC.	supp
PIX262W03NENPIZZZZZ501	200109	2001	6,723.76	PR000261	WAIAU STATION CONDENSER CLEANING	19033486	HELPERS FOR CONDENSER CLEANII	P28419	HAWAIIAN STEAM, INC.	supp
PIX259W06NENPIZZZZZ501	200109	2001	425.00	PR018652	W6:#62 FWH RV DISCHARGE PIPING - INSTA	OEC-2305	INSULATION SKIRT REPLACEMENT V	P30579	OHANA ENVIRONMENTAL	supp
PIN878HSTNENPIZZZZZ501	200109	2001	1,397.04	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2319	REMOVE ASBESTOS ON H8 ID FAN D	P29463	OHANA ENVIRONMENTAL	supp
PIX878WSTNENPIZZZZZ501	200109	2001	3,194.12	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2326	W3 #31 & #32 HTR DRAIN ASBESTOS	P30780	OHANA ENVIRONMENTAL	supp
PIX259W03NENPIZZZZZ501	200109	2001	4,695.00	PR021861	Re-insulate the condensate piping	OEC-2306	RE-INSULATE W#31 & W#32 HTR DR	P30579	OHANA ENVIRONMENTAL	supp
PIN878HSTNENPIZZZZZ501	200109	2001	19,326.15	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2318	REMOVE ASBESTOS ON H8 ID FAN D	P29463	OHANA ENVIRONMENTAL	supp
PIL271KTFNENPIZZZZZ501	200109	2001	5,000.00	PR017942	LB 11&12 FO TNK LOWER DRAINLINE ASBES	30193	SERVICE TO PERFORM ASBESTOS II	P26635	PETROCHEM INSULATION INC.	supp
PIT258K02NEP0000247501	200109	2001	16,141.85	PR019742	K2 REFRACTORY;INSUL;BLR CASING REPAIF	32165	TWO HELPERS INSULATION WORK I	P28689	PETROCHEM INSULATION INC.	supp
PIT259W04NEP0000244501	200110	2001	15,890.64	PR016152	W4 FRONT WW TUBE PANELS REPLACEMEI	100601	3 HELPERS ASSIST TRVL BLR CREW	P30089	GIORDANO'S PAINTING CO	supp
PIL265KWWNENPIZZZZZ501	200110	2001	36,000.00	PR005015	kAHE STATION BATCH TANK INSP/REPAIRS	91701	LABOR		GIORDANO'S PAINTING CO	supp
PIT257W04NEP0000244501	200110	2001	583.33	PR021269	W4 Boiler Chemical Clean	0110013	W4 BCC CRANE OPERATOR 8 HRS 1	P31763	HAWAIIAN CRANE & RIGGING L	supp
PIT257W04NEP0000244501	200110	2001	583.33	PR021269	W4 Boiler Chemical Clean	0110018	W4 BCC CRANE OPERATOR 8 HRS 1	P31763	HAWAIIAN CRANE & RIGGING L	supp
PIN262H08NENPIZZZZZ501	200110	2001	3,337.29	PR000260	HONOLULU STATION CONDENSER CLEANIN	19033556	HELPERS FOR CONDENSER CLEANII	P28419	HAWAIIAN STEAM, INC.	supp

AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
4,916.82	PR016152	W4 FRONT WW TUBE PANELS REPLACEMEI	19033589	1 HELPER ASSIST TRVL BLR CREW \	P30086	HAWAIIAN STEAM, INC.	supp
6,674.59	PR000261	WAIAU STATION CONDENSER CLEANING	19033556	HELPERS FOR CONDENSER CLEANII	P28419	HAWAIIAN STEAM, INC.	supp
6,674.59	PR000264	KAHE CONDENSER CLEANING	19033556	HELPERS FOR CONDENSER CLEANII	P28419	HAWAIIAN STEAM, INC.	supp
378.17	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2373	WAIAU 3 DRUM ASBESTOS REMOVA	P31701	OHANA ENVIRONMENTAL	supp
495.00	PR020992	W3: new stm drum safeties, insulate	OEC-2355	W-3 DRUM SAFETIES RE-INSULATIOI	P31222	OHANA ENVIRONMENTAL	supp
495.00	PR020993	W3: SH safety (RV-52) insulate main stm	OEC-2355	WAIAU -3 S.H. SAFETY RE-INSULATI(	P31222	OHANA ENVIRONMENTAL	supp
635.00	PR021011	W6: insulate contin blowdown piping at	OEC-2355	W-6 CONTINUOUS BLOWDOWN LINE	P31222	OHANA ENVIRONMENTAL	supp
675.00	PR021014	W7: Insulate both steam drum and CRH	OEC-2355	W-7 DRUM SAFETY RE-INSULATION	P31222	OHANA ENVIRONMENTAL	supp
695.00	PR021007	W6: Insulate all drum steam safety viv	OEC-2355	W-6 DRUM SAFETIES RE-INSULATE	P31222	OHANA ENVIRONMENTAL	supp
795.00	PR021010	W6: insulate the ERV pipe nozzle 6th fl	OEC-2355	W-6 ERV PIPE NOZZLE RE-INSULATE	P31222	OHANA ENVIRONMENTAL	supp
1,211.00	PR020998	W4:repair main stm line insul. at SH	OEC-2355	W-4 MAIN STEAM LINE INSULATION I	P31222	OHANA ENVIRONMENTAL	supp
4,946.30	PR022012	WGP REPLACE W7&8 CHEM LAB FLOOR TILI	OEC-2346	REMOVE W-7&8 CHEM LAB ASBESTC	P30841	OHANA ENVIRONMENTAL	supp
0,705.35	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2370	L&E REMOVE & DISPOSE OF ASBES1	P30139	OHANA ENVIRONMENTAL	supp
3,300.84	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2365	L&E REMOVE & DISPOSE OF ASBES1	P30139	OHANA ENVIRONMENTAL	supp
7,464.87	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2364	L&E REMOVE & DISPOSE OF ASBES1	P30139	OHANA ENVIRONMENTAL	supp
1,505.70			HI2001-01	2 INSTRUMENT TECHS TO SUPPORT	P30340	WESTERN PROCESS CONTROL	supp
1,546.40			HI2001-03	2 INSTRUMENT TECHS TO SUPPORT	P30340	WESTERN PROCESS CONTROL	supp
5,333.60			HI2001-02	2 INSTRUMENT TECHS TO SUPPORT	P30340	WESTERN PROCESS CONTROL	supp
1,000.00	PR005015	kAHE STATION BATCH TANK INSP/REPAIRS	101901	LABOR		GIORDANO'S PAINTING CO	supp
3,170.57	PR021338	K3 REFRACTORY;INSUL;BLR CASING REPAIF	HECO10-0	3 WELDERS KAHE 3 OUTAGE APH H(	P32379	HAWAIIAN DREDGING	supp
1,130.13	PR000260	HONOLULU STATION CONDENSER CLEANIN	19033617	HELPERS FOR CONDENSER CLEANII	P32856	HAWAIIAN STEAM, INC.	supp
1,260.26	PR000261	WAIAU STATION CONDENSER CLEANING	19033617	HELPERS FOR CONDENSER CLEANII	P32856	HAWAIIAN STEAM, INC.	supp
1,260.27	PR000264	KAHE CONDENSER CLEANING	19033617	HELPERS FOR CONDENSER CLEANII	P32856	HAWAIIAN STEAM, INC.	supp
346.35	PR022866	W4: Boiler mud drum (grd flr) insulation	OEC-2434	W-4 BLR MUD DRUM INSUL REMV/RE	P32664	OHANA ENVIRONMENTAL	supp
397.91	PR021957	LB K3 Cont Rm asbestos insulat falling	OEC-2405	K3 CNTRL RM ASBESTOS CLEANING	P32425	OHANA ENVIRONMENTAL	supp
501.05	PR021957	LB K3 Cont Rm asbestos insulat falling	OEC-2406	K3 CNTRL RM ASBESTOS CLEANING	P32425	OHANA ENVIRONMENTAL	supp
912.32	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2415	W-6 AUX STEAM-CHEM FEED HDR A:	P32432	OHANA ENVIRONMENTAL	supp
,093.92	PR021957	LB K3 Cont Rm asbestos insulat falling	OEC-2404	K3 CNTRL RM ASBESTOS CLEANING	P32425	OHANA ENVIRONMENTAL	supp
,000.00	PR022805	W6 Aux Stm Supply piping insulation to	OEC-2438	W-6 AUX STEAM-CHEM FEEDER HDF	P32433	OHANA ENVIRONMENTAL	supp
,545.00	PR022866	W4: Boiler mud drum (grd flr) insulation	OEC-2437	W-4 BLR MUD DRUM INSUL REMV/RE	P32664	OHANA ENVIRONMENTAL	supp
,160.93	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2439	W-3 BOTTOM BLOWDOWN LINE ASB	P31920	OHANA ENVIRONMENTAL	supp
,704.71	PR021992	W3: #32 APH soot blower chain valve	OEC-2386	W-3 BOTTOM BLOWDOWN LINE RE-I	P31920	OHANA ENVIRONMENTAL	supp
,468.27	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2436	L&E REMOVE & DISPOSE OF ASBES1	P30139	OHANA ENVIRONMENTAL	supp
,678.42	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2414	L&E REMOVE & DISPOSE OF ASBES1	P30139	OHANA ENVIRONMENTAL	supp
,649.21	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2389	L&E REMOVE & DISPOSE OF ASBES1	P30139	OHANA ENVIRONMENTAL	supp
,946.11	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2388	L&E REMOVE & DISPOSE OF ASBES1	P30139	OHANA ENVIRONMENTAL	supp
,072.13	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2423	L&E REMOVE & DISPOSE OF ASBES1	P30139	OHANA ENVIRONMENTAL	supp
750.00	PR020745	INTAKE TUNNEL CLEANING	33071	SOUND PROOFING DIESEL PUMPS H	P32181	PETROCHEM INSULATION INC.	supp
,700.00	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	32878	L&M H6 ID FAN DUCT REINSULATION	P30530	PETROCHEM INSULATION INC.	supp
,890.20			HI2001-08	2 INSTRUMENT TECHS TO SUPPORT	P30340	WESTERN PROCESS CONTROL	supp
,998.72			HI2001-04	2 INSTRUMENT TECHS TO SUPPORT	P30340	WESTERN PROCESS CONTROL	supp
,711.20			HI2001-06	2 INSTRUMENT TECHS TO SUPPORT	P30340	WESTERN PROCESS CONTROL	supp
,055.60			HI2001-07	2 INSTRUMENT TECHS TO SUPPORT	P30340	WESTERN PROCESS CONTROL	supp
,104.80			HI2001-05	2 INSTRUMENT TECHS TO SUPPORT	P30340	WESTERN PROCESS CONTROL	supp
,000.00	PR021735	K31 CIRCULATING WATER PUMP	120101	K31/32 CIRC WTR PMP EXP JOINT RE	P33248	GIORDANO'S PAINTING CO	supp
,000.00	PR021736	K32 CIRCULATING WATER PUMP-Service	120101	K31/32 CIRC WTR PMP EXP JOINT RE	P33248	GIORDANO'S PAINTING CO	supp
,000.00	PR014007	KAHE CORROSION CONTROL PAINTING -	121001	LABOR		GIORDANO'S PAINTING CO	supp
,400.00	PR014007	KAHE CORROSION CONTROL PAINTING -	12901	LABOR		GIORDANO'S PAINTING CO	supp
,000.00	PR014007	KAHE CORROSION CONTROL PAINTING -	112201A	LABOR		GIORDANO'S PAINTING CO	supp
,900.00	PR022780	KAHE 6 WAREHOUSE PAINTING PROJECT 2(	112201	LABOR		GIORDANO'S PAINTING CO	supp
,764.15	PR021338	K3 REFRACTORY;INSUL;BLR CASING REPAIF	HECO11-0	3 WELDERS KAHE 3 OUTAGE APH H(	P32379	HAWAIIAN DREDGING	supp
497.36	PR000260	HONOLULU STATION CONDENSER CLEANIN	19033686	HELPERS FOR CONDENSER CLEANII	P32856	HAWAIIAN STEAM, INC.	supp
162.66	PR021337	K3 BOILER AND AIR HEATER WASH	19033685	1 EA HELPERS FOR K3 OVERHALUL '	P31312	HAWAIIAN STEAM, INC.	supp
556.01	PR000260	HONOLULU STATION CONDENSER CLEANIN	19033693	HELPERS FOR CONDENSER CLEANII	P32856	HAWAIIAN STEAM, INC.	supp
994.71	PR000261	WAIAU STATION CONDENSER CLEANING	19033686	HELPERS FOR CONDENSER CLEANII	P32856	HAWAIIAN STEAM, INC.	supp
994.71	PR000264	KAHE CONDENSER CLEANING	19033686	HELPERS FOR CONDENSER CLEANII	P32856	HAWAIIAN STEAM, INC.	supp
840.05	PR021337	K3 BOILER AND AIR HEATER WASH	19033694	1 EA HELPERS FOR K3 OVERHALUL '	P31312	HAWAIIAN STEAM, INC.	supp

No	Supplier Name	SVC Typ
58	HAWAIIAN STEAM, INC.	supp
56	HAWAIIAN STEAM, INC.	supp
53	HAWAIIAN STEAM, INC.	supp
51	OHANA ENVIRONMENTAL	supp
50	OHANA ENVIRONMENTAL	supp
59	OHANA ENVIRONMENTAL	supp
15	OHANA ENVIRONMENTAL	supp
71	OHANA ENVIRONMENTAL	supp
15	OHANA ENVIRONMENTAL	supp
72	OHANA ENVIRONMENTAL	supp
19	OHANA ENVIRONMENTAL	supp
0	OHANA ENVIRONMENTAL	supp
1	OHANA ENVIRONMENTAL	supp
2	OHANA ENVIRONMENTAL	supp
3	OHANA ENVIRONMENTAL	supp
7	OHANA ENVIRONMENTAL	supp
7	OHANA ENVIRONMENTAL	supp
8	OHANA ENVIRONMENTAL	supp
9	OHANA ENVIRONMENTAL	supp
0	OHANA ENVIRONMENTAL	supp
7	OHANA ENVIRONMENTAL	supp
0	OHANA ENVIRONMENTAL	supp
4	PETROCHEM INSULATION INC.	supp
4	PETROCHEM INSULATION INC.	supp
4	PETROCHEM INSULATION INC.	supp
2	PETROCHEM INSULATION INC.	supp
9	PETROCHEM INSULATION INC.	supp
4	PETROCHEM INSULATION INC.	supp
4	PETROCHEM INSULATION INC.	supp
4	PETROCHEM INSULATION INC.	supp
8	PETROCHEM INSULATION INC.	supp
0	WESTERN PROCESS CONTROL	supp
0	WESTERN PROCESS CONTROL	supp
0	WESTERN PROCESS CONTROL	supp
0	WESTERN PROCESS CONTROL	supp
0	WESTERN PROCESS CONTROL	supp
0	WESTERN PROCESS CONTROL	supp
3	HAWAIIAN STEAM, INC.	other
9	HAWAIIAN STEAM, INC.	other
7	HAWAIIAN STEAM, INC.	other
0	PSC INDUSTRIAL OUTSOURCIN	other
2	PSC INDUSTRIAL OUTSOURCIN	other
3	HAWAIIAN STEAM, INC.	other
0	HAWAIIAN STEAM, INC.	other
7	HAWAIIAN STEAM, INC.	other
1	HAWAIIAN STEAM, INC.	other
1	PSC INDUSTRIAL OUTSOURCIN	other
1	PSC INDUSTRIAL OUTSOURCIN	other
1	HAWAIIAN STEAM, INC.	other
1	HAWAIIAN STEAM, INC.	other
1	HAWAIIAN STEAM, INC.	other
1	HAWAIIAN STEAM, INC.	other
1	HAWAIIAN STEAM, INC.	other
1	HAWAIIAN STEAM, INC.	other
1	HAWAIIAN STEAM, INC.	other
1	HAWAIIAN STEAM, INC.	other
1	HAWAIIAN STEAM, INC.	other

Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
7222	LE, #3 station service water pmp tripped	0207055	45 TON CRANE RENTAL KAHE 1 WK !	P39131	HAWAIIAN CRANE & RIGGING L	other
2127	K5 LE LAMP POST BADLY CORRODED (5L-2	0207055	45 TON CRANE RENTAL KAHE 1 WK !	P39131	HAWAIIAN CRANE & RIGGING L	other
7222	LE, #3 station service water pmp tripped	0207029	45 TON CRANE RENTAL KAHE 1 WK !	P39131	HAWAIIAN CRANE & RIGGING L	other
2127	K5 LE LAMP POST BADLY CORRODED (5L-2	0207029	45 TON CRANE RENTAL KAHE 1 WK !	P39131	HAWAIIAN CRANE & RIGGING L	other
7222	LE, #3 station service water pmp tripped	0206018	45 TON CRANE RENTAL KAHE 1 WK !	P39131	HAWAIIAN CRANE & RIGGING L	other
2127	K5 LE LAMP POST BADLY CORRODED (5L-2	0206018	45 TON CRANE RENTAL KAHE 1 WK !	P39131	HAWAIIAN CRANE & RIGGING L	other
3861	K6 OH PORTABLE TOOLS/EQUIPMENT-REPA	1134086	SERVICE SKY CLIMBER MOTORS	P41185	ATLAS SALES CO., INC. - KAPOI	other
3861	K6 OH PORTABLE TOOLS/EQUIPMENT-REPA	1134092	SERVICE SKY CLIMBER MOTORS	P41185	ATLAS SALES CO., INC. - KAPOI	other
3861	K6 OH PORTABLE TOOLS/EQUIPMENT-REPA	1134087	SERVICE SKY CLIMBER MOTORS	P41185	ATLAS SALES CO., INC. - KAPOI	other
3861	K6 OH PORTABLE TOOLS/EQUIPMENT-REPA	1134088	SERVICE SKY CLIMBER MOTORS	P41185	ATLAS SALES CO., INC. - KAPOI	other
3861	K6 OH PORTABLE TOOLS/EQUIPMENT-REPA	1134089	SERVICE SKY CLIMBER MOTORS	P41185	ATLAS SALES CO., INC. - KAPOI	other
3861	K6 OH PORTABLE TOOLS/EQUIPMENT-REPA	1134090	SERVICE SKY CLIMBER MOTORS	P41185	ATLAS SALES CO., INC. - KAPOI	other
5575	HAUL GARY TALBERTS TOOL BOX TO HOME	02-10416	HAUL TOOL BOX FROM KAHE TO NA	P43205	HAWAIIAN STEAM, INC.	other
236	W72 CWP Motor degrading insulation	47466	72 CWP MTR DISASSEMBLE/TEST/RE	P34080	AMERICAN ELECTRIC LLC	skill
274	Tank 1 Soil	4591	WAIAU FUEL TANK #1 SOIL #PR0242	P34632	FINLAY UTILITY SERVICES, INC.	skill
027	W8:TRAVELING SCREEN SPALLING REPAIR	4589	WAIAU TRVL SCRN SPALL REPAIR #!	P34629	FINLAY UTILITY SERVICES, INC.	skill
497	LB K5 #51 chiller has a leak on the	122501	ASSIST WITH K61 CHILLER REPAIR V	P33559	GIORDANO'S PAINTING CO	skill
106	Parking Lot & Roadways-Re Stripe Areas	10302	WPP-PARKING LOT & ROADWAYS RI	P34137	GIORDANO'S PAINTING CO	skill
879	EDDY CURENT H2 COOLERS	10501	SNDBLST/PRESERVE K-1 HYDROGE	P34617	GIORDANO'S PAINTING CO	skill
216	OUTSIDE SERVICE 11 CHILLER	10402	SAND BLAST PRIM PAINT PATCH CH	P34283	GIORDANO'S PAINTING CO	skill
107	Tech Shop-Re-paint "old" Ewa Side Wall	10702	WPP-TECH SHOP EWA WALL RE-PA	P34138	GIORDANO'S PAINTING CO	skill
189	W72 CWP Vibration Increasing.(PDM)	10601	W-72 CWP SNDBLST & PAINT HOUS	P34082	GIORDANO'S PAINTING CO	skill
802	LB/LT K6 "J" burner fuel oil supply hose	122801	LABOR&MAT CLEAN OIL SPILL K6-BU	P34139	GIORDANO'S PAINTING CO	skill
834	EDDY CURENT HYDROBLAST K13 FWH	20927	JET RODDED PLUGED DRAINS K1	P34525	GLOBAL ENVIRONMENTAL SVC	skill
636	K12 CIRCULATING WATER PP MOTOR SERVI	0201021	CRANE TO REMOVE KAHE 11/12 CWI	P34605	HAWAIIAN CRANE & RIGGING L	skill
635	K11 CIRCULATING WATER PP MOTOR SERVI	0201021	CRANE TO REMOVE KAHE 11/12 CWI	P34605	HAWAIIAN CRANE & RIGGING L	skill
189	W72 CWP Vibration increasing.(PDM)	26950	W72 CWP SHAFT MACHINE SVCS &	P34116	HONOMACH INC	skill
253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	18305457	WPP-REMV/DISP OF SPEC OIL-4 55 (	P33763	PSC INDUSTRIAL OUTSOURCIN	skill
337	K3 BOILER AND AIR HEATER WASH	18305458	K3 BLR WASTE & LIME MIXING	P34217	PSC INDUSTRIAL OUTSOURCIN	skill
306	W7: DMR cation and anion vessel drain	18305434	PHILLIPS SERVICES TO MOBILIZE AN	P22590	PSC INDUSTRIAL OUTSOURCIN	skill
337	K3 BOILER AND AIR HEATER WASH	18305485	K3 BLR WASTE & LIME MIXING	P34217	PSC INDUSTRIAL OUTSOURCIN	skill
202	pump out all kahe oily waste sumps	18305507	K1-K6 PUMP OUT OILY WASTE SUMF	P34471	PSC INDUSTRIAL OUTSOURCIN	skill
090	CT Oily Sump...remove lube oil residual.	18305419	PUMP OUT REMOVE CT 9/10 SUMP (	P34014	PSC INDUSTRIAL OUTSOURCIN	skill
722	K1 RHT SS TUBES/HEADERS-Predict Maint	D0000122	SCAFOLDING K1 OVERHAUL BRULS	P33989	SAFWAY SERVICES, INC.	skill
690	K1 PR SS TUBES/HEADERS-PREDICT MAINT	D0000122	SCAFOLDING K1 OVERHAUL BRULS	P33989	SAFWAY SERVICES, INC.	skill
901	Westinghouse Engineering Services	HLR269E	SERVICES OF WESTINGHOUSE TO A	P26716	SIEMENS WESTINGHOUSE TEC	skill
641	K1 HEATER DRIP PP MOTOR/LINESTR SERVI	47493	KAHE 1 HEATER DRIP PUMP MTR. 40	P35407	AMERICAN ELECTRIC LLC	skill
240	service primary fo pump motor	47476	PRI FUEL OIL #12 25HP-REFURBISH	P35048	AMERICAN ELECTRIC LLC	skill
695	K1 BLR ACCESS/EXPLO DOORS-SERVICE	47519	SERV AIR #11 75HP-REFURBISH STA	P35407	AMERICAN ELECTRIC LLC	skill
476	W5:#51 Boiler wash pp bkr trips on start	47521	W5 #51 BLR WASH PUMP MTR RECO	P35409	AMERICAN ELECTRIC LLC	skill
638	K12 CONDENSATE PUMP MOTOR SERVICE	47492	COND.WTR MTR.#12 230HP-REFURB	P35048	AMERICAN ELECTRIC LLC	skill
637	K11 CONDENSATE PUMP MOTOR SERVICE	47481	COND.WTR. #11 230 HP-REFURBISH	P35048	AMERICAN ELECTRIC LLC	skill
640	K12 SECONDARY F.O. MOTOR SERVICE	47475	SEC FUEL OIL #12 100HP-REFURBISH	P35048	AMERICAN ELECTRIC LLC	skill
639	K11 SECONDARY F.O. MOTOR SERVICE	47491	SFOP#11 100HP-REFURBISH STATOR	P35048	AMERICAN ELECTRIC LLC	skill
636	K12 CIRCULATING WATER PP MOTOR SERVI	47509	CWP #12 403 HP-REFURBISH STATOI	P35407	AMERICAN ELECTRIC LLC	skill
635	K11 CIRCULATING WATER PP MOTOR SERVI	47511	CWP #11 300HP-REFURBISH MTR. &	P35407	AMERICAN ELECTRIC LLC	skill
200	LE Motor Running Noisey, Bearing sightgl	47480	K5 SCRN WASH PUMP 75HP MTR RE	P35048	AMERICAN ELECTRIC LLC	skill
632	K1 FORCED DRAFT FAN - HS MOTOR SERVI	47504	FDF-HISP-1000HP-REFURBISH STAT	P35407	AMERICAN ELECTRIC LLC	skill
633	K11 BOILER FEED PUMP MOTOR SERVICE	47479	BFP #11-REFURBISH MTR. & ROTOR	P35048	AMERICAN ELECTRIC LLC	skill
634	K12 BOILER FEED PUMP MOTOR SERVICE	47477	BFP MTR#12 1250HP-REFURBISH ST	P35048	AMERICAN ELECTRIC LLC	skill
667	K11 AUX COOLING WTR PP MOTOR SERVICI	47505	AUX. COOLING WTR.11-REFURBISH I	P35407	AMERICAN ELECTRIC LLC	skill
397	LE #51 SSWP upper motor bearing is	47438	REWIND STATOR/REPAIR ROTOR AS	P33967	AMERICAN ELECTRIC LLC	skill
836	EDDY CURENT AND HYDROBLAST AIR EJEC	4-02-009	K1 OVERHAUL EDDY CURENT TESTI	P34018	ENGINEERING & INSPECTIONS	skill
832	EDDY CURENT HYDROBLAST K11 FWH	4-02-009	K1 OVERHAUL EDDY CURENT TESTI	P34018	ENGINEERING & INSPECTIONS	skill
831	EDDY CURENT HYDROBLAST K14 FWH	4-02-009	K1 OVERHAUL EDDY CURENT TESTI	P34018	ENGINEERING & INSPECTIONS	skill
834	EDDY CURENT HYDROBLAST K13 FWH	4-02-009	K1 OVERHAUL EDDY CURENT TESTI	P34018	ENGINEERING & INSPECTIONS	skill
833	EDDY CURENT HYDROBLAST K12 FWH	4-02-009	K1 OVERHAUL EDDY CURENT TESTI	P34018	ENGINEERING & INSPECTIONS	skill

SVC Typ
skill
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skill

ACCOUNT_CODE	LL_PERI	TransYr	AMT	Work_Order	Work_Order_Desc	Inv_No	Inv_Item_Desc	PO_No	Supplier_Name	SVC_Typ
04NEP0000520501	200203	2002	1,020.77	PR024833	K4 INSULATION;REFRAC;BLR CASE REPAIR			P36782	HONOMACH INC	skill
01NEP0000251501	200203	2002	2,343.74	PR024240	service primary fo pump motor	27042	L&M RPR MISALGMT K-12 PRI FO PUI	P36217	HONOMACH INC	skill
V04NENPIZZZZZ501	200203	2002	3,064.04	PR024498	W04 #41 BFP thrust bearing needs to be	27025	REBABBIT AND MACHINE JOURNAL E	P35710	HONOMACH INC	skill
06NENPIZZZZZ501	200203	2002	3,357.27	PR024169	LM K6 #61 IAC broken valve in compressor	27026	SLEEVE & BORE K5 #51 INST AIR COI	P36126	HONOMACH INC	skill
VSTNENPIZZZZZ501	200203	2002	2,677.09	PR010078	SWO-POND/WATERWAYS CLEANUP	00007009	RAW WTR POND CLEAN-UP. REMOV	P35867	PACIFIC DIVING INDUSTRIES, IN	skill
VSTNENPIZZZZZ501	200203	2002	597.00	PR011399	Waiau Tech Div-Calibrate/Certify Inst	37899.1	WPP-CALIBARATE & NIST CERTIFY D	P33964	PROCESS CONTROLS, INC.	skill
VT1NENPIZZZZZ501	200203	2002	702.00	PR016306	W7: DMR cation and anion vessel drain	18305862	PHILLIPS SERVICES TO MOBILIZE AN	P22590	PSC INDUSTRIAL OUTSOURCIN	skill
01NEP0000251501	200203	2002	6,714.32	PR023461	K1 LOOP SEAL VAPOR EXTRACTOR - SERVI	18305856	CLEAN K1 TURBINE HOUSE & FLOOF	P36207	PSC INDUSTRIAL OUTSOURCIN	skill
01NEP0000251501	200204	2002	42,760.75	PR023155	KAHE 1 GENERATOR INSPECTION AGT SER\	2000-225	K1 GENERATOR STATOR RE-WEDGII	P35400	AGT SERVICES	skill
04NEP0000520501	200204	2002	704.00	PR024885	K42 PRI FO MOTOR Recondition	47574	K42 PRI FO PUMP 60HP MOTOR REC	P37199	AMERICAN ELECTRIC LLC	skill
04NEP0000520501	200204	2002	994.00	PR014063	K4 ACW #2 (K41) motor repairs	47580	K41 ACW MOTOR 125 HP RECOND PI	P37199	AMERICAN ELECTRIC LLC	skill
V05NENPIZZZZZ501	200204	2002	1,458.24	PR021523	W5 #51 CWP Motor - Clean, Inspect,	47617	W5 #51 CWP 200 HP RECON STATOF	P37657	AMERICAN ELECTRIC LLC	skill
01NEP0000251501	200204	2002	3,200.00	PR023663	K1 #11 STATION SVC WTR MOTOR SERVICE	47539	RECOND/REWIND K-1 WTR #11 60HF	P35861	AMERICAN ELECTRIC LLC	skill
04NEP0000520501	200204	2002	1,920.00	PR024833	K4 INSULATION;REFRAC;BLR CASE REPAIR	2049193D/	K4 OH BLR REPAIR SCAFFOLDING	P36391	ATLAS SALES CO., INC. - KAPOI	skill
04NEP0000520501	200204	2002	2,880.00	PR024833	K4 INSULATION;REFRAC;BLR CASE REPAIR	2048534D/	K4 OH BLR REPAIR SCAFFOLDING	P36391	ATLAS SALES CO., INC. - KAPOI	skill
04NEP0000520501	200204	2002	1,236.84	PR025412	K4 OH BLR SSH TUBE LEAK (6th floor)	4-02-126	K4 BOILER SSH DMW XRAY FOLWIN(	P37204	ENGINEERING & INSPECTIONS	skill
04NEP0000520501	200204	2002	8,437.50	PR024844	K4 CONDENSER TESTING/INSPECTION	4-02-105	EDDY CURRENT TESTING: K4 COND	P35628	ENGINEERING & INSPECTIONS	skill
04NEP0000520501	200204	2002	8,437.50	PR024853	K4 CHILLER - Eddy Current Tubes/Clean	4-02-105	EDDY CURRENT TESTING: K4 COND	P35628	ENGINEERING & INSPECTIONS	skill
05NENPIZZZZZ501	200204	2002	260.42	PR025161	K5 BOILER TUBE LEAK	2730	WLDR QUAL TEST COUPONS MACAI	P36161	FINLAY TESTING LABORATORIE	skill
V05NEP0000252501	200204	2002	578.13	PR025633	W5 WATERWALL TUBE SAMPLE	2760	W5 WW TUBE SAMPLE X-RAY SERVI	P37193	FINLAY TESTING LABORATORIE	skill
05NENPIZZZZZ501	200204	2002	260.42	PR025161	K5 BOILER TUBE LEAK	2730	WLDR QUAL TEST COUPONS MACAI	P36161	FINLAY TESTING LABORATORIE	skill
V05NEP0000252501	200204	2002	578.13	PR025633	W5 WATERWALL TUBE SAMPLE	2760	W5 WW TUBE SAMPLE X-RAY SERVI	P37193	FINLAY TESTING LABORATORIE	skill
PONENPHZZZZZ501	200204	2002	303.15	HP001360	Fuel Cell Test Center-Facilities R&D Exp	4714	04 WHSE FENCE/STORAGE #FA3012	P36169	FINLAY UTILITY SERVICES, INC.	skill
04NENPIZZZZZ501	200204	2002	346.46	PR025821	KAHE 4 DISCHARGE TUNNEL MANHOLE	4688	KAHE 4 MANHOLE CVR ADJ #PR0258	P37075	FINLAY UTILITY SERVICES, INC.	skill
04NENPIZZZZZ501	200204	2002	1,079.89	PR025821	KAHE 4 DISCHARGE TUNNEL MANHOLE	4694	KAHE 4 MANHOLE CVR ADJ #PR0258	P37075	FINLAY UTILITY SERVICES, INC.	skill
PONENPHZZZZZ501	200204	2002	1,293.74	HP001360	Fuel Cell Test Center-Facilities R&D Exp	4698	04 WHSE FENCE/STORAGE #FA3012	P36169	FINLAY UTILITY SERVICES, INC.	skill
PONENPHZZZZZ501	200204	2002	1,938.07	HP001360	Fuel Cell Test Center-Facilities R&D Exp	4669	04 WHSE FENCE/STORAGE #FA3012	P36169	FINLAY UTILITY SERVICES, INC.	skill
PONENPHZZZZZ501	200204	2002	3,956.54	HP001360	Fuel Cell Test Center-Facilities R&D Exp	4684	04 WHSE FENCE/STORAGE #FA3012	P36169	FINLAY UTILITY SERVICES, INC.	skill
PONENPHZZZZZ501	200204	2002	3,970.13	HP001360	Fuel Cell Test Center-Facilities R&D Exp	4679	04 WHSE FENCE/STORAGE #FA3012	P36169	FINLAY UTILITY SERVICES, INC.	skill
04NEP0000520501	200204	2002	2,500.00	PR024967	LB K4 CENTRAL WELL BASIN VLV INSP/RPR	31802	K4 PAINT 2 EA CNTR WELL PROTEC	P36724	GIORDANO'S PAINTING CO	skill
ISTNENPIZZZZZ501	200204	2002	3,000.00	PR022240	Prep and paint Hicks plt roll-up door &	122001	PREP & PAINT HPP ROLL-UP DR & S(	P31194	GIORDANO'S PAINTING CO	skill
04NEP0000520501	200204	2002	6,000.00	PR024853	K4 CHILLER - Eddy Current Tubes/Clean	31602	K4 CHILLER END CVRS/WTRBOX PRI	P37071	GIORDANO'S PAINTING CO	skill
V05NENPIZZZZZ501	200204	2002	10,200.00	PR022754	W5 #52 Traveling Screen - Reconditioning	31702	WPP-#51 TRAVELING SCREEN SAND	P37221	GIORDANO'S PAINTING CO	skill
04NEP0000520501	200204	2002	41,897.00	PR024968	K4 OH CIRC WTR TUNNEL CLEANING	21006	K41/42 CIRC WTR TUNNEL CLEANIN(	P36478	GLOBAL ENVIRONMENTAL SVC	skill
04NEP0000520501	200204	2002	830.72	PR024967	LB K4 CENTRAL WELL BASIN VLV INSP/RPR	0202022	CRANE OPER RENTAL, K1 CENTRAL	P35864	HAWAIIAN CRANE & RIGGING L	skill
VSTNENPIZZZZZ501	200204	2002	260.41	PR018891	Collect charges for XFMR oil disposal	1503	SVCS FOR P/U & DISPOSAL OF USEI	P34234	HAZTECH ENVIRONMENTAL SE	skill
HENENPJZZZZZ600	200204	2002	918.74			1545	DISPOSAL OF 55 GALLON BARREL O	P37083	HAZTECH ENVIRONMENTAL SE	skill
ISTNENPIZZZZZ501	200204	2002	1,820.39	PR000247	SWO-MERCURY DISPOSAL (HONOLULU STA	1542	HPP DISPOSE OF MERCURY FLUORI	P37058	HAZTECH ENVIRONMENTAL SE	skill
04NEP0000520501	200204	2002	5,165.59	PR024853	K4 CHILLER - Eddy Current Tubes/Clean	27068	K4 CHILLER END CVRS MACHINING F	P37049	HONOMACH INC	skill
04NEP0000520501	200204	2002	7,350.47	PR025190	K4 FORCED DRAFT FAN SERVICE	27107	L&M TO REBABBITT K4 FDF LS BRG.	P37303	HONOMACH INC	skill
04NEP0000520501	200204	2002	10,000.00	PR025190	K4 FORCED DRAFT FAN SERVICE	27062	REBABBIT 2 EA K-4 FORCED DRAFT I	P36668	HONOMACH INC	skill
V08NENPIZZZZZ501	200204	2002	3,083.34	PR025401	W8 CWS Clean Tunnel (ocean side) - 3/02	00007025	W-8 CIRCULATING WATER INLET TUI	P36592	PACIFIC DIVING INDUSTRIES, IN	skill
ISTNENPIZZZZZ501	200204	2002	566.06	PR022822	WWF OVERBOARD METER CALIBRATION	37591.1	CALIBRATE WASTE WATER OVERBC	P32430	PROCESS CONTROLS, INC.	skill
STNENPIZZZZZ501	200204	2002	1,704.98	HP000408	Lead Acid Batter/Flou Lamp Disposal-Kahe	18300065	KAHE FLOURESCENT/SODIUM BULB	P37399	PSC INDUSTRIAL OUTSOURCIN	skill
VWWNENPIZZZZZ501	200204	2002	2,065.53	PR024868	WWTF Sludge tank K2M test	18306000	W-8 BLR WW SYS SLUDGE PUMPING	P36931	PSC INDUSTRIAL OUTSOURCIN	skill
01NEP0000251501	200204	2002	2,676.02	PR023461	K1 LOOP SEAL VAPOR EXTRACTOR - SERVI	18306041	CLEAN K1 TURBINE HOUSE & FLOOF	P36207	PSC INDUSTRIAL OUTSOURCIN	skill
04NEP0000520501	200204	2002	3,308.46	PR024830	K4 BOILER AND AIR HEATER WASH	18305908	K4 OH BLR WASH PPG UNCLOG	P36517	PSC INDUSTRIAL OUTSOURCIN	skill
V08NENPIZZZZZ501	200204	2002	3,683.59	PR025145	W8 Boiler Wash (Feb 2002)	18300122	W-7 PUMP OUT SUMP & W8 TRENCH	P38011	PSC INDUSTRIAL OUTSOURCIN	skill
V08NENPIZZZZZ501	200204	2002	24,351.52	PR025401	W8 CWS Clean Tunnel (ocean side) - 3/02	18306040	W-8 CIRC WATER INLET TUNNEL CLI	P36591	PSC INDUSTRIAL OUTSOURCIN	skill
TFNENPIZZZZZ501	200205	2002	1,264.86	PR026447	KGP FUEL HOUSE VENT FAN REPAIR	47561	K1 FUEL HOUSE VENT FAN, REPAIR	P37668	AMERICAN ELECTRIC LLC	skill
V05NEP0000252501	200205	2002	101.46	PR025633	W5 WATERWALL TUBE SAMPLE	1127478D/	W5 WW TUBE SAMPLE SCAFFOLDIN	P37095	ATLAS SALES CO., INC. - KAPOI	skill
06NEP0000250501	200205	2002	314.06	PR025677	K6 PRI SH TUBE/HEADERS-PREDICT MAIN	2811	XRAY SERVICES, K6 BLR PSH TUBE I	P39054	FINLAY TESTING LABORATORIE	skill
06NEP0000250501	200205	2002	314.06	PR025677	K6 PRI SH TUBE/HEADERS-PREDICT MAIN	2811	XRAY SERVICES, K6 BLR PSH TUBE I	P39054	FINLAY TESTING LABORATORIE	skill
TFNENPIZZZZZ501	200205	2002	86.61	PR026936	REPAIR EXPANSION BOX COVERS# 13 &14	4746	IWILEI FUEL OIL EXPANSION BOX PR	P38538	FINLAY UTILITY SERVICES, INC.	skill
TFNENPIZZZZZ501	200205	2002	96.75	PR026936	REPAIR EXPANSION BOX COVERS# 13 &14	4751	IWILEI FUEL OIL EXPANSION BOX PR	P38538	FINLAY UTILITY SERVICES, INC.	skill
STNENPIZZZZZ501	200205	2002	145.11	PR000244	SWO-HAZARD WSTE DISPOSAL (HONOLULU	4724	HONOLULU PP SOIL DISPOSAL #PR0	P38087	FINLAY UTILITY SERVICES, INC.	skill
V05NENPIZZZZZ501	200205	2002	313.75	PR014452	W5:TRAVELING SCREEN SPALLING REPAIR	4740	WAIAU 5 TRVL SCRN REPAIR #PR014	P36696	FINLAY UTILITY SERVICES, INC.	skill

ACCOUNT_CODE	LL_PERI	TransYr	AMT	Work_Order	Work_Order_Desc	Inv_No	Inv_Item_Desc	PO_No	Supplier_Name	SVC Typ
PIX262W06NENPIZZZZZ501	200205	2002	313.75	PR014456	W6:TRAVELING SCREEN SPALLING REPAIR	4741	WAIAU 6 TRVL SCRN REPAIR #PR014	P36700	FINLAY UTILITY SERVICES, INC.	skill
PIX266WWWNENPIZZZZZ501	200205	2002	386.98	PR016109	Sludge drying beds-Cells 1-6 Refurbish	4768	WAIAU SLUDGE VALVE #5 #PR01610	P39089	FINLAY UTILITY SERVICES, INC.	skill
PHF730PPONENPHZZZZZ501	200205	2002	1,602.36	HP001360	Fuel Cell Test Center-Facilities R&D Exp	4726	04 WHSE FENCE/STORAGE #FA3012	P36169	FINLAY UTILITY SERVICES, INC.	skill
PIX262W05NENPIZZZZZ501	200205	2002	1,623.69	PR014452	W5:TRAVELING SCREEN SPALLING REPAIR	4754	WAIAU 5 TRVL SCRN REPAIR #PR014	P36696	FINLAY UTILITY SERVICES, INC.	skill
PIX262W06NENPIZZZZZ501	200205	2002	1,623.69	PR014456	W6:TRAVELING SCREEN SPALLING REPAIR	4755	WAIAU 6 TRVL SCRN REPAIR #PR014	P36700	FINLAY UTILITY SERVICES, INC.	skill
PIX262W05NENPIZZZZZ501	200205	2002	1,623.70	PR014452	W5:TRAVELING SCREEN SPALLING REPAIR	4747	WAIAU 5 TRVL SCRN REPAIR #PR014	P36696	FINLAY UTILITY SERVICES, INC.	skill
PIX262W06NENPIZZZZZ501	200205	2002	1,623.70	PR014456	W6:TRAVELING SCREEN SPALLING REPAIR	4748	WAIAU 6 TRVL SCRN REPAIR #PR014	P36700	FINLAY UTILITY SERVICES, INC.	skill
PIX262W05NENPIZZZZZ501	200205	2002	1,720.44	PR014452	W5:TRAVELING SCREEN SPALLING REPAIR	4765	WAIAU 5 TRVL SCRN REPAIR #PR014	P36696	FINLAY UTILITY SERVICES, INC.	skill
PIL265KSTNENPIZZZZZ501	200205	2002	1,726.71	PR026434	K3/4 CONCRETE SLAB REPAIRS	4743	KAHE 3 & 4 CONCRETE SLAB REPAIF	P38540	FINLAY UTILITY SERVICES, INC.	skill
PIX262W06NENPIZZZZZ501	200205	2002	1,768.80	PR014456	W6:TRAVELING SCREEN SPALLING REPAIR	4766	WAIAU 6 TRVL SCRN REPAIR #PR014	P36700	FINLAY UTILITY SERVICES, INC.	skill
PHF730PPONENPHZZZZZ501	200205	2002	2,378.09	HP001360	Fuel Cell Test Center-Facilities R&D Exp	4742	04 WHSE FENCE/STORAGE #FA3012	P36169	FINLAY UTILITY SERVICES, INC.	skill
PHF730PPONENPHZZZZZ501	200205	2002	2,587.28	HP001360	Fuel Cell Test Center-Facilities R&D Exp	4735	04 WHSE FENCE/STORAGE #FA3012	P36169	FINLAY UTILITY SERVICES, INC.	skill
PIL265KSTNENPIZZZZZ501	200205	2002	2,730.12	PR026434	K3/4 CONCRETE SLAB REPAIRS	4749	KAHE 3 & 4 CONCRETE SLAB REPAIF	P38540	FINLAY UTILITY SERVICES, INC.	skill
PIT259K04NEP0000520501	200205	2002	4,100.00	PR025807	K41 ACW PUMP HAS UNUSUAL NOISE/VIB	42502A	SANDBLAST PAINT KAHE 4 ACW PMI	P38119	GIORDANO'S PAINTING CO	skill
PIL262K04NENPIZZZZZ501	200205	2002	824.99	PR026836	LB K4 #42 Traveling Screen- chain slips	0205020	K4 TRAV SCRN, OPERATOR FOR DRI	P38807	HAWAIIAN CRANE & RIGGING L	skill
PIT260K06NEP0000250501	200205	2002	2,774.98	PR026329	K62 CIRCULATING WATER PP MOTOR SERVI	0205021	K61 CWP MTR RMVL - CRANE SERVI	P38807	HAWAIIAN CRANE & RIGGING L	skill
PIX878WSTNENPIZZZZZ501	200205	2002	2,987.76	PR000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	1544	REMOVE AND DISPOSE CONTMNTD	P37705	HAZTECH ENVIRONMENTAL SE	skill
PIL262K04NENPIZZZZZ501	200205	2002	2,499.84	PR026531	LB,#42 Tscreen not turnning. chain is			P38666	HONOMACH INC	skill
PIL265KWWNENPIZZZZZ501	200205	2002	546.47	PR000009	Collect $$ WW OVBD Flow Meter (EPA)	37590.1	CALIBRATE HERSEY WATER METER	P32860	PROCESS CONTROLS, INC.	skill
PIN268HSTNENPIZZZZZ501	200205	2002	568.54	PR025616	Annual calibration for RIS Calibrator	38354.1	CALIBRATE RIS METER CALIBRATOF	P36814	PROCESS CONTROLS, INC.	skill
PIX242WSTNENPIZZZZZ501	200205	2002	627.12	PR026242	W8:PT165,BFP tripped, no red light	18300153	PUMP OUT PIPELINE EXPAN BOXES	P37679	PSC INDUSTRIAL OUTSOURCIN	skill
PIT257K04NEP0000520501	200205	2002	1,355.26	PR024830	K4 BOILER AND AIR HEATER WASH	18300235	BOILER ASH TRMT & DISPL K-4 O/H	P38349	PSC INDUSTRIAL OUTSOURCIN	skill
PJC876PHENENPJZZZZZ600	200205	2002	1,456.00			18300198	DISPOSAL OF MERCURY CONTAININ	P38142	PSC INDUSTRIAL OUTSOURCIN	skill
PIL271KTFNENPIZZZZZ501	200205	2002	2,021.70	PR002109	SWO-WASTE OIL COLLECTION/RECLAIM	18300232	DISPOSAL & REMOVAL OF WASTE O	P38320	PSC INDUSTRIAL OUTSOURCIN	skill
PIL259K05NENPIZZZZZ501	200205	2002	678.12	PR025014	LB K5 main steam drain line root valve	0034609-II	SCFLD K-5 1ST FLR MAIN STEAM LN	P36127	SAFWAY SERVICES, INC.	skill
PIT257K06NEP0000250501	200205	2002	6,848.54	PR025535	K6 BOILER HYDROSTATIC TESTS	0034679-II	K6 OVHL SCAFFOLDING FOR BRULS	P38227	SAFWAY SERVICES, INC.	skill
PIT258K06NEP0000250501	200205	2002	6,848.54	PR025679	K6 STM PIPING HANGRS/SPTS-PREDICT MAI	0034679-II	K6 OVHL SCAFFOLDING FOR BRULS	P38227	SAFWAY SERVICES, INC.	skill
PIN262H08NENPIZZZZZ501	200206	2002	327.03	PR027297	H8 #82 CHILLER NEEDS TO BE CLEANED	2050694D	HPP #82 CHILLER,ATLAS TO ERECT	P39516	ATLAS SALES CO., INC. - KAPOI	skill
PIT258K06NEP0000250501	200206	2002	4,484.34	PR026066	K6 66 FWH EDDY CURRENT TESTING	4-02-300	K65/66 FWH IRIS TESTING 20% TUBE	P39590	ENGINEERING & INSPECTIONS	skill
PIT258K06NEP0000250501	200206	2002	4,484.35	PR026065	K65 EDDY CURRENT TESTING	4-02-300	K65/66 FWH IRIS TESTING 20% TUBE	P39590	ENGINEERING & INSPECTIONS	skill
PIT261K06NEP0000250501	200206	2002	6,570.79	PR026068	K61 CHILLER EDDY CURRENT TESTING	4-02-314	K61 CHILLER 100% EDDY CURRENT I	P39589	ENGINEERING & INSPECTIONS	skill
PIT258K06NEP0000250501	200206	2002	405.51	PR025665	K6 ECONZR TUBES/HEADERS-(BRULS)	2823	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
PIT258K06NEP0000250501	200206	2002	405.51	PR025677	K6 PRI SH TUBE/HEADERS-PREDICT MAIN	2823	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
PIT258K06NEP0000250501	200206	2002	405.51	PR025678	K6 SEC SH TUBES/HEADERS-Pred Maint BRU	2823	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
PIT258K06NEP0000250501	200206	2002	405.51	PR025679	K6 STM PIPING HANGRS/SPTS-PREDICT MAI	2823	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
PIT258K06NEP0000250501	200206	2002	540.67	PR025680	K6 RSH TUBES/HEADERS-Predict Maint BRUL	2823	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
PIT258K06NEP0000250501	200206	2002	540.68	PR025614	K6 WW/DOWNCOMER/HDR-PRED MAINT (BR	2823	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
PIT258K06NEP0000250501	200206	2002	405.51	PR025665	K6 ECONZR TUBES/HEADERS-(BRULS)	2823	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
PIT258K06NEP0000250501	200206	2002	405.51	PR025677	K6 PRI SH TUBE/HEADERS-PREDICT MAIN	2823	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
PIT258K06NEP0000250501	200206	2002	405.51	PR025678	K6 SEC SH TUBES/HEADERS-Pred Maint BRU	2823	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
PIT258K06NEP0000250501	200206	2002	405.51	PR025679	K6 STM PIPING HANGRS/SPTS-PREDICT MAI	2823	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
PIT258K06NEP0000250501	200206	2002	540.67	PR025680	K6 RSH TUBES/HEADERS-Predict Maint BRUL	2823	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
PIT258K06NEP0000250501	200206	2002	540.68	PR025614	K6 WW/DOWNCOMER/HDR-PRED MAINT (BR	2823	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
PHF730PPONENPHZZZZZ501	200206	2002	129.93	HP001360	Fuel Cell Test Center-Facilities R&D Exp	4797	HP001360	P39247	FINLAY UTILITY SERVICES, INC.	skill
PIX262W05NENPIZZZZZ501	200206	2002	324.74	PR014452	W5:TRAVELING SCREEN SPALLING REPAIR	4811	WAIAU 5 TRVL SCRN REPAIR #PR014	P36696	FINLAY UTILITY SERVICES, INC.	skill
PIX262W06NENPIZZZZZ501	200206	2002	324.74	PR014456	W6:TRAVELING SCREEN SPALLING REPAIR	4812	WAIAU 6 TRVL SCRN REPAIR #PR014	P36700	FINLAY UTILITY SERVICES, INC.	skill
PIX262W05NENPIZZZZZ501	200206	2002	1,374.64	PR014452	W5:TRAVELING SCREEN SPALLING REPAIR	4788	WAIAU 5 TRVL SCRN REPAIR #PR014	P36696	FINLAY UTILITY SERVICES, INC.	skill
PIX262W06NENPIZZZZZ501	200206	2002	1,455.82	PR014456	W6:TRAVELING SCREEN SPALLING REPAIR	4789	WAIAU 6 TRVL SCRN REPAIR #PR014	P36700	FINLAY UTILITY SERVICES, INC.	skill
PIX262W05NENPIZZZZZ501	200206	2002	2,240.19	PR014452	W5:TRAVELING SCREEN SPALLING REPAIR	4803	WAIAU 5 TRVL SCRN REPAIR #PR014	P36696	FINLAY UTILITY SERVICES, INC.	skill
PIX262W06NENPIZZZZZ501	200206	2002	2,240.19	PR014456	W6:TRAVELING SCREEN SPALLING REPAIR	4804	WAIAU 6 TRVL SCRN REPAIR #PR014	P36700	FINLAY UTILITY SERVICES, INC.	skill
PIL265KSTNENPIZZZZZ501	200206	2002	2,293.43	PR026434	K3/4 CONCRETE SLAB REPAIRS	4808	KAHE 3 & 4 CONCRETE SLAB REPAIF	P38540	FINLAY UTILITY SERVICES, INC.	skill
PIL265KSTNENPIZZZZZ501	200206	2002	3,716.64	PR026434	K3/4 CONCRETE SLAB REPAIRS	4819	KAHE 3 & 4 CONCRETE SLAB REPAIF	P38540	FINLAY UTILITY SERVICES, INC.	skill
PIL265KSTNENPIZZZZZ501	200206	2002	885.41	PR014007	KAHE CORROSION CONTROL PAINTING -	51502	BONDSTRAND & RAW WTR PIPE ADI	P38236	GIORDANO'S PAINTING CO	skill
PIN265HSTNENPIZZZZZ501	200206	2002	5,312.46	PR026731	HPP SUBSTATION LIGHT POLES CORROSIOI	51602	HPP STATION LIGHT POLES PREP / F	P38234	GIORDANO'S PAINTING CO	skill
PIL265KSTNENPIZZZZZ501	200206	2002	11,458.26	PR014007	KAHE CORROSION CONTROL PAINTING -	51502A	BONDSTRAND & RAW WTR PIPE & S	P37092	GIORDANO'S PAINTING CO	skill
PIN878HSTNENPIZZZZZ501	200206	2002	23,900.00	PR000244	SWO-HAZARD WSTE DISPOSAL (HONOLULU	22128	HPP CHEM. LAB. CLEAN-UP REMOVE	P39500	GLOBAL ENVIRONMENTAL SVC	skill
PIX262W06NENPIZZZZZ501	200206	2002	11,979.21	PR027378	W-6 Intake tunnel and piping - video	00007072	W-6 CIRCULATING WATER SYSTEM I	P39536	PACIFIC DIVING INDUSTRIES, IN	skill

ACCOUNT CODE	LL PERI	TransYr	AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
PIN265HWWNENPIZZZZZ501	200206	2002	313.49	PR000284	Collect $-Honolulu Stn WW Overbd Flow Mt	38589.1	HPP WW OVERBOARD METER CALIE	P38109	PROCESS CONTROLS, INC.	skill
PIT257K04NEP0000520501	200206	2002	1,906.37	PR024830	K4 BOILER AND AIR HEATER WASH	18300250	BOILER ASH TRMT & DISPL K-4 O/H	P38349	PSC INDUSTRIAL OUTSOURCIN	skill
PIL878KSTNENPIZZZZZ501	200206	2002	5,020.91	PR000249	SWO-HAZARDOUS WSTE DISPOSAL (KAHE)	18300397	SERVICES DISPOSE OF HAZZARDOU	P38734	PSC INDUSTRIAL OUTSOURCIN	skill
PIT257K06NEP0000250501	200206	2002	8,447.23	PR025533	K6 BOILER AND AIR HEATER WASH	18300607	K6 BLR ASH RMVL & DISP FEE JOB #	P39811	PSC INDUSTRIAL OUTSOURCIN	skill
PIT260K06NEP0000250501	200206	2002	1,136.00	PR026587	K6 GENERATOR OPEN/INSPECT/SERVICE	6032	K6 GEN.RETAIN.RG./HYD.COOL/VAL\	P38237	REINHART & ASSOCIATES, INC.	skill
PIT261K06NEP0000250501	200206	2002	1,240.00	PR026550	K6 LP TURB OPEN/INSPECT/SERVICE	6032	K6 L.P.ROTOR BORE-SONIC & BLADE	P38237	REINHART & ASSOCIATES, INC.	skill
PIT260K06NEP0000250501	200206	2002	28,400.00	PR026587	K6 GENERATOR OPEN/INSPECT/SERVICE	6032	K6 GEN.RETAIN.RG./HYD.COOL/VAL\	P38237	REINHART & ASSOCIATES, INC.	skill
PIT261K06NEP0000250501	200206	2002	31,000.00	PR026550	K6 LP TURB OPEN/INSPECT/SERVICE	6032	K6 L.P.ROTOR BORE-SONIC & BLADE	P38237	REINHART & ASSOCIATES, INC.	skill
PIX262W03NENPIZZZZZ501	200207	2002	910.88	PR027634	W31 CDP Refurbishment (include motor)	47773	W-3 #31 CONDENSATE PUMP MOTOI	P40469	AMERICAN ELECTRIC LLC	skill
PIT257K06NEP0000250501	200207	2002	1,120.00	PR026380	K64 HEATER DRIP PMP MOTOR/LNSTR SVC	47680	K64 HTR DRP PUMP MOTOR - RECOI	P40281	AMERICAN ELECTRIC LLC	skill
PIT262K06NEP0000250501	200207	2002	1,900.00	PR026330	K61 CONDENSATE PUMP MOTOR SERVICE	47679	K61 COND PUMP MOTOR - RECONDI	P40281	AMERICAN ELECTRIC LLC	skill
PIT257K06NEP0000250501	200207	2002	2,575.00	PR026327	K62 BOILER FEED PUMP MOTOR SERVICE	47707	K62 BFP MOTOR - RECOND STATOR	P40281	AMERICAN ELECTRIC LLC	skill
PIK242KSTNENPIZZZZZ501	200207	2002	3,195.79	PR013275	LE K5/6 #52 travel screen wash pump	47654	K52 SWP MTR REFURB/REPAIR	P38711	AMERICAN ELECTRIC LLC	skill
PIT257K06NEP0000250501	200207	2002	3,265.00	PR026338	K6 GAS RECIRC FAN - MOTOR SERVICE	47694	K6 GAS RECIRC MTR - RECONDITION	P40281	AMERICAN ELECTRIC LLC	skill
PIL262K03NENPIZZZZZ501	200207	2002	3,323.06	PR027222	LE, #3 station service water pmp tripped	47716	REPAIR MOTOR, AMER ELEC JOB # 4	P39801	AMERICAN ELECTRIC LLC	skill
PIL259K03NENPIZZZZZ501	200207	2002	1,843.74	PR027526	K3 ECONOMIZER RECIRC FEED PIPE RUPTU	2051131D	K3 ECONO RECIRC, SCAFFOLD FOR	P39953	ATLAS SALES CO., INC. - KAPOI	skill
PIT261K06NEP0000250501	200207	2002	11,389.90	PR026550	K6 LP TURB OPEN/INSPECT/SERVICE	MJI-6418	DIRECTION/SUP/LBR/TOOLS RPR K6	P39962	DIVERSIFIED ENERGY SERVICE	skill
PIT260K06NEP0000250501	200207	2002	15,451.10	PR026587	K6 GENERATOR OPEN/INSPECT/SERVICE	MJI-6420	REBABBITT/REMACHINE #5 & #6 (GEI	P39903	DIVERSIFIED ENERGY SERVICE	skill
PIT258K06NEP0000250501	200207	2002	2,546.84	PR026069	K6 AIR EJECTOR EDDY CURRENT TESTING	4-02-255	K6 FWH/AIR EJEC EDDY CURRENT T	P38023	ENGINEERING & INSPECTIONS	skill
PIT258K06NEP0000250501	200207	2002	3,820.25	PR026064	K64 FWH EDDY CURRENT TESTING	4-02-255	K6 FWH/AIR EJEC EDDY CURRENT T	P38023	ENGINEERING & INSPECTIONS	skill
PIT258K06NEP0000250501	200207	2002	3,820.25	PR026061	K61 FWH EDDY CURRENT TESTING	4-02-255	K6 FWH/AIR EJEC EDDY CURRENT T	P38023	ENGINEERING & INSPECTIONS	skill
PIT258K06NEP0000250501	200207	2002	3,820.25	PR026062	K62 FWH EDDY CURRENT TESTING	4-02-255	K6 FWH/AIR EJEC EDDY CURRENT T	P38023	ENGINEERING & INSPECTIONS	skill
PIT258K06NEP0000250501	200207	2002	3,820.25	PR026063	K63 FWH EDDY CURRENT TESTING	4-02-255	K6 FWH/AIR EJEC EDDY CURRENT T	P38023	ENGINEERING & INSPECTIONS	skill
PIT258K06NEP0000250501	200207	2002	3,820.25	PR026065	K65 EDDY CURRENT TESTING	4-02-255	K6 FWH/AIR EJEC EDDY CURRENT T	P38023	ENGINEERING & INSPECTIONS	skill
PIT258K06NEP0000250501	200207	2002	3,820.25	PR026066	K6 66 FWH EDDY CURRENT TESTING	4-02-255	K6 FWH/AIR EJEC EDDY CURRENT T	P38023	ENGINEERING & INSPECTIONS	skill
PIT261K06NEP0000250501	200207	2002	4,999.98	PR026068	K61 CHILLER EDDY CURRENT TESTING	4-02-255	K6 COND/CHILLER EDDY CURRENT T	P38023	ENGINEERING & INSPECTIONS	skill
PIT261K06NEP0000250501	200207	2002	19,999.94	PR026067	K6 CONDENSER EDDY CURRENT TESTING	4-02-255	K6 COND/CHILLER EDDY CURRENT T	P38023	ENGINEERING & INSPECTIONS	skill
PIX271WFSNENPIZZZZZ501	200207	2002	193.49	PR024274	Tank 1 Soil	4853	WAIAU FUEL TANK #1 #PR024274	P40178	FINLAY UTILITY SERVICES, INC.	skill
PHS933WSTNENPHZZZZZ501	200207	2002	313.75	FA000378	Coordiantor Labor @ Waiau Power Plant	4886	WAIAU SECURITY PIPE STANCHION	P40781	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200207	2002	313.75	PR027945	WGP:Environ Chem lab city water leak.	4887	CHEM LAB WATERLINE REPAIR PR0	P40657	FINLAY UTILITY SERVICES, INC.	skill
PIL265KSTNENPIZZZZZ501	200207	2002	386.98	PR027724	LB-TROUBLESHOOT WATER LEAK IN FRONT	4852	KAHE WATER LINE REPAIR #PR0277	P40339	FINLAY UTILITY SERVICES, INC.	skill
PIX266WWWNENPIZZZZZ501	200207	2002	386.98	PR016109	Sludge drying beds-Cells 1-6 Refurbish	4879	WAIAU SLUDGE DRYING BEDS #PR0	P40179	FINLAY UTILITY SERVICES, INC.	skill
PIX266WWWNENPIZZZZZ501	200207	2002	386.98	PR016109	Sludge drying beds-Cells 1-6 Refurbish	4837	WAIAU SLUDGE DRYING BEDS #PR0	P40179	FINLAY UTILITY SERVICES, INC.	skill
PIX271WFSNENPIZZZZZ501	200207	2002	452.27	PR024274	Tank 1 Soil	4856	WAIAU FUEL TANK #1 #PR024274	P40178	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200207	2002	507.24	PR027921	FACILITY'S MANUFACTURE BERM STORM DI	4881	WAIAU DRAIN BERM #PR027921	P40777	FINLAY UTILITY SERVICES, INC.	skill
PIX266WWWNENPIZZZZZ501	200207	2002	773.95	PR016109	Sludge drying beds-Cells 1-6 Refurbish	4860	WAIAU SLUDGE DRYING BEDS #PR0	P40179	FINLAY UTILITY SERVICES, INC.	skill
PIL265KSTNENPIZZZZZ501	200207	2002	963.22	PR026434	K3/4 CONCRETE SLAB REPAIRS	4854	KAHE 3 & 4 CONCRETE SLAB REPAIF	P38540	FINLAY UTILITY SERVICES, INC.	skill
PIL265KSTNENPIZZZZZ501	200207	2002	2,251.18	PR026434	K3/4 CONCRETE SLAB REPAIRS	4863	KAHE 3 & 4 CONCRETE SLAB REPAIF	P38540	FINLAY UTILITY SERVICES, INC.	skill
PIL265KSTNENPIZZZZZ501	200207	2002	3,247.38	PR026434	K3/4 CONCRETE SLAB REPAIRS	4884	KAHE 3 & 4 CONCRETE SLAB REPAIF	P38540	FINLAY UTILITY SERVICES, INC.	skill
PIL265KSTNENPIZZZZZ501	200207	2002	3,247.38	PR026434	K3/4 CONCRETE SLAB REPAIRS	4835.	KAHE 3 & 4 CONCRETE SLAB REPAIF	P38540	FINLAY UTILITY SERVICES, INC.	skill
PIX274W09NENPIZZZZZ501	200207	2002	500.00	PR027248	W9 Replace under ground FO piping	70202	WAUAY CT-9 FUEL LINE PAINTING	P39961	GIORDANO'S PAINTING CO	skill
PIX242WSTNENPIZZZZZ501	200207	2002	4,687.47	PR027686	PROPANE TANKS-Clean tanks/Paint rails	70302	WPP-PROPANE TANKS CLEAN AND F	P40140	GIORDANO'S PAINTING CO	skill
PIX265W05NENPIZZZZZ501	200207	2002	6,971.83	PR021563	W5 TURBINE BLDG ROOF REPAIR	60502	W-5 TURB HOUSE ROOF CORRSN CI	P38804	GIORDANO'S PAINTING CO	skill
PIN878HSTNENPIZZZZZ501	200207	2002	1,039.58	PR000244	SWO-HAZARD WSTE DISPOSAL (HONOLULU	21148	REMOVE & DISPOSE OF MERCURY V	P39802	GLOBAL ENVIRONMENTAL SVC	skill
PIN878HSTNENPIZZZZZ501	200207	2002	1,070.31	PR000244	SWO-HAZARD WSTE DISPOSAL (HONOLULU	21147	REMOVE & DISPOSE OF LEAD HYDR	P39802	GLOBAL ENVIRONMENTAL SVC	skill
PIX265WSTNENPIZZZZZ501	200207	2002	1,930.20	PR027520	CT10RAW WATER POND AREA CLEAN UP	21125	CLEAN WAIAU CT10 POND PER QUO	P39819	GLOBAL ENVIRONMENTAL SVC	skill
PIX878WSTNENPIZZZZZ501	200207	2002	33,528.95	PR000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	21127	WAIAU CHEMICAL CLEAN-UP; LAB, J	P39965	GLOBAL ENVIRONMENTAL SVC	skill
PIP877WSTNENPIZZZZZ501	200207	2002	260.41	PR018891	Collect charges for XFMR oil disposal	1572	SVCS FOR P/U & DISPOSAL OF USEI	P34234	HAZTECH ENVIRONMENTAL SE	skill
PIX878WSTNENPIZZZZZ501	200207	2002	5,268.83	PR000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	1615	WPP-MERCURY VAPOR & FLUORES(	P40018	HAZTECH ENVIRONMENTAL SE	skill
PIT261K06NEP0000250501	200207	2002	305.21	PR026550	K6 LP TURB OPEN/INSPECT/SERVICE	27288	LABOR TO GRING SURFACE OF 2 BR	P40531	HONOMACH INC	skill
PIT261K06NEP0000250501	200207	2002	427.00	PR026550	K6 LP TURB OPEN/INSPECT/SERVICE	27192	MANUFACTURE 2 BRG STRONGBACI	P40462	HONOMACH INC	skill
PIT258K06NEP0000250501	200207	2002	439.58	PR026065	K65 EDDY CURRENT TESTING	27268	K65&66 FWH DIAPHRAGM PLATE FIE	P40451	HONOMACH INC	skill
PIT258K06NEP0000250501	200207	2002	439.58	PR026066	K6 66 FWH EDDY CURRENT TESTING	27268	K65&66 FWH DIAPHRAGM PLATE FIE	P40451	HONOMACH INC	skill
PIT261K06NEP0000250501	200207	2002	1,383.32	PR026068	K61 CHILLER EDDY CURRENT TESTING	27241	K6 CHLR SHELL CVR MACHN SVCS J	P40274	HONOMACH INC	skill
PIT261K06NEP0000250501	200207	2002	2,220.69	PR026550	K6 LP TURB OPEN/INSPECT/SERVICE	27192	LABOR TO ASSEMBLE EXH END ACC	P40462	HONOMACH INC	skill
PIT261K06NEP0000250501	200207	2002	13,349.40	PR026550	K6 LP TURB OPEN/INSPECT/SERVICE	27192	MACHINE 2 THRTL VLV GSKT SEAL A	P40462	HONOMACH INC	skill
PIX262W07NENPIZZZZZ501	200207	2002	25,112.98	PR027345	W-7&8 Bar Screen Intake - Fabricate			P39813	HONOMACH INC	skill

Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
anion vessel drain	18300226	PHILLIPS SERVICES TO MOBILIZE AN	P22590	PSC INDUSTRIAL OUTSOURCIN	skill
anion vessel drain	18306043	PHILLIPS SERVICES TO MOBILIZE AN	P22590	PSC INDUSTRIAL OUTSOURCIN	skill
anion vessel drain	18305628	PHILLIPS SERVICES TO MOBILIZE AN	P22590	PSC INDUSTRIAL OUTSOURCIN	skill
anion vessel drain	18300504	PHILLIPS SERVICES TO MOBILIZE AN	P22590	PSC INDUSTRIAL OUTSOURCIN	skill
(March 2002)	18306039	W-8 CIRC WATER INTAKE TUNNEL C	P36228	PSC INDUSTRIAL OUTSOURCIN	skill
out)DUCT PRESERVATIO	HECO02-F	K61/62 AH DUCT PAINTING QA INSPE	P39594	SPCC AND CONSULTING	skill
NSPECTION 2002	2000-320	AGT SVCS K6 GEN ELEC TEST/INSPE	P38352	AGT SERVICES	skill
MM-099 WORK	2000-321	LABOR/MATL FOR OMM099 WORK O	P38352	AGT SERVICES	skill
Vedge Year 2002	2000-322	AGT SVCS FOR K6 GEN RE-WEDGE	P38352	AGT SERVICES	skill
NSPECTION 2002	2000-320	AGT SVCS K6 GEN ELEC TEST/INSPE	P38352	AGT SERVICES	skill
MM-099 WORK	2000-321	LABOR/MATL FOR OMM099 WORK O	P38352	AGT SERVICES	skill
Vedge Year 2002	2000-322	AGT SVCS FOR K6 GEN RE-WEDGE	P38352	AGT SERVICES	skill
p Bearings Failing	47713	W #22 RAW WATER PUMP MOTOR S	P40591	AMERICAN ELECTRIC LLC	skill
motor, short circuit	47668	WAIAU #42 HEATER DRIP STATOR / I	P40591	AMERICAN ELECTRIC LLC	skill
INSPECT/SERVICE	MJI-6415	RE-TOOTH 8 EACH GLAND SEAL RIN	P39540	DIVERSIFIED ENERGY SERVICE	skill
HEADERS-Pred Maint BRU	2837	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
NGRS/SPTS-PREDICT MAI	2837	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
ADERS-PREDICT MAIN	2837	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
/HEADERS-(BRULS)	2837	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
DERS-Predict Maint BRUL	2837	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
ER/HDR-PRED MAINT (BR	2837	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
HEADERS-Pred Maint BRU	2837	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
NGRS/SPTS-PREDICT MAI	2837	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
ADERS-PREDICT MAIN	2837	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
/HEADERS-(BRULS)	2837	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
DERS-Predict Maint BRUL	2837	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
ER/HDR-PRED MAINT (BR	2837	KAHE 6 BRULS & HIEL SURVEY	P38113	FINLAY TESTING LABORATORIE	skill
ells 1-6 Refurbish	4918	WAIAU SLUDGE DRYING BEDS #PR0	P40179	FINLAY UTILITY SERVICES, INC.	skill
ells 1-6 Refurbish	4888	WAIAU SLUDGE DRYING BEDS #PR0	P40179	FINLAY UTILITY SERVICES, INC.	skill
lab city water leak.	4912	CHEM LAB WATERLINE REPAIR PR0	P40657	FINLAY UTILITY SERVICES, INC.	skill
lab city water leak.	4924	CHEM LAB WATERLINE REPAIR PR0	P40657	FINLAY UTILITY SERVICES, INC.	skill
ells 1-6 Refurbish	4927	WAIAU SLUDGE DRYING BEDS #PR0	P40179	FINLAY UTILITY SERVICES, INC.	skill
bration Levels	80202	S/B PAINT PUMP BASE & HOUSING.	P41183	GIORDANO'S PAINTING CO	skill
OUT SIDE OF THE TANK	80402	WPP-#53 DISTILLED WATER TANK PI	P40135	GIORDANO'S PAINTING CO	skill
OUT SIDE OF THE TANK	80102	WPP-#72 DISTILLED WATER TANK PI	P40139	GIORDANO'S PAINTING CO	skill
OUT SIDE OF THE TANK	80302	WPP-#71 DISTILLED WATER TANK PI	P40138	GIORDANO'S PAINTING CO	skill
E DISPOSAL (HONOLULU	21146	REMOVE & DISPOSE OF VARIOUS CI	P39803	GLOBAL ENVIRONMENTAL SVC	skill
FMR oil disposal	1631	SVCS FOR P/U & DISPOSAL OF USEI	P34234	HAZTECH ENVIRONMENTAL SE	skill
FMR oil disposal	1675	SVCS FOR P/U & DISPOSAL OF USEI	P34234	HAZTECH ENVIRONMENTAL SE	skill
NSPECT/SERVICE	M025F	LABOR & EQUIP SANDBLAST KAHE 6	P38241	HONOLULU SHIPYARD INC	skill
NSPECT/SERVICE	27314	PRVD LBR & EQUIP TO MACH 2 PUCI	P40943	HONOMACH INC	skill
Clean AUG 14, 2002	00007096	WPP 61/62 INLET TUNNEL DIVING SE	P41515	PACIFIC DIVING INDUSTRIES, IN	skill
SCREEN-RECONDITIONI	00007088	W-5 #51 TRAVELING SCREEN-CLEAN	P40651	PACIFIC DIVING INDUSTRIES, IN	skill
ng and inspection	18300828	LSFO TANK 1 PSC TIME & MATERIAL	P40470	PSC INDUSTRIAL OUTSOURCIN	skill
anion vessel drain	18300892	PHILLIPS SERVICES TO MOBILIZE AN	P22590	PSC INDUSTRIAL OUTSOURCIN	skill
HEATER WASH	18300904	K6 BLR ASH RMVL & DISP FEE JOB #	P39811	PSC INDUSTRIAL OUTSOURCIN	skill
OLLECTION/RECLAIM	18301003	PICK-UP DISPOSE FYRQUEL/KUSTOI	P41337	PSC INDUSTRIAL OUTSOURCIN	skill
POSAL (KAHE)	18301019	SVCS TO P/UP & DISPOSE 3 DRM ME	P41336	PSC INDUSTRIAL OUTSOURCIN	skill
et line leaking	D0000322	BUILD SCAFF BY K1 BLOWDOWN TN	P39853	SAFWAY SERVICES, INC.	skill
ADLY CORRODED (5L-2	D0000516	SCAFF K5/6 CW PIT, REF QUOTE 64 I	P40453	SAFWAY SERVICES, INC.	skill
ADLY CORRODED (5L-2	D0000517	SCAFFOLDING K5/6 STILL BASIN, QU	P40456	SAFWAY SERVICES, INC.	skill
REPR - REPAINT	HECO02-F	WPP-SLUDGE TANK COATING INSPE	P38688	SPCC AND CONSULTING	skill
IB BRGS OIL LEAK	47776	RECOND STATOR/ROTOR K1 BOILEF	P42351	AMERICAN ELECTRIC LLC	skill
VTR PP MOTOR SERVICI	47754	RECOND K52 AUX COOLING WATER	P42351	AMERICAN ELECTRIC LLC	skill
VTR MOTOR SERVICE	47774	REWIND STATOR/REPL HEATERS K5	P42351	AMERICAN ELECTRIC LLC	skill
JMP MOTOR SERVICE	47681	RECOND STATOR/ADD SUPPORT K6	P42351	AMERICAN ELECTRIC LLC	skill
charge valve to K5	1135260D	K-5/6 CW PIT VALVE REPLACE SCAFI	P42233	ATLAS SALES CO., INC. - KAPOI	skill

rk Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
028475	W6: Turbine front "rattling noise".	1134860D	SCAFFOLDING FOR W6 TURBINE GO	P42013	ATLAS SALES CO., INC. - KAPOI	skill
025533	K6 BOILER AND AIR HEATER WASH	10487REV	K6 3RD DECK DRN - HYDROBLAST T	P38117	BERING SEA ECCOTECH, INC.	skill
025533	K6 BOILER AND AIR HEATER WASH	10487REV	K6 BLR WASH DRN - HYDROBLAST T	P38117	BERING SEA ECCOTECH, INC.	skill
021907	LB K1 BURNER DECK FLOOR DRAIN PLUGGE	10487REV	K1 3RD FLR DRNS - HYDROBLAST TC	P38117	BERING SEA ECCOTECH, INC.	skill
026494	K6 FO SUPPLY CORIOLIS METER CALIBRATI	10941	STEAM CLEAN K6 CORIOLIS METER	P39134	BERING SEA ECCOTECH, INC.	skill
026200	Perform Pigging Ultrasonic testing	10486	VAC TRUCK SVCS HPP PIPE PIG 4/22	P37845	BERING SEA ECCOTECH, INC.	skill
026200	Perform Pigging Ultrasonic testing	10486	VAC TRUCK SVCS HPP PIPE PIG 4/16	P37845	BERING SEA ECCOTECH, INC.	skill
026069	K6 AIR EJECTOR EDDY CURRENT TESTING	10489	K6 FWH/AIR EJEC COND HYDROBLA:	P38024	BERING SEA ECCOTECH, INC.	skill
026065	K65 EDDY CURRENT TESTING	10489	K6 FWH/AIR EJEC COND HYDROBLA:	P38024	BERING SEA ECCOTECH, INC.	skill
026062	K62 FWH EDDY CURRENT TESTING	10489	K6 FWH/AIR EJEC COND HYDROBLA:	P38024	BERING SEA ECCOTECH, INC.	skill
026063	K63 FWH EDDY CURRENT TESTING	10489	K6 FWH/AIR EJEC COND HYDROBLA:	P38024	BERING SEA ECCOTECH, INC.	skill
026064	K64 FWH EDDY CURRENT TESTING	10489	K6 FWH/AIR EJEC COND HYDROBLA:	P38024	BERING SEA ECCOTECH, INC.	skill
026066	K6 66 FWH EDDY CURRENT TESTING	10489	K6 FWH/AIR EJEC COND HYDROBLA:	P38024	BERING SEA ECCOTECH, INC.	skill
026061	K61 FWH EDDY CURRENT TESTING	10489	K6 FWH/AIR EJEC COND HYDROBLA:	P38024	BERING SEA ECCOTECH, INC.	skill
026138	K6 LUBE OIL COOLERS - Service	10490	K6 TURB LUBE OIL CLRS (2) HYDROE	P38025	BERING SEA ECCOTECH, INC.	skill
026100	K6 CIRC WTR TUNNEL INSPECTION	10488	K6 CWS INLET TUNNELS (2) CLEANIN	P38019	BERING SEA ECCOTECH, INC.	skill
028833	K6 START UP BURNER MGMNT CONTROL TE	1781-0902	K6 STARTUP BURNER CONTRL FIELI	P41828	ELECTRIC POWER TECHNOLOC	skill
028419	K5 GEN H2 CLRS EDDY CURRENT SERVICE	4-02-424	K5 A/E,COND,CHILR,H2CLRS, EDDY (	P41484	ENGINEERING & INSPECTIONS	skill
028418	K6 AIR EJEC EDDY CURRENT SERVICE	4-02-424	K5 A/E,COND,CHILR,H2CLRS, EDDY (	P41484	ENGINEERING & INSPECTIONS	skill
028421	K5 CHILLER EDDY CURRENT SERVICE	4-02-424	K5 A/E,COND,CHILR,H2CLRS, EDDY (	P41484	ENGINEERING & INSPECTIONS	skill
028409	K51 FWH EDDY CURRENT SERVICE	4-02-443	K51/2/3/4/5/6 FWH EDDY CURRENT T	P41483	ENGINEERING & INSPECTIONS	skill
028415	K54 FWH EDDY CURRENT SERVICE	4-02-443	K51/2/3/4/5/6 FWH EDDY CURRENT T	P41483	ENGINEERING & INSPECTIONS	skill
028416	K55 FWH EDDY CURRENT SERVICE	4-02-443	K51/2/3/4/5/6 FWH EDDY CURRENT T	P41483	ENGINEERING & INSPECTIONS	skill
028410	K52 FWH EDDY CURRENT SERVICE	4-02-443	K51/2/3/4/5/6 FWH EDDY CURRENT T	P41483	ENGINEERING & INSPECTIONS	skill
028411	K53 EDDY CURRENT SERVICE	4-02-443	K51/2/3/4/5/6 FWH EDDY CURRENT T	P41483	ENGINEERING & INSPECTIONS	skill
028417	K56 FWH EDDY CURRENT SERVICE	4-02-443	K51/2/3/4/5/6 FWH EDDY CURRENT T	P41483	ENGINEERING & INSPECTIONS	skill
028420	K5 COND EDDY CURRENT SERVICE	4-02-424	K5 A/E,COND,CHILR,H2CLRS, EDDY (	P41484	ENGINEERING & INSPECTIONS	skill
028846	H9 BLR WW TUBE SAMPLE	2904	H9 NEW WW TUBE WELD XRAY, 2 LC	P42366	FINLAY TESTING LABORATORIE	skill
028846	H9 BLR WW TUBE SAMPLE	2904	H9 NEW WW TUBE WELD XRAY, 2 LC	P42366	FINLAY TESTING LABORATORIE	skill
026434	K3/4 CONCRETE SLAB REPAIRS	4971	KAHE 3 & 4 CONCRETE SLAB REPAIF	P38540	FINLAY UTILITY SERVICES, INC.	skill
026434	K3/4 CONCRETE SLAB REPAIRS	4978	KAHE 3 & 4 CONCRETE SLAB REPAIF	P38540	FINLAY UTILITY SERVICES, INC.	skill
025937	K6 CHILLER STRAINERS - PREVENTIVE	90102	K52 CHILLER, PRESERVE S/WTR STF	P41599	GIORDANO'S PAINTING CO	skill
026835	K51 CHILLER SHELL END COVER LEAKING	90202	K51 CHILLER, PRESERVE S/WTR STF	P41596	GIORDANO'S PAINTING CO	skill
028475	W6: Turbine front "rattling noise".	90302	W-6 SANDBLAST STEAM CHEST & NI	P42425	GIORDANO'S PAINTING CO	skill
021563	W5 TURBINE BLDG ROOF REPAIR	81102	W-5 TURB HOUSE ROOF CORRSN CI	P38804	GIORDANO'S PAINTING CO	skill
026459	K51 SCREEN WASH PUMP REPAIR	90502	K-5 SANDBLAST & PAINT SCREEN W.	P42423	GIORDANO'S PAINTING CO	skill
028005	WWTF-Bond Strand Pipe(Beds to WWT) Coat	82602	WPP-WWTF BOND STRAND PIPE SE,	P40650	GIORDANO'S PAINTING CO	skill
002422	Sludge Tk: Repair plastite lining.	81202	WPP-WWTF SLUDGE TANK LINING R	P41993	GIORDANO'S PAINTING CO	skill
028675	W6 Tunnel Inspect & Clean AUG 14, 2002	21206	WAIAU 61/62 CIRC WATER TUNNEL (	P41520	GLOBAL ENVIRONMENTAL SVC	skill
028292	K5 STACK INSPECTION	0-10743	K5 PRE-OVHL STACK INSPECTION	P41081	HAMON CUSTODIS, INC.	skill
000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	1710	WPP REMOVE 250 GALLONS CONTA	P42145	HAZTECH ENVIRONMENTAL SE	skill
028470	K61 CIRC WTR PMP DISCH EXP JOINTS	15551	MACHINE 50 BOLTS TO 4-5/8" LENGT	P42760	HONOMACH INC	skill
000016	SWO-WAIAU STATION COMMON ROUTINES	38522.1	WPP-HERSEY METER CALIBRATE/CE	P42304	PROCESS CONTROLS, INC.	skill
028407	Rpl 2.3 kV cable from Aux xfmer to Swgr	18301034	CLEAN CONDUIT W6 AUX TRANS TO	P41602	PSC INDUSTRIAL OUTSOURCIN	skill
016306	W7: DMR cation and anion vessel drain	18301155	PHILLIPS SERVICES TO MOBILIZE AN	P22590	PSC INDUSTRIAL OUTSOURCIN	skill
028238	W5 REPLACE 24 LOWER WW TUBES AT THE	D0000862	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill
027808	W5 #55 FWH EDDY CURRENT TESTING	D0000862	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill
027806	W5 #52 FWH EDDY CURRENT TESTING	D0000862	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill
027807	W5 #53 FWH EDDY CURRENT TESTING	D0000862	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill
028238	W5 REPLACE 24 LOWER WW TUBES AT THE	D0000864	W5 OVHL SCAFFOLD RECIRC DUCT,	P42292	SAFWAY SERVICES, INC.	skill
027617	W5 INSULATION;REFRAC;BLR CASE REPAIR	D0000864	W5 OVHL SCAFFOLD RECIRC DUCT,	P42292	SAFWAY SERVICES, INC.	skill
027617	W5 INSULATION;REFRAC;BLR CASE REPAIR	D0000859	W5 OVHL SCAFFOLD BCC, BLR CSG	P42266	SAFWAY SERVICES, INC.	skill
028924	W5 Furnace Rear Wall Tubes have bulges	D0000862	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill
029095	W5 RECIRC DUCT INSULATION DETERIORAT	D0000864	W5 OVHL SCAFFOLD RECIRC DUCT,	P42292	SAFWAY SERVICES, INC.	skill
026858	W5 BOILER CHEMICAL CLEANING - OCT 200:	D0000859	W5 OVHL SCAFFOLD BCC, BLR CSG	P42266	SAFWAY SERVICES, INC.	skill
028940	W5 HOG JET VENT PIPING INSPECTION	D0000859	W5 OVHL SCAFFOLD BCC, BLR CSG	P42266	SAFWAY SERVICES, INC.	skill
027617	W5 INSULATION;REFRAC;BLR CASE REPAIR	D0000862	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill

ACCOUNT CODE	LL PERI	TransYr	AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
PIX259W07NENPIZZZZZ501	200210	2002	24,584.55	PR028848	W7 FDF HS Motor Burnt (Grounded)	47834	WPP-W7 FDF HS MOTOR REWIND	P41854	AMERICAN ELECTRIC LLC	skill
PIL262K05NENPIZZZZZ501	200210	2002	1,023.95	PR028425	K5 CIRC WTR TUNNEL CLNG	10542	K5 CIRC TUNNEL CLNG/HYDROBLAS	P41481	BERING SEA ECCOTECH, INC.	skill
PIL258K05NENPIZZZZZ501	200210	2002	1,400.00	PR028418	K6 AIR EJEC EDDY CURRENT SERVICE	10539	K51/2/3/4/5/6 FWH & AIR EJEC HYDR(	P41355	BERING SEA ECCOTECH, INC.	skill
PIT260K06NEP0000250501	200210	2002	1,438.58	PR026587	K6 GENERATOR OPEN/INSPECT/SERVICE	10529	K6 H2 CLR HYDROBLAST SERVICE	P39818	BERING SEA ECCOTECH, INC.	skill
PIL258K05NENPIZZZZZ501	200210	2002	2,100.00	PR028416	K55 FWH EDDY CURRENT SERVICE	10539	K51/2/3/4/5/6 FWH & AIR EJEC HYDR(	P41355	BERING SEA ECCOTECH, INC.	skill
PIL258K05NENPIZZZZZ501	200210	2002	2,100.00	PR028411	K53 EDDY CURRENT SERVICE	10539	K51/2/3/4/5/6 FWH & AIR EJEC HYDR(	P41355	BERING SEA ECCOTECH, INC.	skill
PIL258K05NENPIZZZZZ501	200210	2002	2,100.00	PR028410	K52 FWH EDDY CURRENT SERVICE	10539	K51/2/3/4/5/6 FWH & AIR EJEC HYDR(	P41355	BERING SEA ECCOTECH, INC.	skill
PIL258K05NENPIZZZZZ501	200210	2002	2,100.00	PR028415	K54 FWH EDDY CURRENT SERVICE	10539	K51/2/3/4/5/6 FWH & AIR EJEC HYDR(	P41355	BERING SEA ECCOTECH, INC.	skill
PIL258K05NENPIZZZZZ501	200210	2002	2,100.00	PR028409	K51 FWH EDDY CURRENT SERVICE	10539	K51/2/3/4/5/6 FWH & AIR EJEC HYDR(	P41355	BERING SEA ECCOTECH, INC.	skill
PIL258K05NENPIZZZZZ501	200210	2002	2,100.00	PR028417	K56 FWH EDDY CURRENT SERVICE	10539	K51/2/3/4/5/6 FWH & AIR EJEC HYDR(	P41355	BERING SEA ECCOTECH, INC.	skill
PIX271W09NENPIZZZZZ501	200210	2002	2,432.10	PR027246	W09 fuel oil accumulator gauge has a blo	10530	STEAM CLEAN AND REMOVE SLUDG	P39539	BERING SEA ECCOTECH, INC.	skill
PIT260K06NEP0000250501	200210	2002	2,526.75	PR026100	K6 CIRC WTR TUNNEL INSPECTION	10528	K61/62 CIRC DISCH VLVS HYDROBLA	P39817	BERING SEA ECCOTECH, INC.	skill
PIX271WFSNENPIZZZZZ501	200210	2002	4,453.70	PR024274	Tank 1 Soil	10537	WPP-TANK 1 BSE VACUUM OIL & DIS	P41389	BERING SEA ECCOTECH, INC.	skill
PIX266WWWNENPIZZZZZ501	200210	2002	4,954.01	PR016109	Sludge drying beds-Cells 1-6 Refurbish	10523	WPP-SLUDGE DRYING BED #2-REMC	P39820	BERING SEA ECCOTECH, INC.	skill
PIX266WWWNENPIZZZZZ501	200210	2002	7,192.44	PR016109	Sludge drying beds-Cells 1-6 Refurbish	10523	WPP-SLUDGE DRYING BED #6-REMC	P39820	BERING SEA ECCOTECH, INC.	skill
PIX266WWWNENPIZZZZZ501	200210	2002	8,137.91	PR016109	Sludge drying beds-Cells 1-6 Refurbish	10523	WPP-SLUDGE DRYING BED #4-REMC	P39820	BERING SEA ECCOTECH, INC.	skill
PIX266WWWNENPIZZZZZ501	200210	2002	8,860.57	PR016109	Sludge drying beds-Cells 1-6 Refurbish	10526	WPP-SLUDGE DRYING BED #5-REMC	P40100	BERING SEA ECCOTECH, INC.	skill
PIX271WFSNENPIZZZZZ501	200210	2002	11,133.26	PR024274	Tank 1 Soil	10535	WAIAU FUEL OIL TANK # 1 - CLEAN	P40473	BERING SEA ECCOTECH, INC.	skill
PIL262K05NENPIZZZZZ501	200210	2002	25,932.54	PR028425	K5 CIRC WTR TUNNEL CLNG	10540	K5 CIRC TUNNEL CLNG/HYDROBLAS	P41481	BERING SEA ECCOTECH, INC.	skill
PIX265WSTNENPIZZZZZ501	200210	2002	75,494.80	PR028884	W7-F.O. Cleanup From Rupture Burner Hose	10549	WPP-W7 BOILER UNIT OIL SPILL CLE	P41855	BERING SEA ECCOTECH, INC.	skill
PIT260W05NEP0000252501	200210	2002	49,996.80	PR028226	W5 LP TURBINE ROTOR OVERHAUL	MJI-6471	WAIAU 5 PRVD L&M TO RPR LP SPIN	P43265	DIVERSIFIED ENERGY SERVICE	skill
PIL258K05NENPIZZZZZ501	200210	2002	79.04	PR028419	K5 GEN H2 CLRS EDDY CURRENT SERVICE	4-02-459	K5 A/E,COND,CHILR,H2CLRS, EDDY (	P41484	ENGINEERING & INSPECTIONS	skill
PIL258K05NENPIZZZZZ501	200210	2002	79.04	PR028418	K6 AIR EJEC EDDY CURRENT SERVICE	4-02-459	K5 A/E,COND,CHILR,H2CLRS, EDDY (	P41484	ENGINEERING & INSPECTIONS	skill
PIL258K05NENPIZZZZZ501	200210	2002	237.12	PR028421	K5 CHILLER EDDY CURRENT SERVICE	4-02-459	K5 A/E,COND,CHILR,H2CLRS, EDDY (	P41484	ENGINEERING & INSPECTIONS	skill
PIX258W05NEP0000252501	200210	2002	1,000.00	PR026677	W5 Perform Alloy Analysis on SSH Tubes	4-02-475	W5 SSH TUBES MATERIAL IDENTIFIC	P39592	ENGINEERING & INSPECTIONS	skill
PIL258K05NENPIZZZZZ501	200210	2002	1,185.60	PR028420	K5 COND EDDY CURRENT SERVICE	4-02-459	K5 A/E,COND,CHILR,H2CLRS, EDDY (	P41484	ENGINEERING & INSPECTIONS	skill
PIL261K05NENPIZZZZZ501	200210	2002	2,522.85	PR028418	K6 AIR EJEC EDDY CURRENT SERVICE	4-02-458	KAHE 5 METALLURGICAL TESTING F	P43206	ENGINEERING & INSPECTIONS	skill
PJW788HSTNENPJZZZZZ508	200210	2002	112.50			02-03-502	CONSULTING		ENVIROSERVICES & TRAINING	skill
PJW788KSTNENPJZZZZZ508	200210	2002	225.00			02-03-502	CONSULTING		ENVIROSERVICES & TRAINING	skill
PJW788WSTNENPJZZZZZ508	200210	2002	225.00			02-03-502	CONSULTING		ENVIROSERVICES & TRAINING	skill
PIL265KSTNENPIZZZZZ501	200210	2002	196.46	PR029379	LB Spinkler Leak in beach park. Locate	5040	KAHE BEACH WATERLINE LEAK PR0:	P43051	FINLAY UTILITY SERVICES, INC.	skill
PIL265KSTNENPIZZZZZ501	200210	2002	589.37	PR029295	Replace 4" gate valve sprinkler isolati	5039	KAHE 4" VALVE WATER LEAK PR029	P43046	FINLAY UTILITY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200210	2002	659.16	PR027945	WGP:Environ Chem lab city water leak.	5011	CHEM LAB WATERLINE REPAIR PR0	P40657	FINLAY UTILITY SERVICES, INC.	skill
PIL265KSTNENPIZZZZZ501	200210	2002	1,914.58	PR029379	LB Spinkler Leak in beach park. Locate	5005	KAHE BEACH WATERLINE LEAK PR0:	P43051	FINLAY UTILITY SERVICES, INC.	skill
PIL265KSTNENPIZZZZZ501	200210	2002	2,467.93	PR029295	Replace 4" gate valve sprinkler isolati	5006	KAHE 4" VALVE WATER LEAK PR029	P43046	FINLAY UTILITY SERVICES, INC.	skill
PIX262W03NENPIZZZZZ501	200210	2002	1,516.66	PR027634	W31 CDP Refurbishment (include motor)	100702	W-31 COND PUMP MTR END BELLS F	P43419	GIORDANO'S PAINTING CO	skill
PIX265WSTNENPIZZZZZ501	200210	2002	2,604.15	PR000910	Safety Descrepancies	100602	WPP-CT AREA GUARDRAILS PREP/P.	P42213	GIORDANO'S PAINTING CO	skill
PIX265W05NENPIZZZZZ501	200210	2002	2,666.65	PR021563	W5 TURBINE BLDG ROOF REPAIR	92202	WPP-W5 TURBINE ROOF VENTS PRE	P42057	GIORDANO'S PAINTING CO	skill
PIX259W05NEP0000252501	200210	2002	6,145.79	PR029691	W5:Auxillary cooling wtr Lines Corrosion	100802	W-5 BELOW SURFACE TRENCH CLE/	P43469	GIORDANO'S PAINTING CO	skill
PIX259W05NEP0000252501	200210	2002	7,916.62	PR029691	W5:Auxillary cooling wtr Lines Corrosion	101102	W-5 ACW LINES CORROSION CONTF	P43470	GIORDANO'S PAINTING CO	skill
PIX262W06NENPIZZZZZ501	200210	2002	12,812.42	PR028675	W6 Tunnel Inspect & Clean AUG 14, 2002	21219	WAIAU 61/62 CIRC WATER TUNNEL (	P41520	GLOBAL ENVIRONMENTAL SVC	skill
PIP877WSTNENPIZZZZZ501	200210	2002	260.41	PR018891	Collect charges for XFMR oil disposal	1734	SVCS FOR P/U & DISPOSAL OF USEC	P34234	HAZTECH ENVIRONMENTAL SE	skill
PIL271KTFNENPIZZZZZ501	200210	2002	619.78	PR002109	SWO-WASTE OIL COLLECTION/RECLAIM	1724	SVCS TO DISPOSE OF ONE DRUM A1	P43157	HAZTECH ENVIRONMENTAL SE	skill
PIL265KSTNENPIZZZZZ501	200210	2002	4,926.66	PR029003	KAHE STORAGE SHED DEMOLITION	1723	DISPOSAL OF CU YD BOXES ESTIMA	P42031	HAZTECH ENVIRONMENTAL SE	skill
PIL265KSTNENPIZZZZZ501	200210	2002	12,445.85	PR029003	KAHE STORAGE SHED DEMOLITION	1723	DEMOLITION OF KAHE STORAGE SH	P42031	HAZTECH ENVIRONMENTAL SE	skill
PIT877W05NEP0000252501	200210	2002	118,268.10	PR027388	W5 Main XFMR Removal of Hazardous Solids	1737	LABOR		HAZTECH ENVIRONMENTAL SE	skill
PIT261W05NEP0000252501	200210	2002	964.58	PR027832	W5 Gen Stator Testing, Inspection	27450	W-5 MACHN NUTS TO REMOVE GEN.	P43667	HONOMACH INC	skill
PIT260W05NEP0000252501	200210	2002	1,509.47	PR028216	W5 HP TURBINE ROTOR OVERHAUL	15576	W-5 OVHL L&M TO FAB PARTS FOR I	P43962	HONOMACH INC	skill
PIN268HSTNENPIZZZZZ501	200210	2002	1,687.49	PR028825	HPP GANTRY CRANE ANNUAL CERTIFICATIC	27385	HPP GANTRY CRANE SERVICE & INS	P41861	HONOMACH INC	skill
PIX266WSTNENPIZZZZZ501	200210	2002	3,906.23	PR027180	GANTRY CRANE-Inpection & Certification	27276A	WPP CRANE PRO INSPECT & CERTIF	P40217	HONOMACH INC	skill
PIX262W06NENPIZZZZZ501	200210	2002	1,291.67	PR028675	W6 Tunnel Inspect & Clean AUG 14, 2002	00007116	WPP 61/62 INLET TUNNEL DIVING SE	P41515	PACIFIC DIVING INDUSTRIES, IN	skill
PIX260W05NEP0000252501	200210	2002	2,968.76	PR027427	W5 Tunnel Inspect and Clean Sep 2002	00007123	W 5&6 DIVING SERVICES INSTALL ST	P42418	PACIFIC DIVING INDUSTRIES, IN	skill
PIX263WSTNENPIZZZZZ501	200210	2002	543.72	PR000016	SWO-WAIAU STATION COMMON ROUTINES	39313.1	PROCESS CONTROLS TO CALIBRATI	P41609	PROCESS CONTROLS, INC.	skill
PIN878HSTNENPIZZZZZ501	200210	2002	244.40	PR000244	SWO-HAZARD WSTE DISPOSAL (HONOLULU	18301276	REMOVE & DISPOSE OF OFF SPEC. (	P42541	PSC INDUSTRIAL OUTSOURCIN	skill
PIN878HSTNENPIZZZZZ501	200210	2002	1,664.00	PR000244	SWO-HAZARD WSTE DISPOSAL (HONOLULU	18301276	HNL PWR PLANT PRESSURE WASH I	P42541	PSC INDUSTRIAL OUTSOURCIN	skill
PIT258W05NEP0000252501	200210	2002	2,396.16	PR027808	W5 #55 FWH EDDY CURRENT TESTING	18301372	W5 (4) FWH & (1) AE COND HYDROBI	P40460	PSC INDUSTRIAL OUTSOURCIN	skill
PIT261W05NEP0000252501	200210	2002	2,396.16	PR027805	W5 #51 FWH EDDY CURRENT TESTING	18301372	W5 (4) FWH & (1) AE COND HYDROBI	P40460	PSC INDUSTRIAL OUTSOURCIN	skill

ACCOUNT CODE	LL PERI	TransYr	AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
PIT261W05NEP0000252501	200210	2002	2,396.16	PR027806	W5 #52 FWH EDDY CURRENT TESTING	18301372	W5 (4) FWH & (1) AE COND HYDROBI	P40460	PSC INDUSTRIAL OUTSOURCIN	skill
PIT261W05NEP0000252501	200210	2002	2,396.16	PR027809	W5 AIR EJECT COND FWH EDDY CURRENT T	18301372	W5 (4) FWH & (1) AE COND HYDROBI	P40460	PSC INDUSTRIAL OUTSOURCIN	skill
PIT261W05NEP0000252501	200210	2002	2,396.16	PR027807	W5 #53 FWH EDDY CURRENT TESTING	18301372	W5 (4) FWH & (1) AE COND HYDROBI	P40460	PSC INDUSTRIAL OUTSOURCIN	skill
PIL271KTFNENPIZZZZZ501	200210	2002	2,875.34	PR002109	SWO-WASTE OIL COLLECTION/RECLAIM	18301066	SVCS PUMP OUT 40 BBLS / USED OIL	P41853	PSC INDUSTRIAL OUTSOURCIN	skill
PIT260W05NEP0000252501	200210	2002	979.02	PR028227	W5 LP TURBINE ROTOR OVERHAUL - NDE	6137	WAIAU 5 HP ROTOR BORE-SONIC & I	P42022	REINHART & ASSOCIATES, INC.	skill
PIT261W05NEP0000252501	200210	2002	1,018.98	PR028217	W5 HP TURBINE ROTOR OVERHAUL - NDE	6137	WAIAU 5 HP ROTOR BORE-SONIC & I	P42022	REINHART & ASSOCIATES, INC.	skill
PIT261W05NEP0000252501	200210	2002	1,998.00	PR027832	W5 Gen Stator Testing, Inspection	6137	WAIAU 5 HP ROTOR BORE-SONIC & I	P42022	REINHART & ASSOCIATES, INC.	skill
PIT260W05NEP0000252501	200210	2002	24,475.50	PR028227	W5 LP TURBINE ROTOR OVERHAUL - NDE	6137	WAIAU 5 HP ROTOR BORE-SONIC & I	P42022	REINHART & ASSOCIATES, INC.	skill
PIT261W05NEP0000252501	200210	2002	25,474.50	PR028217	W5 HP TURBINE ROTOR OVERHAUL - NDE	6137	WAIAU 5 HP ROTOR BORE-SONIC & I	P42022	REINHART & ASSOCIATES, INC.	skill
PIT261W05NEP0000252501	200210	2002	49,950.00	PR027832	W5 Gen Stator Testing, Inspection	6137	WAIAU 5 HP ROTOR BORE-SONIC & I	P42022	REINHART & ASSOCIATES, INC.	skill
PIT261W05NEP0000252501	200210	2002	824.67	PR027806	W5 #52 FWH EDDY CURRENT TESTING	D0001055	W5 #52,#53,#55 FWH HYDROBLST SC	P42756	SAFWAY SERVICES, INC.	skill
PIT261W05NEP0000252501	200210	2002	824.67	PR027807	W5 #53 FWH EDDY CURRENT TESTING	D0001055	W5 #52,#53,#55 FWH HYDROBLST SC	P42756	SAFWAY SERVICES, INC.	skill
PIT258W05NEP0000252501	200210	2002	849.66	PR027808	W5 #55 FWH EDDY CURRENT TESTING	D0001055	W5 #52,#53,#55 FWH HYDROBLST SC	P42756	SAFWAY SERVICES, INC.	skill
PIL259K05NENPIZZZZZ501	200210	2002	1,116.10	PR028181	LB K5 the fuel oil tracer drip return	D0000696	ERECT/DISMANTLE SCAFF @ K5 GRI	P41086	SAFWAY SERVICES, INC.	skill
PIT257W05NEP0000252501	200210	2002	1,918.60	PR026856	W5 BOILER CHEMICAL CLEANING - OCT 200	D0001002	W5 BCC, REAR & BRULS WW TUBE S	P42757	SAFWAY SERVICES, INC.	skill
PIT259W05NEP0000252501	200210	2002	2,877.91	PR028924	W5 Furnace Rear Wall Tubes have bulges	D0001002	W5 BCC, REAR & BRULS WW TUBE S	P42757	SAFWAY SERVICES, INC.	skill
PIN258H09NENPIZZZZZ501	200210	2002	2,998.45	PR028846	H9 BLR WW TUBE SAMPLE	D0000866	H9 WW TUBE SAMPLE, ERECT SCAF	P42273	SAFWAY SERVICES, INC.	skill
PIT259W05NEP0000252501	200210	2002	3,001.34	PR028244	W5 Boiler Refrsctory and Insulation Work	D0001168	W5 OVHL APH (EWA) SCAFFOLDING	P43593	SAFWAY SERVICES, INC.	skill
PIT258W05NEP0000252501	200210	2002	4,796.51	PR027609	W5 WW/DOWNCOMER/HDR - PREDICTIVE M	D0001002	W5 BCC, REAR & BRULS WW TUBE S	P42757	SAFWAY SERVICES, INC.	skill
PIT259W05NEP0000252501	200210	2002	1,040.00	PR027689	W5 AIR PRE-HEATER DUCT PRESERVATION	HECO00-0	W5 STACK LINING INPECTION SERVI	P40573	SPCC AND CONSULTING	skill
PIT257W05NEP0000252501	200210	2002	1,560.00	PR027061	W5 OH Stack Relining Mat'l/Contract Svcs	HECO00-0	W5 STACK LINING INPECTION SERVI	P40573	SPCC AND CONSULTING	skill
PIX262W04NENPIZZZZZ501	200211	2002	600.00	PR017021	Spare Exciter "pilot exciter" outer	47907	W-9 WATER COOLING FAN MTR 50HI	P44129	AMERICAN ELECTRIC LLC	skill
PIX262W04NENPIZZZZZ501	200211	2002	915.00	PR017021	Spare Exciter "pilot exciter" outer	47608	WAIAU SPARE PILOT EXCITER REP/F	P44285	AMERICAN ELECTRIC LLC	skill
PIT257W05NEP0000252501	200211	2002	1,090.00	PR028613	W5 FORCED DRAFT FAN-LS MOTOR SERVIC	47868	W- OVHL5 LSFD FAN RECOND STAT(	P44721	AMERICAN ELECTRIC LLC	skill
PIT261W05NEP0000252501	200211	2002	1,090.00	PR027681	W51 Condensate Pmp Motor-Refurblsh	47872	W5 #51 COND PMP RECOND STATOF	P44721	AMERICAN ELECTRIC LLC	skill
PIT258W05NEP0000252501	200211	2002	1,782.18	PR027686	W53 Htr Drip Pump Mtr-Recondition	47871	W-5 #5 HTR DRIP PMP REWIND STAT	P44721	AMERICAN ELECTRIC LLC	skill
PIT261W05NEP0000252501	200211	2002	1,907.00	PR028149	W52 CWP motor-Inspect/recondition motor	47867	W5 #52 CWP RECOND STATOR & RO	P44721	AMERICAN ELECTRIC LLC	skill
PIN262H09NENPIZZZZZ501	200211	2002	2,950.00	PR026520	#91 SCREEN WASH PUMP/MOTOR BURNT	47647	HPP REP/RWND 25 HP MOTOR JOB #	P44245	AMERICAN ELECTRIC LLC	skill
PIT260W05NEP0000252501	200211	2002	3,073.40	PR029978	W51 CIRCULATING WATER PP MOTOR SERV	47890	W-5 OVHL #51 BFP RECON/REPL LEA	P44721	AMERICAN ELECTRIC LLC	skill
PIT260W05NEP0000252501	200211	2002	3,354.43	PR028695	W51 AUX COOLING WTR PP MOTOR SERVIC	47889	W-5 OVHL 51 AUX WTR PUMP RECO	P44721	AMERICAN ELECTRIC LLC	skill
PIX274W09NENPIZZZZZ501	200211	2002	64.32	PR030064	W9: Unit tripped at 11 MW...reason	1137946D	W9 EXHAUST DUCT SCAFFOLDING S	P43995	ATLAS SALES CO., INC. - KAPOI	skill
PIX274W09NENPIZZZZZ501	200211	2002	2,653.95	PR030064	W9: Unit tripped at 11 MW...reason	1137886D	W9 EXHAUST DUCT SCAFFOLDING S	P43995	ATLAS SALES CO., INC. - KAPOI	skill
PIX265WSTNENPIZZZZZ501	200211	2002	1,036.30	PR028884	W7-F.O. Cleanup From Rupture Burner Hose	10559	WPP-W7 BOILER UNIT OIL SPILL CLE	P41855	BERING SEA ECCOTECH, INC.	skill
PIL259K01NENPIZZZZZ501	200211	2002	3,894.71	PR029054	LM SFOP #12 Inboard Mech Seal Is Leaking	10565	K-1 CLEAN UP OIL SPILL 9/5/02,	P43858	BERING SEA ECCOTECH, INC.	skill
PIX260W05NEP0000252501	200211	2002	36,182.26	PR027427	W5 Tunnel Inspect and Clean Sep 2002	10566	W5 CIRC WTR TUNNEL HYDROBLAS	P42600	BERING SEA ECCOTECH, INC.	skill
PIT260W05NEP0000252501	200211	2002	273.85	PR028226	W5 LP TURBINE ROTOR OVERHAUL	MJI-6494	WAIAU 5 PRVD L&M TO RPR LP SPIN	P43265	DIVERSIFIED ENERGY SERVICE	skill
PIT260W05NEP0000252501	200211	2002	5,208.00	PR028226	W5 LP TURBINE ROTOR OVERHAUL	MJI-6487	W5 TURB REPAIR PRVD L&M TO BAL	P43204	DIVERSIFIED ENERGY SERVICE	skill
PIT260W05NEP0000252501	200211	2002	5,208.00	PR028216	W5 HP TURBINE ROTOR OVERHAUL	MJI-6487	W5 TURB REPAIR PRVD L&M TO BAL	P43204	DIVERSIFIED ENERGY SERVICE	skill
PIT260W05NEP0000252501	200211	2002	5,728.80	PR028216	W5 HP TURBINE ROTOR OVERHAUL	MJI-6478	W-5 OVHL PRVD LBR TO REPAIR TUI	P43999	DIVERSIFIED ENERGY SERVICE	skill
PIT261W05NEP0000252501	200211	2002	12,439.31	PR027832	W5 Gen Stator Testing, Inspection	MJI-6476	W-5 OVHL L&M TO REBABBITT TURB	P43620	DIVERSIFIED ENERGY SERVICE	skill
PIT262W05NEP0000252501	200211	2002	12,439.31	PR028223	W5 HP TURBINE #1 BEARING - CORRECTIVE	MJI-6476	W-5 OVHL L&M TO REBABBITT TURB	P43620	DIVERSIFIED ENERGY SERVICE	skill
PIT260W05NEP0000252501	200211	2002	29,164.80	PR028218	W5 HP TRB OUTER CYL/BLADE RINGS OH	MJI-6475	W5 TURBINE REPAIR. PRVD L&M TO	P43241	DIVERSIFIED ENERGY SERVICE	skill
PIT260W05NEP0000252501	200211	2002	74,995.20	PR028226	W5 LP TURBINE ROTOR OVERHAUL	MJI-6479	WAIAU 5 PRVD L&M TO RPR LP SPIN	P43265	DIVERSIFIED ENERGY SERVICE	skill
PIT259W05NEP0000252501	200211	2002	1,912.49	PR030174	W5 REPAIR FRONT HDR/WATERWALL TUBE	4-02-529	W-5 OVHL FRONT WW HEADER/TUBI	P44481	ENGINEERING & INSPECTIONS	skill
PIT262W05NEP0000252501	200211	2002	15,374.90	PR029648	W5 TURBINE WELD REPAIR WORK & PWHT	4-02-511	W-5 OVHL TURBINE REPAIR MT INSF	P43776	ENGINEERING & INSPECTIONS	skill
PIT259W05NEP0000252501	200211	2002	383.12	PR028924	W5 Furnace Rear Wall Tubes have bulges	2947	W-5 X-RAY LWR SW, REAR WW & EC	P43777	FINLAY TESTING LABORATORIE	skill
PIT259W05NEP0000252501	200211	2002	383.12	PR028238	W5 REPLACE 24 LOWER WW TUBES AT THE	2947	W-5 X-RAY LWR SW, REAR WW & EC	P43777	FINLAY TESTING LABORATORIE	skill
PIT257W05NEP0000252501	200211	2002	455.21	PR026856	W5 BOILER CHEMICAL CLEANING - OCT 200	2948	W-5 OVHL BCC ECONOM SPOOL X-R	P43782	FINLAY TESTING LABORATORIE	skill
PIT257W05NEP0000252501	200211	2002	635.93	PR026856	W5 BOILER CHEMICAL CLEANING - OCT 200	2979	W-5 OVHL BCC ECON PPG X-RAY SV	P44715	FINLAY TESTING LABORATORIE	skill
PIT259W05NEP0000252501	200211	2002	1,149.37	PR028237	W5 Replace Economizer Tube Bends	2947	W-5 X-RAY LWR SW, REAR WW & EC	P43777	FINLAY TESTING LABORATORIE	skill
PIT259W05NEP0000252501	200211	2002	383.12	PR028924	W5 Furnace Rear Wall Tubes have bulges	2947	W-5 X-RAY LWR SW, REAR WW & EC	P43777	FINLAY TESTING LABORATORIE	skill
PIT259W05NEP0000252501	200211	2002	383.12	PR028238	W5 REPLACE 24 LOWER WW TUBES AT THE	2947	W-5 X-RAY LWR SW, REAR WW & EC	P43777	FINLAY TESTING LABORATORIE	skill
PIT257W05NEP0000252501	200211	2002	455.21	PR026856	W5 BOILER CHEMICAL CLEANING - OCT 200	2948	W-5 OVHL BCC ECONOM SPOOL X-R	P43782	FINLAY TESTING LABORATORIE	skill
PIT257W05NEP0000252501	200211	2002	635.93	PR026856	W5 BOILER CHEMICAL CLEANING - OCT 200	2979	W-5 OVHL BCC ECON PPG X-RAY SV	P44715	FINLAY TESTING LABORATORIE	skill
PIT259W05NEP0000252501	200211	2002	1,149.37	PR028237	W5 Replace Economizer Tube Bends	2947	W-5 X-RAY LWR SW, REAR WW & EC	P43777	FINLAY TESTING LABORATORIE	skill
PHF930PPONENPHZZZZZ501	200211	2002	173.23	HP001360	Fuel Cell Test Center-Facilities R&D Exp	4875	FA613001	P39247	FINLAY UTILITY SERVICES, INC.	skill
PHF930PPONENPHZZZZZ501	200211	2002	271.64	HP001360	Fuel Cell Test Center-Facilities R&D Exp	4960	FA613001	P41354	FINLAY UTILITY SERVICES, INC.	skill

k Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
er-Facilities R&D Exp	4834	WARD AVE FUEL CELL PROJECT #F/	P39764	FINLAY UTILITY SERVICES, INC.	skill
er-Facilities R&D Exp	4823	WARD AVE FUEL CELL PROJECT #F/	P39764	FINLAY UTILITY SERVICES, INC.	skill
er-Facilities R&D Exp	4923	WARD AVE FUEL CELL PROJECT #F/	P39764	FINLAY UTILITY SERVICES, INC.	skill
er-Facilities R&D Exp	4892	WARD AVE FUEL CELL PROJECT #F/	P39764	FINLAY UTILITY SERVICES, INC.	skill
SLAB REPAIRS	5079	KAHE 3 & 4 CONCRETE SLAB REPAIF	P38540	FINLAY UTILITY SERVICES, INC.	skill
SLAB REPAIRS	5085	KAHE 3 & 4 CONCRETE SLAB REPAIF	P38540	FINLAY UTILITY SERVICES, INC.	skill
er-Facilities R&D Exp	4650	04 WHSE FENCE/STORAGE #FA3012	P36169	FINLAY UTILITY SERVICES, INC.	skill
er-Facilities R&D Exp	4967	FA613001	P39247	FINLAY UTILITY SERVICES, INC.	skill
er-Facilities R&D Exp	4941	WARD AVE FUEL CELL PROJECT #F/	P39764	FINLAY UTILITY SERVICES, INC.	skill
er-Facilities R&D Exp	4950	WARD AVE FUEL CELL PROJECT #F/	P39764	FINLAY UTILITY SERVICES, INC.	skill
er-Facilities R&D Exp	4959	WARD AVE FUEL CELL PROJECT #F/	P39764	FINLAY UTILITY SERVICES, INC.	skill
er-Facilities R&D Exp	4914	WARD AVE FUEL CELL PROJECT #F/	P39764	FINLAY UTILITY SERVICES, INC.	skill
n on 3"line makai	5059	KAHE WATERLINE REPAIR #PR02984	P44030	FINLAY UTILITY SERVICES, INC.	skill
SLAB REPAIRS	5101	KAHE 3 & 4 CONCRETE SLAB REPAIF	P38540	FINLAY UTILITY SERVICES, INC.	skill
rosion Control	110502	WPP-FIRE LINE CORROSION CONTR	P44411	GIORDANO'S PAINTING CO	skill
les	110702	WPP-SAFETY GUARDRAILS REPAINT	P44412	GIORDANO'S PAINTING CO	skill
IR HEATER WASH	21250	SVCS TO NEUTRALIZE/DISPOSE OF I	P43501	GLOBAL ENVIRONMENTAL SVC	skill
STE DISPOSAL (WAIAU)	1762	WAIAU PP-DISPOSAL OF PAINTS & LI	P43212	HAZTECH ENVIRONMENTAL SE	skill
ISPOSAL (KAHE)	1750	HAZ WASTE DISP AT KAHE, 10/29/02	P44915	HAZTECH ENVIRONMENTAL SE	skill
moval of Hazardous Solids	1763	LABOR		HAZTECH ENVIRONMENTAL SE	skill
OWER WW TUBES AT THE	15565	W5 LOWER WW CASING REPLACEM	P43159	HONOMACH INC	skill
Vall Tubes have bulges	15565	W5 LOWER WW CASING REPLACEM	P43159	HONOMACH INC	skill
BASIN TRASH BIN HOIST	27474	K5&6 INTAKE BASIN TRASH HOIST - I	P44394	HONOMACH INC	skill
wer rear WW tubes	15565	W5 LOWER WW CASING REPLACEM	P43159	HONOMACH INC	skill
PUMP - OVERHAUL	27460	W-5 OVHL BFP COVER REPAIR O-RIN	P43618	HONOMACH INC	skill
11 MW...reason	27479	W-9 FAN HUB BORE & REAPIR JOB #.	P44257	HONOMACH INC	skill
OTOR OVERHAUL	27464	L&M TO MACHINE HP/LP TURBINE C(	P44246	HONOMACH INC	skill
OTOR OVERHAUL	27464	L&M TO MACHINE HP/LP TURBINE C(	P44246	HONOMACH INC	skill
EEDS TO BE CLEANED	27251	H81 CHILLER FAB NEW COVER	P40466	HONOMACH INC	skill
wash trough plugged	18301622	INSPECT 18"I.D.R.C.P. LINE FOR BLO	P44328	PSC INDUSTRIAL OUTSOURCIN	skill
NDE Reheater	18301697	KAHE 5 DISPOSE OF SANDBLAST GF	P44171	PSC INDUSTRIAL OUTSOURCIN	skill
PUMP OUT OILY SUMPS	18301532	KAHE PUMP OUT OILY SUMPS (5EA)	P43784	PSC INDUSTRIAL OUTSOURCIN	skill
ICAL CLEANING - OCT 200	18301598	W-5 OVHL RENT 3 FRAC TNKS 1 MO	P43622	PSC INDUSTRIAL OUTSOURCIN	skill
of Sept 30, 2002. C	18301533	EMERG FUEL OIL CLEAN UP AT K4 9/	P43625	PSC INDUSTRIAL OUTSOURCIN	skill
/ CURRENT TESTING	D0001166	W5 OVHL #52,#52 & #55 FWH SCAFF(	P43592	SAFWAY SERVICES, INC.	skill
/ CURRENT TESTING	D0001166	W5 OVHL #52,#52 & #55 FWH SCAFF(	P43592	SAFWAY SERVICES, INC.	skill
/ CURRENT TESTING	D0001166	W5 OVHL #52,#52 & #55 FWH SCAFF(	P43592	SAFWAY SERVICES, INC.	skill
ER DUCT PRESERVATION	HECO00-0	W5 STACK LINING INPECTION SERVI	P40573	SPCC AND CONSULTING	skill
ng Mat'l/Contract Svcs	HECO00-0	W5 STACK LINING INPECTION SERVI	P40573	SPCC AND CONSULTING	skill
ing, Inspection	2000-353A	W5 GEN ROTOR FIELD REPAIRS TIM	P45140	AGT SERVICES	skill
ing, Inspection	2000-348	W5 GENERATOR INSPECTION AND T	P40464	AGT SERVICES	skill
r repairs to remove	2000-377	W5 GEN STATOR REPAIRS TO REMC	P43630	AGT SERVICES	skill
ing, Inspection	2000-353A	W5 GEN ROTOR FIELD REPAIRS TIM	P45140	AGT SERVICES	skill
ing, Inspection	2000-348	W5 GENERATOR INSPECTION AND T	P40464	AGT SERVICES	skill
r repairs to remove	2000-377	W5 GEN STATOR REPAIRS TO REMC	P43630	AGT SERVICES	skill
Disch MOV not opering	47911	KAHE RECON FRCTNL HP GBOX MTI	P44899	AMERICAN ELECTRIC LLC	skill
er pump high vibration	47960	W7 #71 SWP MOTOR - RECONDITION	P45846	AMERICAN ELECTRIC LLC	skill
UX HOOK MAKING WEIRD	47922	K5/6 GANTRY CRAIN MTR RPR/RWNI	P44899	AMERICAN ELECTRIC LLC	skill
oil to motor. Please	47897	KAHE RECON 125HP SLVE BRNG MTI	P44899	AMERICAN ELECTRIC LLC	skill
- PREDICT MAINT	1140622D/	H-9 OVHL SCAFFOLD BRULS BLR VL'	P43590	ATLAS SALES CO., INC. - KAPOI	skill
- PREDICT MAINT	1140484D/	H-9 OVHL SCAFFOLD BRULS BLR VL'	P43590	ATLAS SALES CO., INC. - KAPOI	skill
- PREDICT MAINT	1140617D/	H-9 OVHL SCAFFOLD BRULS BLR VL'	P43590	ATLAS SALES CO., INC. - KAPOI	skill
- PREDICT MAINT	1140243D/	H-9 OVHL SCAFFOLD BRULS BLR VL'	P43590	ATLAS SALES CO., INC. - KAPOI	skill
FRAC;BLR CASE REPAIR	1140622D/	H-9 OVHL SCAFFOLD BRULS BLR VL'	P43590	ATLAS SALES CO., INC. - KAPOI	skill
- PREDICT MAINT	1140733D/	H-9 OVHL SCAFFOLD BRULS BLR VL'	P43590	ATLAS SALES CO., INC. - KAPOI	skill
- PREDICT MAINT	1140619D/	H-9 OVHL SCAFFOLD BRULS BLR VL'	P43590	ATLAS SALES CO., INC. - KAPOI	skill
- PREDICT MAINT	1141656D/	H-9 OVHL SCAFFOLD BRULS BLR VL'	P43590	ATLAS SALES CO., INC. - KAPOI	skill

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ACCOUNT CODE	LL PERI	TransYr	AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
PIT261H09NEP0000138501	200212	2002	4,299.97	PR029757	H9 LP TURBINE OVERHAUL	03-Y025-0	H-9 OVHL LBR/EQUIP TO S/B TURBIN	P45440	HONOLULU SHIPYARD INC	skill
PIT260W05NEP0000252501	200212	2002	14,369.90	PR028216	W5 HP TURBINE ROTOR OVERHAUL	03-Y018F	W-5 OVHL LBR/EQUIP SANDBLAST TI	P42670	HONOLULU SHIPYARD INC	skill
PIT259H09NEP0000138501	200212	2002	671.87	PR030705	H9 WW TUBE LEAK, EWA SW LWR HDR	15674	H9 BLR, BEND 1 WW TUBE FOR EWA	P45443	HONOMACH INC	skill
PIT259W05NEP0000252501	200212	2002	735.41	PR030174	W5 REPAIR FRONT HDR/WATERWALL TUBE	15651	W5 FRONT WW CASING CUT AND BE	P44970	HONOMACH INC	skill
PIL268KSTNENPIZZZZZ501	200212	2002	1,418.74	PR030769	Annual Inspection/Certification of all	27539	K 1-4,5/6 GANTRY CRANE & SHOP CF	P45877	HONOMACH INC	skill
PIT261W05NEP0000252501	200212	2002	4,000.00	PR027832	W5 Gen Stator Testing, Inspection	15645	PRVD L&M TO FAB SPACERS & WOR	P44731	HONOMACH INC	skill
PIL259K05NENPIZZZZZ501	200212	2002	2,054.36	PR027511	LT K5 IK soot blow CV on 8th floor leaks	39423.1	KAHE REPAIR TRIM 5VPC-20 SN 5903	P43859	PROCESS CONTROLS, INC.	skill
PIX259WSTNENPIZZZZZ501	200212	2002	869.22	PR030779	WWTF: Can't pump sludge, line plugged	18301921	WAIAU WWTF VAC TRUCK SERVICE	P45543	PSC INDUSTRIAL OUTSOURCIN	skill
PIL259K05NENPIZZZZZ501	200212	2002	1,662.68	PR030285	LM K5 #51 PFO pump mechanical seal	18301747	CLEAN UP OIL SPILL AT K51 PFOP 11	P44730	PSC INDUSTRIAL OUTSOURCIN	skill
PIN262H08NENPIZZZZZ501	200212	2002	2,184.00	PR030294	L.O. UNFILTERED TANK, OPEN AND CLEAN	18301725	HNL CLEAN/DISPOSE LUBE OIL TANK	P44564	PSC INDUSTRIAL OUTSOURCIN	skill
PIX262W08NENPIZZZZZ501	200212	2002	3,415.89	PR030804	W8: #82 wtr box, disch mov8, binding at	18301910	W-8 CIRCULATING WATER SYSTEM -	P45832	PSC INDUSTRIAL OUTSOURCIN	skill
PIT257W05NEP0000252501	200212	2002	5,790.72	PR026856	W5 BOILER CHEMICAL CLEANING - OCT 200	18301819	W5 CHEM CLEAN VAC TRUCK STAND	P44817	PSC INDUSTRIAL OUTSOURCIN	skill
PIL262K04NENPIZZZZZ501	200212	2002	5,881.60	PR030314	LB K4 two ACW Leaks in floor trenches	18301775	KAHE 4 CLEAN OUT FLR TRENCH, 11	P44949	PSC INDUSTRIAL OUTSOURCIN	skill
PIX262W08NENPIZZZZZ501	200212	2002	30,742.98	PR030790	W8 Inlet tunnels. Clean. Dec. 2002.	18301910	W-8 CIRCULATING WATER SYSTEM -	P45832	PSC INDUSTRIAL OUTSOURCIN	skill
PIT260W05NEP0000252501	200212	2002	59.78	PR028227	W5 LP TURBINE ROTOR OVERHAUL - NDE	6190	WAIAU 5 HP ROTOR BORE-SONIC & I	P42022	REINHART & ASSOCIATES, INC.	skill
PIT261W05NEP0000252501	200212	2002	62.22	PR028217	W5 HP TURBINE ROTOR OVERHAUL - NDE	6190	WAIAU 5 HP ROTOR BORE-SONIC & I	P42022	REINHART & ASSOCIATES, INC.	skill
PIX273W09NENPIZZZZZ501	200212	2002	100.00	PR028936	W9 TURBINE BLADE CORROSION INSPECTI	6190	CT 9/10 NDE-BLADE CORROSION INS	P42022	REINHART & ASSOCIATES, INC.	skill
PIX273W10NENPIZZZZZ501	200212	2002	100.00	PR028937	W10 TURBINE BLADE CORROSION INSPECTI	6190	CT 9/10 NDE-BLADE CORROSION INS	P42022	REINHART & ASSOCIATES, INC.	skill
PIT261W05NEP0000252501	200212	2002	122.00	PR027832	W5 Gen Stator Testing, Inspection	6190	WAIAU 5 HP ROTOR BORE-SONIC & I	P42022	REINHART & ASSOCIATES, INC.	skill
PIT260W05NEP0000252501	200212	2002	598.02	PR028216	W5 HP TURBINE ROTOR OVERHAUL	6273	W-5 OVHL SHEARWAVE & VT L/H CH	P44723	REINHART & ASSOCIATES, INC.	skill
PIT260W05NEP0000252501	200212	2002	1,494.50	PR028227	W5 LP TURBINE ROTOR OVERHAUL - NDE	6190	WAIAU 5 HP ROTOR BORE-SONIC & I	P42022	REINHART & ASSOCIATES, INC.	skill
PIT261W05NEP0000252501	200212	2002	1,555.50	PR028217	W5 HP TURBINE ROTOR OVERHAUL - NDE	6190	WAIAU 5 HP ROTOR BORE-SONIC & I	P42022	REINHART & ASSOCIATES, INC.	skill
PIX273W09NENPIZZZZZ501	200212	2002	2,500.00	PR028936	W9 TURBINE BLADE CORROSION INSPECTI	6190	CT 9/10 NDE-BLADE CORROSION INS	P42022	REINHART & ASSOCIATES, INC.	skill
PIX273W10NENPIZZZZZ501	200212	2002	2,500.00	PR028937	W10 TURBINE BLADE CORROSION INSPECTI	6190	CT 9/10 NDE-BLADE CORROSION INS	P42022	REINHART & ASSOCIATES, INC.	skill
PIT261W05NEP0000252501	200212	2002	3,050.00	PR027832	W5 Gen Stator Testing, Inspection	6190	WAIAU 5 HP ROTOR BORE-SONIC & I	P42022	REINHART & ASSOCIATES, INC.	skill
PIT260W05NEP0000252501	200212	2002	14,950.45	PR028216	W5 HP TURBINE ROTOR OVERHAUL	6273	W-5 OVHL SHEARWAVE & VT L/H CH	P44723	REINHART & ASSOCIATES, INC.	skill
PIT258W05NEP0000252501	200212	2002	293.69	PR027808	W5 #55 FWH EDDY CURRENT TESTING	R0001537	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill
PIT259W05NEP0000252501	200212	2002	293.69	PR028238	W5 REPLACE 24 LOWER WW TUBES AT THE	R0001537	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill
PIT261W05NEP0000252501	200212	2002	293.69	PR027806	W5 #52 FWH EDDY CURRENT TESTING	R0001537	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill
PIT261W05NEP0000252501	200212	2002	293.69	PR027807	W5 #53 FWH EDDY CURRENT TESTING	R0001537	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill
PIT258W05NEP0000252501	200212	2002	294.73	PR027808	W5 #55 FWH EDDY CURRENT TESTING	R0001538	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill
PIT261W05NEP0000252501	200212	2002	294.73	PR027806	W5 #52 FWH EDDY CURRENT TESTING	R0001538	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill
PIT261W05NEP0000252501	200212	2002	294.73	PR027807	W5 #53 FWH EDDY CURRENT TESTING	R0001538	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill
PIT259W05NEP0000252501	200212	2002	294.74	PR028238	W5 REPLACE 24 LOWER WW TUBES AT THE	R0001538	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill
PIT259W05NEP0000252501	200212	2002	393.95	PR027617	W5 INSULATION;REFRAC;BLR CASE REPAIR	R0001540	W5 OVHL SCAFFOLD RECIRC DUCT,	P42292	SAFWAY SERVICES, INC.	skill
PIT259W05NEP0000252501	200212	2002	393.96	PR028238	W5 REPLACE 24 LOWER WW TUBES AT THE	R0001540	W5 OVHL SCAFFOLD RECIRC DUCT,	P42292	SAFWAY SERVICES, INC.	skill
PIT259W05NEP0000252501	200212	2002	791.05	PR027617	W5 INSULATION;REFRAC;BLR CASE REPAIR	R0001539	W5 OVHL SCAFFOLD BCC, BLR CSG	P42266	SAFWAY SERVICES, INC.	skill
PIT257W05NEP0000252501	200212	2002	1,050.41	PR026856	W5 BOILER CHEMICAL CLEANING - OCT 200	R0001542	W5 BCC, REAR & BRULS WW TUBE S	P42757	SAFWAY SERVICES, INC.	skill
PIT262W05NEP0000252501	200212	2002	1,097.97	PR030199	W5 H2 CLR CLW WTR PPG (HOSES)REPLACI	D0001536	W-5 OVHL GENERATOR COOLING HO	P44236	SAFWAY SERVICES, INC.	skill
PIT257W05NEP0000252501	200212	2002	1,174.76	PR028924	W5 Furnace Rear Wall Tubes have bulges	R0001537	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill
PIT257W05NEP0000252501	200212	2002	1,178.93	PR028924	W5 Furnace Rear Wall Tubes have bulges	R0001538	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill
PIT259W05NEP0000252501	200212	2002	1,575.61	PR028924	W5 Furnace Rear Wall Tubes have bulges	R0001542	W5 BCC, REAR & BRULS WW TUBE S	P42757	SAFWAY SERVICES, INC.	skill
PIT259W05NEP0000252501	200212	2002	1,575.81	PR029095	W5 RECIRC DUCT INSULATION DETERIORAT	R0001540	W5 OVHL SCAFFOLD RECIRC DUCT,	P42292	SAFWAY SERVICES, INC.	skill
PIT257W05NEP0000252501	200212	2002	1,582.12	PR026856	W5 BOILER CHEMICAL CLEANING - OCT 200	R0001539	W5 OVHL SCAFFOLD BCC, BLR CSG	P42266	SAFWAY SERVICES, INC.	skill
PIX261W05NEP0000252501	200212	2002	1,582.12	PR028940	W5 HOG JET VENT PIPING INSPECTION	R0001539	W5 OVHL SCAFFOLD BCC, BLR CSG	P42266	SAFWAY SERVICES, INC.	skill
PIT258W05NEP0000252501	200212	2002	2,626.03	PR027609	W5 WW/DOWNCOMER/HDR - PREDICTIVE M	R0001542	W5 BCC, REAR & BRULS WW TUBE S	P42757	SAFWAY SERVICES, INC.	skill
PIT259W05NEP0000252501	200212	2002	3,524.29	PR027617	W5 INSULATION;REFRAC;BLR CASE REPAIR	R0001537	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill
PIT259W05NEP0000252501	200212	2002	3,536.80	PR027617	W5 INSULATION;REFRAC;BLR CASE REPAIR	R0001538	W5 OVHL SCAFFOLDING SVCS & REI	P41830	SAFWAY SERVICES, INC.	skill
PIX268WSTNENPIZZZZZ501	200201	2002	7,154.60	PR000023	OVERHEAD CABLE (TELEPHONE/FIBER OPTI	122401	LABORERS KAHE BLR & MISC STATI	P33187	GIORDANO'S PAINTING CO	supp
PIN262H08NENPIZZZZZ501	200201	2002	270.42	PR000260	HONOLULU STATION CONDENSER CLEANIN	02-10009	HELPERS FOR CONDENSER CLEANI	P32856	HAWAIIAN STEAM, INC.	supp
PIL262K01NENPIZZZZZ501	200201	2002	540.85	PR000264	KAHE CONDENSER CLEANING	02-10009	HELPERS FOR CONDENSER CLEANI	P32856	HAWAIIAN STEAM, INC.	supp
PIX262W03NENPIZZZZZ501	200201	2002	540.85	PR000261	WAIAU STATION CONDENSER CLEANING	02-10009	HELPERS FOR CONDENSER CLEANI	P32856	HAWAIIAN STEAM, INC.	supp
PIX259W03NENPIZZZZZ501	200201	2002	558.09	PR022030	W3:drain to blow off tank, steam leak.	OEC-2532	W3 CONTINUOUS BLOWDOWN REM	P34469	OHANA ENVIRONMENTAL	supp
PIX259W03NENPIZZZZZ501	200201	2002	695.00	PR022030	W3:drain to blow off tank, steam leak.	OEC-2537	W3 CONTINUOUS BLOWDOWN REM	P34469	OHANA ENVIRONMENTAL	supp
PIX242WSTNENPIZZZZZ501	200201	2002	1,850.00	PR024015	#52 fuel oil pump @ tank #5 leaks approx	OEC-2538	52 FOTP LABOR TO FABR & INST INS	P34473	OHANA ENVIRONMENTAL	supp
PIT258K01NEP0000251501	200202	2002	4,905.54	PR023687	K1 WW/DOWNCOMER/HDR-PREDICTIVE MAI	21302	KAHE 1 OVERHAUL 3 TEMPORARY L	P34184	GIORDANO'S PAINTING CO	supp
PIT257K01NEP0000251501	200202	2002	14,716.64	PR023684	K1 BOILER AND AIR HEATER WASH	21302	KAHE 1 OVERHAUL 3 TEMPORARY L	P34184	GIORDANO'S PAINTING CO	supp

ACCOUNT_CODE	LL_PERI	TransYr	AMT	Work_Order	Work_Order_Desc	Inv_No	Inv_Item_Desc	PO_No	Supplier_Name	SVC_Typ
58K01NEP0000251501	200202	2002	1,405.90	PR023687	K1 WW/DOWNCOMER/HDR-PREDICTIVE MAI	02-10093	KAHE 1 OVERHAUL 1 TEMPORARY H	P34185	HAWAIIAN STEAM, INC.	supp
57K01NEP0000251501	200202	2002	4,217.71	PR023684	K1 BOILER AND AIR HEATER WASH	02-10093	KAHE 1 OVERHAUL 1 TEMPORARY H	P34185	HAWAIIAN STEAM, INC.	supp
52H08NENPIZZZZZ501	200202	2002	5,151.91	PR000260	HONOLULU STATION CONDENSER CLEANIN	02-10086	CONDENSER CLEANING HELPERS J/	P35616	HAWAIIAN STEAM, INC.	supp
51K01NEP0000251501	200202	2002	8,827.24	PR023155	KAHE 1 GENERATOR INSPECTION AGT SER	02-10094A	LABORER 1 EA, 40 HRS/WK 3 WKS	P34527	HAWAIIAN STEAM, INC.	supp
52K01NENPIZZZZZ501	200202	2002	10,303.81	PR000264	KAHE CONDENSER CLEANING	02-10086	CONDENSER CLEANING HELPERS J/	P35616	HAWAIIAN STEAM, INC.	supp
52W03NENPIZZZZZ501	200202	2002	10,303.82	PR000261	WAIAU STATION CONDENSER CLEANING	02-10086	CONDENSER CLEANING HELPERS J/	P35616	HAWAIIAN STEAM, INC.	supp
59W07NENPIZZZZZ501	200202	2002	170.93	PR024486	W7 # 73 FWH Drip Pump. Recirc Line puka	OEC-2566	W7 73 HDP INSULATION REMOVAL.	P35210	OHANA ENVIRONMENTAL	supp
78WSTNENPIZZZZZ501	200202	2002	256.04	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2589	W3 PRIMARY FO PUMP & PIPING (31	P35609	OHANA ENVIRONMENTAL	supp
78WSTNENPIZZZZZ501	200202	2002	365.67	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2590	W3 PRIMARY FO PUMP & PIPING (31	P35609	OHANA ENVIRONMENTAL	supp
78WSTNENPIZZZZZ501	200202	2002	682.04	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2588	W3 SSH DRN PIPING ASBESTOS REM	P35609	OHANA ENVIRONMENTAL	supp
71W03NENPIZZZZZ501	200202	2002	963.18	PR024614	W3 #31 PFOP Piping Re-Insulation	OEC-2589	W3 PRIMARY FO PUMP & PIPING (31	P35609	OHANA ENVIRONMENTAL	supp
71W03NENPIZZZZZ501	200202	2002	1,375.61	PR024614	W3 #31 PFOP Piping Re-Insulation	OEC-2590	W3 PRIMARY FO PUMP & PIPING (31	P35609	OHANA ENVIRONMENTAL	supp
55KSTNENPIZZZZZ501	200202	2002	1,670.99	PR021957	LB K3 Cont Rm asbestos insulat falling	OEC-2559	K3/K4 CTRL RM, ENCAPSULATE CEIL	P34840	OHANA ENVIRONMENTAL	supp
78WSTNENPIZZZZZ501	200202	2002	2,310.00	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2591	W3 PRIMARY FO PUMP & PIPING (31	P35609	OHANA ENVIRONMENTAL	supp
55KSTNENPIZZZZZ501	200202	2002	8,101.38	PR021957	LB K3 Cont Rm asbestos insulat falling	OEC-2558	K3/K4 CTRL RM, ENCAPSULATE CEIL	P34840	OHANA ENVIRONMENTAL	supp
71W03NENPIZZZZZ501	200202	2002	8,690.00	PR024614	W3 #31 PFOP Piping Re-Insulation	OEC-2591	W3 PRIMARY FO PUMP & PIPING (31	P35609	OHANA ENVIRONMENTAL	supp
71WFSNENPIZZZZZ501	200202	2002	24,000.00	PR024612	WGP W3 Mauka Wall Piping Re-Insulation	OEC-2567	RE-INSLUATE W-3 PRIMARY FO PIPI	P35208	OHANA ENVIRONMENTAL	supp
59K01NEP0000251501	200202	2002	22,702.35	PR023688	K1 INSULATION;REFRAC;BLR CASE REPAIR	34673	ASBESTOS ABATEMENT INSULTRS. :	P34280	PETROCHEM INSULATION INC.	supp
58K01NEP0000251501	200203	2002	7,706.04	PR023689	K1 ECONZR TUBES/HEADER-PREDICT MAIN	HECO1-02	K 1 WELDING SERVICES 2 EA JOURN	P34834	HAWAIIAN DREDGING	supp
58K01NEP0000251501	200203	2002	7,706.04	PR023687	K1 WW/DOWNCOMER/HDR-PREDICTIVE MAI	HECO1-02	K 1 WELDING SERVICES 2 EA JOURN	P34834	HAWAIIAN DREDGING	supp
52H08NENPIZZZZZ501	200203	2002	4,858.30	PR000260	HONOLULU STATION CONDENSER CLEANIN	02-10123	CONDENSER CLEANER HELPERS FE	P36182	HAWAIIAN STEAM, INC.	supp
52K01NENPIZZZZZ501	200203	2002	9,716.59	PR000264	KAHE CONDENSER CLEANING	02-10123	CONDENSER CLEANER HELPERS FE	P36182	HAWAIIAN STEAM, INC.	supp
52W03NENPIZZZZZ501	200203	2002	9,716.59	PR000261	WAIAU STATION CONDENSER CLEANING	02-10123	CONDENSER CLEANER HELPERS FE	P36182	HAWAIIAN STEAM, INC.	supp
78WSTNENPIZZZZZ501	200203	2002	496.33	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2612	W-7 ATTEMP RH CV. ASBESTOS ABA	P36194	OHANA ENVIRONMENTAL	supp
78WSTNENPIZZZZZ501	200203	2002	901.18	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2613	W6 63 FWH ASBSESTOS ABATEMEN	P36198	OHANA ENVIRONMENTAL	supp
78WSTNENPIZZZZZ501	200203	2002	1,411.14	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2616	W6 63 FWH ASBSESTOS ABATEMEN	P36198	OHANA ENVIRONMENTAL	supp
78WSTNENPIZZZZZ501	200203	2002	2,570.45	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2620	W3 REBLR DRIP PIPING ASBESTOS /	P36202	OHANA ENVIRONMENTAL	supp
78HSTNENPIZZZZZ501	200203	2002	2,586.41	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2621	REMV/DISPO MISC ASPESTOS IWILE	P36463	OHANA ENVIRONMENTAL	supp
78WSTNENPIZZZZZ501	200203	2002	2,753.78	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2614	W7 #72 GSE ASBESTOS ABATEMENT	P36205	OHANA ENVIRONMENTAL	supp
52W07NENPIZZZZZ501	200203	2002	2,800.00	PR022759	W7 72 Gland Steam Exhauster Fan, is	OEC-2638	W7 #72 GSE REPLACE INSULATION.	P36206	OHANA ENVIRONMENTAL	supp
59W08NENPIZZZZZ501	200203	2002	9,935.46	PR025111	W8:blr refractory deteriorated	OEC-2637	W-8 BOILER INSULATION REPAIRS (1	P36225	OHANA ENVIRONMENTAL	supp
52HSTNENPIZZZZZ501	200203	2002	1,726.75	PR024589	SOUND PROOF INSULATION ABOVE H9 FOR	A51232	REMOVE AND DISPOSE CEILING H-9	P35101	PETROCHEM INSULATION INC.	supp
55KSTNENPIZZZZZ501	200204	2002	5,108.13	PR000024	GP---RAW WATER LINE LEAKING AT THE BIK	30102	LABOR TO ASSIST W/ PLANT MAINT	P36208	GIORDANO'S PAINTING CO	supp
58KSTNENPIZZZZZ501	200204	2002	5,108.14	PR000023	OVERHEAD CABLE (TELEPHONE/FIBER OPTI	30102	LABOR TO ASSIST W/ PLANT MAINT	P36208	GIORDANO'S PAINTING CO	supp
57K04NEP0000520501	200204	2002	6,174.60	PR024830	K4 BOILER AND AIR HEATER WASH	32802	3 EA HELPERS KAHE 4 OVERHAUL $:	P36195	GIORDANO'S PAINTING CO	supp
59K04NEP0000520501	200204	2002	6,174.60	PR024833	K4 INSULATION;REFRAC;BLR CASE REPAIR	32802	3 EA HELPERS KAHE 4 OVERHAUL $:	P36195	GIORDANO'S PAINTING CO	supp
55KSTNENPIZZZZZ501	200204	2002	7,051.11	PR000024	GP---RAW WATER LINE LEAKING AT THE BIK	3202	LABOR ASSIST W/ KPP PLANT MAINT	P36231	GIORDANO'S PAINTING CO	supp
58KSTNENPIZZZZZ501	200204	2002	7,051.11	PR000023	OVERHEAD CABLE (TELEPHONE/FIBER OPTI	3202	LABOR ASSIST W/ KPP PLANT MAINT	P36231	GIORDANO'S PAINTING CO	supp
57K04NEP0000520501	200204	2002	2,089.59	PR024830	K4 BOILER AND AIR HEATER WASH	02-10161	1 EA LABORER TO SUPPORT KAHE 4	P36196	HAWAIIAN STEAM, INC.	supp
59K04NEP0000520501	200204	2002	2,089.59	PR024833	K4 INSULATION;REFRAC;BLR CASE REPAIR	02-10161	1 EA LABORER TO SUPPORT KAHE 4	P36196	HAWAIIAN STEAM, INC.	supp
52H08NENPIZZZZZ501	200204	2002	6,259.55	PR000260	HONOLULU STATION CONDENSER CLEANIN	02-10177	CONDENSER CLEANER HELPERS M/	P37540	HAWAIIAN STEAM, INC.	supp
52K01NENPIZZZZZ501	200204	2002	12,519.10	PR000264	KAHE CONDENSER CLEANING	02-10177	CONDENSER CLEANER HELPERS M/	P37540	HAWAIIAN STEAM, INC.	supp
52W03NENPIZZZZZ501	200204	2002	12,519.10	PR000261	WAIAU STATION CONDENSER CLEANING	02-10177	CONDENSER CLEANER HELPERS M/	P37540	HAWAIIAN STEAM, INC.	supp
9K01NENPIZZZZZ501	200204	2002	205.42	PR021714	LB FO Stm trace steam leak below C&D CV.	OEC-2311	MISC NON-ASB INSU REMVL & DISPL	P31174	OHANA ENVIRONMENTAL	supp
9K03NENPIZZZZZ501	200204	2002	205.43	PR020767	LT K3 Aux Steam pressure transmitter	OEC-2311	MISC NON-ASB INSU REMVL & DISPL	P31174	OHANA ENVIRONMENTAL	supp
9K03NENPIZZZZZ501	200204	2002	205.43	PR020149	LB- K3 #32 reboiler disch pressure gauge	OEC-2311	MISC NON-ASB INSU REMVL & DISPL	P31174	OHANA ENVIRONMENTAL	supp
9K05NENPIZZZZZ501	200204	2002	205.43	PR020863	LB K5 #54 fwh steam leak in line	OEC-2311	MISC NON-ASB INSU REMVL & DISPL	P31174	OHANA ENVIRONMENTAL	supp
9K06NENPIZZZZZ501	200204	2002	205.43	PR021574	LB K6 "H" burner atomizing steam leak at	OEC-2311	MISC NON-ASB INSU REMVL & DISPL	P31174	OHANA ENVIRONMENTAL	supp
9W07NENPIZZZZZ501	200204	2002	600.00	PR018773	W7: RH spray dcs 100%, flow at 50%.	OEC-2661	W7 RH ATTEMP SPRAY CV. RE-INSUI	P36197	OHANA ENVIRONMENTAL	supp
9W08NENPIZZZZZ501	200204	2002	650.00	PR025107	W8:RH attemperator piping reinsulate,	OEC-2665	W8 RH ATTEMP PIPING REINSULATE	P36511	OHANA ENVIRONMENTAL	supp
9W07NENPIZZZZZ501	200204	2002	700.00	PR023283	W7 Relief valve 7-RV-94 premature lift	OEC-2659	W7 FO RV94 REMOVE AND REPLACE	P36204	OHANA ENVIRONMENTAL	supp
5KSTNENPIZZZZZ501	200204	2002	984.23	PR021957	LB K3 Cont Rm asbestos insulat falling	OEC-2339	ASBESTOS CLEAN-UP & CONTNMT K	P31174	OHANA ENVIRONMENTAL	supp
9W07NENPIZZZZZ501	200204	2002	1,800.00	PR024550	W7 # 71 Air preheater soot blow psi low	OEC-2658	W7 71 APH STEAM CV RE-INSULATIC	P36201	OHANA ENVIRONMENTAL	supp
9W07NENPIZZZZZ501	200204	2002	1,800.00	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2664	W7 71 APH STEAM CV ASBESTOS AE	P36200	OHANA ENVIRONMENTAL	supp
8HSTNENPIZZZZZ501	200204	2002	4,099.83	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2694	HPP FLRS 1 & 2 ASBESTOS CLEAN U	P37402	OHANA ENVIRONMENTAL	supp
9K04NEP0000520501	200204	2002	17,897.30	PR024833	K4 INSULATION;REFRAC;BLR CASE REPAIR	A51240	5 EA INSLUATOR ASBESTOS LABORI	P36186	PETROCHEM INSULATION INC.	supp
2W05NENPIZZZZZ501	200205	2002	1,128.05	PR021527	W5:#51 CIRC WTR PUMP - RECONDITION PU	42402	2 LABORERS W5 #51 CWP RECOND	P37218	GIORDANO'S PAINTING CO	supp

ACCOUNT CODE	LL PERI	TransYr	AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
PIX257W05NENPIZZZZZ501	200205	2002	3,799.75	PR025694	W5 Air Preheater Wash	42602	2 LABORERS W5 APH WASH EST 3 D	P37220	GIORDANO'S PAINTING CO	supp
PIL265KSTNENPIZZZZZ501	200205	2002	6,712.85	PR000024	GP---RAW WATER LINE LEAKING AT THE BIK	40502	LABOR ASSIST W/ KPP PLANT MAINT	P37242	GIORDANO'S PAINTING CO	supp
PIL268KSTNENPIZZZZZ501	200205	2002	6,712.85	PR000023	OVERHEAD CABLE (TELEPHONE/FIBER OPTI	40502	LABOR ASSIST W/ KPP PLANT MAINT	P37242	GIORDANO'S PAINTING CO	supp
PIX259W08NENPIZZZZZ501	200205	2002	10,122.78	PR025145	W8 Boiler Wash (Feb 2002)	42502	W-7&8 TEMPORARY HELPERS FOR E	P36209	GIORDANO'S PAINTING CO	supp
PIX259W07NENPIZZZZZ501	200205	2002	10,122.79	PR025144	W7 Boiler Wash (Feb 2002)	42502	W-7&8 TEMPORARY HELPERS FOR E	P36209	GIORDANO'S PAINTING CO	supp
PIX259W08NENPIZZZZZ501	200205	2002	5,596.35	PR025315	W82 Air Pre-Heater Wash	HECO3-02	W8 APH HOPPER REPAIRS 2 CONTR	P36734	HAWAIIAN DREDGING	supp
PIN262H08NENPIZZZZZ501	200205	2002	4,400.43	PR000260	HONOLULU STATION CONDENSER CLEANIN	02-10211	CONDENSER CLEANER HELPERS AP	P37540	HAWAIIAN STEAM, INC.	supp
PIL262K01NENPIZZZZZ501	200205	2002	8,800.86	PR000264	KAHE CONDENSER CLEANING	02-10211	CONDENSER CLEANER HELPERS AP	P37540	HAWAIIAN STEAM, INC.	supp
PIX262W03NENPIZZZZZ501	200205	2002	8,800.86	PR000261	WAIAU STATION CONDENSER CLEANING	02-10211	CONDENSER CLEANER HELPERS AP	P37540	HAWAIIAN STEAM, INC.	supp
PIX242WSTNENPIZZZZZ501	200205	2002	162.50	PR020547	W8 83SFOP, recirc CV 8VPC, leaks thru	OEC-2733	W73 & W83 SFOP CV REINSULATION	P37238	OHANA ENVIRONMENTAL	supp
PIX259W07NENPIZZZZZ501	200205	2002	162.50	PR024718	W7 #73 SFOP Recirc CV leaking through.	OEC-2733	W73 & W83 SFOP CV REINSULATION	P37238	OHANA ENVIRONMENTAL	supp
PIL259KSTNENPIZZZZZ501	200205	2002	325.00	PR023272	REPAIR SAND BLAST SHED DOOR	OEC-2734	W6 FO RV-112 REINSULATION	P37238	OHANA ENVIRONMENTAL	supp
PIX878WSTNENPIZZZZZ501	200205	2002	600.00	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2660	W-7 ATTEMP RH CV. ASBESTOS ABA	P36194	OHANA ENVIRONMENTAL	supp
PIX262W04NENPIZZZZZ501	200205	2002	1,000.00	PR025181	W4 Fire in Electrical Cable tray.	OEC-2657	W4 CABLE TRAY RE-INSULATION, PF	P36817	OHANA ENVIRONMENTAL	supp
PIN878HSTNENPIZZZZZ501	200205	2002	1,250.00	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-2732	HPP ASBESTOS BIN REMOVAL SERV	P38118	OHANA ENVIRONMENTAL	supp
PIX259W03NENPIZZZZZ501	200205	2002	1,500.00	PR025312	W3 REBOILER DRIP PIPING INSULATION WO	OEC-2656	W3 REBLR DRIP PIPING RE-INSULAT	P36203	OHANA ENVIRONMENTAL	supp
PIX878WSTNENPIZZZZZ501	200205	2002	12,885.56	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2745	W-7 SEALING AIR LINE ASBESTOS AI	P38111	OHANA ENVIRONMENTAL	supp
PIX259W08NENPIZZZZZ501	200205	2002	178.81	PR025382	W8 Boiler Inspection March 2002	B51240	W8 BLR INSPECTION. 1 CONTRACT I	P36735	PETROCHEM INSULATION INC.	supp
PIN878HSTNENPIZZZZZ501	200205	2002	3,892.97	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	35661	REINSULATE/ENCAPSULATE PIPING	P36449	PETROCHEM INSULATION INC.	supp
PIT257K06NEP0000250501	200205	2002	836.92	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-18	TECH CONTRACTOR SUPPORT K6 O	P38698	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200205	2002	3,476.34	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-12	CONTRACT TECHS ASSIST W/K6 OVI	P38014	WESTERN PROCESS CONTROL	supp
PIT261K06NEP0000250501	200206	2002	7,333.57	PR026550	K6 LP TURB OPEN/INSPECT/SERVICE	MJI-6411	PROVIDE MECHANIC SERVICES FOR	P38705	DIVERSIFIED ENERGY SERVICE	supp
PIT261K06NEP0000250501	200206	2002	9,237.80	PR026550	K6 LP TURB OPEN/INSPECT/SERVICE	MJI-6409	PROVIDE MECHANIC SERVICES FOR	P38705	DIVERSIFIED ENERGY SERVICE	supp
PIX265WT1NENPIZZZZZ501	200206	2002	3,645.81	PR026796	TANK 71 CLEANING OUT SIDE OF THE TANK	60702	W-72 DISTILLED WATER TANK CLEAI	P38221	GIORDANO'S PAINTING CO	supp
PIX265WT1NENPIZZZZZ501	200206	2002	3,645.81	PR026795	TANK 53 CLEANING OUT SIDE OF THE TANK	60702	W-53 DISTILLED WATER TANK CLEAI	P38221	GIORDANO'S PAINTING CO	supp
PIX265WT1NENPIZZZZZ501	200206	2002	3,645.81	PR026797	TANK 72 CLEANING OUT SIDE OF THE TANK	60702	W-71 DISTILLED WATER TANK CLEAI	P38221	GIORDANO'S PAINTING CO	supp
PIL271KTFNENPIZZZZZ501	200206	2002	14,030.35	PR027107	Collect $- Kahe Valves & Packing Maint.	52102	LABOR ASSIST KAHE PLANT MAINT /	P38935	GIORDANO'S PAINTING CO	supp
PIN262H08NENPIZZZZZ501	200206	2002	7,350.47	PR000260	HONOLULU STATION CONDENSER CLEANIN	02-10254	CONDENSER CLEANER HELPERS MA	P37540	HAWAIIAN STEAM, INC.	supp
PIL262K01NENPIZZZZZ501	200206	2002	14,700.95	PR000264	KAHE CONDENSER CLEANING	02-10254	CONDENSER CLEANER HELPERS MA	P37540	HAWAIIAN STEAM, INC.	supp
PIX262W03NENPIZZZZZ501	200206	2002	14,700.95	PR000261	WAIAU STATION CONDENSER CLEANING	02-10254	CONDENSER CLEANER HELPERS MA	P37540	HAWAIIAN STEAM, INC.	supp
PIX878WSTNENPIZZZZZ501	200206	2002	1,486.99	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2809	W-4 3RD FLOOR ASBESTOS CLEAN-U	P39538	OHANA ENVIRONMENTAL	supp
PIX878WSTNENPIZZZZZ501	200206	2002	11,998.04	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2759	W-8 SEALING AIR LINE ASBESTOS AI	P38015	OHANA ENVIRONMENTAL	supp
PIT259K06NEP0000250501	200206	2002	10,415.90	PR025683	K6 INSULATION;REFRAC;BLR CASE REPAIR	36623	INSULATOR SERVICES FOR K6 OVHL	P38244	PETROCHEM INSULATION INC.	supp
PIT257K06NEP0000250501	200206	2002	2,335.70	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-23	TECH CONTRACTOR SUPPORT K6 O	P38698	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200206	2002	3,208.72	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-24	TECH CONTRACTOR SUPPORT K6 O	P38698	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200206	2002	3,234.80	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-31	TECH CONTRACTOR SUPPORT K6 O	P38698	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200206	2002	3,321.68	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-27	TECH CONTRACTOR SUPPORT K6 O	P38698	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200206	2002	3,351.00	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-32	TECH CONTRACTOR SUPPORT K6 O	P38698	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200206	2002	6,947.42	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-28	CONTRACT TECHS ASSIST W/K6 OVI	P38014	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200206	2002	8,833.12	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-22	CONTRACT TECHS ASSIST W/K6 OVI	P38014	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200206	2002	9,106.77	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-25	CONTRACT TECHS ASSIST W/K6 OVI	P38014	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200206	2002	9,609.32	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-16	CONTRACT TECHS ASSIST W/K6 OVI	P38014	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200206	2002	14,036.56	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-30	CONTRACT TECHS ASSIST W/K6 OVI	P38014	WESTERN PROCESS CONTROL	supp
PIT261K06NEP0000250501	200207	2002	4,885.10	PR026550	K6 LP TURB OPEN/INSPECT/SERVICE	MJI-6422	PROVIDE MECHANIC SERVICES FOR	P38705	DIVERSIFIED ENERGY SERVICE	supp
PIT261K06NEP0000250501	200207	2002	5,191.33	PR026550	K6 LP TURB OPEN/INSPECT/SERVICE	MJI-6417	PROVIDE MECHANIC SERVICES FOR	P38705	DIVERSIFIED ENERGY SERVICE	supp
PIL271KTFNENPIZZZZZ501	200207	2002	10,211.84	PR027107	Collect $- Kahe Valves & Packing Maint.	61002	LABOR ASSIST KAHE PLANT MAINT I	P39814	GIORDANO'S PAINTING CO	supp
PIL271KTFNENPIZZZZZ501	200207	2002	15,104.50	PR027107	Collect $- Kahe Valves & Packing Maint.	70402	LABOR ASSIST KAHE PLANT MAINT J	P40620	GIORDANO'S PAINTING CO	supp
PIT257K06NEP0000250501	200207	2002	33,253.34	PR025533	K6 BOILER AND AIR HEATER WASH	70602	TEMP. HELPERS (3 EA) K6 O/H BLR C	P38338	GIORDANO'S PAINTING CO	supp
PIX265W05NENPIZZZZZ501	200207	2002	79,826.00	PR021563	W5 TURBINE BLDG ROOF REPAIR	HECO6-02	WPP-WAIAU 5 TURBINE HOUSE ROO	P38690	HAWAIIAN DREDGING	supp
PIN262H08NENPIZZZZZ501	200207	2002	6,981.69	PR000260	HONOLULU STATION CONDENSER CLEANIN	02-10311	CONDENSER CLEANER HELPERS JU	P37540	HAWAIIAN STEAM, INC.	supp
PIT257K06NEP0000250501	200207	2002	11,400.55	PR025533	K6 BOILER AND AIR HEATER WASH	02-10333	TEMP. HELPER (1 EA) K-6 O/H BLR CI	P38340	HAWAIIAN STEAM, INC.	supp
PIX262W03NENPIZZZZZ501	200207	2002	13,963.37	PR000261	WAIAU STATION CONDENSER CLEANING	02-10311	CONDENSER CLEANER HELPERS JU	P37540	HAWAIIAN STEAM, INC.	supp
PIL262K01NENPIZZZZZ501	200207	2002	13,963.38	PR000264	KAHE CONDENSER CLEANING	02-10311	CONDENSER CLEANER HELPERS JU	P37540	HAWAIIAN STEAM, INC.	supp
PIX262W03NENPIZZZZZ501	200207	2002	700.00	PR027060	W3: HP Turbine Ewa & Waikiki manhole	OEC-2871	W-3 TURBINE INSULATION - REMOVE	P40471	OHANA ENVIRONMENTAL	supp
PIX259W04NENPIZZZZZ501	200207	2002	984.00	PR026573	W4 #1 Bleed Trip will not open. Checked	OEC-2790	W4 #1 BLEED STEAM CHK VLV RE-IN	P38936	OHANA ENVIRONMENTAL	supp
PIX259W07NENPIZZZZZ501	200207	2002	1,685.00	PR026937	W7: Aux steam header leaking at elbow...	OEC-2789	W7 AUX STM PIPING RE-INSULATION	P38937	OHANA ENVIRONMENTAL	supp
PIL259K03NENPIZZZZZ501	200207	2002	1,883.93	PR027526	K3 ECONOMIZER RECIRC FEED PIPE RUPTU	OEC-2843	K3 ECONO RECIRC LINE ASBESTOR	P39954	OHANA ENVIRONMENTAL	supp

ACCOUNT CODE	LL PERI	TransYr	AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
PIX259W07NENPIZZZZZ501	200207	2002	2,391.37	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2760	W7 AUX STM PPG ASBESTOS ABATE	P38736	OHANA ENVIRONMENTAL	supp
PIX259W06NENPIZZZZZ501	200207	2002	37,312.50	PR021828	W6:APH INSULATION FALLING OFF	OEC-2868	W-6 AIR PREHEATER - RE-INSULATE	P40475	OHANA ENVIRONMENTAL	supp
PIX878WSTNENPIZZZZZ501	200207	2002	41,654.74	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2869	W-6 AIR PREHEATER ASBESTOS AB/	P39610	OHANA ENVIRONMENTAL	supp
PIN242HSTNENPIZZZZZ501	200207	2002	291.66	PR027363	H8 ATMOSPHERIC BLOW OFF TANK.	36957	H08 ATMOSPHERIC TANK INSULATIC	P39960	PETROCHEM INSULATION INC.	supp
PIN259H08NENPIZZZZZ501	200207	2002	300.00	PR027245	H8 EWA SIDE PRIMARY/SECONDARY SUPER	37345	H08 STEAM DRAIN LINE REMOVE INS	P39797	PETROCHEM INSULATION INC.	supp
PIL259K03NENPIZZZZZ501	200207	2002	905.31	PR027526	K3 ECONOMIZER RECIRC FEED PIPE RUPTU	37180	K3 ECONO RECIRC INSULATION ASS	P40279	PETROCHEM INSULATION INC.	supp
PIT258W05NEP0000252501	200207	2002	3,118.82	PR025633	W5 WATERWALL TUBE SAMPLE	A51248	W5 WW TUBE. TWO (2) CONTRACT I	P37096	PETROCHEM INSULATION INC.	supp
PIL259K03NENPIZZZZZ501	200207	2002	3,477.42	PR027526	K3 ECONOMIZER RECIRC FEED PIPE RUPTU	37203	K3 ECONO RECIRC ASBESTOS CLEA	P40272	PETROCHEM INSULATION INC.	supp
PIT257K06NEP0000250501	200207	2002	129.32	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-40	CONTRACT TECHS ASSIST W/K6 OVI	P38014	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200207	2002	399.55	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-36	CONTRACT TECHS ASSIST W/K6 OVI	P38014	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200207	2002	2,644.02	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-38	TECH CONTRACTOR SUPPORT K6 O	P38698	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200207	2002	2,756.96	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-42	CONTRACT TECHS ASSIST W/K6 OVI	P38014	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200207	2002	3,321.66	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-35	TECH CONTRACTOR SUPPORT K6 O	P38698	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200207	2002	9,285.22	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-20	CONTRACT TECHS ASSIST W/K6 OVI	P38014	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200207	2002	10,368.62	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-37	CONTRACT TECHS ASSIST W/K6 OVI	P38014	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200207	2002	11,039.28	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-41	CONTRACT TECHS ASSIST W/K6 OVI	P38014	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200207	2002	12,686.99	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-34	CONTRACT TECHS ASSIST W/K6 OVI	P38014	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200207	2002	14,524.24	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-33	CONTRACT TECHS ASSIST W/K6 OVI	P38014	WESTERN PROCESS CONTROL	supp
PIT261K06NEP0000250501	200208	2002	4,735.11	PR026550	K6 LP TURB OPEN/INSPECT/SERVICE	MJI-6437	PROVIDE MECHANIC SERVICES FOR	P38705	DIVERSIFIED ENERGY SERVICE	supp
PIT261K06NEP0000250501	200208	2002	5,265.29	PR026550	K6 LP TURB OPEN/INSPECT/SERVICE	MJI-6432	PROVIDE MECHANIC SERVICES FOR	P38705	DIVERSIFIED ENERGY SERVICE	supp
PIT259K06NEP0000250501	200208	2002	781.25	PR025898	K62 CE APH Baskets - Replace	0207021	K62 AH BASKET INSTALLATION, CRA	P40709	HAWAIIAN CRANE & RIGGING L	supp
PIN262H08NENPIZZZZZ501	200208	2002	5,187.10	PR000260	HONOLULU STATION CONDENSER CLEANIN	02-10380	CONDENSER CLEANER HELPERS JU	P40629	HAWAIIAN STEAM, INC.	supp
PIL262K01NENPIZZZZZ501	200208	2002	10,374.20	PR000264	KAHE CONDENSER CLEANING	02-10380	CONDENSER CLEANER HELPERS JU	P40629	HAWAIIAN STEAM, INC.	supp
PIX262W03NENPIZZZZZ501	200208	2002	10,374.20	PR000261	WAIAU STATION CONDENSER CLEANING	02-10380	CONDENSER CLEANER HELPERS JU	P40629	HAWAIIAN STEAM, INC.	supp
PIT261K06NEP0000250501	200208	2002	49,796.77	PR026550	K6 LP TURB OPEN/INSPECT/SERVICE	02-10354	LABORERS 5 EA TO ASSIST WITH KA	P38691	HAWAIIAN STEAM, INC.	supp
PIX878WSTNENPIZZZZZ501	200208	2002	338.86	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	2899	W6 63 FWH ASBSESTOS ABATEMEN	P36198	OHANA ENVIRONMENTAL	supp
PIL936KSTNENPIZZZZZ501	200208	2002	1,250.00	HP000351	Refuse Service for Kahe Station	OEC-2896	KAHE INSUL WASTE DISPOSAL, 30YI	P41091	OHANA ENVIRONMENTAL	supp
PIX259W06NENPIZZZZZ501	200208	2002	12,437.50	PR021828	W6:APH INSULATION FALLING OFF	OEC-2942	W-6 AIR PREHEATER - RE-INSULATE	P40475	OHANA ENVIRONMENTAL	supp
PIX878WSTNENPIZZZZZ501	200208	2002	13,884.91	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-2943	W-6 AIR PREHEATER ASBESTOS AB/	P39610	OHANA ENVIRONMENTAL	supp
PIN259H08NENPIZZZZZ501	200208	2002	385.00	PR027245	H8 EWA SIDE PRIMARY/SECONDARY SUPER	37478	REMOVE INSULATION H8 STM DRAIN	P39534	PETROCHEM INSULATION INC.	supp
PIT259K06NEP0000250501	200208	2002	8,132.17	PR025683	K6 INSULATION;REFRAC;BLR CASE REPAIR	37599	K6 OH BLR REPAIR LABOR ASSIST	P41085	PETROCHEM INSULATION INC.	supp
PIT257K06NEP0000250501	200208	2002	150.00	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-38	CONTRACT TECHS ASSIST W/K6 OVI	P38014	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200208	2002	275.00	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-52	CONTRACT TECHS ASSIST W/K6 OVI	P38014	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200208	2002	2,474.61	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-49	TECH CONTRACTOR SUPPORT K6 O	P38698	WESTERN PROCESS CONTROL	supp
PIT257K06NEP0000250501	200208	2002	5,042.51	PR026288	K6 OVERHAUL WPC CONTRACT TECHNICIAN	HI2002-47	CONTRACT TECHS ASSIST W/K6 OVI	P38014	WESTERN PROCESS CONTROL	supp
PIL271KTFNENPIZZZZZ501	200209	2002	8,307.28	PR027107	Collect $- Kahe Valves & Packing Maint.	81002	LABOR ASSIST KPP PLANT MAINT AL	P41798	GIORDANO'S PAINTING CO	supp
PIL271KTFNENPIZZZZZ501	200209	2002	14,629.53	PR027107	Collect $- Kahe Valves & Packing Maint.	80502	LABOR ASSIST KPP PLANT MAINT JU	P41798	GIORDANO'S PAINTING CO	supp
PIN262H08NENPIZZZZZ501	200209	2002	4,381.22	PR000260	HONOLULU STATION CONDENSER CLEANIN	02-10408	CONDENSER CLEANER HELPERS AL	P40629	HAWAIIAN STEAM, INC.	supp
PIL262K01NENPIZZZZZ501	200209	2002	8,762.45	PR000264	KAHE CONDENSER CLEANING	02-10408	CONDENSER CLEANER HELPERS AL	P40629	HAWAIIAN STEAM, INC.	supp
PIX262W03NENPIZZZZZ501	200209	2002	8,762.45	PR000261	WAIAU STATION CONDENSER CLEANING	02-10408	CONDENSER CLEANER HELPERS AL	P40629	HAWAIIAN STEAM, INC.	supp
PIT260W05NEP0000252501	200210	2002	4,197.65	PR028216	W5 HP TURBINE ROTOR OVERHAUL	MJI-6457	W-5 TURB OVHL LABOR/MACHINIST ,	P42768	DIVERSIFIED ENERGY SERVICE	supp
PIT260W05NEP0000252501	200210	2002	4,583.04	PR028216	W5 HP TURBINE ROTOR OVERHAUL	MJI-6470	W-5 TURB OVHL LABOR/MACHINIST ,	P42768	DIVERSIFIED ENERGY SERVICE	supp
PIT260W05NEP0000252501	200210	2002	1,140.00	PR028216	W5 HP TURBINE ROTOR OVERHAUL	100902	W-5 OVHL TURB CREW PRVD LABOF	P43632	GIORDANO'S PAINTING CO	supp
PIT262W05NEP0000252501	200210	2002	2,115.53	PR027552	W5 CND Waterbox X-Over Butterfly Vlv	HECO9-02	W5 CONDENSER X-OVER VLV REMO	P42580	HAWAIIAN DREDGING	supp
PIT259W05NEP0000252501	200210	2002	2,224.30	PR028924	W5 Furnace Rear Wall Tubes have bulges	HECO9-02	W5 OVHL CONTRACT WELDERS APF	P42414	HAWAIIAN DREDGING	supp
PIT259W05NEP0000252501	200210	2002	4,448.61	PR028238	W5 REPLACE 24 LOWER WW TUBES AT THE	HECO9-02	W5 OVHL CONTRACT WELDERS APF	P42414	HAWAIIAN DREDGING	supp
PIT259W05NEP0000252501	200210	2002	11,121.53	PR028237	W5 Replace Economizer Tube Bends	HECO9-02	W5 OVHL CONTRACT WELDERS APF	P42414	HAWAIIAN DREDGING	supp
PIX257WSTNENPIZZZZZ501	200210	2002	15,593.67	PR028920	Waiau PP-Temporary Contract Workers	HECO9-02	SVCS OF 2 EA JOURNEYMAN BOILEF	P41992	HAWAIIAN DREDGING	supp
PIN262H08NENPIZZZZZ501	200210	2002	3,097.51	PR000260	HONOLULU STATION CONDENSER CLEANIN	02-10465	CONDENSER CLEANER HELPERS SE	P40629	HAWAIIAN STEAM, INC.	supp
PIL262K01NENPIZZZZZ501	200210	2002	6,195.02	PR000264	KAHE CONDENSER CLEANING	02-10465	CONDENSER CLEANER HELPERS SE	P40629	HAWAIIAN STEAM, INC.	supp
PIX262W03NENPIZZZZZ501	200210	2002	6,195.02	PR000261	WAIAU STATION CONDENSER CLEANING	02-10465	CONDENSER CLEANER HELPERS SE	P40629	HAWAIIAN STEAM, INC.	supp
PIT262W05NEP0000252501	200210	2002	575.91	PR027552	W5 CND Waterbox X-Over Butterfly Vlv	OEC-3057	W5 COND X-OVER VALVE ASBESTOS	P43122	OHANA ENVIRONMENTAL	supp
PIT262W05NEP0000252501	200210	2002	823.92	PR027552	W5 CND Waterbox X-Over Butterfly Vlv	OEC-3058	W5 COND X-OVER VALVE ASBESTOS	P43122	OHANA ENVIRONMENTAL	supp
PIX261W05NEP0000252501	200210	2002	1,257.35	PR028940	W5 HOG JET VENT PIPING INSPECTION	OEC-2993	W5 HOG JET PPG ASBESTOS ABATE	P41903	OHANA ENVIRONMENTAL	supp
PIT259K06NEP0000250501	200210	2002	3,719.38	PR025683	K6 INSULATION;REFRAC;BLR CASE REPAIR	38444	K6 OVHL INSULATOR ASSIST (2 EA)	P43944	PETROCHEM INSULATION INC.	supp
PIT259K06NEP0000250501	200210	2002	10,012.88	PR025683	K6 INSULATION;REFRAC;BLR CASE REPAIR	38443	K6 OVHL INSULATOR ASSIST (2 EA)	P43944	PETROCHEM INSULATION INC.	supp
PYM265K05NEP0000475501	200210	2002	5,570.00	PE000743	K5&6 Control Rm AC Mods - asbestos abate	2420-F	ASB ENCAPSULATE KAHE 6 CR CEILI	P42650	UNITEK INSULATION, INC.	supp

me	SVC Typ
S CONTROL	supp
S CONTROL	supp
ECH, INC.	supp
ECH, INC.	supp
ECH, INC.	supp
ECH, INC.	supp
ECH, INC.	supp
Y SERVICE	supp
G	supp
G	supp
G	supp
IC.	supp
IC.	supp
IC.	supp
NTAL	supp
NTAL	supp
NTAL	supp
NTAL	supp
ECH, INC.	supp
ECH, INC.	supp
ECH, INC.	supp
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ECH, INC.	supp
ECH, INC.	supp
ECH, INC.	supp
ECH, INC.	supp
ECH, INC.	supp
ECH, INC.	supp
Y SERVICE	supp
Y SERVICE	supp
Y SERVICE	supp
Y SERVICE	supp
IG CO	supp
IG CO	supp
IG CO	supp
IG CO	supp
IG CO	supp
IG CO	supp
S	supp
S	supp
S	supp
IC.	supp
IC.	supp
IC.	supp

ACCOUNT CODE	LL PERI	TransYr	AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
259W05NEP0000252501	200212	2002	250.00	PR027617	W5 INSULATION;REFRAC;BLR CASE REPAIR	OEC-3177	W5 OVHL ASBESTOS BIN DISPOSAL.	P42762	OHANA ENVIRONMENTAL	supp
259W05NEP0000252501	200212	2002	375.00	PR028238	W5 REPLACE 24 LOWER WW TUBES AT THE	OEC-3177	W5 OVHL ASBESTOS BIN DISPOSAL.	P42762	OHANA ENVIRONMENTAL	supp
259W05NEP0000252501	200212	2002	625.00	PR028924	W5 Furnace Rear Wall Tubes have bulges	OEC-3177	W5 OVHL ASBESTOS BIN DISPOSAL.	P42762	OHANA ENVIRONMENTAL	supp
62W05NEP0000252501	200212	2002	700.00	PR030181	W5 GENERATOR SHELL H2 VALVES REPLAC	OEC-3155	W-5 OVHL GENERATOR BELLY LEAD	P44727	OHANA ENVIRONMENTAL	supp
378HSTNENPIZZZZZ501	200212	2002	900.00	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-3165	HPP ASBESTOS MTRL DISPOSAL, 10	P45151	OHANA ENVIRONMENTAL	supp
59H09NEP0000138501	200212	2002	900.00	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	OEC-3186	H9 OH ASBESTOS MTRL DISPOSAL,	P45539	OHANA ENVIRONMENTAL	supp
59W07NENPIZZZZZ501	200212	2002	1,880.57	PR030818	W07: #71 APH line has pinhole leak	OEC-3196	W-7 REMOVE ASBESTOS INSUL APH	P45758	OHANA ENVIRONMENTAL	supp
59W07NENPIZZZZZ501	200212	2002	2,432.86	PR030818	W07: #71 APH line has pinhole leak	OEC-3197	W-7 REMOVE ASBESTOS INSUL APH	P45758	OHANA ENVIRONMENTAL	supp
59W05NEP0000252501	200212	2002	1,106.47	PR025488	W5. Hole in Air Duct just mauka of	39094	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
59W05NEP0000252501	200212	2002	1,106.49	PR027617	W5 INSULATION;REFRAC;BLR CASE REPAIR	39094	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
60W05NEP0000252501	200212	2002	1,106.49	PR028218	W5 HP TRB OUTER CYL/BLADE RINGS OH	39094	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
59W05NEP0000252501	200212	2002	1,106.49	PR023824	W5 boiler casing has excessive flue gas	39094	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
58W05NEP0000252501	200212	2002	2,212.98	PR022315	W5 Inspect/NDT lower rear WW tubes	39094	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
59W05NEP0000252501	200212	2002	2,212.98	PR028238	W5 REPLACE 24 LOWER WW TUBES AT THE	39094	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
59W05NEP0000252501	200212	2002	2,212.98	PR028924	W5 Furnace Rear Wall Tubes have bulges	39094	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
59W05NEP0000252501	200212	2002	2,851.32	PR027617	W5 INSULATION;REFRAC;BLR CASE REPAIR	3884	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
60W05NEP0000252501	200212	2002	2,851.32	PR028218	W5 HP TRB OUTER CYL/BLADE RINGS OH	3884	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
59W05NEP0000252501	200212	2002	2,851.32	PR023824	W5 boiler casing has excessive flue gas	3884	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
59W05NEP0000252501	200212	2002	2,851.33	PR025488	W5. Hole in Air Duct just mauka of	3884	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
58W05NEP0000252501	200212	2002	5,702.64	PR022315	W5 Inspect/NDT lower rear WW tubes	3884	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
59W05NEP0000252501	200212	2002	5,702.64	PR028238	W5 REPLACE 24 LOWER WW TUBES AT THE	3884	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
59W05NEP0000252501	200212	2002	5,702.64	PR028924	W5 Furnace Rear Wall Tubes have bulges	3884	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
59W05NEP0000252501	200212	2002	5,994.39	PR027617	W5 INSULATION;REFRAC;BLR CASE REPAIR	38532	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
60W05NEP0000252501	200212	2002	5,994.39	PR028218	W5 HP TRB OUTER CYL/BLADE RINGS OH	38532	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
59W05NEP0000252501	200212	2002	5,994.39	PR023824	W5 boiler casing has excessive flue gas	38532	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
59W05NEP0000252501	200212	2002	5,994.40	PR025488	W5. Hole in Air Duct just mauka of	38532	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
58W05NEP0000252501	200212	2002	11,988.78	PR022315	W5 Inspect/NDT lower rear WW tubes	38532	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
59W05NEP0000252501	200212	2002	11,988.78	PR028924	W5 Furnace Rear Wall Tubes have bulges	38532	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
59W05NEP0000252501	200212	2002	11,988.78	PR028238	W5 REPLACE 24 LOWER WW TUBES AT THE	38532	W5 OH, 4 INSULATORS FOR 10 WKS	P42158	PETROCHEM INSULATION INC.	supp
59H09NEP0000138501	200212	2002	14,791.66	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	39211	H-9 OVHL ITB INSULN LABOR ASST 5	P45717	PETROCHEM INSULATION INC.	supp
57W05NEP0000252501	200302	2003	1,195.92	PR026856	W5 BOILER CHEMICAL CLEANING - OCT 200	18302336	W-5 OVHL RENT 3 FRAC TNKS 1 MO	P43622	PSC INDUSTRIAL OUTSOURCIN	other
59WFSNENPIZZZZZ501	200302	2003	2,225.08	PR027547	Tank 1 internal cleaning and inspection	18302153	6,000 GAL WASTE WATER TANK REN	P46446	PSC INDUSTRIAL OUTSOURCIN	other
59WFSNENPIZZZZZ505	200303	2003	116.25	PR031764	Waiau Tank 1 Floor and wall Inspect and	1146099D	WPP FO TANK #1 RNTL TWO SCAFF	P47468	ATLAS SALES CO., INC. - KAPOI	other
59WFSNENPIZZZZZ501	200304	2003	1,335.00	PR027547	Tank 1 internal cleaning and inspection	04022003	WAIAU FO TANK #1 - MAKE DRY ICE	P49756	B & J INSULATION CO., INC.	other
59K05NENPIZZZZZ501	200306	2003	61.78	PR031305	LB 3rd flr rear obsrvtn port wall boxes.	1153435	REPAIR 2 SKYCLIMBER SKYLOCKS C	P51371	ATLAS SALES CO., INC. - KAPOI	other
58KSTNENPIZZZZZ501	200307	2003	376.04	PR034346	PREP FOR HIOSH INSPECTION 6/23/03	03-10365	DELIVER 30 YD CONTAINER TO KAHI	P52148	HAWAIIAN STEAM, INC.	other
57K01NEP0000251501	200307	2003	3,463.20	PR024188	CHEMICAL CLEAN BOILER K1	18303230	CHEM PMP RENTAL FOR K1 BLR CHE	P52257	PSC INDUSTRIAL OUTSOURCIN	other
71HTFNENPIZZZZZ501	200311	2003	4,606.96	PR033943	F.O. LEAK AT IWILEI TANK YARD,@ 100 GAL	18304073	HPP RENT 15 YD ROLLOFF BIN REM	P56259	PSC INDUSTRIAL OUTSOURCIN	other
62K05NENPIZZZZZ501	200312	2003	1,884.62	PR036627	LB-K51 CHILLER CLEANING 11/03 OUTAGE	0311042	KPP BARE CRANE RENTAL 45T, DELI	P56628	HAWAIIAN CRANE & RIGGING L	other
61H09NEP0000138501	200301	2003	239.90	PR029706	H9 GEN ROTOR/STATOR INSPECT/NDT	2000-386	H-9 OVHL GENERATOR SERVICE INS	P43511	AGT SERVICES	skill
61H09NEP0000138501	200301	2003	239.90	PR029703	Generator Inspection/Electrical testing	2000-386	H-9 OVHL GENERATOR SERVICE INS	P43511	AGT SERVICES	skill
61H09NEP0000138501	200301	2003	5,997.53	PR029703	Generator Inspection/Electrical testing	2000-386	H-9 OVHL GENERATOR SERVICE INS	P43511	AGT SERVICES	skill
61H09NEP0000138501	200301	2003	5,997.54	PR029706	H9 GEN ROTOR/STATOR INSPECT/NDT	2000-386	H-9 OVHL GENERATOR SERVICE INS	P43511	AGT SERVICES	skill
60H09NEP0000138501	200301	2003	1,196.57	PR029771	H91 STATION SERVIC WATER PUMP	47953-A	HPP RBLD/RFBSH 15HP WATER PMP	P45176	AMERICAN ELECTRIC LLC	skill
67H09NEP0000138501	200301	2003	0.23	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1142756D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
69H09NEP0000138501	200301	2003	0.92	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1142756D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
67H09NEP0000138501	200301	2003	1.37	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1142061D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
67H09NEP0000138501	200301	2003	2.29	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1142758D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
67H09NEP0000138501	200301	2003	3.54	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1142308D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
67H09NEP0000138501	200301	2003	4.12	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1142309D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
67H09NEP0000138501	200301	2003	5.31	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1143469D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
67H09NEP0000138501	200301	2003	5.31	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1142188D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
69H09NEP0000138501	200301	2003	5.50	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1142061D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
67H09NEP0000138501	200301	2003	6.29	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1142058D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
69H09NEP0000138501	200301	2003	9.17	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1142758D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
67H09NEP0000138501	200301	2003	11.37	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1142754D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
67H09NEP0000138501	200301	2003	11.62	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1142060D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill

ACCOUNT CODE	LL PERI	TransYr	AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
PIT257H09NEP0000138501	200301	2003	13.33	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1143468D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	14.17	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1142308D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	16.50	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1142309D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	21.25	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1143469D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	21.25	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1142188D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	25.17	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1142058D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200301	2003	27.71	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1142757D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200301	2003	33.08	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1143369D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200301	2003	33.08	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1141557D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200301	2003	33.96	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1143467D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200301	2003	33.96	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1141639D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200301	2003	37.32	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1142753D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200301	2003	45.37	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1142310D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	45.50	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1142754D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	46.50	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1142060D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	53.34	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1143468D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200301	2003	55.71	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1142059D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	110.83	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1142757D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200301	2003	123.13	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1142752D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	132.34	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1143369D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	132.34	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1141557D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	135.83	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1143467D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	135.83	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1141639D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	149.29	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1142753D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200301	2003	178.06	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1143370D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	181.50	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1142310D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200301	2003	209.32	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1141558D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200301	2003	210.85	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1142755D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200301	2003	220.86	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1142307D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	222.83	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1142059D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	492.50	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1142752D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	712.24	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1143370D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	837.29	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1141558D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	843.41	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1142755D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	883.46	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1142307D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200301	2003	1,297.91	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1142573	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIX274W09NENPIZZZZZ501	200301	2003	1,740.87	PR030064	W9: Unit tripped at 11 MW...reason	1140600	W9 EXHAUST DUCT SCAFFOLDING S	P43995	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200301	2003	5,191.63	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1142573	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT261H09NEP0000138501	200301	2003	14,165.76	PR029998	H9 HP TURBINE OVERHAUL	MJI-6543	H-9 LP/HP TRBN NOZZLE RPR/RPL SI	P46256	DIVERSIFIED ENERGY SERVICE	skill
PIT261H09NEP0000138501	200301	2003	14,165.76	PR029757	H9 LP TURBINE OVERHAUL	MJI-6543	H-9 LP/HP TRBN NOZZLE RPR/RPL SI	P46256	DIVERSIFIED ENERGY SERVICE	skill
PIN878HSTNENPIZZZZZ501	200301	2003	1,098.95	PR000244	SWO-HAZARD WSTE DISPOSAL (HONOLULU	21318	HPP METAL OILERS & 55 GAL DRUMS	P46772	GLOBAL ENVIRONMENTAL SVC	skill
PIT257H09NEP0000138501	200301	2003	5,098.93	PR029189	H9 BOILER AND AIR HEATER WASH	21304	H9 OVHL BOILER ASH TREATMENT/C	P45999	GLOBAL ENVIRONMENTAL SVC	skill
PIP877WSTNENPIZZZZZ501	200301	2003	260.41	PR018891	Collect charges for XFMR oil disposal	1802	SVCS FOR P/U & DISPOSAL OF USED	P34234	HAZTECH ENVIRONMENTAL SE	skill
PJC876PHENENPJZZZZZ600	200301	2003	860.00			1787	DISPOSAL OF 55 GALLON DRUM OF :	P45446	HAZTECH ENVIRONMENTAL SE	skill
PJC876PHENENPJZZZZZ600	200301	2003	960.00			1787	DISPOSAL OF 55 GALLON DRUM OF ,	P45446	HAZTECH ENVIRONMENTAL SE	skill
PIL878KSTNENPIZZZZZ501	200301	2003	5,337.61	PR000251	SWO-MERCURY DISPOSAL (KAHE)	1808	KPP SMPL/DRAIN/PACK/DISP MERCU	P46513	HAZTECH ENVIRONMENTAL SE	skill
PIL878KSTNENPIZZZZZ501	200301	2003	11,562.42	PR000251	SWO-MERCURY DISPOSAL (KAHE)	1809	KPP TRANS/DISP 6 DRMS MERCURY	P46514	HAZTECH ENVIRONMENTAL SE	skill
PIT261W05NEP0000252501	200301	2003	124.99	PR030695	W5 GENERATOR CORE IRON/THRU BOLT REPAIR			P46479	HONOMACH INC	skill
PIT261W05NEP0000252501	200301	2003	354.35	PR030695	W5 GENERATOR CORE IRON/THRU BOLT REPAIR			P46479	HONOMACH INC	skill
PIT260H09NEP0000138501	200301	2003	408.31	PR029333	H9 CHILLER STRAINERS			P46378	HONOMACH INC	skill
PIX262W08NENPIZZZZZ501	200301	2003	4,332.41	PR030790	W8 Inlet tunnels. Clean. Dec. 2002.	00007168	W7 AND W8 TUNNEL CLEANING DIVE	P46168	PACIFIC DIVING INDUSTRIES, IN	skill
PIX262W07NENPIZZZZZ501	200301	2003	6,032.21	PR030884	W7 Tunnel and Circ Pipe Cleaning	00007168	W7 AND W8 TUNNEL CLEANING DIVE	P46168	PACIFIC DIVING INDUSTRIES, IN	skill
PIX262W07NENPIZZZZZ501	200301	2003	39,802.58	PR030884	W7 Tunnel and Circ Pipe Cleaning	18302043	W-7 CIRC WATER INTAKE/DSCHG CL	P45878	PSC INDUSTRIAL OUTSOURCIN	skill
PIT261H09NEP0000138501	200301	2003	4,280.00	PR029998	H9 HP TURBINE OVERHAUL	6275	H9 TUR.PERFORM NDE/NDT-INSP;HF	P45178	REINHART & ASSOCIATES, INC.	skill
PIT261H09NEP0000138501	200301	2003	107,000.00	PR029998	H9 HP TURBINE OVERHAUL	6275	H9 TUR.PERFORM NDE/NDT-INSP;HF	P45178	REINHART & ASSOCIATES, INC.	skill
PIT261W05NEP0000252505	200302	2003	491.01	PR030695	W5 GENERATOR CORE IRON/THRU BOLT RE	2000-379A	TRAVEL & LIVING EXPENSES	P44661	AGT SERVICES	skill
PIT261W05NEP0000252505	200302	2003	12,275.30	PR030695	W5 GENERATOR CORE IRON/THRU BOLT RE	2000-379A	TRAVEL & LIVING EXPENSES	P44661	AGT SERVICES	skill

Inv Item Desc	PO No	Supplier Name	SVC Typ
HL SCAFFOLD BRULS BLR VL'	P43590	ATLAS SALES CO., INC. - KAPOI	skill

SVC Typ
VICE skill
ONS skill
ONS skill
ONS skill
ONS skill
INC skill
SVC skill
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Name	SVC Typ
ITING CO	skill
NTING CO	skill
NTING CO	skill
NTING CO	skill
ONMENTAL SE	skill
ONMENTAL SE	skill
YARD INC	skill
	skill
	skill
	skill
	skill
ROLS, INC.	skill
ROLS, INC.	skill
	skill
	skill
TRIC LLC	skill
TRIC LLC	skill
, INC. - KAPOI	skill
, INC. - KAPOI	skill
, INC. - KAPOI

v No	Inv Item Desc	PO No	Supplier Name	SVC Typ
9308D	H-9 OVHL SCAFFOLD BRULS BLR VL'	P43590	ATLAS SALES CO., INC. - KAPOI	skill
7367D	H-9 OVHL SCAFFOLD BRULS BLR VL'	P43590	ATLAS SALES CO., INC. - KAPOI	skill
9307D	H-9 OVHL SCAFFOLD BRULS BLR VL'	P43590	ATLAS SALES CO., INC. - KAPOI	skill
7366D	H-9 OVHL SCAFFOLD BRULS BLR VL'	P43590	ATLAS SALES CO., INC. - KAPOI	skill
7144D	H-9 OVHL SCAFFOLD BRULS BLR VL'	P43590	ATLAS SALES CO., INC. - KAPOI	skill
8901D	H-9 OVHL SCAFFOLD BRULS BLR VL'	P43590	ATLAS SALES CO., INC. - KAPOI	skill
14	KAHE CLEAN OUT BATCH TANK B JO	P48449	BERING SEA ECCOTECH, INC.	skill
-102	W5 TRB REP MT SERVICES, (2) 12 HI	P48285	ENGINEERING & INSPECTIONS	skill
03	H91 CHILLER STRNR PRESERVATIOI	P46094	GIORDANO'S PAINTING CO	skill
03	H91 CHILLER SHELL & CVRS - PRESE	P46093	GIORDANO'S PAINTING CO	skill
76	HPP TRANS & DISPOSAL HZRDS WA:	P50133	GLOBAL ENVIRONMENTAL SVC	skill
315	K-21 TVL SCREEN CRANE W/ OPRTR	P48969	HAWAIIAN CRANE & RIGGING L'	skill
54	HPP- CORRECT MISALIGNMENT, O2	P48856	HONOMACH INC	skill
96	H9 OH HONOMACH FAB 4 METAL TAI	P49155	HONOMACH INC	skill
07227	W6 TRAVELING SCREEN-DIVE TO IN:	P49624	PACIFIC DIVING INDUSTRIES, IN	skill
02617	H9 LUBE OIL SPILL CLEAN UP SERVI	P49303	PSC INDUSTRIAL OUTSOURCIN	skill
02130	W5 GEN H2 HOSES INSTL SCAFFOLI	P48453	SAFWAY SERVICES, INC.	skill
003-0	WPP-DIESEL TANKS 1 & 2 CONSULT/	P48883	SPCC AND CONSULTING	skill
003-0	KAHE BATCH TANK B COATING & SB	P47319	SPCC AND CONSULTING	skill
3	W5 TRB WARMING MODIFY 2 CONTF	P47889	THERMAL SOLUTIONS, INC.	skill
5	H9 TURB WARMING LAYOUT CONSU	P48514	THERMAL SOLUTIONS, INC.	skill
5	H9-PRE/POST HEAT TREAT TRB WEI	P46270	THERMAL SOLUTIONS, INC.	skill
-415	TRAVEL & LIVING EXPENSES	P44661	AGT SERVICES	skill
-415	TRAVEL & LIVING EXPENSES	P44661	AGT SERVICES	skill
563D	W3 WATERWALL TUBES,BURNERS-S	P50184	ATLAS SALES CO., INC. - KAPOI	skill
594D	W4 HOG JET DRAIN PIPE LEAK. SCAI	P50184	ATLAS SALES CO., INC. - KAPOI	skill
830D	W6 COLD PRESS. LINES REPAIR SC/	P50184	ATLAS SALES CO., INC. - KAPOI	skill
558D	W6 HOGJET FLANGE CRACKED-SCA	P50184	ATLAS SALES CO., INC. - KAPOI	skill
631D	W3 WATERWALL TUBES,BURNERS-S	P50184	ATLAS SALES CO., INC. - KAPOI	skill
5	WPP FUEL OIL PIPE TUNNEL-PUMP,	P48205	BERING SEA ECCOTECH, INC.	skill
6	WPP-W9 EMERGENCY LUBE OIL CLE	P49227	BERING SEA ECCOTECH, INC.	skill
3	W4 TRAVEL SCREEN - PAINT/SANDB	P51048	GIORDANO'S PAINTING CO	skill
3	W-5 LUBE OIL TANK BERM CLEANIN(	P50780	GIORDANO'S PAINTING CO	skill
3	W-5 LUBE OIL BERM COATING	P50780	GIORDANO'S PAINTING CO	skill
3	W5 PAINT TRB HOUSE & GEN/EXCITI	P50751	GIORDANO'S PAINTING CO	skill
3	PRESERVE/CORROSION CONTROL 4	P49677	GIORDANO'S PAINTING CO	skill
6	W5 REFRACTORY PACKAGE AND RE	P50797	GLOBAL ENVIRONMENTAL SVC	skill
	HPP/KPP/WPP SVCS PU & DISP USEI	P46492	HAZTECH ENVIRONMENTAL SE	skill
	KAHE P/UP/DISPOSE MISC HAZ WAS	P49908	HAZTECH ENVIRONMENTAL SE	skill
	KAHE PWR PLANT DISPOSE OF WAS	P49736	HAZTECH ENVIRONMENTAL SE	skill
	KAHE P/UP/DISPOSE MISC HAZ WAS	P49908	HAZTECH ENVIRONMENTAL SE	skill
4	H-9 95DEG BEND - 1" SCHED 160 F11	P48948	HONOMACH INC	skill
		P48892	HONOMACH INC	skill
3	K-31 MACHINE/REPAIRS TO CHILLER	P50362	HONOMACH INC	skill
0	REBUILD HEAD AND TAIL SHAFT FOI	P50894	HONOMACH INC	skill
4	K-21 TRVL SCREEN SHAFTS RPR/RFI	P50461	HONOMACH INC	skill
		P49754	PROCESS CONTROLS, INC.	skill
9.1	TROUBLESHOOT & REPAIR ROSEMC	P50782	PROCESS CONTROLS, INC.	skill
		P49997	PROCESS CONTROLS, INC.	skill
		P49754	PROCESS CONTROLS, INC.	skill
2866	K-1 CLEAN UP FO SPILL AI GROUND	P50300	PSC INDUSTRIAL OUTSOURCIN	skill
2754	KAHE #3, CLEAN-UP OIL SPILL , 4/15/	P49837	PSC INDUSTRIAL OUTSOURCIN	skill
	H8-NDE/NDT INSP. TUR SECTORS:HI	P49836	REINHART & ASSOCIATES, INC.	skill
	H8-NDE/NDT INSP. TUR SECTORS:HI	P49836	REINHART & ASSOCIATES, INC.	skill
	H8-NDE/NDT INSP. TUR SECTORS:HI	P49836	REINHART & ASSOCIATES, INC.	skill
	H8-NDE/NDT INSP. TUR SECTORS:HI	P49836	REINHART & ASSOCIATES, INC.	skill
	H8-NDE/NDT INSP. TUR SECTORS:HI	P49836	REINHART & ASSOCIATES, INC.	skill

ACCOUNT CODE	LL PERI	TransYr	AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
PIT260H08NEP0000523501	200305	2003	46,000.00	PR032317	H8 HP TURBINE ROTOR OVERHAUL	6458	H8-NDE/NDT INSP. TUR SECTORS:HF	P49836	REINHART & ASSOCIATES, INC.	skill
PIL262K06NENPIZZZZZ501	200305	2003	314.58	PR032590	LB K6 #52 chiller flapper bent	D0002445	K-5 SCAFFOLD FOR CHILLER BY PIT,	P49909	SAFWAY SERVICES, INC.	skill
PIL258K01NENPIZZZZZ501	200305	2003	343.75	PR032312	K2 Inspect/Repair Cold/Pressurized Lines	D0002447	K-2 SCAFF LABOR ONLY ON 4/9/03	P49943	SAFWAY SERVICES, INC.	skill
PIX259WSTNENPIZZZZZ501	200305	2003	494.79	PR031013	W6: Hot spot, furnace Ewa Makai. mez flr	D0002497	W5 BOILER CASING HOTSPOT - SCA	P50128	SAFWAY SERVICES, INC.	skill
PIL262K01NENPIZZZZZ501	200305	2003	585.48	PR032085	LB K1&2 Sand Pp disch vlv to 3/4 broken.	D0002449	K-1 SAND PUMP VALVE SCAFFOLD C	P49482	SAFWAY SERVICES, INC.	skill
PIL259K02NENPIZZZZZ501	200305	2003	774.84	PR032949	TB3-K2 AIR IN DUCT INSUL FALLING OFF	D0002448	K-2 AIR IN DUCT SCAFFOLDING, QUC	P49481	SAFWAY SERVICES, INC.	skill
PIX265W05NENPIZZZZZ501	200305	2003	917.39	PR031907	Solar generator will not attain full	D0002492	ADMIN BLDG-SOLAR GENERATOR:S(	P50128	SAFWAY SERVICES, INC.	skill
PIL258K01NENPIZZZZZ501	200305	2003	1,005.52	PR032312	K2 Inspect/Repair Cold/Pressurized Lines	D0002446	K-2 SCAFFOLD FOR ECON RECIRC, (	P49973	SAFWAY SERVICES, INC.	skill
PIX259W06NENPIZZZZZ501	200305	2003	1,241.30	PR033107	W6: sootblower aspirating air line	D0002494	W6: 3RD FLOOR SOOTBLOWER-ERE	P50128	SAFWAY SERVICES, INC.	skill
PIX259WSTNENPIZZZZZ501	200305	2003	1,249.52	PR031013	W6: Hot spot, furnace Ewa Makai. mez flr	D0002413	W6 BLR CASING HOT SPOT SCAFFOI	P49678	SAFWAY SERVICES, INC.	skill
PIT262H08NEP0000523501	200305	2003	1,301.56	PR032820	H8 HP LOWER/UPPER TRB CYL WELD REPAI	D0002620	W-5 TRB UPPPER CYL REPAIR SCAF	P51018	SAFWAY SERVICES, INC.	skill
PIX268WSTNENPIZZZZZ501	200305	2003	2,136.39	PR032015	W-7&8 Gantry Crane Main & Auxiliary	D0002493	W7: GANTRY CRANE OIL CLEANUP:S	P50128	SAFWAY SERVICES, INC.	skill
PIL258K01NENPIZZZZZ501	200306	2003	726.43	PR032494	K1/2 #2 LUBE WTR PMP MTR REPLACE BRG	48118	KAHE #2 LUBE WATER PUMP MTR R	P51337	AMERICAN ELECTRIC LLC	skill
PIL262K05NENPIZZZZZ501	200306	2003	3,914.07	PR031537	LM Scrn Wash Pump #51 Gland Broken	48117	KAKHE #51 SCREEN WASH PUMP MT	P51337	AMERICAN ELECTRIC LLC	skill
PIT257H09NEP0000138501	200306	2003	1.83	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1150724D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200306	2003	2.55	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1149425D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200306	2003	3.04	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1150536D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200306	2003	4.12	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1150331D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200306	2003	4.54	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1150725D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200306	2003	4.75	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1149424D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200306	2003	7.34	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1150724D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200306	2003	10.20	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1149425D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200306	2003	12.17	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1150536D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200306	2003	12.37	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1150332D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200306	2003	15.46	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1150726D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200306	2003	16.50	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1150331D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200306	2003	18.17	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1150725D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200306	2003	19.00	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1149424D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200306	2003	21.79	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1150534D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200306	2003	27.79	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1150535D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200306	2003	28.78	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1150330D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200306	2003	49.50	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1150332D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200306	2003	61.83	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1150726D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H09NEP0000138501	200306	2003	77.92	PR029470	H9 BLR FW PIPING - PREDICT MAINT	1150830D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200306	2003	87.17	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1150534D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200306	2003	111.17	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1150535D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200306	2003	115.13	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1150330D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H08NEP0000523501	200306	2003	171.87	PR032175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1153677D	H-8 OVHL SCAFFOLDING SERVICES	P49673	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H08NEP0000523501	200306	2003	171.87	PR032175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1150693D	H-8 OVHL SCAFFOLDING SERVICES	P49673	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H08NEP0000523501	200306	2003	300.78	PR032175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1153676D	H-8 OVHL SCAFFOLDING SERVICES	P49673	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H08NEP0000523501	200306	2003	300.78	PR032175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1150689D	H-8 OVHL SCAFFOLDING SERVICES	P49673	ATLAS SALES CO., INC. - KAPOI	skill
PIT259H09NEP0000138501	200306	2003	311.66	PR029194	H9 INSULATION;REFRAC;BLR CASE REPAIR	1150830D	H-9 OVHL SCAFFOLD BRULS BLR VL	P43590	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H08NEP0000523501	200306	2003	475.62	PR032175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1153674D	H-8 OVHL SCAFFOLDING SERVICES	P49673	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H08NEP0000523501	200306	2003	475.62	PR032175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1150414D	H-8 OVHL SCAFFOLDING SERVICES	P49673	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H08NEP0000523501	200306	2003	790.36	PR032175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1153673D	H-8 OVHL SCAFFOLDING SERVICES	P49673	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H08NEP0000523501	200306	2003	790.36	PR032175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1150385D	H-8 OVHL SCAFFOLDING SERVICES	P49673	ATLAS SALES CO., INC. - KAPOI	skill
PIX258W03NENPIZZZZZ501	200306	2003	1,562.49	PR031738	W3 Replace Waterwall Tube Sections	1146632D	W3 ECONMIZER/WW TUBE REFRACT	P50249	ATLAS SALES CO., INC. - KAPOI	skill
PIX258W03NENPIZZZZZ501	200306	2003	1,562.49	PR031738	W3 Replace Waterwall Tube Sections	1146630D	W3 ECONMIZER/WW TUBE REFRACT	P50249	ATLAS SALES CO., INC. - KAPOI	skill
PIX258W03NENPIZZZZZ501	200306	2003	1,562.49	PR031738	W3 Replace Waterwall Tube Sections	1146633D	W3 ECONMIZER/WW TUBE REFRACT	P50249	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H08NEP0000523501	200306	2003	2,046.86	PR032175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1153675D	H-8 OVHL SCAFFOLDING SERVICES	P49673	ATLAS SALES CO., INC. - KAPOI	skill
PIT257H08NEP0000523501	200306	2003	2,046.86	PR032175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1150614D	H-8 OVHL SCAFFOLDING SERVICES	P49673	ATLAS SALES CO., INC. - KAPOI	skill
PIT260H08NEP0000523501	200306	2003	13,540.80	PR032317	H8 HP TURBINE ROTOR OVERHAUL	MJI-6655	PRVD L&M TO RPR H8 HP & LP TURB	P51324	DIVERSIFIED ENERGY SERVICE	skill
PIT260H08NEP0000523501	200306	2003	13,540.80	PR032323	H8 LP TURBINE ROTOR OVERHAUL	MJI-6655	PRVD L&M TO RPR H8 HP & LP TURB	P51324	DIVERSIFIED ENERGY SERVICE	skill
PIT262H08NEP0000523501	200306	2003	3,800.00	PR032820	H8 HP LOWER/UPPER TRB CYL WELD REPAI	195	MT Inspection Svcs (H8 Trb Weld Rprs)	P51046	ENGINEERING & INSPECTIONS	skill
PIT258H09NEP0000138501	200306	2003	5,270.80	PR029754	H94 FWH CLNG/EDDY CURRENT - PRED MAI	4-03-46	H94 FWH IRIS TESTING	P46814	ENGINEERING & INSPECTIONS	skill
PIT262H08NEP0000523501	200306	2003	6,055.00	PR032820	H8 HP LOWER/UPPER TRB CYL WELD REPAI	183	MT Inspection Svcs (H8 Trb Weld Rprs)	P51046	ENGINEERING & INSPECTIONS	skill
PIT262H08NEP0000523501	200306	2003	9,315.00	PR032820	H8 HP LOWER/UPPER TRB CYL WELD REPAI	184	MT Inspection Svcs (H8 Trb Weld Rprs)	P51046	ENGINEERING & INSPECTIONS	skill

Inv Item Desc	PO No	Supplier Name	SVC Typ
spection Svcs (H8 Trb Weld Rprs)	P51046	ENGINEERING & INSPECTIONS	skill
03 BRULS & HIEL LOCAL RESOI	P46997	FINLAY TESTING LABORATORIE	skill
03 BRULS & HIEL LOCAL RESOI	P46997	FINLAY TESTING LABORATORIE	skill
03 BRULS & HIEL LOCAL RESOI	P46997	FINLAY TESTING LABORATORIE	skill
03 BRULS & HIEL LOCAL RESOI	P46997	FINLAY TESTING LABORATORIE	skill
03 BRULS & HIEL LOCAL RESOI	P46997	FINLAY TESTING LABORATORIE	skill
DT EXAMINATION: X-RAY WELC	P51509	FINLAY TESTING LABORATORIE	skill
03 BRULS & HIEL LOCAL RESOI	P46997	FINLAY TESTING LABORATORIE	skill
03 BRULS & HIEL LOCAL RESOI	P46997	FINLAY TESTING LABORATORIE	skill
03 BRULS & HIEL LOCAL RESOI	P46997	FINLAY TESTING LABORATORIE	skill
03 BRULS & HIEL LOCAL RESOI	P46997	FINLAY TESTING LABORATORIE	skill
03 BRULS & HIEL LOCAL RESOI	P46997	FINLAY TESTING LABORATORIE	skill
DT EXAMINATION: X-RAY WELC	P51509	FINLAY TESTING LABORATORIE	skill
TVL SCRN/SPKTS SADBLST/PRI	P51589	GIORDANO'S PAINTING CO	skill
R/APH/STACK ASH, TREAT/DISI	P51217	GLOBAL ENVIRONMENTAL SVC	skill
R FLOOR REFRAC/DEBRIS/BRIC	P51217	GLOBAL ENVIRONMENTAL SVC	skill
(PP/WPP SVCS PU & DISP USEI	P46492	HAZTECH ENVIRONMENTAL SE	skill
REMOVAL OF HAZARDOUS WA	P51511	HAZTECH ENVIRONMENTAL SE	skill
REMOVAL OF F.O. CONTAMINA	P51569	HAZTECH ENVIRONMENTAL SE	skill
ERVICES FOR REMOVAL STOR	P47248	HAZTECH ENVIRONMENTAL SE	skill
MACHINE CHILLER CHANNEL C	P51021	HONOMACH INC	skill
L&M TO MACHINE GASKET/RP	P51889	HONOMACH INC	skill
2 AND W6 #61 TRAVEL SCREEI	P51811	PACIFIC DIVING INDUSTRIES, IN	skill
2 AND W6 #61 TRAVEL SCREEI	P51811	PACIFIC DIVING INDUSTRIES, IN	skill
HERSHEY METER CALIBRATE /	P49214	PROCESS CONTROLS, INC.	skill
K RELIANCE LEVEL GAGE ASSE	P49119	PROCESS CONTROLS, INC.	skill
N. PRIME CONT-BOTTLE BORII	P51373	REINHART & ASSOCIATES, INC.	skill
N. PRIME CONT-BOTTLE BORII	P51373	REINHART & ASSOCIATES, INC.	skill
CAFF FOR GRND FLR MAIN STA	P51457	SAFWAY SERVICES, INC.	skill
(2 SCAFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill
(2 SCAFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill
P TRB LOWER CYL REPAIR SC/	P51019	SAFWAY SERVICES, INC.	skill
CAFF FOR GRND FLR MAIN STA	P51457	SAFWAY SERVICES, INC.	skill
(2 SCAFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill
(2 SCAFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill
H FLR SCAFF FOR AIR HTR DR/	P50387	SAFWAY SERVICES, INC.	skill
(2 SCAFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill
(2 SCAFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill
W5/6 MULTIMEDIA FILTERS REI	P51510	SPCC AND CONSULTING	skill
DIESEL TANKS 1 & 2 CONSULT/	P48883	SPCC AND CONSULTING	skill
N RTNG RING INSP, FREIGHT (	P52616	AGT SERVICES	skill
N RTNG RING INSP, FREIGHT (	P52616	AGT SERVICES	skill
N STATOR/ROTOR INSPECTIOI	P49167	AGT SERVICES	skill
N RTNG RING RMVL/REINSTAL	P52616	AGT SERVICES	skill
N STATOR/ROTOR INSPECTIOI	P49167	AGT SERVICES	skill
N RTNG RING RMVL/REINSTAL	P52616	AGT SERVICES	skill
ONO) SPARE PILOT ARMATURE	P52332	AMERICAN ELECTRIC LLC	skill
2 APH LO PUMP MOTOR REWII	P52332	AMERICAN ELECTRIC LLC	skill
OOLONG WTR. 92 440V 91A 75	P52331	AMERICAN ELECTRIC LLC	skill
ENSATE 92 440V 180A 150HP 1	P52331	AMERICAN ELECTRIC LLC	skill
ATION SPARE PILOT ARMATUI	P52332	AMERICAN ELECTRIC LLC	skill
AIN EXCITER TEST AND RECO	P46165	AMERICAN ELECTRIC LLC	skill
AIN EXCITER TEST AND RECO	P46165	AMERICAN ELECTRIC LLC	skill
/HL SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill
/HL SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill
/HL SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill
/HL SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill

Inv Item Desc	PO No	Supplier Name	SVC Typ
SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill
YD OIL CLEAN UP FROM ELI	P51807	BERING SEA ECCOTECH, INC.	skill
MIN CAUSTIC TANK REMV/I	P47704	BERING SEA ECCOTECH, INC.	skill
T: OIL SPILL CLEANUP BRO	P47462	BERING SEA ECCOTECH, INC.	skill
DGE BEDS COMMON DRAI	P49634	BERING SEA ECCOTECH, INC.	skill
SET UP BLOWER FOR STI	P47444	BERING SEA ECCOTECH, INC.	skill
MOP UP OILY SUMPS JOB	P50141	BERING SEA ECCOTECH, INC.	skill
OR & EQUIPMENT TO CLE	P49636	BERING SEA ECCOTECH, INC.	skill
CLEAN BWWS SUMPS & ST	P47446	BERING SEA ECCOTECH, INC.	skill
KAHE 5 FUEL OIL SPILL A	P51709	BERING SEA ECCOTECH, INC.	skill
M CLEAN OIL FROM WALLS	P51590	BERING SEA ECCOTECH, INC.	skill
&M TO RMV/RPL BABBIBIT	P51325	DIVERSIFIED ENERGY SERVICE	skill
&M TO RMV/RPL BABBIBIT	P51325	DIVERSIFIED ENERGY SERVICE	skill
M TO RPR H8 HP & LP TURB	P51324	DIVERSIFIED ENERGY SERVICE	skill
M TO RPR H8 HP & LP TURB	P51324	DIVERSIFIED ENERGY SERVICE	skill
&M TO RMV/RPL BABBIBIT	P51325	DIVERSIFIED ENERGY SERVICE	skill
&M TO RMV/RPL BABBIBIT	P51325	DIVERSIFIED ENERGY SERVICE	skill
HAUL EDDY CURRENT TES	P48950	ENGINEERING & INSPECTIONS	skill
HAUL EDDY CURRENT TES	P48950	ENGINEERING & INSPECTIONS	skill
HAUL EDDY CURRENT TES	P48950	ENGINEERING & INSPECTIONS	skill
HAUL EDDY CURRENT TES	P48950	ENGINEERING & INSPECTIONS	skill
HAUL EDDY CURRENT TES	P48950	ENGINEERING & INSPECTIONS	skill
HAUL EDDY CURRENT TES	P48950	ENGINEERING & INSPECTIONS	skill
HAUL EDDY CURRENT TES	P48950	ENGINEERING & INSPECTIONS	skill
tion Svcs (H8 Trb Weld Rprs)	P51046	ENGINEERING & INSPECTIONS	skill
OF WASTE CHEMICALS F	P49573	ENVIROSERVICES & TRAINING	skill
U PP- SANDBLAST/PRIME/	P51999	GIORDANO'S PAINTING CO	skill
U PP- SANDBLAST/PRIME/	P51999	GIORDANO'S PAINTING CO	skill
U PP- SANDBLAST/PRIME/	P51999	GIORDANO'S PAINTING CO	skill
U PP- SANDBLAST/PRIME/	P51999	GIORDANO'S PAINTING CO	skill
AR GENERATOR EXHAUST	P52467	GIORDANO'S PAINTING CO	skill
& #42 TRAVEL SCREENS C	P52167	HAWAIIAN CRANE & RIGGING L	skill
& #42 TRAVEL SCREENS C	P52167	HAWAIIAN CRANE & RIGGING L	skill
ICES FOR REMOVAL STOR	P47248	HAZTECH ENVIRONMENTAL SE	skill
LBR & EQUIP SAND BLAST	P49600	HONOLULU SHIPYARD INC	skill
LBR & EQUIP SAND BLAST	P49600	HONOLULU SHIPYARD INC	skill
RPR STRONGBACK. RPL	P52426	HONOMACH INC	skill
RVD 2 EA W14" X 14.5" X 52	P52241	HONOMACH INC	skill
/ CALIBRATE WW OVERB	P49835	PROCESS CONTROLS, INC.	skill
T INSP. TUR SECTORS:HI	P49836	REINHART & ASSOCIATES, INC.	skill
T INSP. TUR SECTORS:HI	P49836	REINHART & ASSOCIATES, INC.	skill
T INSP. TUR SECTORS:HI	P49836	REINHART & ASSOCIATES, INC.	skill
T INSP. TUR SECTORS:HI	P49836	REINHART & ASSOCIATES, INC.	skill
T INSP. TUR SECTORS:HI	P49836	REINHART & ASSOCIATES, INC.	skill
T INSP. TUR SECTORS:HI	P49836	REINHART & ASSOCIATES, INC.	skill
OLD FOR ECON RECIRC,	P49973	SAFWAY SERVICES, INC.	skill
LOWER CYL REPAIR SC	P51019	SAFWAY SERVICES, INC.	skill
AFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill
AFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill
R SCAFF FOR AIR HTR DR	P50387	SAFWAY SERVICES, INC.	skill
AFFOLD, LP TURB GLAND	P52998	SAFWAY SERVICES, INC.	skill
LOWER CYL REPAIR SC	P51019	SAFWAY SERVICES, INC.	skill
FOR BFP PIPE REPAIR Q	P52276	SAFWAY SERVICES, INC.	skill
R KAHE 1 GROUND FLOOF	P52619	SAFWAY SERVICES, INC.	skill
AFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill
AFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill
AFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill

Inv Item Desc	PO No	Supplier Name	SVC Typ
K2 SCAFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill
SCAFFOLD GROUND FLOOR, STI	P52661	SAFWAY SERVICES, INC.	skill
3RD FLOOR REBOILER BKTS - S(	P52373	SAFWAY SERVICES, INC.	skill
AU ADMIN BLDG SOLAR GENERA	P50436	SAFWAY SERVICES, INC.	skill
SCAFF ECON RECIRC LINE Q#28:	P52333	SAFWAY SERVICES, INC.	skill
SCAFFOLD FOR HOT REHEAT LI	P52123	SAFWAY SERVICES, INC.	skill
-DIESEL TANKS 1 & 2 CONSULT/	P48883	SPCC AND CONSULTING	skill
HEAT/PWHT SVCS (H8 Trb Weld	P51047	THERMAL SOLUTIONS, INC.	skill
HEAT/PWHT SVCS (H8 Trb Weld	P51047	THERMAL SOLUTIONS, INC.	skill
EN RTNG RING RMVL/REINSTAL	P52616	AGT SERVICES	skill
EN RTNG RING RMVL/REINSTAL	P52616	AGT SERVICES	skill
EN RTNG RING INSP, FREIGHT (	P52616	AGT SERVICES	skill
EN RTNG RING INSP, FREIGHT (	P52616	AGT SERVICES	skill
OVHL SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill
4TH/5TH FLR PIPING SCAFFOLD	P45174	ATLAS SALES CO., INC. - KAPOI	skill
OVHL SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill
ECON SOOTBLOWER SCAFFOLD	P45998	ATLAS SALES CO., INC. - KAPOI	skill
OVHL SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill
OVHL SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill
OVHL SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill
REBABBITT IDF FAN BEARING.	P51512	DIVERSIFIED ENERGY SERVICE	skill
nspection Svcs (H8 Trb Weld Rprs)	P51046	ENGINEERING & INSPECTIONS	skill
O/H NDT TESTING ON LOWER W	P52684	FINLAY TESTING LABORATORIE	skill
INSPECTION ON ATTEMPERATC	P52683	FINLAY TESTING LABORATORIE	skill
AY TESTING LABS TO X-RAY K3	P53637	FINLAY TESTING LABORATORIE	skill
O/H NDT TESTING ON LOWER W	P52684	FINLAY TESTING LABORATORIE	skill
INSPECTION ON ATTEMPERATC	P52683	FINLAY TESTING LABORATORIE	skill
AY TESTING LABS TO X-RAY K3	P53637	FINLAY TESTING LABORATORIE	skill
KPP/WPP SVCS PU & DISP USE(	P46492	HAZTECH ENVIRONMENTAL SE	skill
KPP/WPP SVCS PU & DISP USE(	P46492	HAZTECH ENVIRONMENTAL SE	skill
AND PROPERLY DISPOSE OF M	P52930	HAZTECH ENVIRONMENTAL SE	skill
OSAL OF ONE 55 GALLON DRUM	P53352	HAZTECH ENVIRONMENTAL SE	skill
AND PROPERLY DISPOSE OF M	P52930	HAZTECH ENVIRONMENTAL SE	skill
H L&M RPR STRONGBACK. RPL	P52426	HONOMACH INC	skill
CLEAN UP OIL SPILL ATBURNER	P53829	PSC INDUSTRIAL OUTSOURCIN	skill
N FO LEAK IWILE TANK APPRO	P53389	PSC INDUSTRIAL OUTSOURCIN	skill
DE/NDT INSP. TUR SECTORS:HF	P49836	REINHART & ASSOCIATES, INC.	skill
DE/NDT INSP. TUR SECTORS:HF	P49836	REINHART & ASSOCIATES, INC.	skill
DE/NDT INSP. TUR SECTORS:HF	P49836	REINHART & ASSOCIATES, INC.	skill
DE/NDT INSP. TUR SECTORS:HF	P49836	REINHART & ASSOCIATES, INC.	skill
DE/NDT INSP. TUR SECTORS:HF	P49836	REINHART & ASSOCIATES, INC.	skill
DE/NDT INSP. TUR SECTORS:HF	P49836	REINHART & ASSOCIATES, INC.	skill
P TRB LOWER CYL REPAIR SC/	P51019	SAFWAY SERVICES, INC.	skill
N BLDG-SOLAR GENERATOR:S(	P50128	SAFWAY SERVICES, INC.	skill
U ADMIN BLDG SOLAR GENERA	P50436	SAFWAY SERVICES, INC.	skill
U ADMIN BLDG SOLAR GENERA	P50436	SAFWAY SERVICES, INC.	skill
CAFFOLD FOR HOT REHEAT LI	P52123	SAFWAY SERVICES, INC.	skill
CAFFOLD STACK DUCT EXP JT	P53130	SAFWAY SERVICES, INC.	skill
CW SYSTEM REPAIRS: SCAFFO	P53408	SAFWAY SERVICES, INC.	skill
EL TANK # 2 - SUSPENDED SCA	P53410	SAFWAY SERVICES, INC.	skill
-DIESEL TANKS 1 & 2 CONSULT/	P48883	SPCC AND CONSULTING	skill
N OUT CULVERT IN FRONT OF I	P54619	BERING SEA ECCOTECH, INC.	skill
TANK 1 SCRAPE WALLS/HOT W	P47866	BERING SEA ECCOTECH, INC.	skill
ispection Svcs (H8 Trb Weld Rprs)	P51046	ENGINEERING & INSPECTIONS	skill
I FO PIPELINE WELD X-RAY SV	P53476	ENGINEERING & INSPECTIONS	skill
I FO PIPELINE WELD X-RAY SV	P53476	ENGINEERING & INSPECTIONS	skill
VERHAUL EDDY CURRENT TES	P48950	ENGINEERING & INSPECTIONS	skill

Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
2212	H82 FWH SERVICE (CLNG/EC) - PRED MAINT	155	H8 OVERHAUL EDDY CURRENT TES	P48950	ENGINEERING & INSPECTIONS	skill
2211	H81 FWH SERVICE (CLNG/EC) - PRED MAINT	155	H8 OVERHAUL EDDY CURRENT TES	P48950	ENGINEERING & INSPECTIONS	skill
2553	H82 CHILLER SERVICE/EDDY CURRENT TES	155	H8 OVERHAUL EDDY CURRENT TES	P48950	ENGINEERING & INSPECTIONS	skill
2262	H81 CHILLER SERVICE/EDDY CURRENT TES	155	H8 OVERHAUL EDDY CURRENT TES	P48950	ENGINEERING & INSPECTIONS	skill
2197	H8 AIR EJECTOR-Pred Maint	155	H8 OVERHAUL EDDY CURRENT TES	P48950	ENGINEERING & INSPECTIONS	skill
2261	H8 CONDENSER TESTING/INSPECTION	155	H8 OVERHAUL EDDY CURRENT TES	P48950	ENGINEERING & INSPECTIONS	skill
2244	SWO-HAZARD WSTE DISPOSAL (HONOLULU	03-1-7094	HPP REMOVE/DISPOSE WASTE PER	P53074	ENVIROSERVICES & TRAINING	skill
1444	H8 WW HDRS TUBE REPAIR	3210	H-8 X-RAY 5 EA. BOILER WINDOW W	P54375	FINLAY TESTING LABORATORIE	skill
1080	K3-SSH Tubes DMW X-Ray + DMW Dutchmen	3206	FINLAY TESTING LABS TO X-RAY K3	P53637	FINLAY TESTING LABORATORIE	skill
1444	H8 WW HDRS TUBE REPAIR	3210	H-8 X-RAY 5 EA. BOILER WINDOW W	P54375	FINLAY TESTING LABORATORIE	skill
1080	K3-SSH Tubes DMW X-Ray + DMW Dutchmen	3206	FINLAY TESTING LABS TO X-RAY K3	P53637	FINLAY TESTING LABORATORIE	skill
1820	H8 HP LOWER/UPPER TRB CYL WELD REPAI	90403	PRVD S/B EQUIP/FACILITY TO S/B CY	P54471	GIORDANO'S PAINTING CO	skill
1820	H8 HP LOWER/UPPER TRB CYL WELD REPAI	90403	PRVD L&E TO S/B HP TURB BOLTS &	P54471	GIORDANO'S PAINTING CO	skill
1065	LB #21 Travel Scrn motor turns but scrn	0309004	350T CRANE TO PULL KAHE #21 TRA	P54695	HAWAIIAN CRANE & RIGGING L	skill
1317	H8 HP TURBINE ROTOR OVERHAUL	03-Y040-F	H-8 OVHL LBR & EQUIP SAND BLAST	P49600	HONOLULU SHIPYARD INC	skill
1323	H8 LP TURBINE ROTOR OVERHAUL	03-Y040-F	H-8 OVHL LBR & EQUIP SAND BLAST	P49600	HONOLULU SHIPYARD INC	skill
1553	H82 CHILLER SERVICE/EDDY CURRENT TES	27864	H82 CHILLER, MACHINE FLOATING H	P53979	HONOMACH INC	skill
1323	H8 LP TURBINE ROTOR OVERHAUL	27797	H8 HP/LP TURB MACHINING SERVICE	P54519	HONOMACH INC	skill
1575	W04 feedwater regulating valve Inlet	27876	W4 FW REGULATING BUSHING:FABF	P53390	HONOMACH INC	skill
1317	H8 HP TURBINE ROTOR OVERHAUL	27797	H8 HP/LP TURB MACHINING SERVICE	P54519	HONOMACH INC	skill
1323	H8 LP TURBINE ROTOR OVERHAUL	27797-1	H8-HP MACHINE/TRUE KURTIS BLAD	P54481	HONOMACH INC	skill
1323	H8 LP TURBINE ROTOR OVERHAUL	27797-1	H8-HP MACHINE/TRUE BLADE RING:	P54481	HONOMACH INC	skill
1319	H8 GOVERNOR VALVES/STEAM CHEST	27797	H8 HP/LP TURB MACHINING SERVICE	P54519	HONOMACH INC	skill
1312	K2 Inspect/Repair Cold/Pressurized Lines	R0002827	K-2 SCAFFOLD FOR ECON RECIRC, (	P49973	SAFWAY SERVICES, INC.	skill
1907	Solar generator will not attain full	R0003203	WAIAU ADMIN BLDG SOLAR GENERA	P50436	SAFWAY SERVICES, INC.	skill
1429	K4 Inspect/Repair Cold/Pressurized Lines	R0003242	K-4 SCAFF ECON RECIRC LINE Q#28:	P52333	SAFWAY SERVICES, INC.	skill
1175	Sandblast, prime and re-paint	D0003208	DIESEL TANK # 2 - SUSPENDED SCAI	P53410	SAFWAY SERVICES, INC.	skill
1400	LB-K3 BFW LINE TO ECON FIX HANGER	D0003286	K3 SCAFF BFW LINE HANGER GRD F	P54218	SAFWAY SERVICES, INC.	skill
1717	K3 BLR DRAFT LINES (Aug '03 OH)	D0003225	KAHE 3, 4TH FLR DRAFT LINES SCAF	P54069	SAFWAY SERVICES, INC.	skill
1364	K3 Inspect/Repair Cold/Pressurized Lines	D0003229	SCAFF K3 3 LOCATIONS 5TH & 6TH F	P54029	SAFWAY SERVICES, INC.	skill
1499	Replace K3 BFW supports BF-30 located at	D0003207	SCAFF K3 BLR FD LINE ON GRD FLR	P53874	SAFWAY SERVICES, INC.	skill
1820	H8 HP LOWER/UPPER TRB CYL WELD REPAI	6508-B	PREHEAT/PWHT SVCS (H8 Trb Weld I	P51047	THERMAL SOLUTIONS, INC.	skill
1644	LE K4 "Generator Field Ground" Alarm	2000-449	K-4 TEST & TROUBLESHOOT GEN FII	P49245	AGT SERVICES	skill
1644	LE K4 "Generator Field Ground" Alarm	2000-449	K-4 TEST & TROUBLESHOOT GEN FII	P49245	AGT SERVICES	skill
1175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1160737D	H-8 OVHL SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill
1175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1161241D	H-8 OVHL SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill
1175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1161242D	H-8 OVHL SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill
1175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1159199D	H-8 OVHL SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill
1175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1160738D	H-8 OVHL SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill
1175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1161129D	H-8 OVHL SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill
1234	W3 Asbestos abatment: FDWATER-ECON PIPE	1161334D	W-4 FUEL,STEAM,& CONDENSATE LI	P53878	ATLAS SALES CO., INC. - KAPOI	skill
1236	W3 AUX STEAM-TANK YARD:RMV ASBESTOS	1161334D	W-4 FUEL,STEAM,& CONDENSATE LI	P53878	ATLAS SALES CO., INC. - KAPOI	skill
1237	W3 FO RETURN LINE:RMV ASBESTOS	1161334D	W-4 FUEL,STEAM,& CONDENSATE LI	P53878	ATLAS SALES CO., INC. - KAPOI	skill
1238	W3 TANKYARD COND DRIP TO W6:RMV ASB	1161334D	W-4 FUEL,STEAM,& CONDENSATE LI	P53878	ATLAS SALES CO., INC. - KAPOI	skill
1235	W4 FO SUPPLY OIL SUPPLY HDR:RMV ASBE	1161334D	W-4 FUEL,STEAM,& CONDENSATE LI	P53878	ATLAS SALES CO., INC. - KAPOI	skill
1175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1164830	H-8 OVHL SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill
1175	H8 INSULATION;REFRAC;BLR CASE REPAIR	1156789	H-8 OVHL SCAFFOLDING SERVICES ,	P49673	ATLAS SALES CO., INC. - KAPOI	skill
1071	Stormwater Inspection 7/29/03 Discrep	10987	LABOR TO CLEAN OUT KAHE STORM	P55131	BERING SEA ECCOTECH, INC.	skill
2211	REPAIR OF PIPELINE ID BY PIG INSPECTION	10984	PUMP TRUCK FOR IWILEI PIPELINE F	P53304	BERING SEA ECCOTECH, INC.	skill
1074	LB-ASSIST DRAINING WATER FROM FOTs	10983	DEWATER KAHE FUEL OIL TANKS, 7/	P55043	BERING SEA ECCOTECH, INC.	skill
1197	H8 AIR EJECTOR-Pred Maint	10969	H8 HYDROBLAST 3 FWH, 2 LO CLRS,	P48885	BERING SEA ECCOTECH, INC.	skill
2211	H81 FWH SERVICE (CLNG/EC) - PRED MAINT	10969	H8 HYDROBLAST 3 FWH, 2 LO CLRS,	P48885	BERING SEA ECCOTECH, INC.	skill
2212	H82 FWH SERVICE (CLNG/EC) - PRED MAINT	10969	H8 HYDROBLAST 3 FWH, 2 LO CLRS,	P48885	BERING SEA ECCOTECH, INC.	skill
2213	H84 FWH SERVICE (CLNG/EC) - PRED MAINT	10969	H8 HYDROBLAST 3 FWH, 2 LO CLRS,	P48885	BERING SEA ECCOTECH, INC.	skill
1993	W7 FORCED DRAFT FAN - SERVICE	MJI-6704	W7 Overhaul REBBABIT LS & HS FDF	P55252	DIVERSIFIED ENERGY SERVICE	skill
1988	W7 GENERATOR ROTOR-SERVICE/TEST	MJI-6699	W7 GEN-FABRICATION OF NEW H2 S	P55450	DIVERSIFIED ENERGY SERVICE	skill
1820	H8 HP LOWER/UPPER TRB CYL WELD REPAI	298	MT Inspection Svcs (H8 Trb Weld Rprs)	P51046	ENGINEERING & INSPECTIONS	skill

rk Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
Screen - Reconditioning	31702	WPP-#51 TRAVELING SCREEN SAND	P37221	GIORDANO'S PAINTING CO	skill
n motor turns but scrn	102503	K21-Touch up repairs to travel screen	P55912	GIORDANO'S PAINTING CO	skill
FILTER PP MTR/LINESTR S	101003	H8 TURB OIL RESERVOIR PRESERVE	P55329	GIORDANO'S PAINTING CO	skill
r XFMR oil disposal	2065	HPP/KPP/WPP SVCS PU & DISP USEI	P46492	HAZTECH ENVIRONMENTAL SE	skill
r XFMR oil disposal	2082	HPP/KPP/WPP SVCS PU & DISP USEI	P46492	HAZTECH ENVIRONMENTAL SE	skill
ERNAL INSP PUNCHLIST	16089	WPP- LABOR TO BEND 1EA. CORTEN	P55685	HONOMACH INC	skill
ANTRY AUX HOOKS	27928	LOAD TEST KAHE GANTRY CRANE A	P55445	HONOMACH INC	skill
LAND AREA ERODED	27943	PRVD L&M TO MACHINE H8 LP GLAN	P55032	HONOMACH INC	skill
ANE ANNUAL CERTIFICATIC	27954	H8/9 & TRAVEL SCREEN CRANE INSF	P54685	HONOMACH INC	skill
KET Bottom RACKS Weld Rp	16021A	W7 OVHL FABRICATE CE BASKET RA	P53993	HONOMACH INC	skill
KET RACKS Weld Repairs	16021A	W7 OVHL FABRICATE CE BASKET RA	P53993	HONOMACH INC	skill
CREEN INSTALL	00007254	W5 #52 AND W6 #61 TRAVEL SCREEI	P51811	PACIFIC DIVING INDUSTRIES, IN	skill
CREEN INSTALL	00007254	W5 #52 AND W6 #61 TRAVEL SCREEI	P51811	PACIFIC DIVING INDUSTRIES, IN	skill
NNEL CLEANING	00007309	W7 TUNNEL CLEANING: DIVERS ASS	P54800	PACIFIC DIVING INDUSTRIES, IN	skill
ROTOR REPAIRS - Bottle Bo	6533	H8 GEN. PRIME CONT-BOTTLE BORII	P51373	REINHART & ASSOCIATES, INC.	skill
ROTOR-SERVICE/TEST	6695	W7 GEN BORE/RETAIN RIN & NDE IN	P54491	REINHART & ASSOCIATES, INC.	skill
ROTOR-SERVICE/TEST	6702	W7 GEN BORE/RETAIN RIN & NDE IN	P54491	REINHART & ASSOCIATES, INC.	skill
ROTOR REPAIRS - Bottle Bo	6652	H8 GEN. PRIME CONT-BOTTLE BORII	P51373	REINHART & ASSOCIATES, INC.	skill
ROTOR REPAIRS - Bottle Bo	6533	H8 GEN. PRIME CONT-BOTTLE BORII	P51373	REINHART & ASSOCIATES, INC.	skill
ROTOR-SERVICE/TEST	6695	W7 GEN BORE/RETAIN RIN & NDE IN	P54491	REINHART & ASSOCIATES, INC.	skill
ROTOR-SERVICE/TEST	6702	W7 GEN BORE/RETAIN RIN & NDE IN	P54491	REINHART & ASSOCIATES, INC.	skill
ROTOR REPAIRS - Bottle Bo	6652	H8 GEN. PRIME CONT-BOTTLE BORII	P51373	REINHART & ASSOCIATES, INC.	skill
PPER TRB CYL WELD REPAI	R0003437	W5 HP TRB LOWER CYL REPAIR SCA	P51019	SAFWAY SERVICES, INC.	skill
DUCT TO STACK EXPJT JOIN	R0003419	H-8 SCAFFOLD STACK DUCT EXP JT	P53130	SAFWAY SERVICES, INC.	skill
and re-paint	R0003440	DIESEL TANK # 2 - SUSPENDED SCAI	P53410	SAFWAY SERVICES, INC.	skill
OLERS - SERVICE	D0003459	W7 OH SCAFFOLDING FOR LUBE OIL	P55191	SAFWAY SERVICES, INC.	skill
Cold/Pressurized Lines	R0003429	K1 & K2 SCAFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill
Cold/Pressurized Lines	R0003240	K1 & K2 SCAFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill
Cold/Pressurized Lines	R0003429	K1 & K2 SCAFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill
Cold/Pressurized Lines	R0003240	K1 & K2 SCAFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill
and re-paint	R0003454	DIESEL TANK # 2 - SUSPENDED SCAI	P53410	SAFWAY SERVICES, INC.	skill
and re-paint	R0003273	DIESEL TANK # 2 - SUSPENDED SCAI	P53410	SAFWAY SERVICES, INC.	skill
PPER TRB CYL WELD REPAI	D0003326	W5 HP TRB LOWER CYL REPAIR SCA	P51019	SAFWAY SERVICES, INC.	skill
Cold/Pressurized Lines	R0003436	K1 & K2 SCAFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill
Cold/Pressurized Lines	R0003436	K1 & K2 SCAFFOLD COLD/PRESS LIN	P48515	SAFWAY SERVICES, INC.	skill
REFRAC;BLR CASE REPAIR	D0003463	W7 OVHL SCAFFOLDING FOR EXPAN	P55190	SAFWAY SERVICES, INC.	skill
HANGRS/SPTS-PREDICT MA	D0003379	W-7 OVERHUAL SCAFFOLDING SVCS	P54531	SAFWAY SERVICES, INC.	skill
NG - PREDICT MAINT	D0003379	W-7 OVERHUAL SCAFFOLDING SVCS	P54531	SAFWAY SERVICES, INC.	skill
REFRAC;BLR CASE REPAIR	D0003379	W-7 OVERHUAL SCAFFOLDING SVCS	P54531	SAFWAY SERVICES, INC.	skill
OMER/HDR-PREDICTIVE MA	D0003455	W7 OH SCAFFOLDING BOILER INTER	P54948	SAFWAY SERVICES, INC.	skill
CS/HEADERS-PREDICT MAIN	D0003455	W7 OH SCAFFOLDING BOILER INTER	P54948	SAFWAY SERVICES, INC.	skill
PAIR COLD/PRESS LINES	D0003379	W-7 OVERHUAL SCAFFOLDING SVCS	P54531	SAFWAY SERVICES, INC.	skill
ROTOR-SERVICE/TEST	2000-511	W7 OH GEN TEST AND INPECTION (A	P54897	AGT SERVICES	skill
ROTOR-SERVICE/TEST	2000-511	W7 OH GEN TEST AND INPECTION (A	P54897	AGT SERVICES	skill
t spot, makai Waikiki	1164589D	W5 BOILER HOTSPOT - SCAFFOLDIN	P54285	ATLAS SALES CO., INC. - KAPOI	skill
Ewa/Makai hot spot,	1164589D	W5 BOILER HOTSPOT - SCAFFOLDIN	P54285	ATLAS SALES CO., INC. - KAPOI	skill
HEADER BRACKET(S) REP	1164549D	W-6 ECONOMIZER OUTLET DUCT IN	P55034	ATLAS SALES CO., INC. - KAPOI	skill
COUPLES NOT READING RI	1164832	H9 THERMOCPLE SCAFFOLD, 6 LOC	P48451	ATLAS SALES CO., INC. - KAPOI	skill
and wall inspect and	10958	WIAIU FO TANK #1 RINSE AFTER HYI	P50916	BERING SEA ECCOTECH, INC.	skill
spray "check valve"	341	W-3 ATTEMPERATOR WELDS (X-RAY	P55333	ENGINEERING & INSPECTIONS	skill
STE DISPOSAL (HONOLULU	03-1-7135	HPP HAZ WASTE REMOVAL/ DISPOS	P56118	ENVIROSERVICES & TRAINING	skill
IR HEATER WASH-Aug 2003	03-1-7130	MIX AND DISPOSE OF KAHE 3 BOILEI	P55992	ENVIROSERVICES & TRAINING	skill
ASTE DISPOSAL (WAIAU)	03-2-7126	WPP REMOVE WASTE PER DIRECTI	P56421	ENVIROSERVICES & TRAINING	skill
IR HEATER WASH	03-1-7136	HPP REMOVE & DISPOSE OF SLUDG	P56118	ENVIROSERVICES & TRAINING	skill
S/HEADERS-PREDICT MAIN	3243	W-7 O/H X-RAY 23 EA. WELD JOINTS	P56261	FINLAY TESTING LABORATORIE	skill
S/HEADERS-PREDICT MAIN	3243	W-7 O/H X-RAY 23 EA. WELD JOINTS	P56261	FINLAY TESTING LABORATORIE	skill
ALVES/STEAM CHEST	102603	Provide L&E to S/B H8 throttle valve.	P56002	GIORDANO'S PAINTING CO	skill

Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
3667	W7 LUBE OIL COOLERS - SERVICE	102402	Prvd L&E to S/B W7 H2 cooler covers.	P56003	GIORDANO'S PAINTING CO	skill
3669	W7 GENERATOR H2 COOLERS - SERVICE	102703	Prvd L&E to S/B W7 LO covers.	P55997	GIORDANO'S PAINTING CO	skill
2317	H8 HP TURBINE ROTOR OVERHAUL	102803	H-8 O/H SAND BLS TURB BOLTS	P56035	GIORDANO'S PAINTING CO	skill
6542	LB K6 #61 Travel Screen shear pin broken	0310058	Operator for Drott crane at Kahe Power	P56189	HAWAIIAN CRANE & RIGGING L	skill
5065	LB #21 Travel Scrn motor turns but scrn	0310051	K-21 REMOVE/REPLACE TRVL SCREI	P56169	HAWAIIAN CRANE & RIGGING L	skill
8891	Collect charges for XFMR oil disposal	2091	HPP/KPP/WPP SVCS PU & DISP USEI	P46492	HAZTECH ENVIRONMENTAL SE	skill
3667	W7 LUBE OIL COOLERS - SERVICE	27990	W7 ovhl-rpr LO CLR cvr o-ring gland ar	P56182	HONOMACH INC	skill
8704	W7 TSI #1 bearing vibration indication	28008	W7 ovhl-L&E mod brgs 5&6 for TSI prot	P56179	HONOMACH INC	skill
3669	W7 GENERATOR H2 COOLERS - SERVICE	27979	W7Prvd L&E to resurface H2 cooler cve	P55999	HONOMACH INC	skill
5090	W71/72 CWS TUNNEL CLEANING	00007322	W 7/8 TUNNEL, STOP LEAKS: DIVERS	P55548	PACIFIC DIVING INDUSTRIES, IN	skill
3399	W7 INSULATION;REFRAC;BLR CASE REPAIR	R003665	W-7 OVERHUAL SCAFFOLDING SVCS	P54531	SAFWAY SERVICES, INC.	skill
4943	W7 STM PIPING HANGRS/SPTS-PREDICT MA	R003665	W-7 OVERHUAL SCAFFOLDING SVCS	P54531	SAFWAY SERVICES, INC.	skill
4945	W7 BLR FW PIPING - PREDICT MAINT	R003665	W-7 OVERHUAL SCAFFOLDING SVCS	P54531	SAFWAY SERVICES, INC.	skill
2523	W7 INSPECT/REPAIR COLD/PRESS LINES	R003665	W-7 OVERHUAL SCAFFOLDING SVCS	P54531	SAFWAY SERVICES, INC.	skill
4419	Phase Shift Transformer Repair-Structure	HECO03-0	W-3&4 Phase Shift Transformer	P55634	SPCC AND CONSULTING	skill
3126	K4 GENERATOR STATOR-SERVICE/INSPECT	2000-533	K4 OH. GEN STATOR INSPECTION	P56932	AGT SERVICES	skill
3126	K4 GENERATOR STATOR-SERVICE/INSPECT	2000-533	K4 OH. GEN STATOR INSPECTION	P56932	AGT SERVICES	skill
3583	W6:ECONOMIZER HEADER BRACKET(S) REF	1167593D	W-6 ECONOMIZER OUTLET DUCT IN	P55034	ATLAS SALES CO., INC. - KAPOI	skill
3583	W6:ECONOMIZER HEADER BRACKET(S) REF	1164673D	W-6 ECONOMIZER OUTLET DUCT IN	P55034	ATLAS SALES CO., INC. - KAPOI	skill
5387	W3: Attemperator spray "check valve"	1163034D	W3 Attemporator leak: Scaffolding	P56543	ATLAS SALES CO., INC. - KAPOI	skill
3874	Solar Gen Diesel Tank Inspection/Modify	11089	WPP-TRANSFER DIESEL FROM SOL	P56661	BERING SEA ECCOTECH, INC.	skill
5490	K5/6 Roof drain from central stairway	11085	K-5 CLEAR OUT FLOOR DRAIN JOB #	P56975	BERING SEA ECCOTECH, INC.	skill
7241	K4 OH. HYDROBLAST & PAINT CONDENSER	11104	K-4 OVHL HYDROBLAST CONDSR PI	P57200	BERING SEA ECCOTECH, INC.	skill
3109	Sludge drying beds-Cells 1-6 Refurbish	11075	WPP-10/20/03 HYDROBLAST SLUDGE	P56152	BERING SEA ECCOTECH, INC.	skill
3615	K4 OH GLAND STM CND 100% ECT ON TUBE	11103	K4 OH. HYDROBLAST 7 HEAT EXCHA	P56682	BERING SEA ECCOTECH, INC.	skill
3616	K4 OH AIR EJECTOR CND 100% ECT ON TUB	11103	K4 OH. HYDROBLAST 7 HEAT EXCHA	P56682	BERING SEA ECCOTECH, INC.	skill
3109	Sludge drying beds-Cells 1-6 Refurbish	10957	WPP-5/30/03 HYDROBLAST DRYING	P56152	BERING SEA ECCOTECH, INC.	skill
5572	LB WWT line separated at flange behind	11086	KPP PUMP OUT WATER BLR WASH :	P56977	BERING SEA ECCOTECH, INC.	skill
7449	W5 DMR modification of existing piping	10955	W-5 DMR: SUCK SAND FROM VESEL	P56528	BERING SEA ECCOTECH, INC.	skill
3109	Sludge drying beds-Cells 1-6 Refurbish	10989	WPP-SLUDGE DRYING BEDS HYDRO	P56193	BERING SEA ECCOTECH, INC.	skill
3109	Sludge drying beds-Cells 1-6 Refurbish	10980	WPP-7/15/03 HYDROBLAST SLUDGE	P56152	BERING SEA ECCOTECH, INC.	skill
3611	K4 2003 OVHL STACK INSPECTION	11091	K4 STACH ASH REMOVAL. BSE JOB	P56950	BERING SEA ECCOTECH, INC.	skill
3613	K4 OH PERFORM 100% ECT ON 44 FWH TUB	11103	K4 OH. HYDROBLAST 7 HEAT EXCHA	P56682	BERING SEA ECCOTECH, INC.	skill
3721	K4 OH PERFORM 100% ECT ON 42 FWH TUB	11103	K4 OH. HYDROBLAST 7 HEAT EXCHA	P56682	BERING SEA ECCOTECH, INC.	skill
3178	K4 LUBE OIL CLRS-ECT TEST/CLEAN/INSPEC	11103	K4 OH. HYDROBLAST 7 HEAT EXCHA	P56682	BERING SEA ECCOTECH, INC.	skill
3617	K4 OH PERFORM 100% ECT ON 43 FWH TUB	11103	K4 OH. HYDROBLAST 7 HEAT EXCHA	P56682	BERING SEA ECCOTECH, INC.	skill
3339	PUMP OUT OIL IN OILY SUMPS	11084	K-3 PUMP OUT OILY SUMPS & BLR W	P56973	BERING SEA ECCOTECH, INC.	skill
3667	W7 LUBE OIL COOLERS - SERVICE	11065	W-7 OVHL Hydroblast Gland Stm Cond	P56027	BERING SEA ECCOTECH, INC.	skill
3729	W7 GLAND STEAM CONDENSER	11065	W-7 OVHL Hydroblast Gland Stm Cond	P56027	BERING SEA ECCOTECH, INC.	skill
5090	W71/72 CWS TUNNEL CLEANING	11063	WAIAU OH-71 & 72 CWS TUNNEL CLE	P54902	BERING SEA ECCOTECH, INC.	skill
5387	W3: Attemperator spray "check valve"	395	W-3 ATTEMPERATOR WELDS (X-RAY	P55333	ENGINEERING & INSPECTIONS	skill
3721	K4 OH PERFORM 100% ECT ON 42 FWH TUB	460	K4 OH, HEAT EXCHANGER ECT TEST	P56550	ENGINEERING & INSPECTIONS	skill
3178	K4 LUBE OIL CLRS-ECT TEST/CLEAN/INSPEC	460	K4 OH, HEAT EXCHANGER ECT TEST	P56550	ENGINEERING & INSPECTIONS	skill
3614	K4 OH PERFORM 100% ECT ON 45 FWH TUB	460	K4 OH, HEAT EXCHANGER ECT TEST	P56550	ENGINEERING & INSPECTIONS	skill
3613	K4 OH PERFORM 100% ECT ON 44 FWH TUB	460	K4 OH, HEAT EXCHANGER ECT TEST	P56550	ENGINEERING & INSPECTIONS	skill
3961	K41 CHILLER CLEAN/ECT TEST/TEST TUBES	460	K4 OH, HEAT EXCHANGER ECT TEST	P56550	ENGINEERING & INSPECTIONS	skill
3617	K4 OH PERFORM 100% ECT ON 43 FWH TUB	460	K4 OH, HEAT EXCHANGER ECT TEST	P56550	ENGINEERING & INSPECTIONS	skill
3947	K4 CONDENSER TESTING/INSPECTION	460	K4 OH, HEAT EXCHANGER ECT TEST	P56550	ENGINEERING & INSPECTIONS	skill
		02-1-6015	FIRST AND SECOND DRAFTS OF WA	P57232	ENVIROSERVICES & TRAINING	skill
3253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	03-1-7137	WPP ASH MIXING & DISPOSAL SERV	P57036	ENVIROSERVICES & TRAINING	skill
		03-1-7160	REMOVE AND DISPOSE HAZARDOUS	P57515	ENVIROSERVICES & TRAINING	skill
3253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	03-1-7154	WPP-HAZ WASTE RMVL OIL/MERCUI	P57119	ENVIROSERVICES & TRAINING	skill
3249	SWO-HAZARDOUS WSTE DISPOSAL (KAHE)	03-1-7144	KAHE LAB WASTE DISPOSAL SERVIC	P56460	ENVIROSERVICES & TRAINING	skill
3938	W7 WW/DOWNCOMER/HDR-PREDICTIVE MA	3240	WAIAU 7 2003 BRULS & HIEL INSPEC	P53995	FINLAY TESTING LABORATORIE	skill
3939	W7 PRI SH TUBES/HEADERS-PREDICT MAIN	3240	WAIAU 7 2003 BRULS & HIEL INSPEC	P53995	FINLAY TESTING LABORATORIE	skill
3943	W7 STM PIPING HANGRS/SPTS-PREDICT MA	3240	WAIAU 7 2003 BRULS & HIEL INSPEC	P53995	FINLAY TESTING LABORATORIE	skill
3940	W7 SEC SH TUBES/HEADERS-PREDICT MAIN	3240	WAIAU 7 2003 BRULS & HIEL INSPEC	P53995	FINLAY TESTING LABORATORIE	skill

SVC Typ
skill
skill
skill

Desc	PO No	Supplier Name	SVC Typ
LABOR ASSISTS /	P42726	BERING SEA ECCOTECH, INC.	supp
IE MAINT. DEC. 2(	P46886	BERING SEA ECCOTECH, INC.	supp
T LABOR 11/25/02	P45530	DIVERSIFIED ENERGY SERVICE	supp
T LABOR 11/25/02	P45530	DIVERSIFIED ENERGY SERVICE	supp
PLCMT, 4 AREAS	P46171	HAWAIIAN DREDGING	supp
NER HELPERS JA	P47751	HAWAIIAN STEAM, INC.	supp
NER HELPERS JA	P47751	HAWAIIAN STEAM, INC.	supp
NER HELPERS JA	P47751	HAWAIIAN STEAM, INC.	supp
STOS OFF ST-12 S	P47032	OHANA ENVIRONMENTAL	supp
IG COVER ASBES	P46022	OHANA ENVIRONMENTAL	supp
ATRL DISPOSAL,	P45539	OHANA ENVIRONMENTAL	supp
STOS AT SOOTBI	P46255	OHANA ENVIRONMENTAL	supp
STOS AT SOOTBI	P46255	OHANA ENVIRONMENTAL	supp
E LEAD ABATEME	P45924	OHANA ENVIRONMENTAL	supp
RS AT KAHE 12/18	P45883	PETROCHEM INSULATION INC.	supp
SVCS 11/25/02-1	P45536	BERING SEA ECCOTECH, INC.	supp
SVCS 11/25/02-1	P45536	BERING SEA ECCOTECH, INC.	supp
T LABOR 11/25/02	P45530	DIVERSIFIED ENERGY SERVICE	supp
T LABOR 11/25/02	P45530	DIVERSIFIED ENERGY SERVICE	supp
		GIORDANO'S PAINTING CO	supp
EPAIR WELDING :	P45500	HAWAIIAN DREDGING	supp
DREDGING (2) B	P48398	HAWAIIAN DREDGING	supp
DREDGING (2) B	P48398	HAWAIIAN DREDGING	supp
NER HELPERS FE	P47751	HAWAIIAN STEAM, INC.	supp
NER HELPERS FE	P47751	HAWAIIAN STEAM, INC.	supp
NER HELPERS FE	P47751	HAWAIIAN STEAM, INC.	supp
DRUM - RMV ASE	P47530	OHANA ENVIRONMENTAL	supp
1 FWH N2 BLANK	P48574	OHANA ENVIRONMENTAL	supp
1 FWH N2 BLANK	P48574	OHANA ENVIRONMENTAL	supp
STEAM VALVE-R	P48614	OHANA ENVIRONMENTAL	supp
ADER-REMOVE ,	P48615	OHANA ENVIRONMENTAL	supp
ING -REMOVE A	P47529	OHANA ENVIRONMENTAL	supp
ORK ON SSH, EC	P48208	PETROCHEM INSULATION INC.	supp
ASBESTOS WIF	P47281	UNITEK INSULATION, INC.	supp
SVCS 11/25/02-1	P45536	BERING SEA ECCOTECH, INC.	supp
SVCS 11/25/02-1	P45536	BERING SEA ECCOTECH, INC.	supp
SHUTDOWN #64	P47474	BERING SEA ECCOTECH, INC.	supp
SVCS 11/25/02-1	P45536	BERING SEA ECCOTECH, INC.	supp
SVCS 11/25/02-1	P45536	BERING SEA ECCOTECH, INC.	supp
SHUTDOWN WC	P47473	BERING SEA ECCOTECH, INC.	supp
E MAINT. JAN. 20	P47526	BERING SEA ECCOTECH, INC.	supp
T LABOR 11/25/02	P45530	DIVERSIFIED ENERGY SERVICE	supp
T LABOR 11/25/02	P45530	DIVERSIFIED ENERGY SERVICE	supp
		GIORDANO'S PAINTING CO	supp
V DOWN PPG IN	P48837	HAWAIIAN DREDGING	supp
WELD/FAB JOBS	P48522	HAWAIIAN DREDGING	supp
DREDGING (2) B	P48398	HAWAIIAN DREDGING	supp
IER HELPERS M	P47751	HAWAIIAN STEAM, INC.	supp
IER HELPERS M	P47751	HAWAIIAN STEAM, INC.	supp
IER HELPERS M	P47751	HAWAIIAN STEAM, INC.	supp
ATEMENT FOR V	P49207	OHANA ENVIRONMENTAL	supp
NK #1 - RMV ASB	P49629	OHANA ENVIRONMENTAL	supp
TRL DISPOSAL,	P45539	OHANA ENVIRONMENTAL	supp
L, KAHE ASBES	P49366	OHANA ENVIRONMENTAL	supp
NK #1 - RMV ASB	P49629	OHANA ENVIRONMENTAL	supp
HAUST ASBEST	P50067	OHANA ENVIRONMENTAL	supp
S AT KAHE 12/18	P45883	PETROCHEM INSULATION INC.	supp

No	Supplier Name	SVC Typ
0	PETROCHEM INSULATION INC.	supp
7	PETROCHEM INSULATION INC.	supp
7	PETROCHEM INSULATION INC.	supp
0	UNITEK INSULATION, INC.	supp
9	BERING SEA ECCOTECH, INC.	supp
6	BERING SEA ECCOTECH, INC.	supp
0	BERING SEA ECCOTECH, INC.	supp
6	BERING SEA ECCOTECH, INC.	supp
9	DIVERSIFIED ENERGY SERVICE	supp
9	DIVERSIFIED ENERGY SERVICE	supp
	GIORDANO'S PAINTING CO	supp
7	GIORDANO'S PAINTING CO	supp
4	HAWAIIAN DREDGING	supp
4	HAWAIIAN DREDGING	supp
6	HAWAIIAN DREDGING	supp
1	HAWAIIAN STEAM, INC.	supp
5	HAWAIIAN STEAM, INC.	supp
5	HAWAIIAN STEAM, INC.	supp
5	HAWAIIAN STEAM, INC.	supp
1	HAWAIIAN STEAM, INC.	supp
1	HAWAIIAN STEAM, INC.	supp
9	OHANA ENVIRONMENTAL	supp
4	OHANA ENVIRONMENTAL	supp
3	OHANA ENVIRONMENTAL	supp
9	OHANA ENVIRONMENTAL	supp
9	OHANA ENVIRONMENTAL	supp
4	PETROCHEM INSULATION INC.	supp
4	PETROCHEM INSULATION INC.	supp
5	PETROCHEM INSULATION INC.	supp
5	BERING SEA ECCOTECH, INC.	supp
5	BERING SEA ECCOTECH, INC.	supp
3	BERING SEA ECCOTECH, INC.	supp
9	DIVERSIFIED ENERGY SERVICE	supp
9	DIVERSIFIED ENERGY SERVICE	supp
9	DIVERSIFIED ENERGY SERVICE	supp
9	DIVERSIFIED ENERGY SERVICE	supp
3	GIORDANO'S PAINTING CO	supp
4	HAWAIIAN DREDGING	supp
1	HAWAIIAN DREDGING	supp
3	HAWAIIAN DREDGING	supp
3	HAWAIIAN DREDGING	supp
3	HAWAIIAN DREDGING	supp
2	HAWAIIAN DREDGING	supp
3	HAWAIIAN DREDGING	supp
1	HAWAIIAN STEAM, INC.	supp
1	HAWAIIAN STEAM, INC.	supp
1	HAWAIIAN STEAM, INC.	supp
2	PETROCHEM INSULATION INC.	supp
5	PETROCHEM INSULATION INC.	supp
2	B & J INSULATION CO., INC.	supp
2	B & J INSULATION CO., INC.	supp
2	B & J INSULATION CO., INC.	supp
2	B & J INSULATION CO., INC.	supp
2	BERING SEA ECCOTECH, INC.	supp
1	BERING SEA ECCOTECH, INC.	supp
7	BERING SEA ECCOTECH, INC.	supp
1	BERING SEA ECCOTECH, INC.	supp

No	Inv Item Desc	PO No	Supplier Name	SVC Typ
7	WPP- 1 EA MAINTENANCE HELPER A	P50852	BERING SEA ECCOTECH, INC.	supp
4	LABOR ASSIST KAHE MAINT. MARCH	P50224	BERING SEA ECCOTECH, INC.	supp
8	LABOR ASSIST KAHE MAINT APRIL 2(	P50935	BERING SEA ECCOTECH, INC.	supp
5	LABOR ASSIST KAHE MAINT.MAY 20(	P51566	BERING SEA ECCOTECH, INC.	supp
0	H-8 OVHL PRVD GENERAL LABOR AS	P50140	BERING SEA ECCOTECH, INC.	supp
0	H-8 OVHL PRVD GENERAL LABOR AS	P50140	BERING SEA ECCOTECH, INC.	supp
1	W-5 OVHL TURB CERW PROVIDE LAI	P43642	BERING SEA ECCOTECH, INC.	supp
675	H-8 TURB OVHL PRVD MACHINIST LE	P50139	DIVERSIFIED ENERGY SERVICE	supp
675	H-8 TURB OVHL PRVD MACHINIST LE	P50139	DIVERSIFIED ENERGY SERVICE	supp
005-0	KAHE 5 BOILER WASH 1 MECHANIC	P51261	HAWAIIAN DREDGING	supp
006-0	KAHE 5 OUTAGE 1 MECHANIC TO AS	P51234	HAWAIIAN DREDGING	supp
006-0	WPP-HAWAIIAN DREDGING BOILERM	P51460	HAWAIIAN DREDGING	supp
005-0	H8 OH, 4 WELDERS FROM HAW'N DF	P51303	HAWAIIAN DREDGING	supp
415	MIX/DISPOSE OF BOILER ASH DRUM	P52245	HAWAIIAN STEAM, INC.	supp
415	MIX/DISPOSE OF BOILER ASH DRUM	P52245	HAWAIIAN STEAM, INC.	supp
3553	REMOVE ASBESTOS INSULATION FR	P51301	OHANA ENVIRONMENTAL	supp
3555	WGPT #1 FUEL OIL TANK: RMV ASBE	P52429	OHANA ENVIRONMENTAL	supp
3557	HPP #5 SVCS TO REMOVE ASBESTO	P52511	OHANA ENVIRONMENTAL	supp
3558	HPP #5 SVCS TO REMOVE ASBESTO	P52511	OHANA ENVIRONMENTAL	supp
3596	KAHE ASBESTOS BIN REMOVAL SER	P52335	OHANA ENVIRONMENTAL	supp
3556	W4 BLEED STEAM TO DEARATOR: R	P52427	OHANA ENVIRONMENTAL	supp
3554	WGPT #1 FUEL OIL TANK: RMV ASBE	P52427	OHANA ENVIRONMENTAL	supp
3407	WGPT #1 FUEL OIL TANK: RMV ASBE	P52512	OHANA ENVIRONMENTAL	supp
3557	HPP #5 SVCS TO REMOVE ASBESTO	P52511	OHANA ENVIRONMENTAL	supp
3558	HPP #5 SVCS TO REMOVE ASBESTO	P52511	OHANA ENVIRONMENTAL	supp
A	IWILEI PIPE STRAINER INSTALL INSU	P51891	PETROCHEM INSULATION INC.	supp
	K-1/2 TWO ASB QUAL INSULATOR FC	P49074	PETROCHEM INSULATION INC.	supp
	K-1/2 TWO ASB QUAL INSULATOR FC	P49074	PETROCHEM INSULATION INC.	supp
	K-1/2 TWO ASB QUAL INSULATOR FC	P49074	PETROCHEM INSULATION INC.	supp
	K-1/2 TWO ASB QUAL INSULATOR FC	P49074	PETROCHEM INSULATION INC.	supp
H1	K-1/2 TWO ASB QUAL INSULATOR FC	P49074	PETROCHEM INSULATION INC.	supp
H1	K-1/2 TWO ASB QUAL INSULATOR FC	P49074	PETROCHEM INSULATION INC.	supp
	H8 OH, ITB HELPERS, 4 FROM PETRC	P49465	PETROCHEM INSULATION INC.	supp
003	FO TANK #1 INSULATOR ASSIST	P52657	B & J INSULATION CO., INC.	supp
003	FO TANK #1 INSULATOR ASSIST	P52657	B & J INSULATION CO., INC.	supp
003	FO TANK #1 INSULATOR ASSIST	P52657	B & J INSULATION CO., INC.	supp
003	FO TANK #1 INSULATOR ASSIST	P52657	B & J INSULATION CO., INC.	supp
81	H-8 TURB OVHL PRVD MACHINIST LE	P50139	DIVERSIFIED ENERGY SERVICE	supp
81	H-8 TURB OVHL PRVD MACHINIST LE	P50139	DIVERSIFIED ENERGY SERVICE	supp
	H8 OH, ITB HELPERS, 2 FROM GIORD	P49463	GIORDANO'S PAINTING CO	supp
07-0	WPP-HAWAIIAN DREDGING BOILERM	P52505	HAWAIIAN DREDGING	supp
07-0	H8 OH, 4 WELDERS FROM HAW'N DF	P51303	HAWAIIAN DREDGING	supp
97	CONDENSER CLEANER HELPERS JU	P47751	HAWAIIAN STEAM, INC.	supp
97	CONDENSER CLEANER HELPERS JU	P47751	HAWAIIAN STEAM, INC.	supp
97	CONDENSER CLEANER HELPERS JU	P47751	HAWAIIAN STEAM, INC.	supp
98	CONDENSER CLEANER HELPERS JU	P53860	HAWAIIAN STEAM, INC.	supp
98	CONDENSER CLEANER HELPERS JU	P53860	HAWAIIAN STEAM, INC.	supp
98	CONDENSER CLEANER HELPERS JU	P53860	HAWAIIAN STEAM, INC.	supp
837	W8 #83 SFOP: RMV ASBESTOS	P52859	OHANA ENVIRONMENTAL	supp
836	W3 BURNER FRONT : RMV ASBESTO	P52859	OHANA ENVIRONMENTAL	supp
316	IWILEI FO PIPELINE ASBESTOS REM	P53178	OHANA ENVIRONMENTAL	supp
316	IWILEI FO PIPELINE ASBESTOS REM	P53178	OHANA ENVIRONMENTAL	supp
335	W4 IDHS FAN: RMV ASBESTOS	P52859	OHANA ENVIRONMENTAL	supp
559	ASBESTOS REMOVAL IN PLANT #5.	P53395	OHANA ENVIRONMENTAL	supp
	H8 OH, ITB HELPERS, 4 FROM PETRC	P49465	PETROCHEM INSULATION INC.	supp
	TWO QUALIFIED INSULATORS FOR K	P53250	PETROCHEM INSULATION INC.	supp
	TWO QUALIFIED INSULATORS FOR K	P53250	PETROCHEM INSULATION INC.	supp

nv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
282003	FO TANK #1: INSULATOR ASSIST	P53409	B & J INSULATION CO., INC.	supp
282003	FO TANK #1: INSULATOR ASSIST	P53409	B & J INSULATION CO., INC.	supp
282003	FO TANK #1: INSULATOR ASSIST	P53409	B & J INSULATION CO., INC.	supp
282003	FO TANK #1: INSULATOR ASSIST	P53409	B & J INSULATION CO., INC.	supp
222003	FO TANK #1: INSULATOR ASSIST	P53409	B & J INSULATION CO., INC.	supp
142003	FO TANK #1: INSULATOR ASSIST	P52891	B & J INSULATION CO., INC.	supp
222003	FO TANK #1: INSULATOR ASSIST	P53409	B & J INSULATION CO., INC.	supp
142003	FO TANK #1: INSULATOR ASSIST	P52891	B & J INSULATION CO., INC.	supp
222003	FO TANK #1: INSULATOR ASSIST	P53409	B & J INSULATION CO., INC.	supp
142003	FO TANK #1: INSULATOR ASSIST	P52891	B & J INSULATION CO., INC.	supp
222003	FO TANK #1: INSULATOR ASSIST	P53409	B & J INSULATION CO., INC.	supp
142003	FO TANK #1: INSULATOR ASSIST	P52891	B & J INSULATION CO., INC.	supp
052003	FO TANK #1 INSULATOR ASSIST 07/2	P53827	B & J INSULATION CO., INC.	supp
949	K-6 LABOR TO BREAKDOWN SCAFF I	P53496	BERING SEA ECCOTECH, INC.	supp
948	H8 OH, ITB HELPERS, 2 FROM BSE	P49464	BERING SEA ECCOTECH, INC.	supp
896	H8 OH, ITB HELPERS, 2 FROM BSE	P49464	BERING SEA ECCOTECH, INC.	supp
944	LABOR ASSIST KAHE MAINT. JULY 2(	P54856	BERING SEA ECCOTECH, INC.	supp
895	LABOR ASSIST KAHE MAINT. JUNE 2	P52820	BERING SEA ECCOTECH, INC.	supp
898	H8 OH, ITB HELPERS, 2 FROM BSE	P49464	BERING SEA ECCOTECH, INC.	supp
897	H8 OH, ITB HELPERS, 2 FROM BSE	P49464	BERING SEA ECCOTECH, INC.	supp
703	H8 OH, ITB HELPERS, 2 FROM GIORI	P49463	GIORDANO'S PAINTING CO	supp
ECO08-0	W-5 BOILER HOTSPOT WELDER SUF	P54153	HAWAIIAN DREDGING	supp
ECO08-0	W-5 BOILER HOTSPOT WELDER SUF	P54153	HAWAIIAN DREDGING	supp
ECO08-0	H8 OH, 4 WELDERS FROM HAW'N DF	P53930	HAWAIIAN DREDGING	supp
ECO08-0	WPP-HAWAIIAN DREDGING BOILERM	P53497	HAWAIIAN DREDGING	supp
EC-3692	W7 FOH TANK, W8 FWH: RMV ASBE	P53854	OHANA ENVIRONMENTAL	supp
EC-3692	W7 FOH TANK, W8 FWH: RMV ASBE	P53854	OHANA ENVIRONMENTAL	supp
EC-3725	W8 FWH LEAD REMOVAL AND FO TA	P54535	OHANA ENVIRONMENTAL	supp
EC-3725	W5 SCAVENGING STEAM:RMV ASBE	P54535	OHANA ENVIRONMENTAL	supp
EC-3725	W8 FWH LEAD REMOVAL AND FO TA	P54535	OHANA ENVIRONMENTAL	supp
EC-3692	W7 FOH TANK, W8 FWH: RMV ASBE	P53854	OHANA ENVIRONMENTAL	supp
EC-3717	KAHE ASBESTOS BIN REMOVAL SER	P52335	OHANA ENVIRONMENTAL	supp
EC-3690	W4 WETSTACK: ASBESTOS REMOV	P53854	OHANA ENVIRONMENTAL	supp
EC-3749	W-4 AUXILIARY STEAM TO FUEL OIL	P53875	OHANA ENVIRONMENTAL	supp
EC-3691	W6 ECON BLOW OFF TANK: RMV AS	P53854	OHANA ENVIRONMENTAL	supp
EC-3744	W-4 FUEL OIL RETURN LINE - ASBES	P53858	OHANA ENVIRONMENTAL	supp
EC-3745	W-4 FUEL OIL RETURN LINE - ASBES	P53858	OHANA ENVIRONMENTAL	supp
EC-3748	W-4 AUXILIARY STEAM TO FUEL OIL	P53875	OHANA ENVIRONMENTAL	supp
EC-3747	W-4 FUEL OIL SUPPLY HEADER-ASB	P53876	OHANA ENVIRONMENTAL	supp
EC-3746	W-3 FEEDWATER TO ECONOMIZER I	P53877	OHANA ENVIRONMENTAL	supp
EC-3750	FUEL OIL TANKYARD CONDENSATE I	P53855	OHANA ENVIRONMENTAL	supp
938	K-1 2 EA ASBESTOS QUALIFIED INSU	P54683	PETROCHEM INSULATION INC.	supp
938	K-1 2 EA ASBESTOS QUALIFIED INSU	P54683	PETROCHEM INSULATION INC.	supp
122003	WAIAU PP INSULATOR ASSIST; 09/01	P54878	B & J INSULATION CO., INC.	supp
242003	WAI FO TANKS #1 AND #5: INSULATC	P55259	B & J INSULATION CO., INC.	supp
152003/	Waiau insulator assist 10/29-10/03	P55614	B & J INSULATION CO., INC.	supp
152003	WPP-FO Tanks #1 and #5: Insulator as	P55688	B & J INSULATION CO., INC.	supp
162003	WAIAU PP INSULATOR ASSIST; 09/01	P54878	B & J INSULATION CO., INC.	supp
954	W #52 AND #61 TRAVEL SCREEN INS	P51573	BERING SEA ECCOTECH, INC.	supp
954	W #52 AND #61 TRAVEL SCREEN INS	P51573	BERING SEA ECCOTECH, INC.	supp
950	W #51 AND #62 TRAVEL SCREENS IN	P51575	BERING SEA ECCOTECH, INC.	supp
950	W #51 AND #62 TRAVEL SCREENS IN	P51575	BERING SEA ECCOTECH, INC.	supp
954	W #52 AND #61 TRAVEL SCREEN INS	P51573	BERING SEA ECCOTECH, INC.	supp
954	W #52 AND #61 TRAVEL SCREEN INS	P51573	BERING SEA ECCOTECH, INC.	supp
986	K3 OVHL-4 HELPERS FOR CONDENS	P53276	BERING SEA ECCOTECH, INC.	supp
981	W4 OUTAGE 07/14-18/03 HELPER AS	P53131	BERING SEA ECCOTECH, INC.	supp
986	LABOR TO ASSIST WITH KAHE 2 APH	P55130	BERING SEA ECCOTECH, INC.	supp

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ACCOUNT_CODE	LL_PERI	TransYr	AMT	Work_Order	Work_Order_Desc	Inv_No	Inv_Item_Desc	PO_No	Supplier_Name	SVC_Typ
PIX257WSTNENPIZZZZZ501	200310	2003	2,995.03	PR028920	Waiau PP-Temporary Contract Workers	10946	WPP-BSE HELPER FOR AUGUST 200	P53474	BERING SEA ECCOTECH, INC.	supp
PIX257WSTNENPIZZZZZ501	200310	2003	4,251.01	PR028920	Waiau PP-Temporary Contract Workers	10945	WPP-BSE TEMPORARY HELPER FOR	P52465	BERING SEA ECCOTECH, INC.	supp
PIL259K06NENPIZZZZZ501	200310	2003	6,715.58	PR033451	K6 BOILER WASH DURING 5/5/03 OUTAGE	10975	KAHE 6, 4 HELPERS FOR BOILER WA	P50552	BERING SEA ECCOTECH, INC.	supp
PIL259K05NENPIZZZZZ501	200310	2003	9,853.59	PR033852	K5 BOILER WASH 5/03 OUTAGE	10976	KAHE 5 BOILER WASH LABOR ASSIS	P51232	BERING SEA ECCOTECH, INC.	supp
PIT257K03NENPIZZZZZ501	200310	2003	12,934.29	PR034573	K3 BOILER AND AIR HEATER WASH-Aug 200	10985	K-3 OH ITB HELPERS, 4/EA EST 3 WE	P53359	BERING SEA ECCOTECH, INC.	supp
PIT260W07NEP0000522501	200310	2003	2,612.33	PR033688	W7 GENERATOR ROTOR-SERVICE/TEST	MJI-6697	W7 OVHL TM 2 EA MILLWRIGHT LABI	P54529	DIVERSIFIED ENERGY SERVICE	supp
PIT261W07NEP0000522501	200310	2003	2,612.33	PR035159	W7 TURBINE STUB SHAFT ALIGNMENT	MJI-6697	W7 OVHL TM 2 EA MILLWRIGHT LABI	P54529	DIVERSIFIED ENERGY SERVICE	supp
PIT262W07NEP0000522501	200310	2003	2,612.33	PR033691	W7 REHEAT INTERCEPT VALVES-Service	MJI-6697	W7 OVHL TM 2 EA MILLWRIGHT LABI	P54529	DIVERSIFIED ENERGY SERVICE	supp
PIT262W07NEP0000522501	200310	2003	2,612.33	PR033690	W7 GOVERNOR VALVES/STEAM CHEST (6 E	MJI-6697	W7 OVHL TM 2 EA MILLWRIGHT LABI	P54529	DIVERSIFIED ENERGY SERVICE	supp
PIT262W07NEP0000522501	200310	2003	2,612.34	PR033689	W7 THROTTLE VALVES (2 EACH)	MJI-6697	W7 OVHL TM 2 EA MILLWRIGHT LABI	P54529	DIVERSIFIED ENERGY SERVICE	supp
PIT260H08NEP0000523501	200310	2003	4,199.73	PR032323	H8 LP TURBINE ROTOR OVERHAUL	MJI-6694	H-8 TURB OVHL PRVD MACHINIST LE	P50139	DIVERSIFIED ENERGY SERVICE	supp
PIT260H08NEP0000523501	200310	2003	4,199.73	PR032317	H8 HP TURBINE ROTOR OVERHAUL	MJI-6694	H-8 TURB OVHL PRVD MACHINIST LE	P50139	DIVERSIFIED ENERGY SERVICE	supp
PIT257W07NEP0000522501	200310	2003	3,538.94	PR033396	W7 BOILER AND AIR HEATER WASH	102403	W7 OH BLR LABOR HELPERS	P54697	GIORDANO'S PAINTING CO	supp
PIT257W07NEP0000522501	200310	2003	3,538.94	PR033400	W7 BLR ACCESS/EXPLO DOORS - SERVICE	102403	W7 OH BLR LABOR HELPERS	P54697	GIORDANO'S PAINTING CO	supp
PIT257W07NEP0000522501	200310	2003	3,538.94	PR033393	W7 FORCED DRAFT FAN - SERVICE	102403	W7 OH BLR LABOR HELPERS	P54697	GIORDANO'S PAINTING CO	supp
PIT259W07NEP0000522501	200310	2003	3,538.94	PR032663	W72 APH Cold End BASKET - REPLACEMENT	102403	W7 OH BLR LABOR HELPERS	P54697	GIORDANO'S PAINTING CO	supp
PIT259W07NEP0000522501	200310	2003	3,538.94	PR032662	W71 APH Cold End BASKETs REPLACEMENT	102403	W7 OH BLR LABOR HELPERS	P54697	GIORDANO'S PAINTING CO	supp
PIX259WSTNENPIZZZZZ501	200310	2003	(9,734.00)	PR026781	52 TRAVELING SCREEN INSTALL	HECO05-0	W-5 # 52 TRAVELING SCREEN - ASSE	P51599	HAWAIIAN DREDGING	supp
PIX259WSTNENPIZZZZZ501	200310	2003	(9,734.00)	PR026784	61 TRAVELING SCREEN INSTALL	HECO05-0	W-6 # 61 TRAVELING SCREEN - ASSE	P51599	HAWAIIAN DREDGING	supp
PIX259W05NENPIZZZZZ501	200310	2003	1,510.92	PR035388	W5: Boiler furnace Ewa/Makai hot spot,	HECO08-0	W-5 BOILER HOTSPOT WELDER SUF	P54153	HAWAIIAN DREDGING	supp
PIX259W05NENPIZZZZZ501	200310	2003	1,510.92	PR034981	W5 Blr Furnace hot spot, makai Waiklki	HECO08-0	W-5 BOILER HOTSPOT WELDER SUF	P54153	HAWAIIAN DREDGING	supp
PIT262K03NENPIZZZZZ501	200310	2003	3,140.38	PR034689	K3-Install cross braces in K31/K32	HECO08-0	K3 OH, 1 WELDER FROM HAW'N DRE	P53910	HAWAIIAN DREDGING	supp
PIT259W07NENPIZZZZZ501	200310	2003	3,647.92	PR019180	W71 APH CE BASKET RACKS Weld Repairs	HECO08-0	W7 OVERHAUL: JOURNEYMEN WELI	P55332	HAWAIIAN DREDGING	supp
PIT259W07NENPIZZZZZ501	200310	2003	3,647.92	PR019181	W72 APH CE BASKET Bottom RACKS Weld Rp	HECO08-0	W7 OVERHAUL: JOURNEYMEN WELI	P55332	HAWAIIAN DREDGING	supp
PIX257WSTNENPIZZZZZ501	200310	2003	10,231.01	PR028920	Waiau PP-Temporary Contract Workers	08-03A	WPP JOURNEYMAN TEMP HELP-SEF	P54396	HAWAIIAN DREDGING	supp
PIT257W07NEP0000522501	200310	2003	10,943.76	PR033399	W7 INSULATION;REFRAC;BLR CASE REPAIR	HECO08-0	W7 OVERHAUL: JOURNEYMEN WELI	P55332	HAWAIIAN DREDGING	supp
PIX262W07NENPIZZZZZ501	200310	2003	1,095.87	PR035712	W7 Esterline Angus(turb. Impluse temp)	OEC-3792	W7 CONTROL ROOM LEAD ABATEME	P55261	OHANA ENVIRONMENTAL	supp
PIT257W07NEP0000522501	200310	2003	6,370.86	PR033399	W7 INSULATION;REFRAC;BLR CASE REPAIR	43366	W7 OVHL INSULATOR SERVICES	P54530	PETROCHEM INSULATION INC.	supp
PIT258W07NEP0000522501	200310	2003	6,370.86	PR034945	W7 BLR FW PIPING - PREDICT MAINT	43366	W7 OVHL INSULATOR SERVICES	P54530	PETROCHEM INSULATION INC.	supp
PIT258W07NEP0000522501	200310	2003	6,370.86	PR034943	W7 STM PIPING HANGRS/SPTS-PREDICT MA	43366	W7 OVHL INSULATOR SERVICES	P54530	PETROCHEM INSULATION INC.	supp
PIT258W07NEP0000522501	200310	2003	12,741.72	PR032523	W7 INSPECT/REPAIR COLD/PRESS LINES	43366	W7 OVHL INSULATOR SERVICES	P54530	PETROCHEM INSULATION INC.	supp
PIT260W07NEP0000522501	200311	2003	2,883.23	PR033688	W7 GENERATOR ROTOR-SERVICE/TEST	2000-510	W7-GEN STATOR RE-WEDGE 100% L	P55608	AGT SERVICES	supp
PIT260W07NEP0000522501	200311	2003	72,080.65	PR033688	W7 GENERATOR ROTOR-SERVICE/TEST	2000-510	W7-GEN STATOR RE-WEDGE 100% L	P55608	AGT SERVICES	supp
PIX269WFSNENPIZZZZZ501	200311	2003	1,065.00	PR031764	Waiau Tank 1 Floor and wall Inspect and	11032003	Insulator assist 10/06-10/11	P56231	B & J INSULATION CO., INC.	supp
PIX878W03NENPIZZZZZ501	200311	2003	1,330.00	PR035236	W3 AUX STEAM-TANK YARD:RMV ASBESTOS	10152003E	W 3/4 asbestos remv/replace insualtion	P56285	B & J INSULATION CO., INC.	supp
PIX878W03NENPIZZZZZ501	200311	2003	1,330.00	PR035237	W3 FO RETURN LINE:RMV ASBESTOS	10152003E	W 3/4 asbestos remv/replace Insualtion	P56285	B & J INSULATION CO., INC.	supp
PIX878W03NENPIZZZZZ501	200311	2003	1,330.00	PR035234	W3 Asbestos abatment: FDWATER-ECON PIPE	10272003	W3/4 Asbestos removal: Insulator assis	P56146	B & J INSULATION CO., INC.	supp
PIX878W04NENPIZZZZZ501	200311	2003	1,330.00	PR035235	W4 FO SUPPLY OIL SUPPLY HDR:RMV ASBE	10272003	W3/4 Asbestos removal: Insulator assis	P56146	B & J INSULATION CO., INC.	supp
PIT261H09NEP0000138501	200311	2003	414.19	PR029998	H9 HP TURBINE OVERHAUL	10947	H-9 OVHL LABORER SVCS 11/25/02-1	P45536	BERING SEA ECCOTECH, INC.	supp
PIT261H09NEP0000138501	200311	2003	414.19	PR029757	H9 LP TURBINE OVERHAUL	10947	H-9 OVHL LABORER SVCS 11/25/02-1	P45536	BERING SEA ECCOTECH, INC.	supp
PIT262W07NEP0000522501	200311	2003	1,214.49	PR033689	W7 THROTTLE VALVES (2 EACH)	MJI-6720	W7 OVHL TM 2 EA MILLWRIGHT LABI	P54529	DIVERSIFIED ENERGY SERVICE	supp
PIT260W07NEP0000522501	200311	2003	1,214.51	PR033688	W7 GENERATOR ROTOR-SERVICE/TEST	MJI-6720	W7 OVHL TM 2 EA MILLWRIGHT LABI	P54529	DIVERSIFIED ENERGY SERVICE	supp
PIT261W07NEP0000522501	200311	2003	1,214.51	PR035159	W7 TURBINE STUB SHAFT ALIGNMENT	MJI-6720	W7 OVHL TM 2 EA MILLWRIGHT LABI	P54529	DIVERSIFIED ENERGY SERVICE	supp
PIT262W07NEP0000522501	200311	2003	1,214.51	PR033691	W7 REHEAT INTERCEPT VALVES-Service	MJI-6720	W7 OVHL TM 2 EA MILLWRIGHT LABI	P54529	DIVERSIFIED ENERGY SERVICE	supp
PIT262W07NEP0000522501	200311	2003	1,214.51	PR033690	W7 GOVERNOR VALVES/STEAM CHEST (6 E	MJI-6720	W7 OVHL TM 2 EA MILLWRIGHT LABI	P54529	DIVERSIFIED ENERGY SERVICE	supp
PIT257W07NEP0000522501	200311	2003	622.77	PR033400	W7 BLR ACCESS/EXPLO DOORS - SERVICE	110103	W7 OH BLR LABOR HELPERS	P54697	GIORDANO'S PAINTING CO	supp
PIT257W07NEP0000522501	200311	2003	622.77	PR033396	W7 BOILER AND AIR HEATER WASH	110103	W7 OH BLR LABOR HELPERS	P54697	GIORDANO'S PAINTING CO	supp
PIT259W07NEP0000522501	200311	2003	622.77	PR032663	W72 APH Cold End BASKET - REPLACEMENT	110103	W7 OH BLR LABOR HELPERS	P54697	GIORDANO'S PAINTING CO	supp
PIT259W07NEP0000522501	200311	2003	622.77	PR032662	W71 APH Cold End BASKETs REPLACEMENT	110103	W7 OH BLR LABOR HELPERS	P54697	GIORDANO'S PAINTING CO	supp
PIT257W07NEP0000522501	200311	2003	622.78	PR033393	W7 FORCED DRAFT FAN - SERVICE	110103	W7 OH BLR LABOR HELPERS	P54697	GIORDANO'S PAINTING CO	supp
PIX259W03NENPIZZZZZ501	200311	2003	3,997.60	PR035387	W3: Attemperator spray "check valve"	HECO10-0	W-3 ATTEMPERATOR CHECK & STOI	P55448	HAWAIIAN DREDGING	supp
PIT259W07NENPIZZZZZ501	200311	2003	5,865.79	PR019181	W72 APH CE BASKET Bottom RACKS Weld Rp	HECO10-0	W7 OVERHAUL: JOURNEYMEN WELI	P55332	HAWAIIAN DREDGING	supp
PIT259W07NENPIZZZZZ501	200311	2003	5,865.80	PR019180	W71 APH CE BASKET RACKS Weld Repairs	HECO10-0	W7 OVERHAUL: JOURNEYMEN WELI	P55332	HAWAIIAN DREDGING	supp
PIX257WSTNENPIZZZZZ501	200311	2003	14,292.57	PR028920	Waiau PP-Temporary Contract Workers	HECO10-0	WPP-HAWAIIAN DREDGING TEMP HE	P55773	HAWAIIAN DREDGING	supp
PIT257W07NEP0000522501	200311	2003	17,597.39	PR033399	W7 INSULATION;REFRAC;BLR CASE REPAIR	HECO10-0	W7 OVERHAUL: JOURNEYMEN WELI	P55332	HAWAIIAN DREDGING	supp
PIX878WSTNENPIZZZZZ501	200311	2003	3,294.98	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-3876	WPP-W3 ASBESTOS CLEAN UP & SE	P56418	OHANA ENVIRONMENTAL	supp
PIN259HSTNENPIZZZZZ501	200311	2003	3,749.98	PR036191	HPP ASBESTOS CONTAINER REPAIRS	OEC-3877	HPP ASBESTOS BIN WELD/PAINT RE	P55447	OHANA ENVIRONMENTAL	supp

ACCOUNT_CODE	LL_PERI	TransYr	AMT	Work_Order	Work_Order_Desc	Inv_No	Inv_Item_Desc	PO_No	Supplier_Name	SVC_Typ
PIX878WSTNENPIZZZZZ501	200311	2003	4,936.34	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-3857	WPP-W3 PSH TUBE ASBESTOS ABA	P55993	OHANA ENVIRONMENTAL	supp
PIX878W06NENPIZZZZZ501	200311	2003	7,380.57	PR035834	W-6 economizer outlet duct's insulation	OEC-3781	W-6 ECONOMIZER OUTLET HEADER	P55036	OHANA ENVIRONMENTAL	supp
PIT257W07NEP0000522501	200311	2003	1,961.20	PR033399	W7 INSULATION;REFRAC;BLR CASE REPAIR	43619	W7 OVHL INSULATOR SERVICES	P54530	PETROCHEM INSULATION INC.	supp
PIT258W07NEP0000522501	200311	2003	1,961.21	PR034945	W7 BLR FW PIPING - PREDICT MAINT	43619	W7 OVHL INSULATOR SERVICES	P54530	PETROCHEM INSULATION INC.	supp
PIT258W07NEP0000522501	200311	2003	1,961.21	PR034943	W7 STM PIPING HANGRS/SPTS-PREDICT MA	43619	W7 OVHL INSULATOR SERVICES	P54530	PETROCHEM INSULATION INC.	supp
PIT258W07NEP0000522501	200311	2003	3,922.42	PR032523	W7 INSPECT/REPAIR COLD/PRESS LINES	43619	W7 OVHL INSULATOR SERVICES	P54530	PETROCHEM INSULATION INC.	supp
PIX259W03NENPIZZZZZ501	200312	2003	2,660.00	PR037362	W3 Asbestos clean up	12162003/	W-3 ASBESTOS CLEANUP	P57682	B & J INSULATION CO., INC.	supp
PIN262H08NENPIZZZZZ501	200312	2003	291.22	PR000260	HONOLULU STATION CONDENSER CLEANIN	11080	CONDENSER CLEANER HELPERS AL	P53901	BERING SEA ECCOTECH, INC.	supp
PIX259W07NENPIZZZZZ501	200312	2003	331.25	PR034056	W07 drain line for #71 aph sootblowing	11068	W7 OH- LABOR HELPER ASSIST 09/2	P57375	BERING SEA ECCOTECH, INC.	supp
PIX259W07NENPIZZZZZ501	200312	2003	331.25	PR034056	W07 drain line for #71 aph sootblowing	11070	W7 OH- LABOR HELPER ASSIST 09/2	P57375	BERING SEA ECCOTECH, INC.	supp
PIT260W07NEP0000522501	200312	2003	501.66	PR033435	W7 CHILLER STRAINERS PREVENTIVE	11060	W7 OVHL COND CREW 4 EA LABOR ,	P54472	BERING SEA ECCOTECH, INC.	supp
PIX257WSTNENPIZZZZZ501	200312	2003	524.48	PR028920	Waiau PP-Temporary Contract Workers	11100	WPP-LABOR ASSIST NOVEMBER 03	P56685	BERING SEA ECCOTECH, INC.	supp
PIX259W07NENPIZZZZZ501	200312	2003	552.08	PR034056	W07 drain line for #71 aph sootblowing	11069	W7 OH- LABOR HELPER ASSIST 09/2	P57375	BERING SEA ECCOTECH, INC.	supp
PIX259W07NENPIZZZZZ501	200312	2003	552.08	PR034056	W07 drain line for #71 aph sootblowing	11072	W7 OH- LABOR HELPER ASSIST 09/2	P57375	BERING SEA ECCOTECH, INC.	supp
PIL262K01NENPIZZZZZ501	200312	2003	582.45	PR000264	KAHE CONDENSER CLEANING	11080	CONDENSER CLEANER HELPERS AL	P53901	BERING SEA ECCOTECH, INC.	supp
PIX262W03NENPIZZZZZ501	200312	2003	582.45	PR000261	WAIAU STATION CONDENSER CLEANING	11080	CONDENSER CLEANER HELPERS AL	P53901	BERING SEA ECCOTECH, INC.	supp
PIT261W07NEP0000522501	200312	2003	752.50	PR033434	W7 CHILLER PREDICTIVE	11060	W7 OVHL COND CREW 4 EA LABOR ,	P54472	BERING SEA ECCOTECH, INC.	supp
PIX259W07NENPIZZZZZ501	200312	2003	764.71	PR034056	W07 drain line for #71 aph sootblowing	11071	W7 OH- LABOR HELPER ASSIST 09/2	P57375	BERING SEA ECCOTECH, INC.	supp
PIX259WSTNENPIZZZZZ501	200312	2003	827.76	PR034263	#1FOT: Repair vent valve on hater.	10977	WPP FO TANK #1 OIL CLEANUP/LEA	P52992	BERING SEA ECCOTECH, INC.	supp
PIL259K04NENPIZZZZZ501	200312	2003	851.35	PR035644	CLEAN UP OIL SPILL AT K4 SFOPS 9/8/03	11079	K-4 CLEAN OIL SPILL FO PUMP JOB	P56972	BERING SEA ECCOTECH, INC.	supp
PIX257WSTNENPIZZZZZ501	200312	2003	883.33	PR028920	Waiau PP-Temporary Contract Workers	11074	WPP-LABOR ASSIST NOVEMBER 03	P56685	BERING SEA ECCOTECH, INC.	supp
PIT257K04NEP0000655501	200312	2003	931.86	PR035849	K4 BLR OBSERVATION PORTS - SERVICE	11101	K4 OH. (4) COTRACT HELPERS FOR	P56548	BERING SEA ECCOTECH, INC.	supp
PIT257K04NEP0000655501	200312	2003	931.87	PR035865	K4 BLR DRAFT MANUAL DAMPERS - SERVICI	11101	K4 OH. (4) COTRACT HELPERS FOR	P56548	BERING SEA ECCOTECH, INC.	supp
PIT258K04NEP0000655501	200312	2003	931.87	PR036613	K4 OH PERFORM 100% ECT ON 44 FWH TUB	11101	K4 OH. (4) COTRACT HELPERS FOR	P56548	BERING SEA ECCOTECH, INC.	supp
PIT258K04NEP0000655501	200312	2003	931.87	PR036614	K4 OH PERFORM 100% ECT ON 45 FWH TUB	11101	K4 OH. (4) COTRACT HELPERS FOR	P56548	BERING SEA ECCOTECH, INC.	supp
PIX257WSTNENPIZZZZZ501	200312	2003	1,062.75	PR028920	Waiau PP-Temporary Contract Workers	11073	WPP-LABOR ASSIST NOVEMBER 03	P56685	BERING SEA ECCOTECH, INC.	supp
PIX259W03NENPIZZZZZ501	200312	2003	1,104.16	PR028290	W31 SFOP-fuel oil booster pump packing	11067	W-3 FO PUMP LABOR ASSISTS, JOB	P57383	BERING SEA ECCOTECH, INC.	supp
PIX257WSTNENPIZZZZZ501	200312	2003	1,196.61	PR028920	Waiau PP-Temporary Contract Workers	11078	WPP-LABOR ASSIST NOVEMBER 03	P56685	BERING SEA ECCOTECH, INC.	supp
PIT261W07NEP0000522501	200312	2003	1,254.16	PR033431	W7 CONDENSER TESTING/INSPECTION	11060	W7 OVHL COND CREW 4 EA LABOR ,	P54472	BERING SEA ECCOTECH, INC.	supp
PIX265WT1NENPIZZZZZ501	200312	2003	1,345.30	PR032606	W8: EDR A stack top burnt. Burnt around	10974	W8 EDR: XE LABOR ASSISTS	P56531	BERING SEA ECCOTECH, INC.	supp
PIX259W08NENPIZZZZZ501	200312	2003	1,479.16	PR036331	W8: APH wash prerequisites...	11083	W-8 Air Heater Wash - Provide contract	P55690	BERING SEA ECCOTECH, INC.	supp
PIT257K04NEP0000655501	200312	2003	1,863.74	PR035678	K4 BOILER AND AIR HEATER WASH	11101	K4 OH. (4) COTRACT HELPERS FOR	P56548	BERING SEA ECCOTECH, INC.	supp
PIT257K04NEP0000655501	200312	2003	1,863.74	PR036536	K4 42 APH REPLACE AIR PREHEATER BASKE	11101	K4 OH. (4) COTRACT HELPERS FOR	P56548	BERING SEA ECCOTECH, INC.	supp
PIT257K04NEP0000655501	200312	2003	1,863.74	PR036535	K4 41 APH REPLACE AIR PREHEATER BASKE	11101	K4 OH. (4) COTRACT HELPERS FOR	P56548	BERING SEA ECCOTECH, INC.	supp
PIL259K06NENPIZZZZZ501	200312	2003	2,246.34	PR036743	LB-K6 APH WASH 11/11/03, ASSIST OPS	11088	K-6 OUTAGE HELPERS OUTAGE 11/1	P56983	BERING SEA ECCOTECH, INC.	supp
PIL262K05NENPIZZZZZ501	200312	2003	2,246.34	PR036627	LB-K51 CHILLER CLEANING 11/03 OUTAGE	11088	K-6 OUTAGE HELPERS OUTAGE 11/1	P56983	BERING SEA ECCOTECH, INC.	supp
PIT261K04NEP0000655501	200312	2003	2,504.15	PR036782	K4 HP/IP/LP Turbine Overhaul-11/03	11102	K4 OVH LABOR ASSIST 2 MEN/ 8 WEI	P56447	BERING SEA ECCOTECH, INC.	supp
PIT258K04NEP0000655501	200312	2003	2,624.98	PR036614	K4 OH PERFORM 100% ECT ON 45 FWH TUB	11103	K4 OH. HYDROBLAST 7 HEAT EXCHA	P56682	BERING SEA ECCOTECH, INC.	supp
PIN262H08NENPIZZZZZ501	200312	2003	2,642.54	PR000260	HONOLULU STATION CONDENSER CLEANIN	11059	CONDENSER CLEANER HELPERS AL	P53901	BERING SEA ECCOTECH, INC.	supp
PIT257W07NEP0000522501	200312	2003	3,248.61	PR033393	W7 FORCED DRAFT FAN - SERVICE	11062	W7 OVHL BOILER 4 EA LABOR ASSIS	P54532	BERING SEA ECCOTECH, INC.	supp
PIT257W07NEP0000522501	200312	2003	3,248.63	PR033396	W7 BOILER AND AIR HEATER WASH	11062	W7 OVHL BOILER 4 EA LABOR ASSIS	P54532	BERING SEA ECCOTECH, INC.	supp
PIT257W07NEP0000522501	200312	2003	3,248.63	PR033400	W7 BLR ACCESS/EXPLO DOORS - SERVICE	11062	W7 OVHL BOILER 4 EA LABOR ASSIS	P54532	BERING SEA ECCOTECH, INC.	supp
PIT259W07NEP0000522501	200312	2003	3,248.63	PR032662	W71 APH Cold End BASKETs REPLACEMENT	11062	W7 OVHL BOILER 4 EA LABOR ASSIS	P54532	BERING SEA ECCOTECH, INC.	supp
PIT259W07NEP0000522501	200312	2003	3,248.63	PR032663	W72 APH Cold End BASKET - REPLACEMENT	11062	W7 OVHL BOILER 4 EA LABOR ASSIS	P54532	BERING SEA ECCOTECH, INC.	supp
PIN262H08NENPIZZZZZ501	200312	2003	3,558.26	PR000260	HONOLULU STATION CONDENSER CLEANIN	11077	CONDENSER CLEANER HELPERS AL	P53901	BERING SEA ECCOTECH, INC.	supp
PIX262W03NENPIZZZZZ501	200312	2003	4,186.17	PR000261	WAIAU STATION CONDENSER CLEANING	10982	W3/4 CONDENSER CLEANER HELPEI	P57384	BERING SEA ECCOTECH, INC.	supp
PIX257WSTNENPIZZZZZ501	200312	2003	4,596.06	PR028920	Waiau PP-Temporary Contract Workers	11061	WPP TEMP HELP FOR SEPTEMBER (	P54397	BERING SEA ECCOTECH, INC.	supp
PIX257WSTNENPIZZZZZ501	200312	2003	5,228.09	PR028920	Waiau PP-Temporary Contract Workers	11076	WPP-BSE TEMP HELPER FOR OCTOI	P55613	BERING SEA ECCOTECH, INC.	supp
PIL262K01NENPIZZZZZ501	200312	2003	5,285.07	PR000264	KAHE CONDENSER CLEANING	11059	CONDENSER CLEANER HELPERS AL	P53901	BERING SEA ECCOTECH, INC.	supp
PIX262W03NENPIZZZZZ501	200312	2003	5,285.07	PR000261	WAIAU STATION CONDENSER CLEANING	11059	CONDENSER CLEANER HELPERS AL	P53901	BERING SEA ECCOTECH, INC.	supp
PIX259W03NENPIZZZZZ501	200312	2003	5,299.97	PR028290	W31 SFOP-fuel oil booster pump packing	10951	W-3 FO PUMP LABOR ASSISTS, JOB	P57383	BERING SEA ECCOTECH, INC.	supp
PIT260W07NEP0000522501	200312	2003	5,663.77	PR033688	W7 GENERATOR ROTOR-SERVICE/TEST	11064	W7 OH TM HELPERS LABOR ASISTS	P54448	BERING SEA ECCOTECH, INC.	supp
PIL271KTFNENPIZZZZZ501	200312	2003	6,956.25	PR027107	Collect $- Kahe Valves & Packing Maint.	10557REV	KAHE MAINTENANCE LABOR ASSIST	P43991	BERING SEA ECCOTECH, INC.	supp
PIX262W03NENPIZZZZZ501	200312	2003	7,116.51	PR000261	WAIAU STATION CONDENSER CLEANING	11077	CONDENSER CLEANER HELPERS AL	P53901	BERING SEA ECCOTECH, INC.	supp
PIL262K01NENPIZZZZZ501	200312	2003	7,116.52	PR000264	KAHE CONDENSER CLEANING	11077	CONDENSER CLEANER HELPERS AL	P53901	BERING SEA ECCOTECH, INC.	supp
PIL271KTFNENPIZZZZZ501	200312	2003	11,103.83			10557REV	KAHE MAINTENANCE LABOR ASSIST	P43993	BERING SEA ECCOTECH, INC.	supp
PIT261K04NEP0000655501	200312	2003	4,124.74	PR036782	K4 HP/IP/LP Turbine Overhaul-11/03	MJI-6729	K4 OVHL MACHINEST ASSISTS 1 MAI	P56454	DIVERSIFIED ENERGY SERVICE	supp

ACCOUNT_CODE	LL_PERI	TransYr	AMT	Work_Order	Work_Order_Desc	Inv_No	Inv_Item_Desc	PO_No	Supplier_Name	SVC_Typ
PIT261K04NEP0000655501	200312	2003	8,393.21	PR036782	K4 HP/IP/LP Turbine Overhaul-11/03	MJI-6735	K4 OVHL MACHINEST ASSISTS 1 MAI	P56454	DIVERSIFIED ENERGY SERVICE	supp
PIL258K06NENPIZZZZZ501	200312	2003	676.83	PR034625	K6 SSH T-22 OXIDE SCALE READINGS 2003	113003	KAHE 6 SHUTDOWN 2 EA LABOR AS	P57099	GIORDANO'S PAINTING CO	supp
PIT257K03NEP0000655501	200312	2003	814.95	PR035847	K4 BLR ACCESS/EXPLO DOORS - SERVICE	121203	K4 OH, 2 CONTRACT HELPERS 8WK	P56527	GIORDANO'S PAINTING CO	supp
PIT257K04NEP0000655501	200312	2003	814.95	PR035678	K4 BOILER AND AIR HEATER WASH	121203	K4 OH, 2 CONTRACT HELPERS 8WK	P56527	GIORDANO'S PAINTING CO	supp
PIT258K04NEP0000655501	200312	2003	814.95	PR035725	K4 OH ECON TUBES/HEADERS PRED MAINT	121203	K4 OH, 2 CONTRACT HELPERS 8WK	P56527	GIORDANO'S PAINTING CO	supp
PIT258K04NEP0000655501	200312	2003	814.95	PR035726	K4 PSH TUBE/HEADERS-PRED MAINT (BRUI	121203	K4 OH, 2 CONTRACT HELPERS 8WK	P56527	GIORDANO'S PAINTING CO	supp
PIT257K04NEP0000655501	200312	2003	1,629.89	PR036535	K4 41 APH REPLACE AIR PREHEATER BASKE	121203	K4 OH, 2 CONTRACT HELPERS 8WK	P56527	GIORDANO'S PAINTING CO	supp
PIT257K04NEP0000655501	200312	2003	1,629.89	PR036536	K4 42 APH REPLACE AIR PREHEATER BASKE	121203	K4 OH, 2 CONTRACT HELPERS 8WK	P56527	GIORDANO'S PAINTING CO	supp
PIT258K04NEP0000655501	200312	2003	1,629.89	PR035730	K4 STM PPG HGRS/SPTS-PRED MAINT (BRUI	121203	K4 OH, 2 CONTRACT HELPERS 8WK	P56527	GIORDANO'S PAINTING CO	supp
PIT258K04NEP0000655501	200312	2003	431.27	PR036614	K4 OH PERFORM 100% ECT ON 45 FWH TUB	HECO11-0	K-4 OVHL. 3 JOURNEYMAN WELDER:	P57092	HAWAIIAN DREDGING	supp
PIT257K04NEP0000655501	200312	2003	862.54	PR036535	K4 41 APH REPLACE AIR PREHEATER BASKE	HECO11-0	K-4 OVHL. 3 JOURNEYMAN WELDER:	P57092	HAWAIIAN DREDGING	supp
PIT257K04NEP0000655501	200312	2003	862.54	PR036536	K4 42 APH REPLACE AIR PREHEATER BASKE	HECO11-0	K-4 OVHL. 3 JOURNEYMAN WELDER:	P57092	HAWAIIAN DREDGING	supp
PIX242WSTNENPIZZZZZ501	200312	2003	1,250.31	PR025570	W07 DW make-up come and go line leaking	HECO10-0	W-7&8 Serv. Air Compressor/Condensa	P55810	HAWAIIAN DREDGING	supp
PIX259W06NENPIZZZZZ501	200312	2003	1,501.30	PR036619	W6: Boiler waterwall tube leak...	HECO11-0	WPP-W6 ARCH TUBE LEAK HD TO SI	P56417	HAWAIIAN DREDGING	supp
PIT258K04NEP0000655501	200312	2003	2,587.63	PR027074	K4 - Replace DMWs on Rows 25,26,27 &28	HECO11-0	K-4 OVHL. 3 JOURNEYMAN WELDER:	P57092	HAWAIIAN DREDGING	supp
PIX257WSTNENPIZZZZZ501	200312	2003	8,172.24	PR028920	Waiau PP-Temporary Contract Workers	HECO11-0	WPP-HAWAIIAN DREDGING TEMP LA	P56631	HAWAIIAN DREDGING	supp
PIX878WSTNENPIZZZZZ501	200312	2003	1,250.00	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-3808	WAIAU ASBESTOS BIN - DISPOSAL	P57326	OHANA ENVIRONMENTAL	supp
PIX259W07NENPIZZZZZ501	200312	2003	2,014.38	PR036811	W7: Aux steam piping leak above reboiler	OEC-3893	W-7 Asbestos Abatement Above Reboil	P56703	OHANA ENVIRONMENTAL	supp
PIX258W08NENPIZZZZZ501	200312	2003	2,486.95	PR034585	XB\FWH reducing orifice blown/valve leak	OEC-3821	W8 FWH : Remove asbestos	P55612	OHANA ENVIRONMENTAL	supp
PIT258K04NEP0000655501	200312	2003	815.72	PR036614	K4 OH PERFORM 100% ECT ON 45 FWH TUB	51368H	K4 OH, CONTRACT INSULATOR HELF	P56498	PETROCHEM INSULATION INC.	supp
PIT258K04NEP0000655501	200312	2003	815.73	PR035852	K4 WW/DOWNCOMER/HDR-PREDICTIVE MAI	51368H	K4 OH, CONTRACT INSULATOR HELF	P56498	PETROCHEM INSULATION INC.	supp
PIT258K04NEP0000655501	200312	2003	815.73	PR036613	K4 OH PERFORM 100% ECT ON 44 FWH TUB	51368H	K4 OH, CONTRACT INSULATOR HELF	P56498	PETROCHEM INSULATION INC.	supp
PIT261K04NEP0000655501	200312	2003	815.73	PR036617	K4 OH PERFORM 100% ECT ON 43 FWH TUB	51368H	K4 OH, CONTRACT INSULATOR HELF	P56498	PETROCHEM INSULATION INC.	supp
PIT258K04NEP0000655501	200312	2003	1,631.46	PR035730	K4 STM PPG HGRS/SPTS-PRED MAINT (BRUI	51368H	K4 OH, CONTRACT INSULATOR HELF	P56498	PETROCHEM INSULATION INC.	supp
PIT258K04NEP0000655501	200312	2003	1,631.46	PR035850	K4 BLR FW PIPING - PREDICT MAINT	51368H	K4 OH, CONTRACT INSULATOR HELF	P56498	PETROCHEM INSULATION INC.	supp
PIT259K04NEP0000655501	200312	2003	9,788.75	PR035724	K4 OH INSULATION;REFRAC;BLR CASE REP/	51368H	K4 OH, CONTRACT INSULATOR HELF	P56498	PETROCHEM INSULATION INC.	supp
PIT258K05NEP0000519501	200406	2004	10,231.44	PR039258	K5 BOILER CHEMICAL CLEANING 4/04	11432	K5 BCC, (4 EA) FRAC TANKS, APPRC	P62082	BERING SEA ECCOTECH, INC.	other
PIL258K03NENPIZZZZZ501	200408	2004	3,770.81	PR036526	LE/LM-K31SSWP MTR INSPECT BEARINGS	0406014	K31 SSWP - CRANE RENTAL 3 DAY LI	P63486	HAWAIIAN CRANE & RIGGING L	other
PIT258W03NEP0000249501	200410	2004	4,618.72	PR041587	W3 Boiler Chemical Clean	11638	W3 OH BLR CHEM CLEAN FRAC TANI	P67743	BERING SEA ECCOTECH, INC.	other
PIT261K04NEP0000655501	200401	2004	22.99	PR036126	K4 GENERATOR STATOR-SERVICE/INSPECT	2000-536	K4 OH. GEN STATOR INSPECTION	P56932	AGT SERVICES	skill
PIT261K04NEP0000655501	200401	2004	574.43	PR036126	K4 GENERATOR STATOR-SERVICE/INSPECT	2000-536	K4 OH. GEN STATOR INSPECTION	P56932	AGT SERVICES	skill
PIX259W06NENPIZZZZZ501	200401	2004	3,000.00	PR037762	W6 Economizer has a leak on the inlet	1170246DI	W-6 ECONO INLET HEADER LEAK SC	P58044	ATLAS SALES CO., INC. - KAPOI	skill
PIT261K04NEP0000655501	200401	2004	829.10	PR036616	K4 OH AIR EJECTOR CND 100% ECT ON TUB	11161	K4 OH. HYDROBLAST 7 HEAT EXCHA	P56682	BERING SEA ECCOTECH, INC.	skill
PIT261K04NEP0000655501	200401	2004	829.10	PR036615	K4 OH GLAND STM CND 100% ECT ON TUBE	11161	K4 OH. HYDROBLAST 7 HEAT EXCHA	P56682	BERING SEA ECCOTECH, INC.	skill
PIT261K04NEP0000655501	200401	2004	1,243.64	PR036178	K4 LUBE OIL CLRS-ECT TEST/CLEAN/INSPEC	11161	K4 OH. HYDROBLAST 7 HEAT EXCHA	P56682	BERING SEA ECCOTECH, INC.	skill
PIT258K04NEP0000655501	200401	2004	1,243.65	PR036721	K4 OH PERFORM 100% ECT ON 42 FWH TUB	11161	K4 OH. HYDROBLAST 7 HEAT EXCHA	P56682	BERING SEA ECCOTECH, INC.	skill
PIT258K04NEP0000655501	200401	2004	1,243.65	PR036613	K4 OH PERFORM 100% ECT ON 44 FWH TUB	11161	K4 OH. HYDROBLAST 7 HEAT EXCHA	P56682	BERING SEA ECCOTECH, INC.	skill
PIT261K04NEP0000655501	200401	2004	1,243.65	PR036617	K4 OH PERFORM 100% ECT ON 43 FWH TUB	11161	K4 OH. HYDROBLAST 7 HEAT EXCHA	P56682	BERING SEA ECCOTECH, INC.	skill
PIT258K04NEP0000655501	200401	2004	1,658.20	PR036614	K4 OH PERFORM 100% ECT ON 45 FWH TUB	11161	K4 OH. HYDROBLAST 7 HEAT EXCHA	P56682	BERING SEA ECCOTECH, INC.	skill
PIX265W05NENPIZZZZZ501	200401	2004	1,786.08	PR036874	Solar Gen Diesel Tank Inspection/Modify	11164	WPP-PUMP OUT SOLAR DIESEL TAN	P58287	BERING SEA ECCOTECH, INC.	skill
PIT261K04NEP0000655501	200401	2004	4,530.96	PR036782	K4 HP/IP/LP Turbine Overhaul-11/03	MJI-6741	K-4 OVHL SUP/ INSTALL 10TH SPILL S	P57999	DIVERSIFIED ENERGY SERVICE	skill
PIT261K04NEP0000655501	200401	2004	13,020.00	PR036782	K4 HP/IP/LP Turbine Overhaul-11/03	MJI-6740	K-5 TURB MAJOR RPRS 3RD STAGE I	P57886	DIVERSIFIED ENERGY SERVICE	skill
PIT261K04NEP0000655501	200401	2004	22,915.20	PR036782	K4 HP/IP/LP Turbine Overhaul-11/03	MJI-6740	K-5 TURB MAJOR RPRS 10TH STAGE	P57886	DIVERSIFIED ENERGY SERVICE	skill
PIT261K04NEP0000655501	200401	2004	27,914.88	PR036782	K4 HP/IP/LP Turbine Overhaul-11/03	MJI-6740	K-5 TURB MINOR RPRS ON 4TH 5TH	P57886	DIVERSIFIED ENERGY SERVICE	skill
PIT258K04NEP0000655501	200401	2004	535.20	PR035852	K4 WW/DOWNCOMER/HDR-PREDICTIVE MAI	3315	KAHE 4 - 2003 BRULS & HIEL NDE INS	P56409	FINLAY TESTING LABORATORIE	skill
PIT258K04NEP0000655501	200401	2004	535.20	PR035730	K4 STM PPG HGRS/SPTS-PRED MAINT (BRUI	3315	KAHE 4 - 2003 BRULS & HIEL NDE INS	P56409	FINLAY TESTING LABORATORIE	skill
PIT258K04NEP0000655501	200401	2004	535.20	PR035726	K4 PSH TUBE/HEADERS-PRED MAINT (BRUI	3315	KAHE 4 - 2003 BRULS & HIEL NDE INS	P56409	FINLAY TESTING LABORATORIE	skill
PIT258K04NEP0000655501	200401	2004	535.20	PR035850	K4 BLR FW PIPING - PREDICT MAINT	3315	KAHE 4 - 2003 BRULS & HIEL NDE INS	P56409	FINLAY TESTING LABORATORIE	skill
PIT258K04NEP0000655501	200401	2004	535.22	PR035725	K4 OH ECON TUBES/HEADERS PRED MAINT	3315	KAHE 4 - 2003 BRULS & HIEL NDE INS	P56409	FINLAY TESTING LABORATORIE	skill
PIT258K04NEP0000655501	200401	2004	1,919.52	PR027074	K4 - Replace DMWs on Rows 25,26,27 &28	3344	K-4 OVHL BLR/SSH RT SVCS FOR 10	P58328	FINLAY TESTING LABORATORIE	skill
PIT258K04NEP0000655501	200401	2004	535.20	PR035852	K4 WW/DOWNCOMER/HDR-PREDICTIVE MAI	3315	KAHE 4 - 2003 BRULS & HIEL NDE INS	P56409	FINLAY TESTING LABORATORIE	skill
PIT258K04NEP0000655501	200401	2004	535.20	PR035730	K4 STM PPG HGRS/SPTS-PRED MAINT (BRUI	3315	KAHE 4 - 2003 BRULS & HIEL NDE INS	P56409	FINLAY TESTING LABORATORIE	skill
PIT258K04NEP0000655501	200401	2004	535.20	PR035726	K4 PSH TUBE/HEADERS-PRED MAINT (BRUI	3315	KAHE 4 - 2003 BRULS & HIEL NDE INS	P56409	FINLAY TESTING LABORATORIE	skill
PIT258K04NEP0000655501	200401	2004	535.20	PR035850	K4 BLR FW PIPING - PREDICT MAINT	3315	KAHE 4 - 2003 BRULS & HIEL NDE INS	P56409	FINLAY TESTING LABORATORIE	skill
PIT258K04NEP0000655501	200401	2004	535.22	PR035725	K4 OH ECON TUBES/HEADERS PRED MAINT	3315	KAHE 4 - 2003 BRULS & HIEL NDE INS	P56409	FINLAY TESTING LABORATORIE	skill
PIT258K04NEP0000655501	200401	2004	1,919.52	PR027074	K4 - Replace DMWs on Rows 25,26,27 &28	3344	K-4 OVHL BLR/SSH RT SVCS FOR 10	P58328	FINLAY TESTING LABORATORIE	skill
PIT260K04NEP0000655501	200401	2004	3,954.00	PR036173	K4 LUBE OIL RESERVOIR/BOWSER/FILTERS	10204	K-4 PREP & PAINT BROWSER TANK &	P58009	GIORDANO'S PAINTING CO	skill

TransYr	AMT	Work_Order	Work_Order_Desc	Inv_No	Inv_Item_Desc	PO_No	Supplier_Name	SVC Typ
2004	4,917.68	PR036542	LB K6 #61 Travel Screen shear pin broken	0401005	K-61 TRAV SCREEN 350T CRANE/OPI	P58004	HAWAIIAN CRANE & RIGGING L	skill
2004	9,243.92	PR033901	W5 AUX XFMR Removal of Hazardous Solids	2155	W-5 Dig, Transport, Dispose xformer ro	P57319	HAZTECH ENVIRONMENTAL SE	skill
2004	9,243.92	PR033900	W5 Main XFMR Removal of Hazardous Solids	2155	W-5 Dig, Transport, Dispose xformer ro	P57319	HAZTECH ENVIRONMENTAL SE	skill
2004	10,913.51	PR036782	K4 HP/IP/LP Turbine Overhaul-11/03	03-Y058F	K4 OVHL L&E TO PERFORM SAND BL	P56455	HONOLULU SHIPYARD INC	skill
2004	2,018.74	PR036844	XM -W 42 BFP. Water in oil, Inboard	28087	W4 #42 BFP BEARING: REBABBIT	P57856	HONOMACH INC	skill
2004	2,526.03	PR037063	W4FDLS Fan Mtr sparking during starting	28084	W4 LS FAN IB BEARING: RE-BABBIT	P57855	HONOMACH INC	skill
2004	1,066.10	PR000016	SWO-WAIAU STATION COMMON ROUTINES	41405.1	RECAL & REPAIR HERSHY METER	P56904	PROCESS CONTROLS, INC.	skill
2004	286.46	PR035678	K4 BOILER AND AIR HEATER WASH	D003882	K4 1ST FLR HOPPER REPAIRS SCAFI	P57847	SAFWAY SERVICES, INC.	skill
2004	870.62	PR031175	Sandblast, prime and re-paint	R003977	DIESEL TANK # 2 - SUSPENDED SCAI	P53410	SAFWAY SERVICES, INC.	skill
2004	1,471.19	PR031175	Sandblast, prime and re-paint	R003990	DIESEL TANK # 2 - SUSPENDED SCAI	P53410	SAFWAY SERVICES, INC.	skill
2004	1,000.00	PR025570	W07 DW make-up come and go line leaking	HECO03-0	W-8 Condensate "Come & Go" Line	P55811	SPCC AND CONSULTING	skill
2004	479.16	PR003583	W6:ECONOMIZER HEADER BRACKET(S) REF	1173045D	W-6 ECONOMIZER OUTLET DUCT IN	P55034	ATLAS SALES CO., INC. - KAPOI	skill
2004	1,440.67	PR036685	W6 Replace Rear WW Tubes @ Arch	11223	W-6 ARCH TUBE PRESSURE WASHIN	P59123	BERING SEA ECCOTECH, INC.	skill
2004	3,906.23	PR000244	SWO-HAZARD WSTE DISPOSAL (HONOLULU	04-1-7013	HPP REMVL & DISPSL MISC WASTE	P58873	ENVIROSERVICES & TRAINING	skill
2004	841.14	PR036685	W6 Replace Rear WW Tubes @ Arch	3404	W6 ARCH TUBE REPAIR X-RAY	P59795	FINLAY TESTING LABORATORIE	skill
2004	841.14	PR036685	W6 Replace Rear WW Tubes @ Arch	3404	W6 ARCH TUBE REPAIR X-RAY	P59795	FINLAY TESTING LABORATORIE	skill
2004	80.00	PR034443	K4 FD WTR BYPASS 4VFC-10 LEAKS THROU	11504	K4 OH. SANDBLAST & PRIME VLV AC	P58159	GIORDANO'S PAINTING CO	skill
2004	120.00	PR035759	K4 COMBUSTION CONTROL CV 4VPC-7	11504	K4 OH. SANDBLAST & PRIME VLV AC	P58159	GIORDANO'S PAINTING CO	skill
2004	120.00	PR035761	K4 4VPC-20 IK SOOTBLOWER CV SERVICE	11504	K4 OH. SANDBLAST & PRIME VLV AC	P58159	GIORDANO'S PAINTING CO	skill
2004	120.00	PR035762	K4 4VPC-21 AIR HTR SB CV SERVICE	11504	K4 OH. SANDBLAST & PRIME VLV AC	P58159	GIORDANO'S PAINTING CO	skill
2004	120.00	PR035736	K4 OH 43 FWH NORM LVL DRN CV 4VLC-11	11504	K4 OH. SANDBLAST & PRIME VLV AC	P58159	GIORDANO'S PAINTING CO	skill
2004	120.00	PR036366	K4 AUX STMTO REBLR 4VPC-3 LEAKS THRU	11504	K4 OH. SANDBLAST & PRIME VLV AC	P58159	GIORDANO'S PAINTING CO	skill
2004	120.00	PR037485	K4 4VPC-15 BURNER AUX STM PRESS CV RI	11504	K4 OH. SANDBLAST & PRIME VLV AC	P58159	GIORDANO'S PAINTING CO	skill
2004	1,200.00	PR035961	K41 CHILLER CLEAN/ECT TEST/TEST TUBES	13104	K4 CHILLER COATING REPAIRS, TW	P58006	GIORDANO'S PAINTING CO	skill
2004	7,125.00	PR022124	K4 41 CIRC PUMP BASE PRESERVATION	12304	K4 41 & 42 CWP BASE, MTR & PIPING	P58238	GIORDANO'S PAINTING CO	skill
2004	7,125.00	PR037903	K4 #42 CIRC PUMP BASE PRESERVATION	12304	K4 41 & 42 CWP BASE, MTR & PIPING	P58238	GIORDANO'S PAINTING CO	skill
2004	43,748.72	PR037047	W8 CWS Tunnel Cleaning (Jan '04)	31550	W8 CW INLET TUNNEL CLEANING	P57278	GLOBAL ENVIRONMENTAL SVC	skill
2004	1,195.96	PR038018	K51 CIRCULATING WATER PP MOTOR SERVI	0402013	KAHE 350T CRANE FOR 2/10/04 TO 2	P59242	HAWAIIAN CRANE & RIGGING L	skill
2004	1,195.96	PR038019	K52 CIRCULATING WATER PP MOTOR SERVI	0402013	KAHE 350T CRANE FOR 2/10/04 TO 2	P59242	HAWAIIAN CRANE & RIGGING L	skill
2004	1,304.67	PR037477	K51SSWP DEGRADED DISCHARGE PRESSUI	0402013	KAHE 350T CRANE FOR 2/10/04 TO 2	P59242	HAWAIIAN CRANE & RIGGING L	skill
2004	260.41	PR018891	Collect charges for XFMR oil disposal	2164	HPP/KPP/WPP SVCS PU & Disp Used	P58074	HAZTECH ENVIRONMENTAL SE	skill
2004	1,555.00	PR027388	W5 Main XFMR Removal of Hazardous Solids	2103	W-5 138KV TRANSFORMER ROCK RE	P56439	HAZTECH ENVIRONMENTAL SE	skill
2004	279.16	PR037622	TM-K1-4 GANTRY MAUKA BRAKE LEAKING	28121	K-4 GANTRY CRANE L&M BLEED HY	P58340	HONOMACH INC	skill
2004	3,195.81	PR036178	K4 LUBE OIL CLRS-ECT TEST/CLEAN/INSPEC	28093	K-4 LO CLR RPR DIVIDER PLATE/MA	P58341	HONOMACH INC	skill
2004	3,216.65	PR036464	K4 41 BFP WEAK, REPLACE VOLUTE	28134	K4 #41 BFP COVER, RMV, TRU-CUT,	P58705	HONOMACH INC	skill
2004	3,354.18	PR037047	W8 CWS Tunnel Cleaning (Jan '04)	00007374	W8 TUNNEL CLEANING 1/09/04	P58346	PACIFIC DIVING INDUSTRIES, IN	skill
2004	3,354.18	PR037047	W8 CWS Tunnel Cleaning (Jan '04)	00007375	W8 TUNNEL CLEANING 1/12/04	P58394	PACIFIC DIVING INDUSTRIES, IN	skill
2004	263.90	PR016109	Sludge drying beds-Cells 1-6 Refurbish	18304613	CT-9 OILY WATER SUMP/SLUDGE DF	P58511	PSC INDUSTRIAL OUTSOURCIN	skill
2004	490.10	PR038206	W9 oily sump needs to be pumped out.	18304613	CT-9 OILY WATER SUMP/SLUDGE DF	P58511	PSC INDUSTRIAL OUTSOURCIN	skill
2004	962.00	PR016109	Sludge drying beds-Cells 1-6 Refurbish	18304714	WPP WWTF PUMP SLUDGE DRYING	P58858	PSC INDUSTRIAL OUTSOURCIN	skill
2004	658.85	PR035730	K4 STM PPG HGRS/SPTS-PRED MAINT (BRUI	R004048	K4 OH. MS, HRH, CRH & BFW SCAFF	P56457	SAFWAY SERVICES, INC.	skill
2004	658.85	PR035850	K4 BLR FW PIPING - PREDICT MAINT	R004048	K4 OH. MS, HRH, CRH & BFW SCAFF	P56457	SAFWAY SERVICES, INC.	skill
2004	870.62	PR031175	Sandblast, prime and re-paint	R004236	DIESEL TANK # 2 - SUSPENDED SCAI	P53410	SAFWAY SERVICES, INC.	skill
2004	870.62	PR031175	Sandblast, prime and re-paint	R004234	DIESEL TANK # 2 - SUSPENDED SCAI	P53410	SAFWAY SERVICES, INC.	skill
2004	1,331.66	PR037768	TB3-K1 AH GAS OUT DUCT INSUL REPAIR	D003982	K1 AIR HEATER GAS OUT DUCT SCA	P58042	SAFWAY SERVICES, INC.	skill
2004	1,449.47	PR036454	LB-K4 BFP 41/42 SUCTION PIPG REPL GASKE	D003981	K-41/42 BFP, SCAFFOLDING GROUN	P58013	SAFWAY SERVICES, INC.	skill
2004	1,471.19	PR031175	Sandblast, prime and re-paint	R003978	DIESEL TANK # 2 - SUSPENDED SCAI	P53410	SAFWAY SERVICES, INC.	skill
2004	2,217.43	PR035951	K4 BLR DRAFT EXPANSION JOINT REPAIRS	D003983	K4 BLR DRFT EXP JT, AIR IN-HON &	P58014	SAFWAY SERVICES, INC.	skill
2004	2,327.18	PR027199	K5 AH 51 & 52 Sootblower Poppet Valves	D004192	K-5 OVHL APH SOOTBLOW PIPING S	P59360	SAFWAY SERVICES, INC.	skill
2004	2,494.72	PR032429	K4 Inspect/Repair Cold/Pressurized Lines	D003974	K-4 SET UP SCAFFOLD COLD PRES L	P57106	SAFWAY SERVICES, INC.	skill
2004	4,146.02	PR036852	LB-K6 CHEM FD LINE INSTALL SUPPORT 4TH	D003984	K-6 SCAFF FOR CHEMICAL FEED LIN	P58000	SAFWAY SERVICES, INC.	skill
2004	4,892.83	PR032820	H8 HP LOWER/UPPER TRB CYL WELD REPAI	6508-B-TA	PREHEAT/PWHT SVCS (H8 Trb Weld I	P51047	THERMAL SOLUTIONS, INC.	skill
2004	479.16	PR003583	W6:ECONOMIZER HEADER BRACKET(S) REF	1174877D	W-6 ECONOMIZER OUTLET DUCT IN	P55034	ATLAS SALES CO., INC. - KAPOI	skill
2004	1,000.00	PR039084	W5: Hot Air Recirc. Duct	1175754D	W-5 AIR RECIRC DUCT-PROVIDE SC	P60216	ATLAS SALES CO., INC. - KAPOI	skill
2004	11,447.84	PR036685	W6 Replace Rear WW Tubes @ Arch	1174009D	W-6 ARCH TUBE REPAIR WORK-SCA	P59751	ATLAS SALES CO., INC. - KAPOI	skill
2004	1,473.06	PR038344	LB-K4 CLEAN FO IN SUMP, POND	11225	K-4 CLEAN BOILER WASH SUMP JOI	P60357	BERING SEA ECCOTECH, INC.	skill
2004	2,628.32	PR038620	LB Open #34 FWH for tube sheet inspectio	11313	K-34 FWH HYDROBLAST CLEANING	P59893	BERING SEA ECCOTECH, INC.	skill

pplier Name	SVC Typ
A ECCOTECH, INC.	skill
D ENERGY SERVICE	skill
D ENERGY SERVICE	skill
D ENERGY SERVICE	skill
D ENERGY SERVICE	skill
D ENERGY SERVICE	skill
D ENERGY SERVICE	skill
NG & INSPECTIONS	skill
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RANE & RIGGING L	skill
VIRONMENTAL SE	skill
INC	skill
ING INDUSTRIES, IN	skill
ING INDUSTRIES, IN	skill
RIAL OUTSOURCIN	skill
RIAL OUTSOURCIN	skill
RIAL OUTSOURCIN	skill
ASSOCIATES, INC.	skill
ASSOCIATES, INC.	skill
ASSOCIATES, INC.	skill
ASSOCIATES, INC.	skill

T	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
38.00	PR037744	K5 GENERATOR ROTOR - PRED	6880	K-5 OH NDE/NDT INSPECTION TURB/	P59025	REINHART & ASSOCIATES, INC.	skill
58.60	PR037744	K5 GENERATOR ROTOR - PRED	6903	K-5 OH NDE/NDT INSPECTION TURB/	P59025	REINHART & ASSOCIATES, INC.	skill
14.00	PR038040	K5 LP CYL/BLADE RING/DIAPH NDE - PRED	6880	K-5 OH NDE/NDT INSPECTION TURB/	P59025	REINHART & ASSOCIATES, INC.	skill
03.40	PR037744	K5 GENERATOR ROTOR - PRED	6900	K-5 OH NDE/NDT INSPECTION TURB/	P59025	REINHART & ASSOCIATES, INC.	skill
75.80	PR038040	K5 LP CYL/BLADE RING/DIAPH NDE - PRED	6903	K-5 OH NDE/NDT INSPECTION TURB/	P59025	REINHART & ASSOCIATES, INC.	skill
10.20	PR038040	K5 LP CYL/BLADE RING/DIAPH NDE - PRED	6900	K-5 OH NDE/NDT INSPECTION TURB/	P59025	REINHART & ASSOCIATES, INC.	skill
00.78	PR035850	K4 BLR FW PIPING - PREDICT MAINT	D003883	K4 OH. MS, HRH, CRH & BFW SCAFF	P56457	SAFWAY SERVICES, INC.	skill
00.78	PR035730	K4 STM PPG HGRS/SPTS-PRED MAINT (BRUI	D003883	K4 OH. MS, HRH, CRH & BFW SCAFF	P56457	SAFWAY SERVICES, INC.	skill
99.84	PR037069	K5 REFRACTORY; INSUL; BLR CASING REPA	D004171	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
70.97	PR037069	K5 REFRACTORY; INSUL; BLR CASING REPA	D004188	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
99.51	PR037165	K5 STM PIPING HANGRS/SPTS-PREDICT MAI	D004171	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
99.51	PR037164	K5 BRULS REFRACTORY WORK - PRED MAI	D004171	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
99.51	PR037166	K5 BLR FW PIPING - PREDICT MAINT	D004171	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
4.68	PR037069	K5 REFRACTORY; INSUL; BLR CASING REPA	D004243	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
5.51	PR037489	K5 OH, 56 FWH VALVE SURVEY REPAIR	D004053	K-5 OH, 55/56 FWH VLV REPAIR - SC	P58622	SAFWAY SERVICES, INC.	skill
5.51	PR037482	K5 OH, 55 FWH VALVE SURVEY REPAIR	D004053	K-5 OH, 55/56 FWH VLV REPAIR - SC	P58622	SAFWAY SERVICES, INC.	skill
7.39	PR035850	K4 BLR FW PIPING - PREDICT MAINT	D003886	K4 OH. MS, HRH, CRH & BFW SCAFF	P56457	SAFWAY SERVICES, INC.	skill
7.40	PR035730	K4 STM PPG HGRS/SPTS-PRED MAINT (BRUI	D003886	K4 OH. MS, HRH, CRH & BFW SCAFF	P56457	SAFWAY SERVICES, INC.	skill
1.66	PR037369	K5 HP/IP Cylinder/Blade Ring/Diaphrm OH	D004365	K5 CONTAINMENT FOR TURB CYL S/	P60514	SAFWAY SERVICES, INC.	skill
2.88	PR037166	K5 BLR FW PIPING - PREDICT MAINT	D004188	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
2.90	PR037165	K5 STM PIPING HANGRS/SPTS-PREDICT MAI	D004188	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
2.90	PR037164	K5 BRULS REFRACTORY WORK - PRED MAI	D004188	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
9.31	PR029695	K5 REPLACE APH HOPPERS - THINNED	D004295	K5 OH, SCAFFOLD FOR HOPPER CS	P59773	SAFWAY SERVICES, INC.	skill
4.04	PR037165	K5 STM PIPING HANGRS/SPTS-PREDICT MAI	D004243	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
4.04	PR037164	K5 BRULS REFRACTORY WORK - PRED MAI	D004243	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
4.05	PR037166	K5 BLR FW PIPING - PREDICT MAINT	D004243	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
3.53	PR036784	W5 DMR WW pH meter reads 5.96	HECO03-0	WPP-SOLAR DIESEL GEN FUEL PIPI	P58623	SPCC AND CONSULTING	skill
0.00	PR039222	W-5 #51&#52 CIRC WATER INLET PIPING TO	HECO04-0	W-5 CIRC WrTR INLET PIPING TO WT	P60613	SPCC AND CONSULTING	skill
0.00	PR037369	K5 HP/IP Cylinder/Blade Ring/Diaphrm OH	0010853	K-5 OH FIELD MACHINING SVCS HP/L	P60011	AMERICAN ELECTRIC LLC	skill
0.00	PR037290	W4: roof drain pipe, leaks, hole at wye	1177330D	W-4 ROOF DRAIN REPAIR - SCAFFOL	P61401	ATLAS SALES CO., INC. - KAPOI	skill
8.64	PR035678	K4 BOILER AND AIR HEATER WASH	11356	K4 OH ASH & REFRACTORY MIX FOR	P60439	BERING SEA ECCOTECH, INC.	skill
3.49	PR038344	LB-K4 CLEAN FO IN SUMP, POND	11354	K-4 BLR WASH SUMP CLEAN OIL ON	P60213	BERING SEA ECCOTECH, INC.	skill
0.62	PR034506	LM-PUMP IS SLOW OR NOT PUMPING AT ALI	11349	KPP CLEAN OUT WASTEWATER POI	P58226	BERING SEA ECCOTECH, INC.	skill
5.30	PR037437	K5 GLAND STM COND - PRED MAINT	11352	K5 OVHL HEAT EXCH HYDROBLAST	P58126	BERING SEA ECCOTECH, INC.	skill
5.30	PR037436	K5 AIR EJEC COND - PRED MAINT	11352	K5 OVHL HEAT EXCH HYDROBLAST	P58126	BERING SEA ECCOTECH, INC.	skill
4.45	PR037434	K55 FWH - PRED MAINT	11352	K5 OVHL HEAT EXCH HYDROBLAST	P58126	BERING SEA ECCOTECH, INC.	skill
4.45	PR037432	K53 FWH - PRED MAINT	11352	K5 OVHL HEAT EXCH HYDROBLAST	P58126	BERING SEA ECCOTECH, INC.	skill
4.45	PR037435	K56 FWH - PRED MAINT	11352	K5 OVHL HEAT EXCH HYDROBLAST	P58126	BERING SEA ECCOTECH, INC.	skill
4.45	PR037433	K54 FWH - PRED MAINT	11352	K5 OVHL HEAT EXCH HYDROBLAST	P58126	BERING SEA ECCOTECH, INC.	skill
2.60	PR037564	K5 LUBE OIL COOLERS (2) - PRED MAINT	11352	K5 OVHL HEAT EXCH HYDROBLAST	P58126	BERING SEA ECCOTECH, INC.	skill
5.80	PR037369	K5 HP/IP Cylinder/Blade Ring/Diaphrm OH	MJI-6797	K5 HP NOZZLE SEGMENT PROTCETI	P60835	DIVERSIFIED ENERGY SERVICE	skill
1.03	PR037746	K5 HP Turbine #1 Bearing-Front Standard	MJI-6803	K5 OH MAIN BRGS OS L&M REPOUR	P60740	DIVERSIFIED ENERGY SERVICE	skill
1.00	PR037546	LB K5&6 ACW Leak. Lift Deck Plates.	607	K-5/6 UT INSP TWO 14" UNDRGRND	P60874	ENGINEERING & INSPECTIONS	skill
1.00	PR037433	K54 FWH - PRED MAINT	606	K5 OH, SERV TO EXTRACT TUBE FR	P60823	ENGINEERING & INSPECTIONS	skill
.39	PR035387	W3: Attemperator spray "check valve"	03-1-7126	W-3 and W-7 BOILER WASTE DISPOS	P56121	ENVIROSERVICES & TRAINING	skill
.39	PR033390	W5/6 Demin Silica & Sodium Sample Mods	03-1-7126	W-3 and W-7 BOILER WASTE DISPOS	P56121	ENVIROSERVICES & TRAINING	skill
.89	PR000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	04-01-704	WPP-HAZD WASTE RMV PER POPOS	P60880	ENVIROSERVICES & TRAINING	skill
.31	PR000251	SWO-MERCURY DISPOSAL (KAHE)	04-01-705	KAHE HAZARDOUS WASTE DISPOSA	P61380	ENVIROSERVICES & TRAINING	skill
1.00	PR037108	K5 BOILER STACK REPAIRS	0-11039	LABOR		HAMON CUSTODIS, INC.	skill
.18	PR034155	KAHE CENTRAL WELL CLEANING	0403051	KPP-CERTIFIED CRANE OPERATOR	P61110	HAWAIIAN CRANE & RIGGING L	skill
.81	PR037564	K5 LUBE OIL COOLERS (2) - PRED MAINT	28233	K-5 OH L/E RESURFACE LO COOLER	P60707	HONOMACH INC	skill
.94	PR036950	K5 PORTABLE EQUIP/TOOL REPAIR/REPLAC	16171	K5 OH, FAB 2 METAL WORK TABLES	P58667	HONOMACH INC	skill
.80	PR037567	K5 GENERATOR H2 COOLERS - PRED MAINT	28184	K-5 OH L/E RESURFACE HYDROGEN	P60706	HONOMACH INC	skill
.18	PR038802	W5: Tunnel Cleaning	00007421	W-5 CIRCULATING WATER INTAKE S	P60721	PACIFIC DIVING INDUSTRIES, IN	skill
.00	PR037744	K5 GENERATOR ROTOR - PRED	6913	K-5 OH NDE/NDT INSPECTION TURB/	P59025	REINHART & ASSOCIATES, INC.	skill
.00	PR038040	K5 LP CYL/BLADE RING/DIAPH NDE - PRED	6913	K-5 OH NDE/NDT INSPECTION TURB/	P59025	REINHART & ASSOCIATES, INC.	skill
.00	PR037744	K5 GENERATOR ROTOR - PRED	6913	K-5 OH NDE/NDT INSPECTION TURB/	P59025	REINHART & ASSOCIATES, INC.	skill

ACCOUNT CODE	LL PERI	TransYr	AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
PIT260K05NEP0000519501	200404	2004	9,000.00	PR038040	K5 LP CYL/BLADE RING/DIAPH NDE - PRED	6913	K-5 OH NDE/NDT INSPECTION TURB/	P59025	REINHART & ASSOCIATES, INC.	skill
PIT257K05NEP0000519501	200404	2004	21.66	PR037069	K5 REFRACTORY; INSUL; BLR CASING REPA	R004518	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT257K05NEP0000519501	200404	2004	42.03	PR037069	K5 REFRACTORY; INSUL; BLR CASING REPA	R004517	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	64.98	PR037164	K5 BRULS REFRACTORY WORK - PRED MAI	R004518	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	64.98	PR037165	K5 STM PIPING HANGRS/SPTS-PREDICT MAI	R004518	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	64.99	PR037166	K5 BLR FW PIPING - PREDICT MAINT	R004518	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	126.07	PR037166	K5 BLR FW PIPING - PREDICT MAINT	R004517	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	126.08	PR037165	K5 STM PIPING HANGRS/SPTS-PREDICT MAI	R004517	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	126.08	PR037164	K5 BRULS REFRACTORY WORK - PRED MAI	R004517	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT257K05NEP0000519501	200404	2004	126.58	PR037069	K5 REFRACTORY; INSUL; BLR CASING REPA	D004520	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT257K05NEP0000519501	200404	2004	155.34	PR037069	K5 REFRACTORY; INSUL; BLR CASING REPA	R004516	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT257K05NEP0000519501	200404	2004	158.66	PR037069	K5 REFRACTORY; INSUL; BLR CASING REPA	D004571	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT259K05NEP0000519501	200404	2004	162.39	PR037489	K5 OH, 56 FWH VALVE SURVEY REPAIR	R004514	K-5 OH, 55/56 FWH VLV REPAIR - SC/	P58622	SAFWAY SERVICES, INC.	skill
PIT259K05NEP0000519501	200404	2004	162.40	PR037482	K5 OH, 55 FWH VALVE SURVEY REPAIR	R004514	K-5 OH, 55/56 FWH VLV REPAIR - SC/	P58622	SAFWAY SERVICES, INC.	skill
PIT257K05NEP0000519501	200404	2004	170.62	PR037069	K5 REFRACTORY; INSUL; BLR CASING REPA	D004424	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT257K05NEP0000519501	200404	2004	212.50	PR037069	K5 REFRACTORY; INSUL; BLR CASING REPA	R004515	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	379.73	PR037164	K5 BRULS REFRACTORY WORK - PRED MAI	D004520	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	379.73	PR037165	K5 STM PIPING HANGRS/SPTS-PREDICT MAI	D004520	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	379.74	PR037166	K5 BLR FW PIPING - PREDICT MAINT	D004520	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	466.03	PR037165	K5 STM PIPING HANGRS/SPTS-PREDICT MAI	R004516	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	466.03	PR037164	K5 BRULS REFRACTORY WORK - PRED MAI	R004516	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	466.03	PR037166	K5 BLR FW PIPING - PREDICT MAINT	R004516	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	475.95	PR037166	K5 BLR FW PIPING - PREDICT MAINT	D004571	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	475.97	PR037165	K5 STM PIPING HANGRS/SPTS-PREDICT MAI	D004571	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	475.97	PR037164	K5 BRULS REFRACTORY WORK - PRED MAI	D004571	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	511.85	PR037165	K5 STM PIPING HANGRS/SPTS-PREDICT MAI	D004424	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	511.85	PR037164	K5 BRULS REFRACTORY WORK - PRED MAI	D004424	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	511.86	PR037166	K5 BLR FW PIPING - PREDICT MAINT	D004424	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	637.49	PR037166	K5 BLR FW PIPING - PREDICT MAINT	R004515	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	637.50	PR037164	K5 BRULS REFRACTORY WORK - PRED MAI	R004515	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIT258K05NEP0000519501	200404	2004	637.50	PR037165	K5 STM PIPING HANGRS/SPTS-PREDICT MAI	R004515	K5 OH SCAFFOLD, BRULS / BLR REP,	P58227	SAFWAY SERVICES, INC.	skill
PIL259K05NENPIZZZZZ501	200404	2004	739.37	PR037643	LB APH 52 Wash Header Leak	D004419	K- 5 4TH FLR APH WASH LINE SCAFF	P60617	SAFWAY SERVICES, INC.	skill
PIL259K06NENPIZZZZZ501	200404	2004	956.24	PR038920	LB,K6 wash water vlv to #61 air in	D004418	KAHE 6 2ND FLR APH WASH LINE SC	P60618	SAFWAY SERVICES, INC.	skill
PIL259K04NENPIZZZZZ501	200404	2004	963.74	PR039270	K4 LB Line to wetstack broken pls cap	D004423	KAHE 4 9TH FLR SCAFFOLDING, QUC	P60616	SAFWAY SERVICES, INC.	skill
PIL262K05NENPIZZZZZ501	200404	2004	1,130.05	PR037546	LB K5&6 ACW Leak. Lift Deck Plates.	D004521	SCAFF FOR KAHE 5/6 PIT, ACW LINE	P61152	SAFWAY SERVICES, INC.	skill
PIT260K05NEP0000519501	200404	2004	1,206.29	PR037777	K5 Install Fire Sprinklers above LO Tank	D004426	K5, SCAFFOLD FIRE SPRINKLER INS	P60513	SAFWAY SERVICES, INC.	skill
PIT260K05NEP0000519501	200404	2004	1,419.37	PR037594	K56 FWH EXTRACT VALVE BTV-1 - SERVICE	D004425	K5 SCAFFOLD 56FWH BLEEDER VLV	P60515	SAFWAY SERVICES, INC.	skill
PIX259W07NENPIZZZZZ501	200405	2004	1,120.83	PR039555	W7: Economizer tube leak repairs...	1176811D	W-7 ECOMZR TUBE LEAK -SCAFFOLI	P61921	ATLAS SALES CO., INC. - HONO	skill
PIX259W05NENPIZZZZZ501	200405	2004	1,000.00	PR035388	W5: Boiler furnace Ewa/Makai hot spot,	1160184D	W5 Hotspot Repairs: Scaffolding	P55689	ATLAS SALES CO., INC. - KAPOI	skill
PIX259W05NENPIZZZZZ501	200405	2004	1,000.00	PR034981	W5 Blr Furnace hot spot, makai Waikiki	1160184D	W5 Hotspot Repairs: Scaffolding	P55689	ATLAS SALES CO., INC. - KAPOI	skill
PIX262W04NENPIZZZZZ501	200405	2004	2,500.00	PR033589	W4:Aux. Clng. Wtr. to BFP, rusted pipe	1178548D	W-4 RAW WATER PIPING REPLCMT	P62023	ATLAS SALES CO., INC. - KAPOI	skill
PIX273W09NENPIZZZZZ501	200405	2004	18,748.80	PR038666	W9 - Combustion Borescope Inspection	MJI-6812	W9-INSPECTION & CONDITION ASSE	P59321	DIVERSIFIED ENERGY SERVICE	skill
PJC876PHENENPJZZZZZ600	200405	2004	4,234.35			04-01-707	Removal of 2 drums of waste &	P62135	ENVIROSERVICES & TRAINING	skill
PIT259K05NEP0000519501	200405	2004	9,187.20	PR037108	K5 BOILER STACK REPAIRS	40504	K5 OH, STACK POST REPAIR PAINTI	P61786	GIORDANO'S PAINTING CO	skill
PIT258K05NEP0000519501	200405	2004	1,959.88	PR038018	K51 CIRCULATING WATER PP MOTOR SERVI	0404045	K 51 & 52 CRANE TO INSTALL CW P	P62329	HAWAIIAN CRANE & RIGGING L	skill
PIT258K05NEP0000519501	200405	2004	1,959.88	PR038019	K52 CIRCULATING WATER PP MOTOR SERVI	0404045	K 51 & 52 CRANE TO INSTALL CW P	P62329	HAWAIIAN CRANE & RIGGING L	skill
PIL262K01NENPIZZZZZ501	200405	2004	3,497.89	PR034155	KAHE CENTRAL WELL CLEANING	0404011	K-5/6 CRANE RENTAL STILLING BASI	P61614	HAWAIIAN CRANE & RIGGING L	skill
PIP877WSTNENPIZZZZZ501	200405	2004	260.41	PR018891	Collect charges for XFMR oil disposal	2246	HPP/KPP/WPP SVCS PU & Disp Used	P58074	HAZTECH ENVIRONMENTAL SE	skill
PIL878KSTNENPIZZZZZ501	200405	2004	1,655.65	PR000249	SWO-HAZARDOUS WSTE DISPOSAL (KAHE)	2250	KPP PICK-UP & RECYCLE MISC LAMF	P62020	HAZTECH ENVIRONMENTAL SE	skill
PIT261K05NEP0000519501	200405	2004	17,193.18	PR037369	K5 HP/IP Cylinder/Blade Ring/Diaphrm OH	04-M005F	K-5 OVHL TURBINE SANDBLAST SER	P59143	HONOLULU SHIPYARD INC	skill
PIL261K01NENPIZZZZZ501	200405	2004	4,194.17	PR035558	ILM K11 SSWP clean/inspct pmp & screen	28310	K-11 CWP DIFFUSER HSG & IMPELLI	P62391	HONOMACH INC	skill
PIX259W04NENPIZZZZZ501	200405	2004	11,889.65	PR039987	W4-ID Low Spd Fan Bearing Repair/Replace	28301	W-4 INDUCED DRAFT FAN LOW SPEI	P62214	HONOMACH INC	skill
PIX266WSTNENPIZZZZZ501	200405	2004	750.00	PR039541	Fabricate and install secondary filter	00007442	WPP DIESEL FIRE PUMP - INSPECT S	P61878	PACIFIC DIVING INDUSTRIES, IN	skill
PIX258WSTNENPIZZZZZ501	200405	2004	1,700.34	PR032990	W61 CWP UNBALANCE - PUMP	00007373	W6 #61 CWP - DIVERS ASSIST PUMP	P58130	PACIFIC DIVING INDUSTRIES, IN	skill
PIT260K05NEP0000519501	200405	2004	119.23	PR037601	K5 RH INTERCEPT VALVE (2 EACH)	18305067	K5 HYD VALVE WASTE REMOVAL, LA	P60416	PSC INDUSTRIAL OUTSOURCIN	skill
PIT260K05NEP0000519501	200405	2004	119.23	PR037600	K5 RH Stop Valve (2 each)	18305067	K5 HYD VALVE WASTE REMOVAL, LA	P60416	PSC INDUSTRIAL OUTSOURCIN	skill
PIT260K05NEP0000519501	200405	2004	119.23	PR037602	K5 GOV VALVES (6 EACH)	18305067	K5 HYD VALVE WASTE REMOVAL, LA	P60416	PSC INDUSTRIAL OUTSOURCIN	skill

O No	Supplier Name	SVC Typ
0416	PSC INDUSTRIAL OUTSOURCIN	skill
9553	SAFWAY SERVICES, INC.	skill
9553	SAFWAY SERVICES, INC.	skill
1994	SAFWAY SERVICES, INC.	skill
1282	SAFWAY SERVICES, INC.	skill
1554	SAFWAY SERVICES, INC.	skill
1992	SAFWAY SERVICES, INC.	skill
0417	SPCC AND CONSULTING	skill
0613	SPCC AND CONSULTING	skill
9519	AGT SERVICES	skill
9520	AGT SERVICES	skill
9520	AGT SERVICES	skill
9502	AGT SERVICES	skill
9519	AGT SERVICES	skill
9519	AGT SERVICES	skill
9520	AGT SERVICES	skill
9520	AGT SERVICES	skill
9502	AGT SERVICES	skill
9519	AGT SERVICES	skill
6044	ATLAS SALES CO., INC. - KAPOI	skill
2805	BERING SEA ECCOTECH, INC.	skill
1569	BERING SEA ECCOTECH, INC.	skill
1002	BERING SEA ECCOTECH, INC.	skill
2801	BERING SEA ECCOTECH, INC.	skill
0740	DIVERSIFIED ENERGY SERVICE	skill
0831	GIORDANO'S PAINTING CO	skill
0831	GIORDANO'S PAINTING CO	skill
0723	HONOMACH INC	skill
1760	PROCESS CONTROLS, INC.	skill
2760	PSC INDUSTRIAL OUTSOURCIN	skill
2760	PSC INDUSTRIAL OUTSOURCIN	skill
2760	PSC INDUSTRIAL OUTSOURCIN	skill
2760	PSC INDUSTRIAL OUTSOURCIN	skill
2653	SAFWAY SERVICES, INC.	skill
2474	SAFWAY SERVICES, INC.	skill
2654	SAFWAY SERVICES, INC.	skill
9655	SAFWAY SERVICES, INC.	skill
0613	SPCC AND CONSULTING	skill
9896	SPCC AND CONSULTING	skill
1538	BERING SEA ECCOTECH, INC.	skill
1884	BERING SEA ECCOTECH, INC.	skill
1884	BERING SEA ECCOTECH, INC.	skill
1884	BERING SEA ECCOTECH, INC.	skill
1884	BERING SEA ECCOTECH, INC.	skill
1884	BERING SEA ECCOTECH, INC.	skill
1533	BERING SEA ECCOTECH, INC.	skill
2881	BERING SEA ECCOTECH, INC.	skill
2880	BERING SEA ECCOTECH, INC.	skill
2753	BERING SEA ECCOTECH, INC.	skill
1478	BERING SEA ECCOTECH, INC.	skill
2758	BERING SEA ECCOTECH, INC.	skill
1529	BERING SEA ECCOTECH, INC.	skill
1575	BERING SEA ECCOTECH, INC.	skill
2757	BERING SEA ECCOTECH, INC.	skill
1128	BERING SEA ECCOTECH, INC.	skill
1076	DIVERSIFIED ENERGY SERVICE	skill
1527	DIVERSIFIED ENERGY SERVICE	skill

ACCOUNT CODE	LL PERI	TransYr	AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
PIT261W03NEP0000249501	200407	2004	31,248.00	PR041167	W3 Replace Stellite on Turb Blading	MJI-6837	W3 LP ROT INSTALL L-3 ROWS EROS	P64527	DIVERSIFIED ENERGY SERVICE	skill
PIT261W03NEP0000249501	200407	2004	52,080.00	PR041167	W3 Replace Stellite on Turb Blading	MJI-6847	W3 LP ROTOR R/R L-0 ROWS EROSI	P64527	DIVERSIFIED ENERGY SERVICE	skill
PIT261W03NEP0000249501	200407	2004	52,080.00	PR041167	W3 Replace Stellite on Turb Blading	MJI-6837	W3 LP ROTOR R/R L-0 ROWS EROSI	P64527	DIVERSIFIED ENERGY SERVICE	skill
PIT260K05NEP0000519501	200407	2004	2,100.00	PR037587	K51 CIRCULATING WATER PUMP - Service	52804	K5 CWP's, PRESERVE FOUNDATION/	P60831	GIORDANO'S PAINTING CO	skill
PIT260K05NEP0000519501	200407	2004	2,100.00	PR037588	K52 CIRCULATING WATER PUMP - Service	52804	K5 CWP's, PRESERVE FOUNDATION/	P60831	GIORDANO'S PAINTING CO	skill
PIP877WSTNENPIZZZZZ501	200407	2004	260.41	PR018891	Collect charges for XFMR oil disposal	2306	HPP/KPP/WPP SVCS PU & Disp Used	P58074	HAZTECH ENVIRONMENTAL SE	skill
PIT257W03NEP0000249501	200407	2004	530.20	PR037866	PORTABLE TOOLS/EQMT-PREP FOR OVHL	28408	W3/4 GANTRY CRANE BRAKE ADJUS	P64580	HONOMACH INC	skill
PIT257K05NEP0000519501	200407	2004	1,659.36	PR037102	K5 ERV MAIN STM (SSH OUT)RV-53 - Service	28274	K5 ERV (RV-53) BALL INSERT MACHI	P64044	HONOMACH INC	skill
PIL262K06NENPIZZZZZ501	200407	2004	9,778.83	PR037699	LB-#61 T-SCREEN WILL NOT TRAVEL.	16313	K-62 TRAVEL SCREEN REPAIR SS WI	P64611	HONOMACH INC	skill
PIX265WT2NENPIZZZZZ501	200407	2004	265.62	PR038432	WGP W 7 DMR, Modicon, not programed.	42546.1	W-7 DEMIN - INSTALL/CONFIGURE X	P63619	PROCESS CONTROLS, INC.	skill
PIL262K01NENPIZZZZZ501	200407	2004	1,490.00	PR037607	LB K1 VLC-10 Cond. Reject leakas by 5-7	42713.1	KPP REBUILD 1VLC-10 TRIM TO ORG	P61909	PROCESS CONTROLS, INC.	skill
PIT261W03NEP0000249501	200407	2004	113.52	PR038379	W3 LP Turbine Rotor Overhaul - NDE	7045	W-3 OVHL TURB/GEN NDE/NDT INSP	P63888	REINHART & ASSOCIATES, INC.	skill
PIT261W03NEP0000249501	200407	2004	340.56	PR038370	HP Turbine Rotor Overhaul - NDE	7045	W-3 OVHL TURB/GEN NDE/NDT INSP	P63888	REINHART & ASSOCIATES, INC.	skill
PIT261W03NEP0000249501	200407	2004	1,044.48	PR038379	W3 LP Turbine Rotor Overhaul - NDE	7054	W-3 OVHL TURB/GEN NDE/NDT INSP	P63888	REINHART & ASSOCIATES, INC.	skill
PIT261W03NEP0000249501	200407	2004	2,838.00	PR038379	W3 LP Turbine Rotor Overhaul - NDE	7045	W-3 OVHL TURB/GEN NDE/NDT INSP	P63888	REINHART & ASSOCIATES, INC.	skill
PIT261W03NEP0000249501	200407	2004	3,133.44	PR038370	HP Turbine Rotor Overhaul - NDE	7054	W-3 OVHL TURB/GEN NDE/NDT INSP	P63888	REINHART & ASSOCIATES, INC.	skill
PIT261W03NEP0000249501	200407	2004	8,514.00	PR038370	HP Turbine Rotor Overhaul - NDE	7045	W-3 OVHL TURB/GEN NDE/NDT INSP	P63888	REINHART & ASSOCIATES, INC.	skill
PIT261W03NEP0000249501	200407	2004	26,112.00	PR038379	W3 LP Turbine Rotor Overhaul - NDE	7054	W-3 OVHL TURB/GEN NDE/NDT INSP	P63888	REINHART & ASSOCIATES, INC.	skill
PIT261W03NEP0000249501	200407	2004	78,336.00	PR038370	HP Turbine Rotor Overhaul - NDE	7054	W-3 OVHL TURB/GEN NDE/NDT INSP	P63888	REINHART & ASSOCIATES, INC.	skill
PIT259K05NEP0000519501	200407	2004	862.29	PR040354	LB BFP 51 Suction RV callout 5/15/4	D004836	K-5 2ND FLOOR BFP RILIEF VALVE S	P62850	SAFWAY SERVICES, INC.	skill
PIL259K06NENPIZZZZZ501	200407	2004	868.44	PR037411	LB K6 aux stm isolation to AH soot blow	D004880	K-6 2ND FLOOR, AUX STEAM VALV S	P63288	SAFWAY SERVICES, INC.	skill
PIN262H08NENPIZZZZZ501	200407	2004	927.19	PR040776	H82 CHILLER NEEDS CLEANING	D005034	HPP #82 CHILLER SCAFFOLD REQUI	P63899	SAFWAY SERVICES, INC.	skill
PIL259K05NENPIZZZZZ501	200407	2004	1,813.95	PR041025	LB K5 #56 FWH Channel Outlet Stop bonnet	D005199	K5 FWH56 CHNL OUTLET STOP VLV	P64904	SAFWAY SERVICES, INC.	skill
PIT260K05NEP0000519501	200407	2004	3,239.88	PR037552	K5 LUBE OIL RESERVOIR / BOWSER / FILTEF	D004944	K5 OUTAGE, SCAFFOLD TO REMV TL	P63557	SAFWAY SERVICES, INC.	skill
PIT258W03NEP0000249501	200407	2004	3,687.98	PR038881	PREDICT MAINT-PRI SS TUBES/HEADERS	D004998	W3 OH,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
PIT258W03NEP0000249501	200407	2004	3,687.99	PR038882	PREDICT MAINT-SEC SS TUBES/HEADERS	D004998	W3 OH,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
PIT258W03NEP0000249501	200407	2004	3,799.74	PR038880	PREDICT MAINT-ECONZR TUBES/HEADERS	D004998	W3 OH,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
PIX265WSTNENPIZZZZZ501	200407	2004	1,000.00	PR040475	W7DMR: Repair drain, corroded.	HECO04-0	W-7 DEMINERALIZER ACID DRAIN RE	P63254	SPCC AND CONSULTING	skill
PIX259W07NENPIZZZZZ501	200408	2004	1,500.00	PR040862	W7: #72 BFP flw. xmtr leaking gage line.	1185530	WPP-W7 SET UP SCAFFOLDING ABC	P65411	ATLAS SALES CO., INC. - KAPOI	skill
PIX259WSTNENPIZZZZZ501	200408	2004	3,750.00	PR041797	W5: Economizer Repair Wall Insulation	1185031D	W-5 ECONOMIZER DUCT - SCAFFOLI	P65372	ATLAS SALES CO., INC. - KAPOI	skill
PIX878WSTNENPIZZZZZ501	200408	2004	3,750.00	PR041756	W5: Economizer Wall Insulation Repairs	1185031D	W-5 ECONOMIZER DUCT - SCAFFOLI	P65372	ATLAS SALES CO., INC. - KAPOI	skill
PIT261K05NEP0000519501	200408	2004	189.06	PR037564	K5 LUBE OIL COOLERS (2) - PRED MAINT	11442	K5 LO CLR, SERVICE STEAMER & MC	P65440	BERING SEA ECCOTECH, INC.	skill
PIX271WFSNENPIZZZZZ501	200408	2004	390.00	HP001804	T1 insulation work. See extended descrip	11513	WPP FUEL OIL TANKYARD # 1 CLEAN	P62575	BERING SEA ECCOTECH, INC.	skill
PIN271ITFNENPIZZZZZ501	200408	2004	414.72	PR040222	Trucking LSFO to HPP Tank 5 & 6	11512	HPP-LSFO TANKER TRUCK CLEANIN	P62479	BERING SEA ECCOTECH, INC.	skill
PIT260W03NEP0000249501	200408	2004	425.67	PR038154	W3 GENERATOR H2 COOLERS - Service	11568	W3 OH H2 COOLER HYDROBLAST SE	P65436	BERING SEA ECCOTECH, INC.	skill
PIN271ITFNENPIZZZZZ501	200408	2004	662.39	PR040222	Trucking LSFO to HPP Tank 5 & 6	11522	HPP-LSFO TANKER TRUCK CLEANIN	P62479	BERING SEA ECCOTECH, INC.	skill
PIT262K05NEP0000519501	200408	2004	801.56	PR038751	K5 EHC RESERVOIR - EH FLUSH	11496	K5 CLEAN UP ASSIST FOR MINOR OI	P65437	BERING SEA ECCOTECH, INC.	skill
PIT257W03NEP0000249501	200408	2004	824.79	PR037873	W3 BOILER AND AIR PREHEATER WASH	11493	KGP INFL STAT TRANS. SLUDGE JOE	P65844	BERING SEA ECCOTECH, INC.	skill
PIL265KWWNENPIZZZZZ501	200408	2004	831.66	PR039873	LB Influent Stn sludge clean-up.	11549	KPP INFLUENT STN-SLUDGE CLEAN	P65472	BERING SEA ECCOTECH, INC.	skill
PIT261K05NEP0000519501	200408	2004	1,093.12	PR037564	K5 LUBE OIL COOLERS (2) - PRED MAINT	11485	K5 STM CLN AROUND LO CLRS & TA	P65439	BERING SEA ECCOTECH, INC.	skill
PIN271ITFNENPIZZZZZ501	200408	2004	1,171.24	PR040222	Trucking LSFO to HPP Tank 5 & 6	11548	HPP-LSFO TANKER TRUCK CLEANIN	P62479	BERING SEA ECCOTECH, INC.	skill
PIT260W03NEP0000249501	200408	2004	2,291.65	PR038154	W3 GENERATOR H2 COOLERS - Service	11536	W3 OH H2 COOLER HYDROBLAST SE	P65436	BERING SEA ECCOTECH, INC.	skill
PIL259K06NENPIZZZZZ501	200408	2004	2,739.88	PR039114	LB-CLEAN OUT K6 PIPE TRENCH MAUKA OF	11410	KAHE 6 FUEL OIL PIPE TRENCH CLE	P61877	BERING SEA ECCOTECH, INC.	skill
PIT258W03NEP0000249501	200408	2004	2,968.47	PR038926	W03 Turbine--Inspect/clean all oil relat	11518	W3 OH,2 DAYS PMP/CLN LO STO TNI	P64803	BERING SEA ECCOTECH, INC.	skill
PIL265KWWNENPIZZZZZ501	200408	2004	3,640.19	PR041844	BSE/LB-REMOVE SLUDGE FROM K6/K4/K2 B	11551	K4 BWWS 7/04 SLUDGE REMOVAL	P65474	BERING SEA ECCOTECH, INC.	skill
PIX258W03NENPIZZZZZ501	200408	2004	3,700.86	PR022318	W3 FRONT WW TUBE PANELS REPLACE (20	11517	W-3 OVHL BLR TUBES IN MUD ROOM	P63624	BERING SEA ECCOTECH, INC.	skill
PIX878WSTNENPIZZZZZ501	200408	2004	3,863.52	PR000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	11440	WPP-REMOVE & DISPOSE OF 5ea 55	P63897	BERING SEA ECCOTECH, INC.	skill
PIL265KWWNENPIZZZZZ501	200408	2004	4,529.87	PR041844	BSE/LB-REMOVE SLUDGE FROM K6/K4/K2 B	11550	K6 BWWS 7/04 SLUDGE REMOVAL - I	P65473	BERING SEA ECCOTECH, INC.	skill
PIT257K05NEP0000519501	200408	2004	10,977.51	PR037037	K5 BOILER AND AIR HEATER WASH	11516	K5 BLR/STACK ASH & REFRACTORY	P63892	BERING SEA ECCOTECH, INC.	skill
PIL265KSTNENPIZZZZZ501	200408	2004	34,477.07	PR040471	LB-CLEAN OUT PIPE TRENCHES	11514	K1-6 PIPE TRENCHS CLEAN OUT DE	P64532	BERING SEA ECCOTECH, INC.	skill
PIN271ITFNENPIZZZZZ501	200408	2004	50,350.67	PR040222	Trucking LSFO to HPP Tank 5 & 6	11494	HPP-LSFO TANKER TRUCK CLEANIN	P62479	BERING SEA ECCOTECH, INC.	skill
PIX262W05NENPIZZZZZ501	200408	2004	3,353.95	PR041810	W5 Trb #1 bearing steam seal is leaking.	MJI-6852	W-5 TURBINE # 1 GLAND SEAL - REB	P65910	DIVERSIFIED ENERGY SERVICE	skill
PIT261W03NEP0000249501	200408	2004	10,416.00	PR041167	W3 Replace Stellite on Turb Blading	MJI-6848	W3 TURBINE HP & LP ROTORS: BAL	P64527	DIVERSIFIED ENERGY SERVICE	skill
PIT261W03NEP0000249501	200408	2004	20,623.68	PR039952	W3 GENERATOR ROTOR-SERVICE/TEST	MJI-6851	W3-OH REBABBIT 2 EA GEN BERING	P65855	DIVERSIFIED ENERGY SERVICE	skill
PIT261W03NEP0000249501	200408	2004	200.00	PR038370	HP Turbine Rotor Overhaul - NDE	821	W3 OH MT TESTING SERVICES	P65303	ENGINEERING & INSPECTIONS	skill
PIT257W03NEP0000249501	200408	2004	1,572.39	PR037873	W3 BOILER AND AIR PREHEATER WASH	04-01-712	W3 OH STACK ASH DISPOSAL	P64350	ENVIROSERVICES & TRAINING	skill
PIX878WSTNENPIZZZZZ501	200408	2004	1,748.73	PR000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	04-01-712	WPP- BLR WASTE MIXING & DISPL	P64350	ENVIROSERVICES & TRAINING	skill

Inv Item Desc	PO No	Supplier Name	SVC Typ
IVL/DISPOSL AMONIUM BICAI	P64203	ENVIROSERVICES & TRAINING	skill
EDWATER HEADER FLOWME	P65843	ENVIROSERVICES & TRAINING	skill
RVICES FOR WELDER CERTIF	P65951	FINLAY TESTING LABORATORIE	skill
3 2004 BRULS & HIEL WFMT .	P63490	FINLAY TESTING LABORATORIE	skill
3 2004 BRULS & HIEL WFMT .	P63490	FINLAY TESTING LABORATORIE	skill
3 2004 BRULS & HIEL WFMT .	P63490	FINLAY TESTING LABORATORIE	skill
3 2004 BRULS & HIEL WFMT .	P63490	FINLAY TESTING LABORATORIE	skill
3 2004 BRULS & HIEL WFMT .	P63490	FINLAY TESTING LABORATORIE	skill
3 2004 BRULS & HIEL WFMT .	P63490	FINLAY TESTING LABORATORIE	skill
3 2004 BRULS & HIEL WFMT .	P63490	FINLAY TESTING LABORATORIE	skill
VICES FOR WELDER CERTIF	P65951	FINLAY TESTING LABORATORIE	skill
3 2004 BRULS & HIEL WFMT .	P63490	FINLAY TESTING LABORATORIE	skill
3 2004 BRULS & HIEL WFMT .	P63490	FINLAY TESTING LABORATORIE	skill
3 2004 BRULS & HIEL WFMT .	P63490	FINLAY TESTING LABORATORIE	skill
3 2004 BRULS & HIEL WFMT .	P63490	FINLAY TESTING LABORATORIE	skill
3 2004 BRULS & HIEL WFMT .	P63490	FINLAY TESTING LABORATORIE	skill
3 2004 BRULS & HIEL WFMT .	P63490	FINLAY TESTING LABORATORIE	skill
3 2004 BRULS & HIEL WFMT .	P63490	FINLAY TESTING LABORATORIE	skill
RY OF TS#61 FROM HONOMA	P65442	HONOMACH INC	skill
2 BOILER FEED PUMP - MACH	P66192	HONOMACH INC	skill
MACHINE H2 CLRS / LO CLRS	P65791	HONOMACH INC	skill
HL TURB/GEN NDE/NDT INSP	P63888	REINHART & ASSOCIATES, INC.	skill
HL TURB/GEN NDE/NDT INSP	P63888	REINHART & ASSOCIATES, INC.	skill
HL TURB/GEN NDE/NDT INSP	P63888	REINHART & ASSOCIATES, INC.	skill
HL TURB/GEN NDE/NDT INSP	P63888	REINHART & ASSOCIATES, INC.	skill
7TH FLR, ID FAN SCAFFOLDI	P65500	SAFWAY SERVICES, INC.	skill
7TH FLR, ID FAN SCAFFOLDI	P65500	SAFWAY SERVICES, INC.	skill
SCAFFOLD, NONRTN VLV&H:	P63972	SAFWAY SERVICES, INC.	skill
SCAFFOLD, NONRTN VLV&H:	P63972	SAFWAY SERVICES, INC.	skill
SCAFFOLD, NONRTN VLV&H:	P63972	SAFWAY SERVICES, INC.	skill
FFOLD, 62/63/64/65 FWH SHE	P65847	SAFWAY SERVICES, INC.	skill
FFOLD, 62/63/64/65 FWH SHE	P65847	SAFWAY SERVICES, INC.	skill
FFOLD, 62/63/64/65 FWH SHE	P65847	SAFWAY SERVICES, INC.	skill
FFOLD, 62/63/64/65 FWH SHE	P65847	SAFWAY SERVICES, INC.	skill
SCAFFOLD FOR BLR CC/TRB	P65417	SAFWAY SERVICES, INC.	skill
SCFFLD, THRTTLE VLV, 2ND	P64766	SAFWAY SERVICES, INC.	skill
SCAFFLD, THROTTLE VLV, T	P64579	SAFWAY SERVICES, INC.	skill
SCFFLD, THRTTLE VLV WRK	P64667	SAFWAY SERVICES, INC.	skill
TURBINE SCAFFOLDING P65138		SAFWAY SERVICES, INC.	skill
LUBE OIL COOLER, SCAFFOI	P63785	SAFWAY SERVICES, INC.	skill
SCAFFOLD, LTG PNL & LV LT	P64545	SAFWAY SERVICES, INC.	skill
SCAFFOLD, LTG PNL & LV LT	P64545	SAFWAY SERVICES, INC.	skill
SCAFFOLD FOR BLR CC/TRB	P65417	SAFWAY SERVICES, INC.	skill
BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
GEN FIELD REPAIRS P66540		AGT SERVICES	skill
GEN INSP/TEST(AGT SERVICI	P62937	AGT SERVICES	skill
GEN REWEDGE SERVICES (A	P66540	AGT SERVICES	skill
GEN FIELD REPAIRS P66540		AGT SERVICES	skill
GEN INSP/TEST(AGT SERVICI	P62937	AGT SERVICES	skill
GEN REWEDGE SERVICES (A	P66540	AGT SERVICES	skill
IPELINE INSPECTION PUMPT	P65421	BERING SEA ECCOTECH, INC.	skill
ROBLASTING HEAT EXCHAI	P61884	BERING SEA ECCOTECH, INC.	skill
ROBLASTING HEAT EXCHAI	P61884	BERING SEA ECCOTECH, INC.	skill

No	Supplier Name	SVC Typ
4	BERING SEA ECCOTECH, INC.	skill
4	BERING SEA ECCOTECH, INC.	skill
4	BERING SEA ECCOTECH, INC.	skill
9	BERING SEA ECCOTECH, INC.	skill
2	BERING SEA ECCOTECH, INC.	skill
5	BERING SEA ECCOTECH, INC.	skill
0	BERING SEA ECCOTECH, INC.	skill
3	DIVERSIFIED ENERGY SERVICE	skill
3	DIVERSIFIED ENERGY SERVICE	skill
6	ENGINEERING & INSPECTIONS	skill
1	ENVIROSERVICES & TRAINING	skill
6	ENVIROSERVICES & TRAINING	skill
6	ENVIROSERVICES & TRAINING	skill
4	ENVIROSERVICES & TRAINING	skill
4	ENVIROSERVICES & TRAINING	skill
6	FINLAY TESTING LABORATORIE	skill
6	FINLAY TESTING LABORATORIE	skill
1	FINLAY TESTING LABORATORIE	skill
1	FINLAY TESTING LABORATORIE	skill
1	FINLAY TESTING LABORATORIE	skill
1	FINLAY TESTING LABORATORIE	skill
5	FINLAY TESTING LABORATORIE	skill
5	FINLAY TESTING LABORATORIE	skill
5	FINLAY TESTING LABORATORIE	skill
1	FINLAY TESTING LABORATORIE	skill
1	FINLAY TESTING LABORATORIE	skill
1	FINLAY TESTING LABORATORIE	skill
1	FINLAY TESTING LABORATORIE	skill
5	FINLAY TESTING LABORATORIE	skill
7	GIORDANO'S PAINTING CO	skill
8	GIORDANO'S PAINTING CO	skill
9	HAWAIIAN CRANE & RIGGING L	skill
4	HAZTECH ENVIRONMENTAL SE	skill
0	HAZTECH ENVIRONMENTAL SE	skill
5	PACIFIC DIVING INDUSTRIES, IN	skill
2	REINHART & ASSOCIATES, INC.	skill
2	REINHART & ASSOCIATES, INC.	skill
2	REINHART & ASSOCIATES, INC.	skill
2	REINHART & ASSOCIATES, INC.	skill
5	SAFWAY SERVICES, INC.	skill
1	SAFWAY SERVICES, INC.	skill
0	SAFWAY SERVICES, INC.	skill
3	SAFWAY SERVICES, INC.	skill
1	SAFWAY SERVICES, INC.	skill
0	SAFWAY SERVICES, INC.	skill
0	SAFWAY SERVICES, INC.	skill
4	SAFWAY SERVICES, INC.	skill
4	SAFWAY SERVICES, INC.	skill
4	SAFWAY SERVICES, INC.	skill
0	SAFWAY SERVICES, INC.	skill
0	SAFWAY SERVICES, INC.	skill
3	SPCC AND CONSULTING	skill
0	SPCC AND CONSULTING	skill
2	SPCC AND CONSULTING	skill
3	THERMAL SOLUTIONS, INC.	skill
2	AGT SERVICES	skill
3	AGT SERVICES	skill

Inv Item Desc	PO No	Supplier Name	SVC Typ
)H GENERATOR TEST & INSPEC	P64962	AGT SERVICES	skill
EN REWEDGE & OMM-99 KIT LA	P67068	AGT SERVICES	skill
EN REWEDGE & OMM-99 KIT LA	P67068	AGT SERVICES	skill
IPLUG SD RISER - PR042016	P67277	BERING SEA ECCOTECH, INC.	skill
51 CIRC WATER PUMP - HYDR	P68103	BERING SEA ECCOTECH, INC.	skill
IRC WTR AREA CABLE BOX OIL	P67311	BERING SEA ECCOTECH, INC.	skill
IPLUG STORM DRAIN PIPING - I	P67275	BERING SEA ECCOTECH, INC.	skill
JX TSF CABLE DUCT CLEANING	P67678	BERING SEA ECCOTECH, INC.	skill
R PRE-HTR WASH/CLEAN BASI	P67026	BERING SEA ECCOTECH, INC.	skill
R PRE-HTR WASH/CLEAN BASI	P67026	BERING SEA ECCOTECH, INC.	skill
VH35 - HYDROBLAST TUBES - P	P68349	BERING SEA ECCOTECH, INC.	skill
BE OIL SPILL SUMPS CLEANUP	P67278	BERING SEA ECCOTECH, INC.	skill
) WATER GLANDS: INSTALL SE	P67747	DIVERSIFIED ENERGY SERVICE	skill
P Turbine Restrip 24Rows Packin	P67746	DIVERSIFIED ENERGY SERVICE	skill
EAT EXCHANGER EDDY CURRE	P67676	ENGINEERING & INSPECTIONS	skill
EAT EXCHANGER EDDY CURRE	P67676	ENGINEERING & INSPECTIONS	skill
EAT EXCHANGER EDDY CURRE	P67676	ENGINEERING & INSPECTIONS	skill
EAT EXCHANGER EDDY CURRE	P67676	ENGINEERING & INSPECTIONS	skill
EAT EXCHANGER EDDY CURRE	P67676	ENGINEERING & INSPECTIONS	skill
EAT EXCHANGER EDDY CURRE	P67676	ENGINEERING & INSPECTIONS	skill
EAT EXCHANGER EDDY CURRE	P67676	ENGINEERING & INSPECTIONS	skill
REMOVE & DISPOSE OF PCB B	P67872	ENVIROSERVICES & TRAINING	skill
REMOVE & DISPOSE WASTE ST	P66405	ENVIROSERVICES & TRAINING	skill
T SERVICE FOR 8 EA. SSH DIS	P67979	FINLAY TESTING LABORATORIE	skill
T INSPECTION FOR 16 EA. WE	P67640	FINLAY TESTING LABORATORIE	skill
T SERVICE FOR 8 EA. SSH DIS	P67979	FINLAY TESTING LABORATORIE	skill
T INSPECTION FOR 16 EA. WE	P67640	FINLAY TESTING LABORATORIE	skill
)ISP CAUSTIC&SAND BLST GRI	P68369	HAZTECH ENVIRONMENTAL SE	skill
JX TSF PCB WATER DISPOSAL	P67960	HAZTECH ENVIRONMENTAL SE	skill
H LABOR TO INSTAL STEAM SE	P68106	HONOMACH INC	skill
H MACHINE SERVICES TURBINI	P66450	HONOMACH INC	skill
WWP HERSEY 6" MHR METER	P67038	PROCESS CONTROLS, INC.	skill
LY SUMP CLEANUP- PR041816	P67409	PSC INDUSTRIAL OUTSOURCIN	skill
VWS SLUDGE REMOVAL	P68077	PSC INDUSTRIAL OUTSOURCIN	skill
IRC WTR INLET TUNNEL OIL CL	P67310	PSC INDUSTRIAL OUTSOURCIN	skill
H SCAFFOLD FOR BLR CC/TRB	P65417	SAFWAY SERVICES, INC.	skill
H, SCAFFLD, THROTTLE VLV, T	P64579	SAFWAY SERVICES, INC.	skill
H, SCFFLD, THRTTLE VLV, 2ND	P64766	SAFWAY SERVICES, INC.	skill
H TURBINE SCAFFOLDING	P65138	SAFWAY SERVICES, INC.	skill
H, SCAFFLD, THROTTLE VLV, T	P64579	SAFWAY SERVICES, INC.	skill
H SCAFFOLD FOR BLR CC/TRB	P65417	SAFWAY SERVICES, INC.	skill
H, LUBE OIL COOLER, SCAFFOI	P63785	SAFWAY SERVICES, INC.	skill
H, LUBE OIL COOLER, SCAFFOI	P63785	SAFWAY SERVICES, INC.	skill
H,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
H,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
H,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
H,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
H,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
H,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
H,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
H,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
H,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
Flr Cold Press Lines - PR042278	P67641	SAFWAY SERVICES, INC.	skill
Flr AirDuct Insul Repair-PR04310	P67642	SAFWAY SERVICES, INC.	skill
ECT & DISMANTLE SCAFFOLI	P67460	SAFWAY SERVICES, INC.	skill
RUCTURE INSPECTION - PR04	P67456	SPCC AND CONSULTING	skill
1 - 6 TURBINE DECKING INSPE	P67366	SPCC AND CONSULTING	skill

	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
.98	PR043035	KAHE 6 STRUCTURAL PAINTING 2004	HECO04-0	K6 STRUCTURE INSPECTION - PR04	P67456	SPCC AND CONSULTING	skill
.98	PR042843	Inspection of K1-4 & K5-6 turbine deck	HECO04-0	KAHE 1 - 6 TURBINE DECKING INSPE	P67366	SPCC AND CONSULTING	skill
.53	PR039223	W-6 #61&#62 CIRC WATER INLET PIPING TO	HECO04-0	W-6 # 61 & # 62 CIRCULATING WATE	P67269	SPCC AND CONSULTING	skill
.19	PR041996	W8 #81 FWH EDDY CURRENT TESTING	11664	W-8 HEAT EXCHANGERS HYDROBLA	P66483	BERING SEA ECCOTECH, INC.	skill
.19	PR041999	W8 #83 FWH EDDY CURRENT TESTING	11664	W-8 HEAT EXCHANGERS HYDROBLA	P66483	BERING SEA ECCOTECH, INC.	skill
.19	PR041589	W8 LUBE OIL COOLERS - ECT & INSPECTION	11664	W-8 HEAT EXCHANGERS HYDROBLA	P66483	BERING SEA ECCOTECH, INC.	skill
.19	PR042095	W8 GLAND STEAM CONDENSER - ECT	11664	W-8 HEAT EXCHANGERS HYDROBLA	P66483	BERING SEA ECCOTECH, INC.	skill
.37	PR042001	W8 #85 FWH EDDY CURRENT TESTING	11664	W-8 HEAT EXCHANGERS HYDROBLA	P66483	BERING SEA ECCOTECH, INC.	skill
.37	PR042000	W8 #84 FWH EDDY CURRENT TESTING	11664	W-8 HEAT EXCHANGERS HYDROBLA	P66483	BERING SEA ECCOTECH, INC.	skill
.37	PR041590	W8 GENERATOR H2 COOLERS - ECT & INSPI	11664	W-8 HEAT EXCHANGERS HYDROBLA	P66483	BERING SEA ECCOTECH, INC.	skill
.10	PR041589	W8 LUBE OIL COOLERS - ECT & INSPECTION	11654	W-8 HEAT EXCHANGERS HYDROBLA	P66483	BERING SEA ECCOTECH, INC.	skill
.11	PR041996	W8 #81 FWH EDDY CURRENT TESTING	11654	W-8 HEAT EXCHANGERS HYDROBLA	P66483	BERING SEA ECCOTECH, INC.	skill
.11	PR041999	W8 #83 FWH EDDY CURRENT TESTING	11654	W-8 HEAT EXCHANGERS HYDROBLA	P66483	BERING SEA ECCOTECH, INC.	skill
.11	PR042095	W8 GLAND STEAM CONDENSER - ECT	11654	W-8 HEAT EXCHANGERS HYDROBLA	P66483	BERING SEA ECCOTECH, INC.	skill
.21	PR042001	W8 #85 FWH EDDY CURRENT TESTING	11654	W-8 HEAT EXCHANGERS HYDROBLA	P66483	BERING SEA ECCOTECH, INC.	skill
.21	PR042000	W8 #84 FWH EDDY CURRENT TESTING	11654	W-8 HEAT EXCHANGERS HYDROBLA	P66483	BERING SEA ECCOTECH, INC.	skill
.21	PR041590	W8 GENERATOR H2 COOLERS - ECT & INSPI	11654	W-8 HEAT EXCHANGERS HYDROBLA	P66483	BERING SEA ECCOTECH, INC.	skill
.32	PR039789	W8 NEW/USED OIL TANK CLEAN & SAMPLE	11682	W8 NEW/USED LUBE OIL TANK CLEA	P67982	BERING SEA ECCOTECH, INC.	skill
.10	PR041831	W8 GENERATOR BEARING #6 INSPECTION	MJI-6868A	W-8 OH REBABBIT GEN & LP TURB B	P67976	DIVERSIFIED ENERGY SERVICE	skill
.93	PR000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	04-01-718	WPP-LANFILL DISPOSAL FEE (ESTIM	P68070	ENVIROSERVICES & TRAINING	skill
.58	PR000253	SWO-HAZARD WASTE DISPOSAL (WAIAU)	04-01-718	WPP-PREPARE & PACK WASTE PER	P68070	ENVIROSERVICES & TRAINING	skill
.42	PR040677	W8 SSH DMW DUTCHMEN, REPLACE (116 P	3761	R/T SERVICE FOR 1 EA. WELD SAMP	P69218	FINLAY TESTING LABORATORIE	skill
.42	PR040677	W8 SSH DMW DUTCHMEN, REPLACE (116 P	3761	R/T SERVICE FOR 1 EA. WELD SAMP	P69218	FINLAY TESTING LABORATORIE	skill
.00	PR041589	W8 LUBE OIL COOLERS - ECT & INSPECTION	101504	W8 OH -S/B PRIME PAINT LO TANK C	P69085	GIORDANO'S PAINTING CO	skill
.79	PR039789	W8 NEW/USED OIL TANK CLEAN & SAMPLE	102104	W7&8 PREP AND PAINT USED OIL TA	P69314	GIORDANO'S PAINTING CO	skill
.27	PR041589	W8 LUBE OIL COOLERS - ECT & INSPECTION	102204	W8 OH - PRVDL/M/E CLN/PREP/PAIN	P69085	GIORDANO'S PAINTING CO	skill
.00	PR043614	W9 TURBINE COMPARTMENT ROOF SIDE PA	0410032	W9 OH PROVIDE LABOR TO OPERAT	P69034	HAWAIIAN CRANE & RIGGING L	skill
.41	PR018891	Collect charges for XFMR oil disposal	2435	HPP/KPP/WPP SVCS PU & Disp Used	P58074	HAZTECH ENVIRONMENTAL SE	skill
.50			2449	Removal of 4 waste drums	P69550	HAZTECH ENVIRONMENTAL SE	skill
.91	PR041486	W8 GENERATOR INSPECTION AND SERVICE	28511	WPP- MAKE 3 EA 2 1/2" HEX X 3/4"	P67680	HONOMACH INC	skill
.57	PR041632	W8 HP/IP CYLINDER/BLADE RING/DIAPHRM (	28530	W8 OH - PRVD MACHINING SVCD	P69693	HONOMACH INC	skill
.35	PR041760	W8 CIRC WTR TUNNEL CLEANING	00007518	W-8 TUNNEL CLEANING STOP LOG	P68496	PACIFIC DIVING INDUSTRIES, IN	skill
.37	PR043542	W7: Clean shells from intake tunnels.	00007522	W-7 TUNNEL CLEANING - DIVER ASS	P68861	PACIFIC DIVING INDUSTRIES, IN	skill
.53	PR038881	PREDICT MAINT-PRI SS TUBES/HEADERS	R005999	W3 OH,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
.53	PR038882	PREDICT MAINT-SEC SS TUBES/HEADERS	R005999	W3 OH,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
.91	PR038880	PREDICT MAINT-ECONZR TUBES/HEADERS	R005999	W3 OH,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
.46	PR038883	PREDICT MAINT-STM PIPING HANGRS/SPTS	R006097	W3 OH, BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
.46	PR038885	PREDICT MAINT-DEAERATOR HEATER	R006097	W3 OH, BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
.46	PR038887	PREDICT MAINT-BLR FW PIPING/HANGERS	R006097	W3 OH, BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
.46	PR037877	W3 REFRACTORY; INSUL; BLR CASNG REPA	R006097	W3 OH, BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
.46	PR038870	PREDICT MAINT-WW/GEN TBES/DWNCM	R006097	W3 OH, BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
.75	PR038881	PREDICT MAINT-PRI SS TUBES/HEADERS	R005873	W3 OH,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
.76	PR038882	PREDICT MAINT-SEC SS TUBES/HEADERS	R005873	W3 OH,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
.26	PR038880	PREDICT MAINT-ECONZR TUBES/HEADERS	R005873	W3 OH,BRULS,ECON,SSH,PSH,SCAF	P63814	SAFWAY SERVICES, INC.	skill
.24	PR043550	W8 HYDROBLAST WIND BOX & ECONOMIZE	D006086	W8 ECONOMIZER DRAIN SCAFFOLD	P69159	SAFWAY SERVICES, INC.	skill
.46	PR041537	W8 WW IMPINGEMENT CLAD WELDING	R006123	W8 OH. FIREBOX SCAFFOLDING FO	P67024	SAFWAY SERVICES, INC.	skill
.46	PR040982	W8 SEC SH TUBES/HEADERS-PREDICT MAI	R006123	W8 OH. FIREBOX SCAFFOLDING FO	P67024	SAFWAY SERVICES, INC.	skill
.18	PR043550	W8 HYDROBLAST WIND BOX & ECONOMIZE	D006149	W8 B2 FLR, HYDROBLAST DRN SCAF	P69315	SAFWAY SERVICES, INC.	skill
.96	PR040937	W8 WW/DOWNCOMER/HDR-PREDICTIVE MA	R006123	W8 OH. FIREBOX SCAFFOLDING FO	P67024	SAFWAY SERVICES, INC.	skill
.14	PR043796	W8 INSTALL TURBINE DRAIN ISOLATION VA	D006133	W8 TRB DRN VLV & AUX TSF CABLE	P69159	SAFWAY SERVICES, INC.	skill
.85	PR041537	W8 WW IMPINGEMENT CLAD WELDING	D005998	W8 INSIDE BOILER ADD ON SCAFFO	P68758	SAFWAY SERVICES, INC.	skill
.86	PR040937	W8 WW/DOWNCOMER/HDR-PREDICTIVE MA	D005998	W8 INSIDE BOILER ADD ON SCAFFO	P68758	SAFWAY SERVICES, INC.	skill
.86	PR043550	W8 HYDROBLAST WIND BOX & ECONOMIZE	D006048	W8 ECONOMIZER/WINDBOX DRN SC	P68901	SAFWAY SERVICES, INC.	skill
.88	PR040982	W8 SEC SH TUBES/HEADERS-PREDICT MAI	D005998	W8 INSIDE BOILER ADD ON SCAFFO	P68758	SAFWAY SERVICES, INC.	skill
.53	PR038370	HP Turbine Rotor Overhaul - NDE	D005997	W3 OH, SCAFFOLODING, 7TH FLR, F	P68776	SAFWAY SERVICES, INC.	skill
.68	PR037877	W3 REFRACTORY; INSUL; BLR CASNG REPA	R006004	W3 OH, BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
.68	PR037877	W3 REFRACTORY; INSUL; BLR CASNG REPA	R006003	W3 OH, BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill

Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
387	PREDICT MAINT-BLR FW PIPING/HANGERS	R006003	W3 OH, BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
185	PREDICT MAINT-DEAERATOR HEATER	R006003	W3 OH, BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
170	PREDICT MAINT-WW/GEN TBES/DWNCM	R006004	W3 OH, BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
183	PREDICT MAINT-STM PIPING HANGRS/SPTS	R006004	W3 OH, BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
185	PREDICT MAINT-DEAERATOR HEATER	R006004	W3 OH, BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
183	PREDICT MAINT-STM PIPING HANGRS/SPTS	R006003	W3 OH, BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
187	PREDICT MAINT-BLR FW PIPING/HANGERS	R006004	W3 OH, BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
170	PREDICT MAINT-WW/GEN TBES/DWNCM	R006003	W3 OH, BASIC SCAFFOLD, REF QUO	P64862	SAFWAY SERVICES, INC.	skill
108	W8: WAIAU SUB 8 AUX TSF 28115...	D006133	W8 TRB DRN VLV & AUX TSF CABLE	P69159	SAFWAY SERVICES, INC.	skill
180	W8 WET STACK PPG DETERIORATED/REPAI	D005927	W8 WET STACK SCAFFOLDING. PRO	P68385	SAFWAY SERVICES, INC.	skill
67	K1 LB IK sootblwr drain trap line to	D006005	K1 GRD FLR SOOTBLWR DRAIN - PR	P68899	SAFWAY SERVICES, INC.	skill
92	W7 Econ Inlet Hdr - Replace Tube Stubs	D006171	W7 OUTAGE, XP JNT RMVL SCAFFOI	P69613	SAFWAY SERVICES, INC.	skill
82	LT K4 South yarway line down to the Cont	D006049	K4-S.YARWAY TUBING - SAFWAY QU	P69080	SAFWAY SERVICES, INC.	skill
34	W8 GR FAN DMPER (PO-4) VANE SVC	D005894	W8 GAS RECIRC FAN PO4 SCAFFOLI	P68072	SAFWAY SERVICES, INC.	skill
37	W8 WW IMPINGEMENT CLAD WELDING	D005890	W8 BLR IMPINGED TUBE SB ENCLOS	P68031	SAFWAY SERVICES, INC.	skill
74	Sandblast, prime and re-paint tank	D005899	WPP DIESEL TANK # 1 INSTALL SCAF	P68094	SAFWAY SERVICES, INC.	skill
35	KAHE 6 STRUCTURAL PAINTING 2004	HECO04-0	K6 STRUCTURE INSPECTION - PR043	P67456	SPCC AND CONSULTING	skill
96	W08: APH hopper plating deteriorated.	HECO03-0	W8 APH HOPPER PREP/PAINT/CONS	P68866	SPCC AND CONSULTING	skill
34	Geometry PIG	11728	IWLELI PIPELINE PUMPER TRUCK SE	P68071	BERING SEA ECCOTECH, INC.	skill
46	High Resolution Axial Flaw Detection PIG	11735	HPP VACUUM TRUCK PIG RUN IWILE	P70177	BERING SEA ECCOTECH, INC.	skill
64	W9 OH - GENERATOR ROTOR	11734	W9 OH, GEN.INSP. BY AGT. BSE WTF	P70704	BERING SEA ECCOTECH, INC.	skill
18	K1-Clear multiple floor drain plugs	11725	K1-1ST & 3RD FLOOR DRAIN CLEANII	P71036	BERING SEA ECCOTECH, INC.	skill
85	LB K3 LO Transfer pump piping corroeded	11696	K3-LO PIPE TRENCH DRAIN JOB #56-	P69741	BERING SEA ECCOTECH, INC.	skill
56	W4 Boiler wash sump and #51 floor drain	11724	W-3&4 BOILER WASH SUMP/W-5 OIL	P70707	BERING SEA ECCOTECH, INC.	skill
20	CleanUp Overflow of Nuetralization Tank	11726	KPP-NUET TANK OVERFLOW CLEAN	P71024	BERING SEA ECCOTECH, INC.	skill
67	HIGH RESOLUTION ULTRASCRAN WM PIG IN	11717	PROVIDED VAC TRUCK SERVICE FOI	P70777	BERING SEA ECCOTECH, INC.	skill
67	WWTF pH adjustment tank has an oil	11680	WPP LABOR / EQUIP, CLN OIL ON PH	P70093	BERING SEA ECCOTECH, INC.	skill
75	LB-ASSIST BSE WITH CLEANING BWWS	11692	KPP-BWWS SLUDGE DISPOSAL-PR0	P70163	BERING SEA ECCOTECH, INC.	skill
84	LB - Assist @ FO tanks (removing water)	11566	KPP-DEWATER FO TANKS-PR041784	P70162	BERING SEA ECCOTECH, INC.	skill
19	K2 & K3 - Clear Multiple Floor Drains	11718	K2/3 CLEAR MISC FLOOR DRAINS	P71043	BERING SEA ECCOTECH, INC.	skill
08	W8: Fuel oil clean-up...supply line RV	11697	W-8 FUEL OIL DISCHARGE - CLEAN-I	P69690	BERING SEA ECCOTECH, INC.	skill
42	W7: Clean shells from intake tunnels.	11691	W-7 TUNNEL CLEANING - PROVIDE H	P68862	BERING SEA ECCOTECH, INC.	skill
32	W8 HP/IP CYLINDER/BLADE RING/DIAPHRM (	11716	W8 OH PROVIDE L/E TO CLEAN S/B S	P69087	BERING SEA ECCOTECH, INC.	skill
97	W7: Boiler furnace fuel oil cleanup.	11722	W-7 FURNACE OIL LEAK - PROVIDE (	P70705	BERING SEA ECCOTECH, INC.	skill
09	Sludge drying beds-Cells 1-6 Refurbish	11720	SLUDGE DRYING CELLS - PUMP EXC	P70711	BERING SEA ECCOTECH, INC.	skill
50	W8 HYDROBLAST WIND BOX & ECONOMIZEI	11690	W8 WINDBOX & ECONOMIZER HYDR	P68778	BERING SEA ECCOTECH, INC.	skill
37	W9 - CT COMPRESSOR BLADE REPAIR - REN	MJI-6914	W9 CT RETIRE COMP &TUR STAT & I	P69310	DIVERSIFIED ENERGY SERVICE	skill
58	W8 LP ROTOR OVERHAUL	MJI-6869	W8 TUR SERV REPAIR LP RTR & STA	P68277	DIVERSIFIED ENERGY SERVICE	skill
18	Soil to Air Interface Inspection of Pipe	877	HPP INSPECTION OF 25 LOCATION A	P67022	ENGINEERING & INSPECTIONS	skill
70	HP Turbine Rotor Overhaul - NDE	806	W3 OH MT TESTING SERVICES	P65303	ENGINEERING & INSPECTIONS	skill
		02-03-601!	Lab Waste Program Manual	P70272	ENVIROSERVICES & TRAINING	skill
17	W9 - CT COMPRESSOR BLADE REPAIR - REN	120704	W9 OH - PRVD L/M/E FOR S/B SVCS.	P70483	GIORDANO'S PAINTING CO	skill
12	CLEAN/RE-COAT K1-4 STACK EXTERIOR	0-11230	KPP LBR & MTRLS TO IMPROVE APP	P68649	HAMON CUSTODIS, INC.	skill
17	W9 - CT COMPRESSOR BLADE REPAIR - REN	0411046	W9 OH PRVD CRANE & OPERATOR A	P69687	HAWAIIAN CRANE & RIGGING L	skill
11	Collect charges for XFMR oil disposal	2503	HPP/KPP/WPP SVCS PU & Disp Used	P58074	HAZTECH ENVIRONMENTAL SE	skill
6	W8 LP CYLINDER/BLADE RING/DIAPHRM OH	04-MO11F	W-8 OH SANDBLAST SERVICES AS R	P66409	HONOLULU SHIPYARD INC	skill
2	W8 HP/IP CYLINDER/BLADE RING/DIAPHRM (	04-M013F	W8 OH-PRVD 2 MECHANIC TO ASSIS	P67292	HONOLULU SHIPYARD INC	skill
2	W7: Clean shells from intake tunnels.	00007525	W-7 CIRCULATING WATER INTAKE T	P69225	PACIFIC DIVING INDUSTRIES, IN	skill
4	Collect $-Honolulu Stn WW Overbd Flow Mt	43856.1	HPP OVRBRD METER S/N 9814975 C/	P68624	PROCESS CONTROLS, INC.	skill
2	W9 - CT COMPRESOR BLADE REPAIR- NDT/II	7276	W9 PRVD NDE/NDT INSPECTION SEF	P69804	REINHART & ASSOCIATES, INC.	skill
2	W9 - CT COMPRESOR BLADE REPAIR- NDT/II	7276	W9 PRVD NDE/NDT INSPECTION SEF	P69804	REINHART & ASSOCIATES, INC.	skill
8	W9 OH - GENERATOR SERVICE	D006207	INSTALL SUPPORT JACK TO SHORE	P69567	SAFWAY SERVICES, INC.	skill
9	W3 IDF LS/HS change oil/inspect bearing	D006322	W3 7TH FLR / DI FAN SCAFFOLD (SAI	P70340	SAFWAY SERVICES, INC.	skill
7	SWO-Minor Shop Maintenance, Clean Up	D006203	KPP-SAND BLAST SHED-PR002107	P69857	SAFWAY SERVICES, INC.	skill
0	W8 BLR FW PIPING - PREDICT MAINT	R006353	W-8 OH SCAFFOLD BRULS/CPP/BLR	P66480	SAFWAY SERVICES, INC.	skill
6	W8 INSPECT/REPAIR COLD/PRESS LINES	R006353	W-8 OH SCAFFOLD BRULS/CPP/BLR	P66480	SAFWAY SERVICES, INC.	skill
7	W9 - CT COMPRESSOR BLADE REPAIR - REN	D006369	W9 O.H. SCAFFOLD TO WORK ON C(	P70090	SAFWAY SERVICES, INC.	skill

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ACCOUNT CODE	LL PERI	TransYr	AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
PIN878HSTNENPIZZZZZ501	200403	2004	3,310.22	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-4106	H-7 REMOVAL & DISPOSAL OF ASBE:	P58891	OHANA ENVIRONMENTAL	supp
PIN878HSTNENPIZZZZZ501	200403	2004	4,237.23	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-4105	H-7 REMOVAL & DISPOSAL OF ASBE:	P58891	OHANA ENVIRONMENTAL	supp
PIN878HSTNENPIZZZZZ501	200403	2004	7,967.56	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-4107	H-7 REMOVAL & DISPOSAL OF ASBE:	P58891	OHANA ENVIRONMENTAL	supp
PIX878W06NENPIZZZZZ501	200403	2004	8,130.35	PR035834	W-6 economizer outlet duct's insulation	OEC-4109	W-6 BOILER CASING - ASBESTOS AB	P59498	OHANA ENVIRONMENTAL	supp
PIN878HSTNENPIZZZZZ501	200403	2004	9,403.78	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	OEC-4133	H-7 REMOVAL & DISPOSAL OF ASBE:	P58891	OHANA ENVIRONMENTAL	supp
PIN262H08NENPIZZZZZ501	200403	2004	50,000.00	PR038363	H85 FWHEATER ASBESTOS REMOVAL	OEC-4139	HPP FWH 84/85 REMVL & DISP ASBE:	P58892	OHANA ENVIRONMENTAL	supp
PIN259H08NENPIZZZZZ501	200403	2004	180.25	PR038536	H8 STEAM DRAIN LINE PIN HOLE LEAK	45387	HPP 1ST FLOOR REMOVE INSULATIC	P59333	PETROCHEM INSULATION INC.	supp
PIX259W06NENPIZZZZZ501	200403	2004	1,434.40	PR026393	W6 BOILER INSULATION MAKAI/EWA CORNE	45471	W-6 BOILER CASING RE-INSULATION	P59171	PETROCHEM INSULATION INC.	supp
PIX259W06NENPIZZZZZ501	200403	2004	1,434.40	PR026967	W6 Blr outer protective coating	45471	W-6 BOILER CASING RE-INSULATION	P59171	PETROCHEM INSULATION INC.	supp
PIX878W06NENPIZZZZZ501	200403	2004	1,434.40	PR035834	W-6 economizer outlet duct's insulation	45471	W-6 BOILER CASING RE-INSULATION	P59171	PETROCHEM INSULATION INC.	supp
PIX878W06NENPIZZZZZ501	200403	2004	1,434.40	PR038305	W-6 APH AIR OUT DUCT TO WINDBOX	45471	W-6 BOILER CASING RE-INSULATION	P59171	PETROCHEM INSULATION INC.	supp
PIX259W06NENPIZZZZZ501	200403	2004	2,006.00	PR026967	W6 Blr outer protective coating	45386	W-6 BOILER INSULATION - CONTRAC	P58686	PETROCHEM INSULATION INC.	supp
PIX878W06NENPIZZZZZ501	200403	2004	2,006.00	PR035834	W-6 economizer outlet duct's insulation	45386	W-6 BOILER INSULATION - CONTRAC	P58686	PETROCHEM INSULATION INC.	supp
PIX259W06NENPIZZZZZ501	200403	2004	2,066.78	PR026393	W6 BOILER INSULATION MAKAI/EWA CORNE	45386	W-6 BOILER INSULATION - CONTRAC	P58686	PETROCHEM INSULATION INC.	supp
PIT258K05NEP0000519501	200403	2004	6,853.17	PR037166	K5 BLR FW PIPING - PREDICT MAINT	45388	K5 OH, 6 PETROCHM HELPERS FOR	P58696	PETROCHEM INSULATION INC.	supp
PIT257K05NEP0000519501	200403	2004	6,853.19	PR037069	K5 REFRACTORY; INSUL; BLR CASING REPA	45388	K5 OH, 6 PETROCHM HELPERS FOR	P58696	PETROCHEM INSULATION INC.	supp
PIT258K05NEP0000519501	200403	2004	6,853.19	PR037165	K5 STM PIPING HANGRS/SPTS-PREDICT MAI	45388	K5 OH, 6 PETROCHM HELPERS FOR	P58696	PETROCHEM INSULATION INC.	supp
PIT259K05NEP0000519501	200403	2004	6,853.19	PR037240	K52 APH Gas In-Out Ducts Leaking	45388	K5 OH, 6 PETROCHM HELPERS FOR	P58696	PETROCHEM INSULATION INC.	supp
PIX271WFSNENPIZZZZZ501	200404	2004	10,000.00	HP001802	T3 insulation work. See extended descrip	04162004	WAIAU TNKYD #3 PIPING IINSULAOTI	P61659	B & J INSULATION CO., INC.	supp
PIX878W06NENPIZZZZZ501	200404	2004	226.48	PR038305	W-6 APH AIR OUT DUCT TO WINDBOX	11350	W-6 BOILER CASING & DUCT REPAIR	P59256	BERING SEA ECCOTECH, INC.	supp
PIX259W06NENPIZZZZZ501	200404	2004	226.50	PR026393	W6 BOILER INSULATION MAKAI/EWA CORNE	11350	W-6 BOILER CASING & DUCT REPAIR	P59256	BERING SEA ECCOTECH, INC.	supp
PIX259W06NENPIZZZZZ501	200404	2004	226.50	PR026967	W6 Blr outer protective coating	11350	W-6 BOILER CASING & DUCT REPAIR	P59256	BERING SEA ECCOTECH, INC.	supp
PIX878W06NENPIZZZZZ501	200404	2004	226.50	PR035834	W-6 economizer outlet duct's insulation	11350	W-6 BOILER CASING & DUCT REPAIR	P59256	BERING SEA ECCOTECH, INC.	supp
PIT259K05NEP0000519501	200404	2004	2,191.49	PR037506	K5 MAIN STEAM STOP VLV MOV-1 REPAIR	11404	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
PIT258K05NEP0000519501	200404	2004	2,191.51	PR037158	K5 PRI SH TUBE/HEADERS-PREDICT MAIN	11404	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
PIT258K05NEP0000519501	200404	2004	2,592.81	PR037158	K5 PRI SH TUBE/HEADERS-PREDICT MAIN	11351	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
PIT259K05NEP0000519501	200404	2004	2,592.82	PR037506	K5 MAIN STEAM STOP VLV MOV-1 REPAIR	11351	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
PIX257WSTNENPIZZZZZ501	200404	2004	3,215.86	PR028920	Waiau PP-Temporary Contract Workers	11345	WPP-BSE TEMP HELPER FOR FEB 2(	P59324	BERING SEA ECCOTECH, INC.	supp
PIK242KSTNENPIZZZZZ501	200404	2004	3,287.27	PR016192	LB-K5 #51 AIR HEATER AIR IN DUCT	11404	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
PIT257K05NEP0000519501	200404	2004	3,287.27	PR037112	K51 APH Service	11404	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
PIT257K05NEP0000519501	200404	2004	3,287.27	PR037073	K5 BLR ACCESS/EXPLO DOORS - SERVICE	11404	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
PIT257K05NEP0000519501	200404	2004	3,287.27	PR037069	K5 REFRACTORY; INSUL; BLR CASING REPA	11404	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
PIK242KSTNENPIZZZZZ501	200404	2004	3,889.21	PR016192	LB-K5 #51 AIR HEATER AIR IN DUCT	11351	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
PIT257K05NEP0000519501	200404	2004	3,889.21	PR037073	K5 BLR ACCESS/EXPLO DOORS - SERVICE	11351	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
PIT257K05NEP0000519501	200404	2004	3,889.21	PR037069	K5 REFRACTORY; INSUL; BLR CASING REPA	11351	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
PIT257K05NEP0000519501	200404	2004	3,889.21	PR037112	K51 APH Service	11351	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
PIN262H08NENPIZZZZZ501	200404	2004	4,185.05	PR000260	HONOLULU STATION CONDENSER CLEANIN	11401	LABOR ASSIST CONDENCER CLEANI	P61863	BERING SEA ECCOTECH, INC.	supp
PIT257K05NEP0000519501	200404	2004	4,383.02	PR037037	K5 BOILER AND AIR HEATER WASH	11404	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
PIN262H08NENPIZZZZZ501	200404	2004	4,512.42	PR000260	HONOLULU STATION CONDENSER CLEANIN	11217	LABOR ASSIST CONDENCER CLEANI	P61863	BERING SEA ECCOTECH, INC.	supp
PIX257WSTNENPIZZZZZ501	200404	2004	4,574.45	PR028920	Waiau PP-Temporary Contract Workers	11400	WPP-TEMP HELPER FOR MARCH 20(	P60253	BERING SEA ECCOTECH, INC.	supp
PIT257K05NEP0000519501	200404	2004	5,185.62	PR037037	K5 BOILER AND AIR HEATER WASH	11351	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
PIN262H08NENPIZZZZZ501	200404	2004	5,864.49	PR000260	HONOLULU STATION CONDENSER CLEANIN	11346	LABOR ASSIST CONDENCER CLEANI	P61863	BERING SEA ECCOTECH, INC.	supp
PIX262W03NENPIZZZZZ501	200404	2004	8,370.10	PR000261	WAIAU STATION CONDENSER CLEANING	11401	LABOR ASSIST CONDENCER CLEANI	P61863	BERING SEA ECCOTECH, INC.	supp
PIL262K01NENPIZZZZZ501	200404	2004	8,370.11	PR000264	KAHE CONDENSER CLEANING	11401	LABOR ASSIST CONDENCER CLEANI	P61863	BERING SEA ECCOTECH, INC.	supp
PIL262K01NENPIZZZZZ501	200404	2004	9,024.84	PR000264	KAHE CONDENSER CLEANING	11217	LABOR ASSIST CONDENCER CLEANI	P61863	BERING SEA ECCOTECH, INC.	supp
PIX262W03NENPIZZZZZ501	200404	2004	9,024.84	PR000261	WAIAU STATION CONDENSER CLEANING	11217	LABOR ASSIST CONDENCER CLEANI	P61863	BERING SEA ECCOTECH, INC.	supp
PIL262K01NENPIZZZZZ501	200404	2004	11,728.99	PR000264	KAHE CONDENSER CLEANING	11346	LABOR ASSIST CONDENCER CLEANI	P61863	BERING SEA ECCOTECH, INC.	supp
PIX262W03NENPIZZZZZ501	200404	2004	11,728.99	PR000261	WAIAU STATION CONDENSER CLEANING	11346	LABOR ASSIST CONDENCER CLEANI	P61863	BERING SEA ECCOTECH, INC.	supp
PIT261K05NEP0000519501	200404	2004	11,761.64	PR037369	K5 HP/IP Cylinder/Blade Ring/Diaphrm OH	11347	K-5 TURB REPAIR 3 EA LABOR ASSIS	P59147	BERING SEA ECCOTECH, INC.	supp
PIL271KTFNENPIZZZZZ501	200404	2004	11,918.67	PR027107	Collect $- Kahe Valves & Packing Maint.	11348	KPP MAINT LABOR ASSIST FEBRUAF	P59891	BERING SEA ECCOTECH, INC.	supp
PIL271KTFNENPIZZZZZ501	200404	2004	15,321.91	PR027107	Collect $- Kahe Valves & Packing Maint.	11403	KPP MAIINT LABOR ASSIST MARCH 2	P61583	BERING SEA ECCOTECH, INC.	supp
PIT261K05NEP0000519501	200404	2004	17,143.52	PR037369	K5 HP/IP Cylinder/Blade Ring/Diaphrm OH	11402	K-5 TURB REPAIR 3 EA LABOR ASSIS	P59147	BERING SEA ECCOTECH, INC.	supp
PIX259WSTNENPIZZZZZ501	200404	2004	40,349.50	PR038802	W5: Tunnel Cleaning	11353	W-5 CIRC WTR INTAKE TUNNEL & DI	P60511	BERING SEA ECCOTECH, INC.	supp
PIX273W09NENPIZZZZZ501	200404	2004	4,124.74	PR038666	W9 - Combustion Borescope Inspection	MJI-6811	CT9 OUTAGE MILLWRIGHT SERVICE	P61462	DIVERSIFIED ENERGY SERVICE	supp
PIT261K05NEP0000519501	200404	2004	7,117.25	PR037369	K5 HP/IP Cylinder/Blade Ring/Diaphrm OH	MJI-6800	K-5 TURB OH ONE MILLWRIGHT LAE	P59142	DIVERSIFIED ENERGY SERVICE	supp
PIT258K05NEP0000519501	200404	2004	3,234.21	PR037430	K51 FWH - PRED MAINT	HECO3-04	K5 ONE CONTRACT CERT. WELDER	P58889	HAWAIIAN DREDGING	supp
PIT257K05NEP0000519501	200404	2004	4,851.30	PR037073	K5 BLR ACCESS/EXPLO DOORS - SERVICE	HECO3-04	K5 ONE CONTRACT CERT. WELDER	P58889	HAWAIIAN DREDGING	supp

	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
.32	PR037074	K5 BLR OBSERVATION PORTS - SERVICE	HECO3-04	K5 ONE CONTRACT CERT. WELDER	P58889	HAWAIIAN DREDGING	supp
.32	PR037075	K5 BURNER FRONT EQMT - SERVICE	HECO3-04	K5 ONE CONTRACT CERT. WELDER	P58889	HAWAIIAN DREDGING	supp
.32	PR037037	K5 BOILER AND AIR HEATER WASH	HECO3-04	K5 ONE CONTRACT CERT. WELDER	P58889	HAWAIIAN DREDGING	supp
.32	PR037080	K5 BLR DRAFT MANUAL DAMPERS - SERVICI	HECO3-04	K5 ONE CONTRACT CERT. WELDER	P58889	HAWAIIAN DREDGING	supp
32	PR037486	K5 OH, 56 FWH INLET 3 WAY VALVE - REPAIF	HECO3-04	K5 ONE CONTRACT CERT. WELDER	P58889	HAWAIIAN DREDGING	supp
74	PR037159	K5 SEC SH TUBES/HEADERS-Predict Maint	HECO3-04	K5 THREE CONTRACT WELDERS FC	P58948	HAWAIIAN DREDGING	supp
75	PR037157	K5 ECONZR TUBES/HEADERS-PREDICT MAIN	HECO3-04	K5 THREE CONTRACT WELDERS FC	P58948	HAWAIIAN DREDGING	supp
12	PR016192	LB-K5 #51 AIR HEATER AIR IN DUCT	HECO3-04	K5 THREE CONTRACT WELDERS FC	P58948	HAWAIIAN DREDGING	supp
12	PR037240	K52 APH Gas In-Out Ducts Leaking	HECO3-04	K5 THREE CONTRACT WELDERS FC	P58948	HAWAIIAN DREDGING	supp
12	PR029695	K5 REPLACE APH HOPPERS - THINNED	HECO3-04	K5 THREE CONTRACT WELDERS FC	P58948	HAWAIIAN DREDGING	supp
12	PR022392	LB K5 flooring/duct work under #51 AH	HECO3-04	K5 THREE CONTRACT WELDERS FC	P58948	HAWAIIAN DREDGING	supp
36	PR028920	Waiau PP-Temporary Contract Workers	HECO3-04	WPP-TEMP BOILERMAKER FOR MAR	P60337	HAWAIIAN DREDGING	supp
49	PR037069	K5 REFRACTORY; INSUL; BLR CASING REPA	HECO3-04	K5 THREE CONTRACT WELDERS FC	P58948	HAWAIIAN DREDGING	supp
25	PR035951	K4 BLR DRAFT EXPANSION JOINT REPAIRS	HECO1-04	K4 EXP JOINT, 3 WELDER SVCS (3 W	P57706	HAWAIIAN DREDGING	supp
00	PR038812	W3: Soot blower drain piping rotted.	OEC-4191	W-3 SOOTBLOWER LINE INSULATIOI	P60844	OHANA ENVIRONMENTAL	supp
96	PR037069	K5 REFRACTORY; INSUL; BLR CASING REPA	46362	K5 OH, 6 PETROCHM HELPERS FOR	P58696	PETROCHEM INSULATION INC.	supp
96	PR037166	K5 BLR FW PIPING - PREDICT MAINT	46362	K5 OH, 6 PETROCHM HELPERS FOR	P58696	PETROCHEM INSULATION INC.	supp
96	PR037165	K5 STM PIPING HANGRS/SPTS-PREDICT MAI	46362	K5 OH, 6 PETROCHM HELPERS FOR	P58696	PETROCHEM INSULATION INC.	supp
96	PR037240	K52 APH Gas In-Out Ducts Leaking	46362	K5 OH, 6 PETROCHM HELPERS FOR	P58696	PETROCHEM INSULATION INC.	supp
01	PR039560	W7: APH hopper drains...open/clear	11409	W-3/7 SERVICES TO MIX BLR ASH/RE	P62718	BERING SEA ECCOTECH, INC.	supp
02	PR037873	W3 BOILER AND AIR PREHEATER WASH	11409	W-3/7 SERVICES TO MIX BLR ASH/RE	P62718	BERING SEA ECCOTECH, INC.	supp
58	PR037567	K5 GENERATOR H2 COOLERS - PRED MAINT	11355	K5 OH, H2 CLR HYDROBLAST TUBE/S	P60838	BERING SEA ECCOTECH, INC.	supp
07	PR039275	LB-ASSIST BSE WITH CLEANING BWWS	11411	K-3 BLR CLEAN OUT SLUDGE WASH	P62756	BERING SEA ECCOTECH, INC.	supp
74	PR027107	Collect $- Kahe Valves & Packing Maint.	11220	KPP MAINT LABOR ASSIST JANUARY	P59889	BERING SEA ECCOTECH, INC.	supp
94	PR037369	K5 HP/IP Cylinder/Blade Ring/Diaphrm OH	MJI-6814	K-5 TURB OH ONE MILLWRIGHT LAB	P59142	DIVERSIFIED ENERGY SERVICE	supp
00	PR037369	K5 HP/IP Cylinder/Blade Ring/Diaphrm OH	MJI-6821	K-5 TURB OH ONE MILLWRIGHT LAB	P59142	DIVERSIFIED ENERGY SERVICE	supp
46	PR028920	Waiau PP-Temporary Contract Workers	HECO4-04	WPP-BOILERMAKER TEMP HELP AP	P61744	HAWAIIAN DREDGING	supp
47	PR039258	K5 BOILER CHEMICAL CLEANING 4/04	HECO4-04	K-5 OH 3 EA CONTRACT PIPE WELDI	P61149	HAWAIIAN DREDGING	supp
32	PR039819	H8 BOILER ATMOS FLASH TNK DRN LINE	OEC-4249	H8 BLOWNDOWN TNK INSULATION F	P61976	OHANA ENVIRONMENTAL	supp
37	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-4328	WAIAU # 3 TNKYD DISCHARGE HEAD	P61585	OHANA ENVIRONMENTAL	supp
99	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-4330	WPP #3 FUEL OIL TANKYARD - AUX S	P61416	OHANA ENVIRONMENTAL	supp
78	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-4288	W-4 FUEL OIL RECIRC LINE - REMOV	P62274	OHANA ENVIRONMENTAL	supp
02	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-4275	WAIAU LOCKER ROOMS - ASBESTOS	P61971	OHANA ENVIRONMENTAL	supp
24	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-4329	WAIAU # 3 TNKYD DISCHARGE HEAD	P61585	OHANA ENVIRONMENTAL	supp
04	HP001802	T3 insulation work. See extended descrip	OEC-4332	W-3 FO TNKYRD W-32 FO HTR ASBE	P61238	OHANA ENVIRONMENTAL	supp
90	PR032829	W9 Exhaust duct outlet screen loose	11426	W-9 OUTAGE - OVERTIME WORK FO	P62083	BERING SEA ECCOTECH, INC.	supp
92	PR037564	K5 LUBE OIL COOLERS (2) - PRED MAINT	11439	K5 L.O. COOLER ENDS HYDROBLAST	P61970	BERING SEA ECCOTECH, INC.	supp
30	PR037506	K5 MAIN STEAM STOP VLV MOV-1 REPAIR	11427	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
31	PR037158	K5 PRI SH TUBE/HEADERS-PREDICT MAIN	11427	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
12	PR016192	LB-K5 #51 AIR HEATER AIR IN DUCT	11427	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
12	PR037069	K5 REFRACTORY; INSUL; BLR CASING REPA	11427	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
12	PR037073	K5 BLR ACCESS/EXPLO DOORS - SERVICE	11427	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
12	PR037112	K51 APH Service	11427	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
22	PR037037	K5 BOILER AND AIR HEATER WASH	11427	K5 SEVEN CONTRACT HELPERS FOI	P58839	BERING SEA ECCOTECH, INC.	supp
21	PR037108	K5 BOILER STACK REPAIRS	11443	K5 OH. STACK ASH REMOVAL. PROV	P62585	BERING SEA ECCOTECH, INC.	supp
17	PR000260	HONOLULU STATION CONDENSER CLEANIN	11423	LABOR ASSIST CONDENCER CLEANI	P61863	BERING SEA ECCOTECH, INC.	supp
18	PR028920	Waiau PP-Temporary Contract Workers	11422	WPP-BSE HELPER FOR APRIL 2004	P61727	BERING SEA ECCOTECH, INC.	supp
15	PR000264	KAHE CONDENSER CLEANING	11423	LABOR ASSIST CONDENCER CLEANI	P61863	BERING SEA ECCOTECH, INC.	supp
15	PR000261	WAIAU STATION CONDENSER CLEANING	11423	LABOR ASSIST CONDENCER CLEANI	P61863	BERING SEA ECCOTECH, INC.	supp
'0	PR039275	LB-ASSIST BSE WITH CLEANING BWWS	11408	K-4 BLR CLEAN OUT SLUDGE WASH	P62755	BERING SEA ECCOTECH, INC.	supp
'4	PR027107	Collect $- Kahe Valves & Packing Maint.	11425	KAHE PWR PLANT LABOR ASSIST AF	P62843	BERING SEA ECCOTECH, INC.	supp
18	PR037369	K5 HP/IP Cylinder/Blade Ring/Diaphrm OH	11424	K-5 TURB REPAIR 3 EA LABOR ASSIS	P59147	BERING SEA ECCOTECH, INC.	supp
18	PR028920	Waiau PP-Temporary Contract Workers	HECO5-04	WPP BOILERMAKER TEMP HELP FOI	P62842	HAWAIIAN DREDGING	supp
14	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	OEC-4331	WPP #3 FUEL OIL TANKYARD - AUX S	P61416	OHANA ENVIRONMENTAL	supp
10	PR040819	IWILEI TNK 2 REPAIR INSULATION	47499	IWILEI TNK2 REPAIR INSULATION SIC	P63349	PETROCHEM INSULATION INC.	supp
18	PR040422	W3 OVHL START-UP/CLEAN UP ACTIVITIES	11546	W3 OH CONTRACT LABOR ASSIST 7	P64166	BERING SEA ECCOTECH, INC.	supp
'0	PR039516	W31 ID FAN Wash/balance fan next OH	11545	W-3 OVHL 4EA. CONTRACT HELPERS	P63305	BERING SEA ECCOTECH, INC.	supp

PO No	Supplier Name	SVC Typ
SS P65056	BERING SEA ECCOTECH, INC.	supp
ERS P63305	BERING SEA ECCOTECH, INC.	supp
ERS P63305	BERING SEA ECCOTECH, INC.	supp
ERS P63305	BERING SEA ECCOTECH, INC.	supp
ERS P63305	BERING SEA ECCOTECH, INC.	supp
ERS P63305	BERING SEA ECCOTECH, INC.	supp
R A P63155	BERING SEA ECCOTECH, INC.	supp
OR P62584	BERING SEA ECCOTECH, INC.	supp
ERS P63305	BERING SEA ECCOTECH, INC.	supp
STS P65056	BERING SEA ECCOTECH, INC.	supp
SS P65056	BERING SEA ECCOTECH, INC.	supp
SS P65056	BERING SEA ECCOTECH, INC.	supp
STS P65056	BERING SEA ECCOTECH, INC.	supp
STS P65056	BERING SEA ECCOTECH, INC.	supp
I P64583	BERING SEA ECCOTECH, INC.	supp
RII P63247	DIVERSIFIED ENERGY SERVICE	supp
RII P63247	DIVERSIFIED ENERGY SERVICE	supp
OR P63298	GIORDANO'S PAINTING CO	supp
AC P63311	HAWAIIAN DREDGING	supp
AC P63311	HAWAIIAN DREDGING	supp
AC P63311	HAWAIIAN DREDGING	supp
AC P63311	HAWAIIAN DREDGING	supp
AC P63311	HAWAIIAN DREDGING	supp
AC P63311	HAWAIIAN DREDGING	supp
AC P63311	HAWAIIAN DREDGING	supp
JNI P63716	HAWAIIAN DREDGING	supp
A: P63332	OHANA ENVIRONMENTAL	supp
TC P62220	OHANA ENVIRONMENTAL	supp
A: P63332	OHANA ENVIRONMENTAL	supp
TC P62220	OHANA ENVIRONMENTAL	supp
S I P64188	OHANA ENVIRONMENTAL	supp
VL P63924	PETROCHEM INSULATION INC.	supp
VL P63924	PETROCHEM INSULATION INC.	supp
R P58696	PETROCHEM INSULATION INC.	supp
R P58696	PETROCHEM INSULATION INC.	supp
R P58696	PETROCHEM INSULATION INC.	supp
R P58696	PETROCHEM INSULATION INC.	supp
LA P63259	PETROCHEM INSULATION INC.	supp
CIA P64965	AMERICAN ELECTRIC LLC	supp
CIA P64965	AMERICAN ELECTRIC LLC	supp
CIA P64965	AMERICAN ELECTRIC LLC	supp
CIA P64965	AMERICAN ELECTRIC LLC	supp
TIC P65800	B & J INSULATION CO., INC.	supp
ST. P65422	BERING SEA ECCOTECH, INC.	supp
P63665	BERING SEA ECCOTECH, INC.	supp
SIS P59147	BERING SEA ECCOTECH, INC.	supp
P65422	BERING SEA ECCOTECH, INC.	supp
P65410	BERING SEA ECCOTECH, INC.	supp
R P63298	GIORDANO'S PAINTING CO	supp
AC P63311	HAWAIIAN DREDGING	supp
AC P63311	HAWAIIAN DREDGING	supp
AC P63311	HAWAIIAN DREDGING	supp
AC P63311	HAWAIIAN DREDGING	supp
AC P63311	HAWAIIAN DREDGING	supp
AC P63311	HAWAIIAN DREDGING	supp
AC P63311	HAWAIIAN DREDGING	supp
EI P65316	HAWAIIAN DREDGING	supp

v No	Inv Item Desc	PO No	Supplier Name	SVC Typ
CO7-04	W3 2 EA. CONTRACT CERTIFIED WEI	P65316	HAWAIIAN DREDGING	supp
CO7-04	W3 2 EA. CONTRACT CERTIFIED WEI	P65316	HAWAIIAN DREDGING	supp
CO7-04	W3 2 EA. CONTRACT CERTIFIED WEI	P65316	HAWAIIAN DREDGING	supp
CO7-04	W3 2 EA. CONTRACT CERTIFIED WEI	P65316	HAWAIIAN DREDGING	supp
CO7-04	WPP-TEMPORARY BOILERMAKER S\	P64774	HAWAIIAN DREDGING	supp
C-3667	H8 OH, ASBESTOS 10YD BIN DISPOS	P53303	OHANA ENVIRONMENTAL	supp
C-4459	H8 OH, ASBESTOS 10YD BIN DISPOS	P53303	OHANA ENVIRONMENTAL	supp
C-4508	W-5 ECONOMIZER DUCT WALL - ASE	P65318	OHANA ENVIRONMENTAL	supp
04	W3 OVHL AUX PKG 2 EA LABORER A	P63155	BERING SEA ECCOTECH, INC.	supp
17	W-3 OH 8 CONTRACT HELPERS 7 WE	P66454	BERING SEA ECCOTECH, INC.	supp
03	WPP LABOR ASSIST AUG 2004	P66364	BERING SEA ECCOTECH, INC.	supp
17	W-3 OH 8 CONTRACT HELPERS 7 WE	P66454	BERING SEA ECCOTECH, INC.	supp
17	W-3 OH 8 CONTRACT HELPERS 7 WE	P66454	BERING SEA ECCOTECH, INC.	supp
00	WPP LABOR ASSIST AUG 2004	P66364	BERING SEA ECCOTECH, INC.	supp
17	W-3 OH 8 CONTRACT HELPERS 7 WE	P66454	BERING SEA ECCOTECH, INC.	supp
78	CONDENSER CLEANING LABR ASSIS	P65056	BERING SEA ECCOTECH, INC.	supp
77	WPP TEMPORARU LABOR ASSIST JU	P64748	BERING SEA ECCOTECH, INC.	supp
50	K6 6/25/04 OUTAGE LABR ASST JOB	P66232	BERING SEA ECCOTECH, INC.	supp
01	CONCERSER CLEANING LABR ASSIS	P65060	BERING SEA ECCOTECH, INC.	supp
17	W-3 OH 8 CONTRACT HELPERS 7 WE	P66454	BERING SEA ECCOTECH, INC.	supp
17	W-3 OH 8 CONTRACT HELPERS 7 WE	P66454	BERING SEA ECCOTECH, INC.	supp
17	W-3 OH 8 CONTRACT HELPERS 7 WE	P66454	BERING SEA ECCOTECH, INC.	supp
78	CONDENSER CLEANING LABR ASSIS	P65056	BERING SEA ECCOTECH, INC.	supp
78	CONDENSER CLEANING LABR ASSIS	P65056	BERING SEA ECCOTECH, INC.	supp
01	CONCERSER CLEANING LABR ASSIS	P65060	BERING SEA ECCOTECH, INC.	supp
01	CONCERSER CLEANING LABR ASSIS	P65060	BERING SEA ECCOTECH, INC.	supp
79	KAHE PP CONTRACT LABOR ASST J	P66189	BERING SEA ECCOTECH, INC.	supp
6853	W3 OVHL-1 MILLWRIGHT & MILLWRI	P63247	DIVERSIFIED ENERGY SERVICE	supp
04	W3 TWO CONTRACT HELPERS FOR	P63298	GIORDANO'S PAINTING CO	supp
04	W-8 OH 2 CONTRACT LABOR ASSIS	P66390	GIORDANO'S PAINTING CO	supp
9019	W3-CRANE & CRANE OPERATOR & F	P67486	HAWAIIAN CRANE & RIGGING L	supp
CO8-04	W-8 OH 2 BOILERMAKER/WELDERS I	P66411	HAWAIIAN DREDGING	supp
CO8-04	W-8 OH 2 BOILERMAKER/WELDERS I	P66411	HAWAIIAN DREDGING	supp
CO8-04	W-8 OH 2 BOILERMAKER/WELDERS I	P66411	HAWAIIAN DREDGING	supp
CO8-04	W-8 OH 2 BOILERMAKER/WELDERS I	P66411	HAWAIIAN DREDGING	supp
CO8-04	W-3 OVHL 1 EA CERTIFIED CONTRA	P63311	HAWAIIAN DREDGING	supp
CO8-04	W-3 OVHL 1 EA CERTIFIED CONTRA	P63311	HAWAIIAN DREDGING	supp
CO8-04	W-3 OVHL 1 EA CERTIFIED CONTRA	P63311	HAWAIIAN DREDGING	supp
CO8-04	W-3 OVHL 1 EA CERTIFIED CONTRA	P63311	HAWAIIAN DREDGING	supp
CO8-04	W-3 OVHL 1 EA CERTIFIED CONTRA	P63311	HAWAIIAN DREDGING	supp
CO8-04	W-3 OVHL 1 EA CERTIFIED CONTRA	P63311	HAWAIIAN DREDGING	supp
CO8-04	W-3 OVHL 1 EA CERTIFIED CONTRA	P63311	HAWAIIAN DREDGING	supp
CO8-04	W-8 OH 3 CONTRACT CERTIFIED WE	P66389	HAWAIIAN DREDGING	supp
CO8-04	W-8 OH 3 CONTRACT CERTIFIED WE	P66389	HAWAIIAN DREDGING	supp
CO8-04	W-8 OH 3 CONTRACT CERTIFIED WE	P66389	HAWAIIAN DREDGING	supp
CO8-04	W-8 OH 3 CONTRACT CERTIFIED WE	P66389	HAWAIIAN DREDGING	supp
CO8-04	W-8 OH 3 CONTRACT CERTIFIED WE	P66389	HAWAIIAN DREDGING	supp
CO8-04	W-8 OH 2 BOILERMAKER/WELDERS I	P66411	HAWAIIAN DREDGING	supp
CO8-04	W-8 OH 2 BOILERMAKER/WELDERS I	P66411	HAWAIIAN DREDGING	supp
CO8-04	W-8 OH 2 BOILERMAKER/WELDERS I	P66411	HAWAIIAN DREDGING	supp
CO8-04	W8 3 CONTRACT CERTIFIED WELDE	P66413	HAWAIIAN DREDGING	supp
CO8-04	W-3 4 CONTRACT CERTEFED WELDI	P66539	HAWAIIAN DREDGING	supp
CO8-04	W-3 4 CONTRACT CERTEFED WELDI	P66539	HAWAIIAN DREDGING	supp
CO8-04	W-8 OH 3 CONTRACT CERTIFIED WE	P66389	HAWAIIAN DREDGING	supp
CO8-04	W8 3 CONTRACT CERTIFIED WELDE	P66413	HAWAIIAN DREDGING	supp
CO8-04	W-8 OH 3 CONTRACT CERTIFIED WE	P66389	HAWAIIAN DREDGING	supp
-4551	WPP-73 SFOP ASBESTOS STRIP	P66544	OHANA ENVIRONMENTAL	supp

Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
EC-4483	WPP-ABANDONED FUEL OIL LINE, RI	P66386	OHANA ENVIRONMENTAL	supp
09	WAIAU STATION - ASBESTOS BIN - D	P66206	OHANA ENVIRONMENTAL	supp
83	WAIAU STATION ASBESTOS BIN - DI	P65425	OHANA ENVIRONMENTAL	supp
84	WAIAU STATION - ASBESTOS BIN - D	P66206	OHANA ENVIRONMENTAL	supp
EC-4635	WPP FO TANKYARD # 1 - REMOVE A	P63332	OHANA ENVIRONMENTAL	supp
179	K6 INSULATOR ASSIST - PR040997	P67210	PETROCHEM INSULATION INC.	supp
11211	W-8 OH CONTRACT 2 ELECTRICIAN	P67863	AMERICAN ELECTRIC LLC	supp
11211	W-8 OH CONTRACT 2 ELECTRICIAN	P67863	AMERICAN ELECTRIC LLC	supp
11148	W-3 OH LABOR ASSISTS ELECTRICI	P64965	AMERICAN ELECTRIC LLC	supp
11148	W-3 OH LABOR ASSISTS ELECTRICI	P64965	AMERICAN ELECTRIC LLC	supp
11211	W-8 OH CONTRACT 2 ELECTRICIAN	P67863	AMERICAN ELECTRIC LLC	supp
11211	W-8 OH CONTRACT 2 ELECTRICIAN	P67863	AMERICAN ELECTRIC LLC	supp
11211	W-8 OH CONTRACT 2 ELECTRICIAN	P67863	AMERICAN ELECTRIC LLC	supp
11211	W-8 OH CONTRACT 2 ELECTRICIAN	P67863	AMERICAN ELECTRIC LLC	supp
11211	W-8 OH CONTRACT 2 ELECTRICIAN	P67863	AMERICAN ELECTRIC LLC	supp
082004	HPP 8 & 9 INSULATION WORK AS RE	P68160	B & J INSULATION CO., INC.	supp
348	W-3 OH 8 CONTRACT HELPERS 7 WE	P66454	BERING SEA ECCOTECH, INC.	supp
331	W3 OH CONTRACT LABOR ASSIST 7	P64166	BERING SEA ECCOTECH, INC.	supp
357	KPP-PIKCUP TRASH@BLACKGATE-P	P68349	BERING SEA ECCOTECH, INC.	supp
348	W-3 OH 8 CONTRACT HELPERS 7 WE	P66454	BERING SEA ECCOTECH, INC.	supp
348	W-3 OH 8 CONTRACT HELPERS 7 WE	P66454	BERING SEA ECCOTECH, INC.	supp
335	K3 UNPLUG STORM DRAIN PIPING - I	P67276	BERING SEA ECCOTECH, INC.	supp
348	W-3 OH 8 CONTRACT HELPERS 7 WE	P66454	BERING SEA ECCOTECH, INC.	supp
348	W-3 OH 8 CONTRACT HELPERS 7 WE	P66454	BERING SEA ECCOTECH, INC.	supp
348	W-3 OH 8 CONTRACT HELPERS 7 WE	P66454	BERING SEA ECCOTECH, INC.	supp
348	W-3 OH 8 CONTRACT HELPERS 7 WE	P66454	BERING SEA ECCOTECH, INC.	supp
347	W8 OH, 4 EACH, COND CLEANER HE	P66391	BERING SEA ECCOTECH, INC.	supp
347	W8 OH, 4 EACH, COND CLEANER HE	P66391	BERING SEA ECCOTECH, INC.	supp
346	CONDENSER CLEANING LBR ASSIST	P65060	BERING SEA ECCOTECH, INC.	supp
332	W3 OVHL AUX PKG 2 EA LABORER A	P63155	BERING SEA ECCOTECH, INC.	supp
336	WAIAU STATION - EASTERN SHOREL	P66205	BERING SEA ECCOTECH, INC.	supp
346	CONDENSER CLEANING LBR ASSIST	P65060	BERING SEA ECCOTECH, INC.	supp
346	CONDENSER CLEANING LBR ASSIST	P65060	BERING SEA ECCOTECH, INC.	supp
324	KGP-CLEAN BIRD DROPPINGS-K5/6	P67458	BERING SEA ECCOTECH, INC.	supp
344	LABOR ASSIST KAHE MAINT SEP 20	P68386	BERING SEA ECCOTECH, INC.	supp
345	KPP-BIRD DROPPING CLEANUP-SEP	P68386	BERING SEA ECCOTECH, INC.	supp
02	LABOR ASSIST KAHE MAINTENANCE	P68338	BERING SEA ECCOTECH, INC.	supp
-6866	W3 OVHL-1 MILLWRIGHT & MILLWRI	P63247	DIVERSIFIED ENERGY SERVICE	supp
-6867	W-8 OH 2 MILLWRIGHTS - 2 APPRE	P66459	DIVERSIFIED ENERGY SERVICE	supp
-6900	W-8 OH 2 MILLWRIGHTS - 2 APPRE	P66459	DIVERSIFIED ENERGY SERVICE	supp
9027	W3-CRANE & CRANE OPERATOR & F	P67486	HAWAIIAN CRANE & RIGGING L	supp
CO9-04	W-8 OH 3 CONTRACT CERTIFIED WE	P66389	HAWAIIAN DREDGING	supp
CO9-04	W-8 OH 3 CONTRACT CERTIFIED WE	P66389	HAWAIIAN DREDGING	supp
CO9-04	W-8 OH 3 CONTRACT CERTIFIED WE	P66389	HAWAIIAN DREDGING	supp
CO9-04	W-8 OH 3 CONTRACT CERTIFIED WE	P66389	HAWAIIAN DREDGING	supp
CO9-04	W-8 OH 3 CONTRACT CERTIFIED WE	P66389	HAWAIIAN DREDGING	supp
CO9-04	W-8 OH 2 BOILERMAKER/WELDERS I	P66411	HAWAIIAN DREDGING	supp
CO9-04	W-8 OH 2 BOILERMAKER/WELDERS I	P66411	HAWAIIAN DREDGING	supp
CO9-04	W-8 OH 2 BOILERMAKER/WELDERS I	P66411	HAWAIIAN DREDGING	supp
CO9-04	W-8 OH 2 BOILERMAKER/WELDERS I	P66411	HAWAIIAN DREDGING	supp
CO9-04	W-8 OH 2 BOILERMAKER/WELDERS I	P66411	HAWAIIAN DREDGING	supp
CO9-04	W-8 OH 2 BOILERMAKER/WELDERS I	P66411	HAWAIIAN DREDGING	supp
CO9-04	W-8 OH 2 BOILERMAKER/WELDERS I	P66411	HAWAIIAN DREDGING	supp
CO9-04	WPP-BOILERMAKER TEMP FOR SEP	P68343	HAWAIIAN DREDGING	supp
CO9-04	W-8 OH 3 CONTRACT CERTIFIED WE	P66389	HAWAIIAN DREDGING	supp
CO9-04	W8 3 CONTRACT CERTIFIED WELDE	P66413	HAWAIIAN DREDGING	supp
CO9-04	W-8 OH 3 CONTRACT CERTIFIED WE	P66389	HAWAIIAN DREDGING	supp

ACCOUNT CODE	LL PERI	TransYr	AMT	Work Order	Work Order Desc	Inv No	Inv Item Desc	PO No	Supplier Name	SVC Typ
PIX257WSTNENPIZZZZZ501	200410	2004	19,020.50	PR028920	Walau PP-Temporary Contract Workers	HECO9-04	WPP LABOR ASSIST FOR AUGUST 2(	P67012	HAWAIIAN DREDGING	supp
PIT258W08NEP0000521501	200410	2004	37,576.35	PR040677	W8 SSH DMW DUTCHMEN, REPLACE (116 P(	HECO9-04	W8 3 CONTRACT CERTIFIED WELDEI	P66413	HAWAIIAN DREDGING	supp
PIX259W04NENPIZZZZZ501	200410	2004	652.34	PR041888	W4: Level controller on #1 HTR inop.	OEC-4701	W-4 REMOVE DISPOSE ASBESTOS I	P67031	OHANA ENVIRONMENTAL	supp
PIX259W06NENPIZZZZZ501	200410	2004	689.75	PR040752	W6: Soot blower line leak, 5th/6th floor	OEC-4405	WAIAU PP- ASBESTOS ABATEMENT	P67578	OHANA ENVIRONMENTAL	supp
PIN259H09NENPIZZZZZ501	200410	2004	859.08	PR041204	REPAIR/CHECK PINHOLE LEAK ON #92 BOILE	OEC-4392	HPP REMOVE & DISPOSE OF ABEST(	P66219	OHANA ENVIRONMENTAL	supp
PIX259WSTNENPIZZZZZ501	200410	2004	4,732.67	PR041756	W5: Economizer Wall Insulation Repairs	OEC-4550	W-5 ECONOMIZER DUCT WALL - ASE	P65318	OHANA ENVIRONMENTAL	supp
PIT258W03NEP0000249501	200410	2004	23,073.98	PR037877	W3 REFRACTORY; INSUL; BLR CASNG REPA	OEC-4670	W3 OH BLR CSG REPAIR ASBESTOS	P63787	OHANA ENVIRONMENTAL	supp
PIL259K01NENPIZZZZZ501	200410	2004	636.25	PR042278	LB,K1 cold pressurized lines need to be	49228	K1 COLD PRESS LINE ABATEMENT-	P67644	PETROCHEM INSULATION INC.	supp
PIT258W08NEP0000521501	200410	2004	19,170.34	PR040983	W8 STM PIPING HANGRS/SPTS-PREDICT MA	49233	W-8 BLR ASBESTOS ABATEMENT LA	P66196	PETROCHEM INSULATION INC.	supp
PIT259W08NEP0000521501	200410	2004	19,170.35	PR040975	W8 INSULATION;REFRAC;BLR CASE REPAIR	49233	W-8 BLR ASBESTOS ABATEMENT LA	P66196	PETROCHEM INSULATION INC.	supp
PIT260W08NEP0000521501	200411	2004	1,732.45	PR041489	W8 VOLTAGE REGULATOR CUBICLE	0011257	W-8 OH CONTRACT 2 ELECTRICIAN!	P67863	AMERICAN ELECTRIC LLC	supp
PIT261W08NEP0000521501	200411	2004	1,732.46	PR041842	W82 Cond Motor - Insulation resistance	0011257	W-8 OH CONTRACT 2 ELECTRICIAN!	P67863	AMERICAN ELECTRIC LLC	supp
PIT260W08NEP0000521501	200411	2004	3,464.93	PR041632	W8 HP/IP CYLINDER/BLADE RING/DIAPHRM (	0011257	W-8 OH CONTRACT 2 ELECTRICIAN!	P67863	AMERICAN ELECTRIC LLC	supp
PIT260W08NEP0000521501	200411	2004	3,464.93	PR041213	SERVICE GENERATOR NEUTRAL GROUND X	0011257	W-8 OH CONTRACT 2 ELECTRICIAN!	P67863	AMERICAN ELECTRIC LLC	supp
PIT261W08NEP0000521501	200411	2004	3,464.93	PR041835	W82 BFP Mtr Low resistance to ground	0011257	W-8 OH CONTRACT 2 ELECTRICIAN!	P67863	AMERICAN ELECTRIC LLC	supp
PIT261W08NEP0000521501	200411	2004	8,662.31	PR041486	W8 GENERATOR INSPECTION AND SERVICE	0011257	W-8 OH CONTRACT 2 ELECTRICIAN!	P67863	AMERICAN ELECTRIC LLC	supp
PIT261W08NEP0000521501	200411	2004	12,127.24	PR042820	W8 GENERATOR REWEDGE & OMM-99 KIT R	0011257	W-8 OH CONTRACT 2 ELECTRICIAN!	P67863	AMERICAN ELECTRIC LLC	supp
PIT257W08NEP0000521501	200411	2004	990.53	PR040994	W8 BLR DRAFT MANUAL DAMPERS - SERVIC	11679	W8 O/H 8 EA CONTRACT HELPERS F	P69254	BERING SEA ECCOTECH, INC.	supp
PIX258WSTNENPIZZZZZ501	200411	2004	1,713.99	PR039516	W31 ID FAN Wash/balance fan next OH	11630	W-3 OVHL 4EA. CONTRACT HELPERS	P63305	BERING SEA ECCOTECH, INC.	supp
PIL259KSTNENPIZZZZZ501	200411	2004	1,981.06	PR040964	TM - REPL STARTER ON PORTABLE TRASH I	11679	W8 O/H 8 EA CONTRACT HELPERS F	P69254	BERING SEA ECCOTECH, INC.	supp
PIT257W08NEP0000521501	200411	2004	1,981.06	PR040933	W8 STEAM DRUM - SERVICE	11679	W8 O/H 8 EA CONTRACT HELPERS F	P69254	BERING SEA ECCOTECH, INC.	supp
PIT257W08NEP0000521501	200411	2004	2,504.95	PR040994	W8 BLR DRAFT MANUAL DAMPERS - SERVIC	11649	W8 O/H 8 EA CONTRACT HELPERS F	P69254	BERING SEA ECCOTECH, INC.	supp
PIT258W08NEP0000521501	200411	2004	2,971.57	PR039988	W81 APH SVC-REPLACE BASKETS & BAFFLE	11679	W8 O/H 8 EA CONTRACT HELPERS F	P69254	BERING SEA ECCOTECH, INC.	supp
PIX257WSTNENPIZZZZZ501	200411	2004	3,580.60	PR028920	Walau PP-Temporary Contract Workers	11683	WPP HELPER TEMP FOR OCTOBER	P68227	BERING SEA ECCOTECH, INC.	supp
PIX257WSTNENPIZZZZZ501	200411	2004	3,588.52	PR028920	Walau PP-Temporary Contract Workers	11643	WPP HELPER TEMP FOR SEPTEMBE	P68227	BERING SEA ECCOTECH, INC.	supp
PIT257W08NEP0000521501	200411	2004	3,962.11	PR040935	W8 BOILER AND AIR HEATER WASH	11679	W8 O/H 8 EA CONTRACT HELPERS F	P69254	BERING SEA ECCOTECH, INC.	supp
PIT259W08NEP0000521501	200411	2004	3,962.11	PR042040	W8 BLR DRAFT EXPANSION JOINT REPAIRS	11679	W8 O/H 8 EA CONTRACT HELPERS F	P69254	BERING SEA ECCOTECH, INC.	supp
PIT259W08NEP0000521501	200411	2004	3,962.11	PR040975	W8 INSULATION;REFRAC;BLR CASE REPAIR	11679	W8 O/H 8 EA CONTRACT HELPERS F	P69254	BERING SEA ECCOTECH, INC.	supp
PIL259KSTNENPIZZZZZ501	200411	2004	5,009.89	PR040964	TM - REPL STARTER ON PORTABLE TRASH I	11649	W8 O/H 8 EA CONTRACT HELPERS F	P69254	BERING SEA ECCOTECH, INC.	supp
PIT257W08NEP0000521501	200411	2004	5,009.89	PR040933	W8 STEAM DRUM - SERVICE	11649	W8 O/H 8 EA CONTRACT HELPERS F	P69254	BERING SEA ECCOTECH, INC.	supp
PIT257W03NEP0000249501	200411	2004	5,141.96	PR037873	W3 BOILER AND AIR PREHEATER WASH	11630	W-3 OVHL 4EA. CONTRACT HELPERS	P63305	BERING SEA ECCOTECH, INC.	supp
PIT257W03NEP0000249501	200411	2004	5,141.96	PR038060	W3 SERVICE BURNER FRONT EQMT	11630	W-3 OVHL 4EA. CONTRACT HELPERS	P63305	BERING SEA ECCOTECH, INC.	supp
PIT257W03NEP0000249501	200411	2004	5,141.96	PR038058	W3 SERVICE BLR ACCESS/EXPLO DOORS	11630	W-3 OVHL 4EA. CONTRACT HELPERS	P63305	BERING SEA ECCOTECH, INC.	supp
PIT258W03NEP0000249501	200411	2004	5,141.96	PR038880	PREDICT MAINT-ECONZR TUBES/HEADERS	11630	W-3 OVHL 4EA. CONTRACT HELPERS	P63305	BERING SEA ECCOTECH, INC.	supp
PIT258W03NEP0000249501	200411	2004	5,141.96	PR038882	PREDICT MAINT-SEC SS TUBES/HEADERS	11630	W-3 OVHL 4EA. CONTRACT HELPERS	P63305	BERING SEA ECCOTECH, INC.	supp
PIX258W03NENPIZZZZZ501	200411	2004	6,855.94	PR031738	W3 Replace Waterwall Tube Sections	11630	W-3 OVHL 4EA. CONTRACT HELPERS	P63305	BERING SEA ECCOTECH, INC.	supp
PIT258W08NEP0000521501	200411	2004	7,514.83	PR039988	W81 APH SVC-REPLACE BASKETS & BAFFLE	11649	W8 O/H 8 EA CONTRACT HELPERS F	P69254	BERING SEA ECCOTECH, INC.	supp
PIT257W08NEP0000521501	200411	2004	10,019.78	PR040935	W8 BOILER AND AIR HEATER WASH	11649	W8 O/H 8 EA CONTRACT HELPERS F	P69254	BERING SEA ECCOTECH, INC.	supp
PIT259W08NEP0000521501	200411	2004	10,019.78	PR040975	W8 INSULATION;REFRAC;BLR CASE REPAIR	11649	W8 O/H 8 EA CONTRACT HELPERS F	P69254	BERING SEA ECCOTECH, INC.	supp
PIT259W08NEP0000521501	200411	2004	10,019.78	PR042040	W8 BLR DRAFT EXPANSION JOINT REPAIRS	11649	W8 O/H 8 EA CONTRACT HELPERS F	P69254	BERING SEA ECCOTECH, INC.	supp
PIT260W08NEP0000521501	200411	2004	13,801.20	PR041656	W8 LP CYLINDER/BLADE RING/DIAPHRM OH	MJI-6910	W-8 OH 2 MILLWRIGHTS - 2 APPREI	P66459	DIVERSIFIED ENERGY SERVICE	supp
PIT258W08NEP0000521501	200411	2004	13,346.02	PR040677	W8 SSH DMW DUTCHMEN, REPLACE (116 P(	101504A	W-8 OH 2 CONTRACT LABOR ASSIS	P66390	GIORDANO'S PAINTING CO	supp
PIT258W08NEP0000521501	200411	2004	3,383.28	PR041537	W8 WW IMPINGEMENT CLAD WELDING	HECO10-0	W8 3 CONTRACT CERTIFIED WELDEI	P66413	HAWAIIAN DREDGING	supp
PIX259W05NENPIZZZZZ501	200411	2004	4,119.27	PR041964	W5 Waikiki WW tube #13 Bulging	HECO9-04	W-5 BOILER REPAIR WORK - CONTR	P65919	HAWAIIAN DREDGING	supp
PIX259W05NENPIZZZZZ501	200411	2004	4,119.27	PR042003	W5 Bottom vestibule, lower WW leak:	HECO9-04	W-5 BOILER REPAIR WORK - CONTR	P65919	HAWAIIAN DREDGING	supp
PIX259W03NENPIZZZZZ501	200411	2004	5,293.03	PR035751	W3 Blr Casing leak, mauka side 4 th flr	HECO8-04	W3 2 EA. CONTRACT CERTIFIED WEI	P65316	HAWAIIAN DREDGING	supp
PIT257W03NEP0000249501	200411	2004	5,293.04	PR041480	W3 Ewa/Waikiki WW tube replacements	HECO8-04	W3 2 EA. CONTRACT CERTIFIED WEI	P65316	HAWAIIAN DREDGING	supp
PIT261W03NEP0000249501	200411	2004	5,293.04	PR038370	HP Turbine Rotor Overhaul - NDE	HECO8-04	W3 2 EA. CONTRACT CERTIFIED WEI	P65316	HAWAIIAN DREDGING	supp
PIX259W03NENPIZZZZZ501	200411	2004	5,293.04	PR035710	W3 Blr casing leaks.	HECO8-04	W3 2 EA. CONTRACT CERTIFIED WEI	P65316	HAWAIIAN DREDGING	supp
PIX259W03NENPIZZZZZ501	200411	2004	5,293.04	PR035715	W3 Various Blr Casing leaks.	HECO8-04	W3 2 EA. CONTRACT CERTIFIED WEI	P65316	HAWAIIAN DREDGING	supp
PIT258W08NEP0000521501	200411	2004	10,149.85	PR040677	W8 SSH DMW DUTCHMEN, REPLACE (116 P(	HECO10-0	W8 3 CONTRACT CERTIFIED WELDEI	P66413	HAWAIIAN DREDGING	supp
PIT257W03NEP0000249501	200411	2004	11,756.03	PR041480	W3 Ewa/Waikiki WW tube replacements	HECO9-04	W-3 4 CONTRACT CERTEFED WELDI	P66539	HAWAIIAN DREDGING	supp
PIX257WSTNENPIZZZZZ501	200411	2004	12,221.49	PR028920	Walau PP-Temporary Contract Workers	HECO10-0	WPP-BOILERMAKER TEMP FOR OCT	P68343	HAWAIIAN DREDGING	supp
PIT258W03NEP0000249501	200411	2004	23,512.05	PR041587	W3 Boiler Chemical Clean	HECO9-04	W-3 4 CONTRACT CERTEFED WELDI	P66539	HAWAIIAN DREDGING	supp
PIT261W03NEP0000249501	200411	2004	33,306.18	PR039340	W3 CONDENSER TESTING/INSPECTION	HECO8-04	W3 - OH CONDENSER RODDING	P68027	HAWAIIAN DREDGING	supp
PIX259W08NENPIZZZZZ501	200411	2004	759.52	PR040524	W08 #82 secondary fuel oil heater shell	OEC-4700	W8 #84 & #85 FWH & #82 SFO HTR A!	P68519	OHANA ENVIRONMENTAL	supp
PIT258W08NEP0000521501	200411	2004	759.53	PR041845	W8 RV-45 FWH 85 SHELL SEC 8 - REPLACE	OEC-4700	W8 #84 & #85 FWH & #82 SFO HTR A!	P68519	OHANA ENVIRONMENTAL	supp

ACCOUNT_CODE	LL_PERI	TransYr	AMT	Work_Order	Work_Order_Desc	Inv_No	Inv_Item_Desc	PO_No	Supplier_Name	SVC_Typ
PIT258W08NEP0000521501	200411	2004	761.81	PR041843	W8 RV-44 FWH 84 SHELL SEC 8 - REPLACE	OEC-4700	W8 #84 & #85 FWH & #82 SFO HTR A:	P68519	OHANA ENVIRONMENTAL	supp
PIX271WFSNENPIZZZZZ501	200411	2004	1,838.95	HP001804	T1 insulation work. See extended descrip	OEC-4636	WPP FO TANKYARD # 1 - REMOVE A:	P63332	OHANA ENVIRONMENTAL	supp
PIN878HSTNENPIZZZZZ501	200411	2004	18,025.39	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	4472	HPP- REMOVE & DISPOSE OF ASBES	P67451	OHANA ENVIRONMENTAL	supp
PIT258W03NEP0000249501	200411	2004	7,156.14	PR037877	W3 REFRACTORY; INSUL; BLR CASNG REPA	49832	W-3 BLR ASBESTOS ABATEMENT LA	P63259	PETROCHEM INSULATION INC.	supp
PIT258W03NEP0000249501	200411	2004	16,098.50	PR037877	W3 REFRACTORY; INSUL; BLR CASNG REPA	49234	W-3 BLR ASBESTOS ABATEMENT LA	P63259	PETROCHEM INSULATION INC.	supp
PIT258W08NEP0000521501	200411	2004	24,363.07	PR040983	W8 STM PIPING HANGRS/SPTS-PREDICT MA	49833	W-8 BLR ASBESTOS ABATEMENT LA	P66196	PETROCHEM INSULATION INC.	supp
PIT259W08NEP0000521501	200411	2004	24,363.07	PR040975	W8 INSULATION;REFRAC;BLR CASE REPAIR	49833	W-8 BLR ASBESTOS ABATEMENT LA	P66196	PETROCHEM INSULATION INC.	supp
PIT258W03NEP0000249501	200411	2004	26,455.22	PR037877	W3 REFRACTORY; INSUL; BLR CASNG REPA	48180	W-3 BLR ASBESTOS ABATEMENT LA	P63259	PETROCHEM INSULATION INC.	supp
PIT260W08NEP0000521501	200412	2004	939.42	PR041489	W8 VOLTAGE REGULATOR CUBICLE	0011330	W-8 OH CONTRACT 2 ELECTRICIAN:	P67863	AMERICAN ELECTRIC LLC	supp
PIT261W08NEP0000521501	200412	2004	939.42	PR041842	W82 Cond Motor - Insulation resistance	0011330	W-8 OH CONTRACT 2 ELECTRICIAN:	P67863	AMERICAN ELECTRIC LLC	supp
PIT260W08NEP0000521501	200412	2004	1,878.84	PR041213	SERVICE GENERATOR NEUTRAL GROUND X	0011330	W-8 OH CONTRACT 2 ELECTRICIAN:	P67863	AMERICAN ELECTRIC LLC	supp
PIT260W08NEP0000521501	200412	2004	1,878.84	PR041632	W8 HP/IP CYLINDER/BLADE RING/DIAPHRM (	0011330	W-8 OH CONTRACT 2 ELECTRICIAN:	P67863	AMERICAN ELECTRIC LLC	supp
PIT261W08NEP0000521501	200412	2004	1,878.84	PR041835	W82 BFP Mtr Low resistance to ground	0011330	W-8 OH CONTRACT 2 ELECTRICIAN:	P67863	AMERICAN ELECTRIC LLC	supp
PIT261W08NEP0000521501	200412	2004	4,697.11	PR041486	W8 GENERATOR INSPECTION AND SERVICE	0011330	W-8 OH CONTRACT 2 ELECTRICIAN:	P67863	AMERICAN ELECTRIC LLC	supp
PIT261W08NEP0000521501	200412	2004	6,575.95	PR042820	W8 GENERATOR REWEDGE & OMM-99 KIT R	0011330	W-8 OH CONTRACT 2 ELECTRICIAN:	P67863	AMERICAN ELECTRIC LLC	supp
PIX259W06NENPIZZZZZ501	200412	2004	1,335.93	PR044297	W6 Need to wash APH.	11727	W-6 AIR HEATER WASH - PROVIDE L	P70709	BERING SEA ECCOTECH, INC.	supp
PIN265ITFNENPIZZZZZ501	200412	2004	1,628.64	PR036680	GENERAL CLEANUP OF PIPE & RUBBISH	11731	HPP - BSE TO FURNISH LABOR TO A:	P70178	BERING SEA ECCOTECH, INC.	supp
PIT260W03NEP0000249501	200412	2004	1,917.96	PR038364	HP Turbine Rotor / Cylinder Overhaul	11567	W3 OVHL AUX PKG 2 EA LABORER A	P63155	BERING SEA ECCOTECH, INC.	supp
PIN265ITFNENPIZZZZZ501	200412	2004	1,987.49	PR036680	GENERAL CLEANUP OF PIPE & RUBBISH	11723	HPP FURNISH 3 LABORS ASSIST PL	P70409	BERING SEA ECCOTECH, INC.	supp
PIL259KSTNENPIZZZZZ501	200412	2004	16,184.01	PR043624	Assist with Maintenance of Kahe Units	11713	KAHE MAINT LABOR ASSIST NOVEMI	P71019	BERING SEA ECCOTECH, INC.	supp
PIL259KSTNENPIZZZZZ501	200412	2004	16,224.51	PR043043	BSE-Clean Units of Bird Dropings & Dead	11714	K1-6 - BIRD DROPPING CLEANING SE	P71033	BERING SEA ECCOTECH, INC.	supp
PIL259KSTNENPIZZZZZ501	200412	2004	17,759.63	PR043043	BSE-Clean Units of Bird Dropings & Dead	11688	KAHE BIRD DROPPING CLEANUP PR	P69740	BERING SEA ECCOTECH, INC.	supp
PIL259KSTNENPIZZZZZ501	200412	2004	17,872.80	PR043624	Assist with Maintenance of Kahe Units	11677	KPP LABOR ASSIST OCTOBER 2004	P69739	BERING SEA ECCOTECH, INC.	supp
PIT272W09NEP0000937501	200412	2004	29,692.89	PR043644	W9 INLET/COMPRESSOR SECTION	MJI-6915	W9 OH - PRVD 2 MILLWRIGHTS & 2 M	P69311	DIVERSIFIED ENERGY SERVICE	supp
PIT272W09NEP0000937501	200412	2004	1,524.78	PR043769	W9 OH TURBINE HOUSE DOOR REPAIRS	120404	W7 & W9 2 EA CONTRACT HELPERS	P69862	GIORDANO'S PAINTING CO	supp
PIX258W07NENPIZZZZZ501	200412	2004	1,524.78	PR039892	W7 Econ Inlet Hdr - Replace Tube Stubs	120404	W7 & W9 2 EA CONTRACT HELPERS	P69862	GIORDANO'S PAINTING CO	supp
PIX259W07NENPIZZZZZ501	200412	2004	1,524.78	PR040299	W7 FD Hole in air duct Expansion joint.	120404	W7 & W9 2 EA CONTRACT HELPERS	P69862	GIORDANO'S PAINTING CO	supp
PIX259WSTNENPIZZZZZ501	200412	2004	1,524.78	PR043957	W07 Outage, Boiler Wash	120404	W7 & W9 2 EA CONTRACT HELPERS	P69862	GIORDANO'S PAINTING CO	supp
PIT272W09NEP0000937501	200412	2004	2,287.17	PR043770	W9 INLET DUCT INSPECT/ REPAIR	120404	W7 & W9 2 EA CONTRACT HELPERS	P69862	GIORDANO'S PAINTING CO	supp
PIT272W09NEP0000937501	200412	2004	2,287.17	PR043614	W9 TURBINE COMPARTMENT ROOF SIDE PA	120404	W7 & W9 2 EA CONTRACT HELPERS	P69862	GIORDANO'S PAINTING CO	supp
PIT272W09NEP0000937501	200412	2004	1,465.09	PR043769	W9 OH TURBINE HOUSE DOOR REPAIRS	HECO11-0	W7 OUTAGE & W9 O/H CONTRACT W	P69952	HAWAIIAN DREDGING	supp
PIX259W07NENPIZZZZZ501	200412	2004	1,465.09	PR043952	W7: #71 APH hopper is rotting, has puka.	HECO11-0	W7 OUTAGE & W9 O/H CONTRACT W	P69952	HAWAIIAN DREDGING	supp
PIT272W09NEP0000937501	200412	2004	2,930.18	PR043770	W9 INLET DUCT INSPECT/ REPAIR	HECO11-0	W7 OUTAGE & W9 O/H CONTRACT W	P69952	HAWAIIAN DREDGING	supp
PIT274W09NEP0000937501	200412	2004	2,930.18	PR032602	W09: Fab/install ladder & decking to CO2	HECO11-0	W7 OUTAGE & W9 O/H CONTRACT W	P69952	HAWAIIAN DREDGING	supp
PIX258W07NENPIZZZZZ501	200412	2004	2,930.18	PR039892	W7 Econ Inlet Hdr - Replace Tube Stubs	HECO11-0	W7 OUTAGE & W9 O/H CONTRACT W	P69952	HAWAIIAN DREDGING	supp
PIX259W07NENPIZZZZZ501	200412	2004	2,930.18	PR040299	W7 FD Hole in air duct Expansion joint.	HECO11-0	W7 OUTAGE & W9 O/H CONTRACT W	P69952	HAWAIIAN DREDGING	supp
PIX257WSTNENPIZZZZZ501	200412	2004	9,909.65	PR028920	Waiau PP-Temporary Contract Workers	HECO11-0	WPP-TEMP BOILERMAKER FOR NOV	P69691	HAWAIIAN DREDGING	supp
PIX259WSTNENPIZZZZZ501	200412	2004	223.29	PR044127	W3 REFRACTORY; INSUL; BLR CASNG REPA	4562	W-3 BOILER - CLEAN INSULATION FF	P71049	OHANA ENVIRONMENTAL	supp
PIX878WSTNENPIZZZZZ501	200412	2004	1,250.00	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	4874	WAIAU STATION - ASBESTOS BIN - D	P66206	OHANA ENVIRONMENTAL	supp
PIX878WSTNENPIZZZZZ501	200412	2004	1,250.00	PR000256	SWO-ASBESTOS REMOVAL (WAIAU)	4505	WAIAU STATION - ASBESTOS BIN - D	P66206	OHANA ENVIRONMENTAL	supp
PIT261W05NENPIZZZZZ501	200412	2004	1,479.00	PR044545	W5-RAISE GEN IN PREP FOR STATOR REWI	OEC-3154	K-5 PRVD L&M TO RMV ASBESTOS F	P44950	OHANA ENVIRONMENTAL	supp
PIX259WSTNENPIZZZZZ501	200412	2004	1,871.19	PR044127	W3 REFRACTORY; INSUL; BLR CASNG REPA	4560	W-3 BOILER - CLEAN INSULATION FF	P71049	OHANA ENVIRONMENTAL	supp
PIX259WSTNENPIZZZZZ501	200412	2004	3,686.68	PR044127	W3 REFRACTORY; INSUL; BLR CASNG REPA	4561	W-3 BOILER - CLEAN INSULATION FF	P71049	OHANA ENVIRONMENTAL	supp
PIN878HSTNENPIZZZZZ501	200412	2004	4,489.76	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	4473	H8 FWH LINE REMOVE & DISPOSE O	P67314	OHANA ENVIRONMENTAL	supp
PIX259W03NENPIZZZZZ501	200412	2004	5,096.69	HP001946	Install W3 ID fan bearing retrofit.	4772	W-3 INDUCED DRAFT FAN - REMOVE	P71050	OHANA ENVIRONMENTAL	supp
PIN878HSTNENPIZZZZZ501	200412	2004	6,244.53	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	4474	H9 ECONOMIZER LINE REMOVE & DI	P67315	OHANA ENVIRONMENTAL	supp
PIN878HSTNENPIZZZZZ501	200412	2004	19,025.00	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	4876	HPP ASBESTOS REMOVE FO TNK 1,	P70171	OHANA ENVIRONMENTAL	supp
PIN878HSTNENPIZZZZZ501	200412	2004	20,930.89	PR000245	SWO-ASBESTOS REMOVAL (HONOLULU STA	4877	ASBESTOS REMOVAL HPP FO HEATI	P70185	OHANA ENVIRONMENTAL	supp
PIL259K03NENPIZZZZZ501	200412	2004	496.33	PR043677	LB K3 APH Drain line leak (under insult)	50544	K3-APH DRAIN ASBESTOS REMOVAL	P69358	PETROCHEM INSULATION INC.	supp
PIL259K03NENPIZZZZZ501	200412	2004	992.66	PR036995	LB K3 Reboiler tube leak	50545	K3-REBOILER ASBESTOS-PR036995	P69158	PETROCHEM INSULATION INC.	supp
PIX259W03NENPIZZZZZ501	200412	2004	3,747.48	PR043882	W3 Boiler casing which houses the APH,	50551	W3 ASBESTOS ABATEMENTASSIST :	P69855	PETROCHEM INSULATION INC.	supp
PIX271WFSNENPIZZZZZ501	200412	2004	7,213.70	PR022876	F.O. Hdr pipeline from tankyard to W3/4	50548	WPP-2 CONTRACT INSULATORS FOF	P69387	PETROCHEM INSULATION INC.	supp
PIT258W03NEP0000249501	200412	2004	34,110.27	PR037877	W3 REFRACTORY; INSUL; BLR CASNG REPA	49979	W-3 BLR ASBESTOS ABATEMENT LA	P63259	PETROCHEM INSULATION INC.	supp

Explanation of Database file "CA-IR-36 Payee Suppl Spec.xls"

Selected 2001 through 2004 vendor payment transactions representing activity to supplement the workforce and to provide specialized skills and services. The "Outside Services" expense element represented in these transactions is 501- Outside Services – General.

The useful data shown for each record are:

1) Account Code – Defines RA, Activity, Location, Indicator, 5th Segment/Project, and Expense Element
2) Trans Year – Defines year transaction posted
3 Amount – Amount of Transaction
4) Work Order Description – Nature of the work
5 Inv Item Desc – Description of the work being provided by the vendor
6 Supplier Name – Vendor Name
7) SVC Type – grouped by Skill (Specialized Skill), Supp (Supplement the Workforce) and Other.

The hardcopy provided is sorted primarily by Transaction Year and with the secondary sort by SVC Type.

Hawaiian Electric Company, Inc.
Rate Case - Test Year 2005

Other Production O&M - Select Outside Services Cost
Payments to Vendor > $100,000

Vendor Name	Inv #	Invoice Description	WO #	WO Description	Trans Year	Amount
REINHART & ASSOC, INC.	6652	H8 GEN. PRIME CONT-BOTTLE BORING & INSP	PR033786	H8 GENERATOR ROTOR REPAIRS - Bottle Bore	2003	103,685.75
REINHART & ASSOC, INC.	6275	H9 TUR.PERFORM NDE/NDT-INSP:HP,LP&GEN.	PR029998	H9 HP TURBINE OVERHAUL	2003	107,000.00
HAZTECH ENVIRON SRVC	1737	LABOR	PR027388	W5 Main XFMR Removal of Hazardous Solids	2002	118,268.10
THERMAL SOLUTIONS, INC.	6508-B	PREHEAT/PWHT SVCS (H8 Trb Weld Rprs)	PR032820	H8 HP LOWER/UPPER TRB CYL WELD REPAIRS	2003	122,320.75
DIVERSIFIED ENERGY SRVC	MJI-6229	BALANCE: LP ROTOR, HP ROTOR, LP ROTOR	PR016058	W6 HP Trb Outer Cyl/Blade Rings OH	2001	124,483.15
THERMAL SOLUTIONS, INC.	6058	PREHEAT/PWHT SVCS (H8 Trb Weld Rprs)	PR032820	H8 HP LOWER/UPPER TRB CYL WELD REPAIRS	2003	155,302.79
THERMAL SOLUTIONS, INC.	6508-A	PREHEAT/PWHT SVCS (H8 Trb Weld Rprs)	PR032820	H8 HP LOWER/UPPER TRB CYL WELD REPAIRS	2003	155,421.66
HAMON CUSTODIS, INC.	0-10567	LABOR	PR022777	K3 STACK REPAIR WORK	2001	164,696.82
THERMAL SOLUTIONS, INC.	6456	H9-PRE/POST HEAT TREAT TRB WELD REPAIRS	PR031100	H9 TURBINE WELD REPAIR WORK & PWHT	2003	208,570.70
AGT SERVICES	2000-377	W5 GEN STATOR REPAIRS TO REMOVE BURR	PR029711	W-5 Generator stator repairs to remove	2002	211,670.50
DIVERSIFIED ENERGY SRVC	MJI-6869	W8 TUR SERV REPAIR LP RTR & STAT BLADES	PR041658	W8 LP ROTOR OVERHAUL	2004	234,360.00

Note: Complete vendor payment information can be found on CA-IR-36, voluminous transmittal.

Hawaiian Electric Company, Inc.
Rate Case - Test Year 2005

Other Production O&M - Select Outside Services Cost

	2001	2002	2003	2004	
Support - Supplement the Workforce					
	1,674,568.15	1,605,247.34	1,684,888.70	2,894,060.10	See note (1)
Skill - Specialized					
	2,628,508.67	2,885,575.05	2,925,719.05	3,492,859.28	See note (2)
Other - Landscape, Weed Control, Equip Rental					
	95,331.77	54,237.74	15,264.85	18,620.97	
Total	4,398,408.59	4,545,060.13	4,625,872.60	6,405,540.35	

Notes:

(1) - Cost to supplement the workforce increased by $1,209,171 in 2004 compared to 2003.

(2) - Cost for specialized skills increased by $567,140 in 2004 compared to 2003.

CA-IR-38

Ref: HECO T-6, Page 10, Line 7 and HECO 610.

According to the testimony, "Significant capital, and O&M Labor and Non-Labor resources are required to maintain compliance with all regulations impacting the operation and maintenance of HECO's generating units, the disposal of wastes generated from the process, and ensuring employee and public safety." Please provide the following information with respect to this statement:

a. Identify and quantify the "capital" resources that were invested in 2004 and that are projected to be invested in 2005 with respect to compliance with regulations and safety, indicating any projects/amounts directly attributable to changed regulations.

b. Identify and quantify the "O&M Labor" resources that were expended by Account and RA in 2004 and that are projected to be expended in 2005 with respect to compliance with regulations and safety, indicating any projects/amounts directly attributable to changed regulations.

c. Identify and quantify the "O&M Non-Labor" resources that were expended by Account and RA in 2004 and that are projected to be expended in 2005 with respect to compliance with regulations and safety, indicating any projects/amounts directly attributable to changed regulations.

d. Are any of the regulations that are summarized on HECO 610 newly effective or significantly revised since January 1, 2002? If affirmative, please explain and provide specific reference to such regulation changes.

e. Aside from the EPA 316(b) change referenced at line 21, are there any new or revised regulations for which HECO will be required to incur additional costs in the future?

f. If your response to part (e) of this information request is affirmative, please explain and quantify all planned activities that will be necessary to address the new or revised regulations, the timelines for the completion of such planned activities and the anticipated new costs that will be incurred.

HECO Response:

HECO T-6, Page 10, Line 7 and HECO-610 were intended to emphasize the impact that complying with existing regulations has on the operation and maintenance of generating units, although new and/or changed regulations are expected going forward. The responses below compare 2004 actual with 2005 forecast capital and O&M expenditures to meet existing

compliance requirements. There are a few examples below where a changed regulation has resulted in a capital project.

a. Capital resources that were invested in 2004 and that are projected to be invested in 2005 with respect to compliance with regulations and safety are provided on page 5 to this response. Note that project P0000667, Kahe Sewer System Upgrade, is a project that was initiated by a change in regulation. It has a compliance deadline of April 5, 2005. A copy of the regulation that resulted in the initiation of the Kahe Sewer System Upgrade project is provided in Attachment 1. Attachment 1 is voluminous (68 pages). One copy each will be provided to the Consumer Advocate and the Commission under separate transmittal.

b. O&M Labor resources that were expended by Account and RA in 2004 and that are projected to be expended in 2005 with respect to compliance with regulations and safety is provided on page 6 to this response. Note that PJW and PIN labor were impacted by changes in regulations. PJW, Water & Hazardous Material, was impacted by changes in 316(b), and PIN, Honolulu Station Maintenance, was impacted by changes in the Department of Transportation ("DOT") regulations impacting the maintenance, inspection and testing of the Iwilei fuel oil pipeline. The regulation for 316(b) is provided in CA-IR-39.

c. O&M Non-Labor resources that were expended by Account and RA in 2004 and that are projected to be expended in 2005 with respect to compliance with regulations and safety is provided on page 7 to this response. Note that PJW and PIN non-labor were also impacted by changes in 316(b) and the DOT. The applicable section of the DOT regulation is provided on pages 8 to 14 to this response.

d. Yes, please refer to response to "e" below.

e. Regarding new or revised regulations, aside from the new EPA 316(b), there is also a newly proposed EPA regulation (i.e., see Attachment 2: All Appropriate Inquiries ("AAI"); 40 Code of Federal Regulations Part 312; Federal Register Vol. 69, No. 165, 8/26/04) to provide standards for conducting environmental site assessments ("ESA") for property transactions and for defining environmental professionals who are qualified to conduct such assessments. This proposed regulation falls under the Comprehensive Environmental Response Compensation, and Liability Act ("CERCLA" or "Superfund" as shown on HECO-610). Conducting such ESAs is critical for property screening and to protect the company against liability related to past and present site contamination. This new rule is expected to become effective by the end of 2005, and if adopted as proposed is expected to raise consulting costs for conducting these property assessments by roughly 20% (see attached article: Environmental Protection E-news, 2/3/05). However, due to the uncertainty of the proposed rule, we are unable to provide any forecasted amount attributable to the proposed rule. (Please note that Attachment 2 is voluminous and contains 51 pages. One copy each will be provided to the Consumer Advocate and the Commission under separate transmittal.)

In addition, there are several proposed Clean Air Act related regulations currently under consideration by agencies which may have a significant impact on HECO's capital and O&M costs depending on the specific compliance requirements that are ultimately identified and determined applicable. Examples of such regulations include multi-emissions regulations such as Clear Skies, EPA's Proposed Mercury/Nickel Rule, Regional Haze Rules, Maximum Achievable Control Technology Rules, etc. At the time of the preparation

applicability associated with these rules were undeterminable and thus costs for compliance have not been included in the test year forecast. At such time that these proposed rules are formally adopted by the issuing agencies, costs for compliance can then be developed and may be provided if requested.

f. As mentioned in part (e) above, compliance with AAI regulations will be required after the EPA rule is finalized, probably in late 2005. HECO will follow current ESA guidelines for conducting property due diligence site assessments until such time the new AAI regulation becomes effective. HECO primarily depends on consultants to perform these assessments and is anticipating a cost increase for these site assessments. It is not possible to forecast the O&M and Capital cost impacts at this time.

Capital Work
Compliance with Regulations & Safety
2004 & 2005

*Project #		Project	Plt_Add _Date	FY04	FY05	Comments
P0000086		Waiau WW Oil Detectors	2005/08	5,940	18,413	
P0000097		Waiau 8 Sootblower Ctls Upg	2004/11	279,296	0	
P0000254		W3 Stack & Breeching Rpl	2004/07	283,379	0	
P0000313		W8 APH Sootblower Upgrade	2004/10	70,328	0	
P0000314		W7 APH Sootblower Upgrade	2006/03	0	58,012	
P0000327		K4 Flue Gas O2 Analyzer	2004/01	17,653	0	
P0000328		K5 Flue Gas O2 Analyzer	2004/05	76,150	0	
P0000441		W3 Soot Blower Upgrade	2008/10	6,009	552	
P0000442		W4 Soot Blower Upgrade	2005/12	0	337,361	
P0000454		K6 Fan Enclosure	2005/03	33,136	649,961	
P0000510		Circ Water Temp Monitors	n/a	82,327	10,151	
P0000590		PP Security Hardware Upgrade	n/a	203,012	102,962	
P0000609		K2 Blr Access Door Addition	2004/12	42,240	51,765	
P0000610		K1 Blr Access Door Addition	2006/03	0	61,670	
P0000619		Kahe Demin/WWTF Smk Detect	2005/07	0	30,689	
P0000620		Kahe Fire Water Storage Tnk2	2005/07	16,940	735,462	
P0000623		K1-4 & K5-6 Fire Main Tie-in	2005/09	0	119,607	
P0000624		Kahe Tank Farm Fire Main	2004/09	821,104	16,417	
P0000625		HPP Swyd Cable Tray Sprinkler	2004/05	51,348	0	
P0000626		W3-8 Cable Rm Smoke Detector	2005/10	0	36,328	
P0000627		W3-8 Swgr Rm Smoke Detector	2005/10	0	36,328	
P0000628		K1-6 Cable Rm Smoke Detector	2005/06	0	34,998	
P0000629		K1-6 Swgr Rm Smoke Detectors	2005/05	3,881	34,998	
P0000667		Kahe Sewer System Upgrade	2005/04	183,316	761,012	Due to changed regulations
P0000676		K2 Opacity Monitor Upgrade	2005/01	0	129,204	
P0000680		Waiau Waste Oil Recover	2006/01	0	86,549	
P0000719		Kahe Fire Line for Wtr Tank	2002/10	10,831	782	
P0000786		Kahe 1 BW Sump Upgrade	2005/04	100,819	65,022	
P0000788		Kahe 2 BW Sump Upgrade	2005/05	69,682	44,441	
P0000789		Kahe 3 BW Sump Upgrade	2005/06	105,007	58,194	
P0000790		Kahe 4 BW Sump Upgrade	2005/07	61,762	60,841	
P0000791		Kahe 5 BW Sump Upgrade	2005/08	69,431	52,226	
P0000792		Kahe 6 BW Sump Upgrade	2005/09	58,698	42,024	
P0000805		Kahe Intake Lighting	2005/10	0	136,708	
P0000871		Kahe 1 Sootblower Controls	2005/09	0	236,819	
P0000872		Kahe 3 Sootblower Controls	2006/08	0	14,075	
P0000873		Kahe 2 Sootblower Controls	2005/09	20,638	109,451	
P0000874		Kahe 4 Sootblower Controls	2006/04	0	166,194	
P0000875		Honolulu 8 Sootblower Ctrls	2006/11	0	4,853	
P0000909		Kahe 13-14 FT Berm Upgrade	2004/09	205,718	18,179	
P0000910		Kahe 11-12 FT Berm Upgrade	2004/09	176,127	0	
P0000943		Honolulu Boiler Wash sump	2005/06	0	393,216	
P0000993		Kahe/Waiau WWTF PLC Upgrade		0	154,204	
P9401000		Kahe Fire Pump Inst	2004/06	462,528	5,916	
	WO #					
P1870000	PE001450	Iwilei Tankfarm Foam System	2004/12	8,000	0	
	PE000695	Waiau Diesel Fire Pump Tank	2004/09	1,036	0	
	PE000787	Waiau Tank Farm Firewater Loop Tie-In	2004/09	2,062	0	
	PE001139	W3 Opacity Monitor	2004/09	6,928	0	
	PE001205	W7 Emergency Caustic Feed Eyewash/Showe	2004/09	1,500	0	
	PE000836	K1-4 Stack Lighting Improvements	2004/12	20,000	0	
	PE000839	K6 Stack Lighting Improvements	2004/09	2,319	0	
	PE001260	K6 CEMS Capability Upgrade	2004/09	35,807	0	
P1429000	PR035979	HNL WW Skimmer Shaft & Housing		7,286	0	
	PR033181	Electric Fire Pump purch, install		51,607	0	
	PR040070	Purchase/install new Chem Lab Fume Hood		16,781	0	
				3,670,626	4,875,584	

O&M Expense - LABOR
Compliance with Regulations & Safety
2004 & 2005

Acct Blk Descr	*RA #	Resp Area	Actual 2004	Test Year 2005
Prod Oper	PBT	Structural	$1,600	$0
Prod Oper	PFS	Corporate Safety	$917	$0
Prod Oper	PIA	Admin-PS Services	$70	$0
Prod Oper	PIB	Admin-PS O&M	$59,829	$149,587
Prod Oper	PIL	Kahe Stn Maint	$2,066	$0
Prod Oper	PIN	Honolulu Stn Maint	$1,106	$0
Prod Oper	PIP	Planning	$3,823	$0
Prod Oper	PIT	Traveling Maintenance	$12,525	$0
Prod Oper	PIX	Waiau Stn Maint	$29,341	$0
Prod Oper	PJA	Admin-Environ	$111,658	$160,738
Prod Oper	PJB	Air Quality & Noise	$127,274	$202,766
Prod Oper	PJC	Chemistry	$125,424	$204,376
Prod Oper	PJW	Water & Haz Mat	$199,525	$167,311
Prod Oper	PNC	Legal	$144	$0
Prod Oper	PNG	EnergyProjects	$870	$0
Prod Oper	PRX	Construction Mgt	$1,285	$0
Prod Oper	PVL	Electric & Welding Svcs	$265	$0
Prod Oper	PYM	PP Mechanical Engr	$1,060	$0
Prod Oper Total			$678,782	$884,778
Prod Maint	PIN	Honolulu Stn Maint	$3,377	$0
TOTAL			**$682,159**	**$884,778**

PJW RA:
Included in $167,311 for Test Year 2005 is $2,825 that is directly attributable to changed regulations.

PIN RA:
$3,377 incurred in 2004 is directly attributable to changed regulations.

O&M Expense - NON-LABOR
Compliance with Regulations & Safety
2004 & 2005

Acct Blk			Actual	Test Year
Descr	***RA #**	**Resp Area**	**2004**	**2005**
Prod Oper	PBT	Structural	$1,415	$0
Prod Oper	PEZ	ISD Chargeback	$68,030	$84,060
Prod Oper	PFS	Corporate Safety	$2,411	$0
Prod Oper	PIA	Admin-PS Services	$23	$0
Prod Oper	PIB	Admin-PS O&M	$28,902	$77,344
Prod Oper	PIH	Honolulu Stn Oper	$6,194	$6,600
Prod Oper	PIK	Kahe Stn Oper	$12,388	$22,800
Prod Oper	PIL	Kahe Stn Maint	$57,344	$129,004
Prod Oper	PIN	Honolulu Stn Maint	$119,809	$94,000
Prod Oper	PIO	Operations Admin	$139,000	$284,600
Prod Oper	PIP	Planning	$3,088	$0
Prod Oper	PIT	Traveling Maintenance	$13,482	$0
Prod Oper	PIW	Waiau Stn Oper	$12,388	$12,600
Prod Oper	PIX	Waiau Stn Maint	$294,485	$164,000
Prod Oper	PJA	Admin-Environ	$40,412	$129,435
Prod Oper	PJB	Air Quality & Noise	$336,389	$1,140,454
Prod Oper	PJC	Chemistry	$122,388	$197,670
Prod Oper	PJW	Water & Haz Mat	$127,146	$398,337
Prod Oper	PNC	Legal	$26	$0
Prod Oper	PNG	EnergyProjects	$254	$0
Prod Oper	PRX	Construction Mgt	$971	$0
Prod Oper	PVL	Electric & Welding Svcs	$238	$0
Prod Oper	PYM	PP Mechanical Engr	$394	$0
Prod Oper Total			$1,387,177	$2,740,904
Prod Maint	PIN	Honolulu Stn Maint	$27,582	$285,000
TOTAL			**$1,414,759**	**$3,025,904**

PJW RA:
Included in $398,337 for Test Year 2005 is $206,094 that is directly attributable to changed regulations.

PIN RA:
2004 & 2005 Amounts are directly attributable to changed regulations.

(i) The program's existence and purpose; and

(ii) How to learn the location of underground pipelines before excavation activities are begun.

(3) Provide a means of receiving and recording notification of planned excavation activities.

(4) If the operator has buried pipelines in the area of excavation activity, provide for actual notification of persons who give notice of their intent to excavate of the type of temporary marking to be provided and how to identify the markings.

(5) Provide for temporary marking of buried pipelines in the area of excavation activity before, as far as practical, the activity begins.

(6) Provide as follows for inspection of pipelines that an operator has reason to believe could be damaged by excavation activities:

(i) The inspection must be done as frequently as necessary during and after the activities to verify the integ

(1) *Check valve* means a valve that permits fluid to flow freely in one direction and contains a mechanism to automatically prevent flow in the other direction.

(2) *Remote control valve* or *RCV* means any valve that is operated from a location remote from where the valve is installed. The RCV is usually operated by the supervisory control and data acquisition (SCADA) system. The linkage between the pipeline control center and the RCV may be by fiber optics, microwave, telephone lines, or satellite.

High consequence area means:

(1) A *commercially navigable waterway*, which means a waterway where a substantial likelihood of commercial navigation exists;

(2) A *high population area*, which means an urbanized area, as defined and delineated by the Census Bureau, that contains 50,000 or more people and has a population density of at least 1,000 people per square mile;

(3) An *other populated area*, which

(2) Category 2 includes pipelines existing on May 29, 2001, that were owned or operated by an operator who owned or operated less than 500 miles of pipeline subject to this part.

(3) Category 3 includes pipelines constructed or converted after May 29, 2001.

(b) *What program and practices must operators use to manage pipeline integrity?* Each operator of a pipeline covered by this section must:

(1) Develop a written integrity management program that addresses the risks on each segment of pipeline in the first column of the following table not later than the date in the second column:

Pipeline	Date
Category 1	March 31, 2002.
Category 2	February 18, 2003.
Category 3	1 year after the date the

(i) This section specifies otherwise; or

(ii) The operator demonstrates that an alternative practice is supported by a reliable engineering evaluation and provides an equivalent level of public safety and environmental protection.

(c) *What must be in the baseline assessment plan?* (1) An operator must include each of the following elements in its written baseline assessment plan:

(i) The methods selected to assess the integrity of the line pipe. An operator must assess the integrity of the line pipe by any of the following methods. The methods an operator selects to assess low frequency electric resistance welded pipe or lap welded pipe susceptible to longitudinal seam failure must be capable of assessing seam integrity and of detecting corrosion and defor-

(2) Include in the program an identification of each pipeline or pipeline segment in the first column of the following table not later than the date in the second column:

Pipeline	Date
Category 1	December 31, 2001.
Category 2	November 18, 2002.
Category 3	Date the pipeline begins op-

capable of detecting corrosion and deformation anomalies including dents, gouges and grooves;

(B) Pressure test conducted in accordance with subpart E of this part; or

(C) Other technology that the operator demonstrates can provide an equivalent understanding of the condition of the line pipe. An operator

If the pipeline is:	Then complete baseline assessments not later than the following date according to a schedule that prioritizes assessments:	And assess at least 50 percent of the line pipe on an expedited basis, beginning with the highest risk pipe, not later than:
Category 1	March 31, 2008	September 30, 2004.
Category 2	February 17, 2009	August 16, 2005.
Category 3	Date the pipeline begins operation	Not applicable.

(2) *Prior assessment.* To satisfy the requirements of paragraph (c)(1)(i) of this section for pipelines in the first column of the following table, operators may use integrity assessments conducted after the date in the second column, if the integrity assessment method complies with this section. However, if an operator uses this prior assessment as its baseline assessment, the operator must reassess the line pipe according to paragraph (j)(3) of this section. The table follows:

Pipeline	Date
Category 1	January 1, 1996.
Category 2	February 15, 1997.

(3) *Newly-identified areas.* (i) When information is available from the information analysis (see paragraph (g) of this section), or from Census Bureau maps, that the population density around a pipeline segment has changed so as to fall within the definition in §195.450 of a high population area or other populated area, the operator must incorporate the area into its baseline assessment plan as a high consequence area within one year from the date the area is identified. An operator must complete the baseline assessment of any line pipe that could affect the newly-identified high consequence area within five years from the date the area is identified.

(ii) An operator must incorporate a new unusually sensitive area into its baseline assessment plan within one year from the date the area is identified. An operator must complete the baseline assessment of any line pipe that could affect the newly-identified high consequence area within five years from the date the area is identified.

(e) *What are the risk factors for establishing an assessment schedule (for both the baseline and continual integrity assessments)?* (1) An operator must establish an integrity assessment schedule that prioritizes pipeline segments for assessment (see paragraphs (d)(1) and (j)(3) of this section). An operator must base the assessment schedule on all risk factors that reflect the risk conditions on the pipeline segment. The factors an operator must consider include, but are not limited to:

(i) Results of the previous integrity assessment, defect type and size that the assessment method can detect, and defect growth rate;

(ii) Pipe size, material, manufacturing information, coating type and condition, and seam type;

(iii) Leak history, repair history and cathodic protection history;

(iv) Product transported;

(v) Operating stress level;

(vi) Existing or projected activities in the area;

(vii) Local environmental factors that could affect the pipeline (*e.g.*, corrosivity of soil, subsidence, climatic);

(viii) geo-technical hazards; and

(ix) Physical support of the segment such as by a cable suspension bridge.

(2) Appendix C of this part provides further guidance on risk factors.

(f) *What are the elements of an integrity management program?* An integrity management program begins with the initial framework. An operator must continually change the program to reflect operating experience, conclusions drawn from results of the integrity assessments, and other maintenance and surveillance data, and evaluation of consequences of a failure on the high consequence area. An operator must include, at minimum, each of the following elements in its written integrity management program:

(1) A process for identifying which pipeline segments could affect a high consequence area;

(2) A baseline assessment plan meeting the requirements of paragraph (c) of this section;

(3) An analysis that integrates all available information about the integrity of the entire pipeline and the consequences of a failure (see paragraph (g) of this section);

(4) Criteria for remedial actions to address integrity issues raised by the assessment methods and information analysis (see paragraph (h) of this section);

(5) A continual process of assessment and evaluation to maintain a pipeline's integrity (see paragraph (j) of this section);

(6) Identification of preventive and mitigative measures to protect the high consequence area (see paragraph (i) of this section);

(7) Methods to measure the program's effectiveness (see paragraph (k) of this section);

(8) A process for review of integrity assessment results and information analysis by a person qualified to evaluate the results and information (see paragraph (h)(2) of this section).

(g) *What is an information analysis?* In periodically evaluating the integrity of each pipeline segment (paragraph (j) of this section), an operator must analyze all available information about the integrity of the entire pipeline and the consequences of a failure. This information includes:

(1) Information critical to determining the potential for, and preventing, damage due to excavation, including current and planned damage prevention activities, and development or planned development along the pipeline segment;

(2) Data gathered through the integrity assessment required under this section;

(3) Data gathered in conjunction with other inspections, tests, surveillance and patrols required by this Part, including, corrosion control monitoring and cathodic protection surveys; and

(4) Information about how a failure would affect the high consequence area, such as location of the water intake.

(h) *What actions must an operator take to address integrity issues?*

(1) *General.* An operator must assess the integrity of the pipeline by any method or combination of methods based on the assessment or information analysis. In addressing all conditions, an operator must evaluate all anomalous conditions and remediate those that could reduce a pipeline's integrity. An operator must be able to demonstrate that the remediation of the condition will ensure that the condition is unlikely to pose a threat to the long-term integrity of the pipeline. A reduction in operating pressure cannot exceed 365 days without an operator taking further remedial action to ensure the safety of the pipeline. An operator must comply with § 195.422 when making a repair.

(2) *Discovery of condition.* Discovery of a condition occurs when an operator has adequate information about the condition to determine that the condition presents a potential threat to the integrity of the pipeline. An operator must promptly, but no later than 180 days after an integrity assessment, obtain sufficient information about a condition to make that determination, unless the operator can demonstrate that the 180-day period is impracticable.

(3) *Schedule for evaluation and remediation.* An operator must complete remediation of a condition according to a schedule that prioritizes the conditions for evaluation and remediation. If an operator cannot meet the schedule for any condition, the operator must justify the reasons why it cannot meet the schedule and that the changed schedule will not jeopardize public safety or environmental protection. An operator must notify OPS if the operator cannot meet the schedule and cannot provide safety through a temporary reduction in operating pressure. An operator must send the notice to the address specified in paragraph (m) of this section.

(4) *Special requirements for scheduling remediation.* (i) *Immediate repair conditions.* An operator's evaluation and remediation schedule must provide for immediate repair conditions. To maintain safety, an operator must temporarily reduce operating pressure or shut down the pipeline until the operator completes the repair of the

reference, see § 195.3). An operator must treat the following conditions as immediate repair conditions:

(A) Metal loss greater than 80% of nominal wall regardless of dimensions.

(B) A calculation of the remaining strength of the pipe shows a predicted burst pressure less than the established maximum operating pressure at the location of the anomaly. Suitable remaining strength calculation methods include, but are not limited to, ASME/ANSI B31G ("Manual for Determining the Remaining Strength of Corroded Pipelines" (1991) or AGA Pipeline Research Committee Project PR-3-805 ("A Modified Criterion for Evaluating the Remaining Strength of Corroded Pipe" (December 1989)). These documents are incorporated by reference and are available at the addresses listed in § 195.3.

(C) A dent located on the top of the pipeline (above the 4 and 8 o'clock positions) that has any indication of metal loss, cracking or a stress riser.

(D) A dent located on the top of the pipeline (above the 4 and 8 o'clock positions) with a depth greater than 6% of the nominal pipe diameter.

(E) An anomaly that in the judgment of the person designated by the operator to evaluate the assessment results requires immediate action.

(ii) *60-day conditions.* Except for conditions listed in paragraph (h)(4)(i) of this section, an operator must schedule evaluation and remediation of the following conditions within 60 days of discovery of condition.

(A) A dent located on the top of the pipeline (above the 4 and 8 o'clock positions) with a depth greater than 3% of the pipeline diameter (greater than 0.250 inches in depth for a pipeline diameter less than Nominal Pipe Size (NPS) 12).

(B) A dent located on the bottom of the pipeline that has any indication of metal loss, cracking or a stress riser.

(iii) *180-day conditions.* Except for conditions listed in paragraph (h)(4)(i) or (ii) of this section, an operator must schedule evaluation and remediation of the following within 180 days of discovery of the condition:

(A) A dent with a depth greater than 2% of the pipeline's diameter (0.250 inches in depth for a pipeline diameter less than NPS 12) that affects pipe curvature at a girth weld or a longitudinal seam weld.

(B) A dent located on the top of the pipeline (above 4 and 8 o'clock position) with a depth greater than 2% of the pipeline's diameter (0.250 inches in depth for a pipeline diameter less than NPS 12).

(C) A dent located on the bottom of the pipeline with a depth greater than 6% of the pipeline's diameter.

(D) A calculation of the remaining strength of the pipe shows an operating pressure that is less than the current established maximum operating pressure at the location of the anomaly. Suitable remaining strength calculation methods include, but are not limited to, ASME/ANSI B31G ("Manual for Determining the Remaining Strength of Corroded Pipelines" (1991)) or AGA Pipeline Research Committee Project PR-3-805 ("A Modified Criterion for Evaluating the Remaining Strength of Corroded Pipe" (December 1989)). These documents are incorporated by reference and are available at the addresses listed in § 195.3.

(E) An area of general corrosion with a predicted metal loss greater than 50% of nominal wall.

(F) Predicted metal loss greater than 50% of nominal wall that is located at a crossing of another pipeline, or is in an area with widespread circumferential corrosion, or is in an area that could affect a girth weld.

(G) A potential crack indication that when excavated is determined to be a crack.

(H) Corrosion of or along a longitudinal seam weld.

(I) A gouge or groove greater than 12.5% of nominal wall.

(iv) *Other conditions.* In addition to the conditions listed in paragraphs (h)(4)(i) through (iii) of this section, an operator must evaluate any condition identified by an integrity assessment or information analysis that could impair the integrity of the pipeline, and as appropriate, schedule the condition for remediation. Appendix C of this part contains guidance concerning other conditions that an operator should evaluate.

(i) *What preventive and mitigative measures must an operator take to protect*

the high consequence area? (1) *General requirements.* An operator must take

least, consider, the following factors—length and size of the pipeline, type of

consequence area to determine the priority for assessing the pipeline segments. An operator must establish the assessment intervals based on the factors specified in paragraph (e) of this section, the analysis of the results from the last integrity assessment, and the information analysis required by paragraph (g) of this section.

(4) *Variance from the 5-year intervals in limited situations*—(i) *Engineering basis.* An operator may be able to justify an engineering basis for a longer assessment interval on a segment of line pipe. The justification must be supported by a reliable engineering evaluation combined with the use of other technology, such as external monitoring technology, that provides an understanding of the condition of the line pipe equivalent to that which can be obtained from the assessment methods allowed in paragraph (j)(5) of this section. An operator must notify OPS 270 days before the end of the five-year (or less) interval of the justification for a longer interval, and propose an alternative interval. An operator must send the notice to the address specified in paragraph (m) of this section.

(ii) *Unavailable technology.* An operator may require a longer assessment period for a segment of line pipe (for example, because sophisticated internal inspection technology is not available). An operator must justify the reasons why it cannot comply with the required assessment period and must also demonstrate the actions it is taking to evaluate the integrity of the pipeline segment in the interim. An operator must notify OPS 180 days before the end of the five-year (or less) interval that the operator may require a longer assessment interval, and provide an estimate of when the assessment can be completed. An operator must send a notice to the address specified in paragraph (m) of this section.

(5) *Assessment methods.* An operator must assess the integrity of the line pipe by any of the following methods. The methods an operator selects to as-

(i) Internal inspection tool or tools capable of detecting corrosion and deformation anomalies including dents, gouges and grooves;

(ii) Pressure test conducted in accordance with subpart E of this part; or

(iii) Other technology that the operator demonstrates can provide an equivalent understanding of the condition of the line pipe. An operator choosing this option must notify OPS 90 days before conducting the assessment, by sending a notice to the address or facsimile number specified in paragraph (m) of this section.

(k) *What methods to measure program effectiveness must be used?* An operator's program must include methods to measure whether the program is effective in assessing and evaluating the integrity of each pipeline segment and in protecting the high consequence areas. See Appendix C of this part for guidance on methods that can be used to evaluate a program's effectiveness.

(l) *What records must be kept?* (1) An operator must maintain for review during an inspection:

(i) A written integrity management program in accordance with paragraph (b) of this section.

(ii) Documents to support the decisions and analyses, including any modifications, justifications, variances, deviations and determinations made, and actions taken, to implement and evaluate each element of the integrity management program listed in paragraph (f) of this section.

(2) See Appendix C of this part for examples of records an operator would be required to keep.

(m) *Where does an operator send a notification?* An operator must send any notification required by this section to the Information Resources Manager, Office of Pipeline Safety, Research and Special Programs Administration, U.S. Department of Transportation, Room 7128, 400 Seventh Street SW., Washington, DC 20590, or to the facsimile

Contaminant	EPA	ASTM[3]	SM[4] 18th and 19th ed.	SM[4] 20th ed.	Other
			4500–SO_4^{2-}–C, D.	4500–SO_4^{2-}–C, D.	
		D516–90	4500–SO_4^{2-}– E	4500–SO_4^{2-}– E.	
10. Total Dissolved Solids			2540 C	2540 C.	
11. Zinc	200.7[2]		3120 B	3120 B.	
	200.8[2]		3111 B.		

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at 800–426–4791. Documents may be inspected at EPA's Drinking Water Docket, EPA West, 1301 Constitution Avenue, NW, Room B135, Washington, DC (Telephone: 202–566–2426); or at the Office of Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC 20408.

[1] "Methods for the Determination of Inorganic Substances in Environmental Samples", EPA/600/R–93–100, August 1993. Available at NTIS, PB94–120821.

[2] "Methods for the Determination of Metals in EnvironmentalSamples—Supplement I", EPA/600/R–94–111, May 1994. Available at NTIS, PB 95–125472.

[3] *Annual Book of ASTM Standards*, 1994, 1996, or 1999, Vols. 11.01 and 11.02, ASTM International; any year containing the cited version of the method may be used. Copies may be obtained from ASTMInternational, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

[4] Standard Methods for the Examination of Water and Wastewater, 18th edition (1992), 19th edition (1995), or 20th edition (1998). American Public Health Association, 1015 Fifteenth Street, NW, Washington, DC 20005. The cited methods published in any of these three editions may be used, except that the versions of 3111 B, 3111 D, and 3113 B in the 20th edition may not be used.

[5] Method I–3720–85, *Techniques of Water Resources Investigation of the U.S. Geological Survey*, Book 5, Chapter A–1, 3rd ed., 1989; Available from Information Services, U.S. Geological Survey, Federal Center, Box 25286, Denver, CO 80225–0425.

[44 FR 42198, July 19, 1979, as amended at 53 FR 5147, Feb. 19, 1988; 56 FR 30281, July 1, 1991; 59 FR 62470, Dec. 5, 1994; 64 FR 67466, Dec. 1, 1999; 67 FR 65252, Oct. 23, 2002]

PART 144—UNDERGROUND INJECTION CONTROL PROGRAM

Subpart A—General Provisions

Sec.

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Subpart E—Permit Conditions

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Subpart G—Requirements for Owners and Operators of Class V Injection Wells

144.79 General.

DEFINITION OF CLASS V INJECTION WELLS

144.80 What is a Class V injection well?
144.81 Does this subpart apply to me?

REQUIREMENTS FOR ALL CLASS V INJECTION WELLS

144.82 What must I do to protect underground sources of drinking water?
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144.84 Do I need to get a permit?

ADDITIONAL REQUIREMENTS FOR CLASS V LARGE CAPACITY CESSPOOLS AND MOTOR

the extent that they deal with hazardous waste, the Resource Conservation and Recovery Act (RCRA) (Pub. L. 94–580 as amended; 42 U.S.C. 6901 *et seq.*).

(b) *Applicability.* (1) The regulations in this part establish minimum requirements for UIC programs. To the extent set forth in part 145, each State must meet these requirements in order to obtain primary enforcement authority for the UIC program in that State.

(2) In addition to serving as minimum requirements for UIC programs, the regulations in this part constitute a part of the UIC program for States listed in part 147 to be administered directly by EPA.

(c) The information requirements located in the following sections have been cleared by the Office of Management and Budget: Sections 144.11, 144.28(c)(d)(i), 144.31, 14.33, 144.51(j)(m)(n), 144.52(a), 144.54, 144.55, 144.15, 144.23, 144.26, 144.27, 144.28(i)(k), 144.51(o), 146.52. The OMB clearance number is 2040–0042.

(d) *Authority.* (1) Section 1421 of SDWA requires the Administrator to promulgate regulations establishing minimum requirements for effective

* * * to assist him in establishing regulations under this title," and a "right of entry and inspection to determine compliance with this title, including for this purpose, inspection, at reasonable time, or records, files, papers, processes, controls, and facilities * * *."

(6) Section 1450 of SDWA authorizes the Administrator "to prescribe such regulations as are necessary or appropriate to carry out his functions" under SDWA.

(e) *Overview of the UIC program.* An UIC program is necessary in any State listed by EPA under section 1422 of the SDWA. Because all States have been listed, the SDWA requires all States to submit an UIC program within 270 days after July 24, 1980, the effective date of 40 CFR part 146, which was the final element of the UIC minimum requirements to be originally promulgated, unless the Administrator grants an extension, which can be for a period not to exceed an additional 270 days. If a State fails to submit an approvable program, EPA will establish a program for that State. Once a program is established, SDWA provides that all underground injections in listed States are unlawful and subject to penalties unless authorized by a permit or a rule. This part sets forth the requirements governing all UIC programs, authoriza-

(iv) Subpart D sets forth permitting procedures.

(v) Subpart E sets forth specific conditions, or types of conditions, that must at a minimum be included in all permits.

(vi) Subpart F sets forth the financial responsibility requirements for owners and operators of all existing and new Class I hazardous waste injection wells.

(vii) Subpart G of this part sets forth requirements for owners and operators of Class V injection wells.

(2) *Part 145.* While part 144 sets forth minimum requirements for all UIC Programs, these requirements are specifically identified as elements of a State application for primacy to administer an UIC Program in part 145. Part 145 also sets forth the necessary elements of a State submission and the procedural requirements for approval of State programs.

(3) *Part 124.* The public participation requirements that must be met by UIC Programs, whether administered by the State or by EPA, are set forth in part 124. EPA must comply with all part 124 requirements; State administered programs must comply with part 124 as required by part 145. These requirements carry out the purposes of the public participation requirement of 40 CFR part 25 (Public Participation), and supersede the requirements of that

or may adversely affect the health of persons (§ 144.12). Existing Class IV wells which inject hazardous waste directly into an underground source of drinking water are to be eliminated over a period of six months and new such Class IV wells are to be prohibited.

(iv) Any septic tank, cesspool, or other well used by a multiple dwelling, community, or Regional system for the injection of wastes.

(2) *Specific exclusions.* The following are not covered by these regulations:

requirements imposed in the UIC permit.

[48 FR 14189, Apr. 1, 1983, as amended at 49 FR 20181, May 11, 1984; 52 FR 20676, June 2, 1987; 52 FR 45797, Dec. 1, 1987; 53 FR 28147, July 26, 1988; 64 FR 68565, Dec. 7, 1999; 67 FR 39592, June 7, 2002]

§ 144.2 Promulgation of Class II programs for Indian lands.

Notwithstanding the requirements of this part or parts 124 and 146 of this chapter, the Administrator may promulgate an alternate UIC Program for Class II wells on any Indian reservation or Indian lands. In promulgating such a program the Administrator shall consider the following factors:

(a) The interest and preferences of the tribal government having responsibility for the given reservation or In-

EPA according to SDWA sections 1422 and/or 1425.

Aquifer means a geological "formation," group of formations, or part of a formation that is capable of yielding a significant amount of water to a well or spring.

Area of review means the area surrounding an injection well described according to the criteria set forth in § 146.06 or in the case of an area permit, the project area plus a circumscribing area the width of which is either ¼ of a mile or a number calculated according to the criteria set forth in § 146.06.

Cesspool means a "drywell" that receives untreated sanitary waste containing human excreta, and which sometimes has an open bottom and/or perforated sides.

Contaminant means any physical,

distribution system, completed above the water table so that its bottom and sides are typically dry except when receiving fluids.

Eligible Indian Tribe is a Tribe that meets the statutory requirements established at 42 U.S.C. 300j-11(b)(1).

Emergency permit means a UIC "permit" issued in accordance with § 144.34.

Environmental Protection Agency ("EPA") means the United States Environmental Protection Agency.

EPA means the United States "Environmental Protection Agency."

Exempted aquifer means an "aquifer" or its portion that meets the criteria in the definition of "underground source of drinking water" but which has been exempted according to the procedures in § 144.7.

Existing injection well means an "injection well" other than a "new injection well."

Facility or activity means any UIC "injection well," or an other facility or activity that is subject to regulation under the UIC program.

Fluid means any material or substance which flows or moves whether in a semisolid, liquid, sludge, gas, or any other form or state.

Formation means a body of consolidated or unconsolidated rock characterized by a degree of lithologic homogeneity which is prevailingly, but not necessarily, tabular and is mappable on the earth's surface or traceable in the subsurface.

Formation fluid means "fluid" present in a "formation" under natural conditions as opposed to introduced fluids, such as "drilling mud."

Generator means any person, by site location, whose act or process produces hazardous waste identified or listed in 40 CFR part 261.

Ground water means water below the land surface in a zone of saturation.

Hazardous waste means a hazardous waste as defined in 40 CFR 261.3.

Hazardous waste management facility ("HWM facility") means all contiguous land, and structures, other appurtenances, and improvements on the land used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units (for example, one or more landfills, surface impoundments, or combination of them).

HWM facility means "Hazardous Waste Management facility"

Improved sinkhole means a naturally occurring karst depression or other natural crevice found in volcanic terrain and other geologic settings which have been modified by man for the purpose of directing and emplacing fluids into the subsurface.

Indian lands means "Indian country" as defined in 18 U.S.C. 1151. That section defines Indian country as:

(a) All land within the limits of any Indian reservation under the jurisdiction of the United States government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation;

(b) All dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a State; and

(c) All Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

Indian Tribe means any Indian Tribe having a Federally recognized governing body carrying out substantial governmental duties and powers over a defined area.

Injection well means a "well" into which "fluids" are being injected.

Injection zone means a geological "formation" group of formations, or part of a formation receiving fluids through a "well."

Interstate Agency means an agency of two or more States established by or under an agreement or compact approved by the Congress, or any other agency of two or more States or Indian Tribes having substantial powers or duties pertaining to the control of pollution as determined and approved by the Administrator under the "appropriate Act and regulations."

Major facility means any UIC "facility or activity" classified as such by the Regional Administrator, or, in the case of approved State programs, the Regional Administrator in conjunction with the State Director.

Manifest means the shipping document originated and signed by the

"generator" which contains the information required by subpart B of 40 CFR part 262.

New injection wells means an "injection well" which began injection after a UIC program for the State applicable to the well is approved or prescribed.

Owner or operator means the owner or operator of any "facility or activity" subject to regulation under the UIC program.

Permit means an authorization, license, or equivalent control document issued by EPA or an approved State to implement the requirements of this part, parts 145, 146 and 124. "Permit" includes an area permit (§ 144.33) and an emergency permit (§ 144.34). Permit does not include UIC authorization by rule (§ 144.21), or any permit which has not yet been the subject of final agency action, such as a "draft permit."

Person means an individual, association, partnership, corporation, municipality, State, Federal, or Tribal agency, or an agency or employee thereof.

Plugging means the act or process of stopping the flow of water, oil or gas into or out of a formation through a borehole or well penetrating that formation.

Point of injection means the last accessible sampling point prior to waste fluids being released into the subsurface environment through a Class V injection well. For example, the point of injection of a Class V septic system might be the distribution box—the last accessible sampling point before the waste fluids drain into the underlying soils. For a dry well, it is likely to be the well bore itself.

Project means a group of wells in a single operation.

Radioactive Waste means any waste which contains radioactive material in concentrations which exceed those listed in 10 CFR part 20, appendix B, table II, column 2.

RCRA means the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976 (Pub. L. 94-580, as amended by Pub. L. 95-609, Pub. L. 96-510, 42 U.S.C. 6901 *et seq.*).

Regional Administrator means the Regional Administrator of the appropriate Regional Office of the Environmental Protection Agency or the authorized representative of the Regional Administrator.

Sanitary waste means liquid or solid wastes originating solely from humans and human activities, such as wastes collected from toilets, showers, wash basins, sinks used for cleaning domestic areas, sinks used for food preparation, clothes washing operations, and sinks or washing machines where food and beverage serving dishes, glasses, and utensils are cleaned. Sources of these wastes may include single or multiple residences, hotels and motels, restaurants, bunkhouses, schools, ranger stations, crew quarters, guard stations, campgrounds, picnic grounds, day-use recreation areas, other commercial facilities, and industrial facilities provided the waste is not mixed with industrial waste.

Schedule of compliance means a schedule of remedial measures included in a "permit," including an enforceable sequence of interim requirements (for example, actions, operations, or milestone events) leading to compliance with the "appropriate Act and regulations."

SDWA means the Safe Drinking Water Act (Pub. L. 93-523, as amended; 42 U.S.C. 300f *et seq.*).

Septic system means a "well" that is used to emplace sanitary waste below the surface and is typically comprised of a septic tank and subsurface fluid distribution system or disposal system.

Site means the land or water area where any "facility or activity" is physically located or conducted, including adjacent land used in connection with the facility or activity.

State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Trust Territory of the Pacific Islands, the Commonwealth of the Northern Mariana Islands, or an Indian Tribe treated as a State.

State Director means the chief administrative officer of any State, interstate, or Tribal agency operating an "approved program," or the delegated representative of the State director. If the responsibility is divided among two or more States, interstate, or Tribal agencies, "State Director" means the chief administrative officer of the

State, interstate, or Tribal agency authorized to perform the particular procedure or function to which reference is made.

State/EPA agreement means an agreement between the Regional Administrator and the State which coordinates EPA and State activities, responsibilities and programs.

Stratum (plural strata) means a single sedimentary bed or layer, regardless of

Well injection means the subsurface emplacement of fluids through a well.

[48 FR 14189, Apr. 1, 1983, as amended at 49 FR 45305, Nov. 15, 1984; 52 FR 20676, June 2, 1987; 53 FR 37412, Sept. 26, 1988; 58 FR 63895, Dec. 3, 1993; 59 FR 64345, Dec. 14, 1994; 64 FR 68565, Dec. 7, 1999]

§ 144.4 Considerations under Federal law.

The following is a list of Federal laws that may apply to the issuance of per-

issuing a permit for an activity affecting land or water use in the coastal zone until the applicant certifies that the proposed activity complies with the State Coastal Zone Management program, and the State or its designated agency concurs with the certification (or the Secretary of Commerce overrides the States nonconcurrence).

(e) The *Fish and Wildlife Coordination Act*, 16 U.S.C. 661 *et seq.*, requires the Regional Administrator, before issuing a permit proposing or authorizing the impoundment (with certain exemptions), diversion, or other control or modification of any body of water, consult with the appropriate State agency exercising jurisdiction over wildlife resources to conserve these resources.

(f) *Executive orders.* [Reserved]

(Clean Water Act (33 U.S.C. 1251 *et seq.*), Safe Drinking Water Act (42 U.S.C. 300f *et seq.*), Clean Air Act (42 U.S.C. 7401 *et seq.*), Resource Conservation and Recovery Act (42 U.S.C. 6901 *et seq.*))

[48 FR 14189, Apr. 1, 1983, as amended at 48 FR 39621, Sept. 1, 1983]

§ 144.5 Confidentiality of information.

(a) In accordance with 40 CFR part 2, any information submitted to EPA pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR part 2 (Public Information).

(b) Claims of confidentiality for the following information will be denied:

(1) The name and address of any permit applicant or permittee;

(2) Information which deals with the existence, absence, or level of contaminants in drinking water.

§ 144.6 Classification of wells.

Injection wells are classified as follows:

(a) *Class I.* (1) Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to inject hazardous waste beneath the lowermost formation containing, within one-quarter mile of the well bore, an underground source of drinking water.

(2) Other industrial and municipal disposal wells which inject fluids beneath the lowermost formation containing, within one quarter mile of the well bore, an underground source of drinking water.

(3) Radioactive waste disposal wells which inject fluids below the lowermost formation containing an underground source of drinking water within one quarter mile of the well bore.

(b) *Class II.* Wells which inject fluids:

(1) Which are brought to the surface in connection with natural gas storage operations, or conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an intergral part of production operations, unless those waters are classified as a hazardous waste at the time of injection.

(2) For enhanced recovery of oil or natural gas; and

(3) For storage of hydrocarbons which are liquid at standard temperature and pressure.

(c) *Class III.* Wells which inject for extraction of minerals including:

(1) Mining of sulfur by the Frasch process;

(2) In situ production of uranium or other metals; this category includes only in-situ production from ore bodies which have not been conventionally mined. Solution mining of conventional mines such as stopes leaching is included in Class V.

(3) Solution mining of salts or potash.

(d) *Class IV.* (1) Wells used by generators of hazardous waste or of radioactive waste, by owners or operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites to dispose of hazardous waste or radioactive waste into a formation which within one-quarter (¼) mile of the well contains an underground source of drinking water.

(2) Wells used by generators of hazardous waste or of radioactive waste, by owners or operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites to dispose of hazardous waste or radioactive waste above a formation which within one-quarter (¼) mile of the well contains an underground source of drinking water.

(3) Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to dispose of hazardous waste, which cannot be classified under paragraph (a)(1) or (d) (1) and (2) of this section (e.g., wells used to dispose of hazardous waste into or above a formation which contains an aquifer which has been exempted pursuant to §146.04).

(e) Class V. Injection wells not included in Class I, II, III, or IV. Specific types of Class V injection wells are described in §144.81.

[48 FR 14189, Apr. 1, 1983, as amended at 52 FR 20676, June 2, 1987; 64 FR 68565, Dec. 7, 1999]

§144.7 Identification of underground sources of drinking water and exempted aquifers.

(a) The Director may identify (by narrative description, illustrations, maps, or other means) and shall protect, except where exempted under paragraph (b) of this section, as an underground source of drinking water, all aquifers or parts of aquifers which meet the definition of an "underground source of drinking water" in §144.3. Even if an aquifer has not been specifically identified by the Director, it is an underground source of drinking water if it meets the definition in §144.3.

(b)(1) The Director may identify (by narrative description, illustrations, maps, or other means) and describe in geographic and/or geometric terms (such as vertical and lateral limits and gradient) which are clear and definite, all aquifers or parts thereof which the Director proposes to designate as exempted aquifers using the criteria in 40 CFR 146.04.

(2) No designation of an exempted aquifer submitted as part of a UIC Program shall be final until approved by the Administrator as part of a UIC program.

(3) Subsequent to program approval or promulgation, the Director may, after notice and opportunity for a public hearing, identify additional exempted aquifers. For approved State programs exemption of aquifers identifed (i) under §146.04(b) shall be treated as a program revision under §145.32; (ii) under §146.04(c) shall become final if the State Director submits the exemption in writing to the Administrator and the Administrator has not disapproved the designation within 45 days. Any disapproval by the Administrator shall state the reasons and shall constitute final Agency action for purposes of judicial review.

(c)(1) For Class III wells, the Director shall require an applicant for a permit which necessitates an aquifer exemption under §146.04(b)(1) to furnish the data necessary to demonstrate that the aquifer is expected to be mineral or hydrocarbon producing. Information contained in the mining plan for the proposed project, such as a map and general description of the mining zone, general information on the mineralogy and geochemistry of the mining zone, analysis of the amenability of the mining zone to the proposed mining method, and a time-table of planned development of the mining zone shall be considered by the Director in addition to the information required by §144.31(g).

(2) For Class II wells, a demonstration of commercial producibility shall be made as follows:

(i) For a Class II well to be used for enhanced oil recovery processes in a field or project containing aquifers from which hydrocarbons were previously produced, commercial producibility shall be presumed by the Director upon a demonstration by the applicant of historical production having occurred in the project area or field.

(ii) For Class II wells not located in a field or project containing aquifers from which hydrocarbons were previously produced, information such as logs, core data, formation description, formation depth, formation thickness

and formation parameters such as permeability and porosity shall be considered by the Director, to the extent such information is available.

§ 144.8 Noncompliance and program reporting by the Director.

The Director shall prepare quarterly and annual reports as detailed below. When the State is the permit-issuing authority, the State Director shall submit any reports required under this section to the Regional Administrator. When EPA is the permit-issuing authority, the Regional Administrator shall submit any report required under this section to EPA Headquarters.

(a) *Quarterly reports.* The Director shall submit quarterly narrative reports for major facilities as follows:

(1) *Format.* The report shall use the following format:

(i) Provide an alphabetized list of permittees. When two or more permittees have the same name, the lowest permit number shall be entered first.

(ii) For each entry on the list, include the following information in the following order:

(A) Name, location, and permit number of the noncomplying permittees.

(B) A brief description and date of each instance of noncompliance for that permittee. Instances of noncompliance may include one or more the kinds set forth in paragraph (a)(2) of this section. When a permittee has noncompliance of more than one kind, combine the information into a single entry for each such permittee.

(C) The date(s) and a brief description of the action(s) taken by the Director to ensure compliance.

(D) Status of the instance(s) of noncompliance with the date of the review of the status or the date of resolution.

(E) Any details which tend to explain or mitigate the instance(s) of noncompliance.

(2) *Instances of noncompliance to be reported.* Any instances of noncompliance within the following categories shall be reported in successive reports until the noncompliance is reported as resolved. Once noncompliance is reported as resolved it need not appear in subsequent reports.

(i) *Failure to complete construction elements.* When the permittee has failed to complete, by the date specified in the permit, an element of a compliance schedule involving either planning for construction or a construction step (for example, begin construction, attain operation level); and the permittee has not returned to compliance by accomplishing the required elements of the schedule within 30 days from the date a compliance schedule report is due under the permit.

(ii) *Modifications to schedules of compliance.* When a schedule of compliance in the permit has been modified under §§ 144.39 or 144.41 because of the permittee's noncompliance.

(iii) *Failure to complete or provide compliance schedule or monitoring reports.* When the permittee has failed to complete or provide a report required in a permit compliance schedule (for example, progress report or notice of noncompliance or compliance) or a monitoring report; and the permittee has not submitted the complete report within 30 days from the date it is due under the permit for compliance schedules, or from the date specified in the permit for monitoring reports.

(iv) *Deficient reports.* When the required reports provided by the permittee are so deficient as to cause misunderstanding by the Director and thus impede the review of the status of compliance.

(v) *Noncompliance with other permit requirements.* Noncompliance shall be reported in the following circumstances:

(A) Whenever the permittee has violated a permit requirement (other than reported under paragraph (a)(2) (i) or (ii) of this section), and has not returned to compliance within 45 days from the date reporting of noncompliance was due under the permit; or

(B) When the Director determines that a pattern of noncompliance exists for a major facility permittee over the most recent four consecutive reporting periods. This pattern includes any violation of the same requirement in two consecutive reporting periods, and any violation of one or more requirements in each of four consecutive reporting periods; or

(C) When the Director determines significant permit noncompliance or other significant event has occurred,

such as a migration of fluids into a USDW.

(vi) *All other.* Statistical information shall be reported quarterly on all other instances of noncompliance by major facilities with permit requirements not otherwise reported under paragraph (a) of this section.

(b) *Annual reports*—(1) *Annual noncompliance report.* Statistical reports shall be submitted by the Director on nonmajor UIC permittees indicating the total number reviewed, the number of noncomplying nonmajor permittees, the number of enforcement actions, and number of permit modifications extending compliance deadlines. The statistical information shall be organized to follow the types of noncompliance listed in paragraph (a) of this section.

(2) *For State-administered UIC Programs only.* In addition to the annual noncompliance report, the State Director shall:

(i) Submit each year a program report to the Administrator (in a manner and form prescribed by the Administrator) consisting of:

(A) A detailed description of the State's implementation of its program;

(B) Suggested changes, if any to the program description (see §145.23(f)) which are necessary to reflect more accurately the State's progress in issuing permits;

(C) An updated inventory of active underground injection operations in the State.

(ii) In addition to complying with the requirements of paragraph (b)(2)(i) of this section, the Director shall provide the Administrator, on February 28th and August 31st of each of the first two years of program operation, the information required in 40 CFR 146.15, 146.25, and 146.35.

(c) *Schedule.* (1) For all quarterly reports. On the last working day of May, August, November, and February, the State Director shall submit to the Regional Administrator information concerning noncompliance with permit requirements by major facilities in the State in accordance with the following schedule. The Regional Administrator shall prepare and submit information quarters in accordance with the same schedule.

QUARTERS COVERED BY REPORTS ON NONCOMPLIANCE BY MAJOR FACILITIES

[Date for completion of reports]

January, February, and March	[1] May 31
April, May, and June	[1] Aug. 31
July, August, and September	[1] Nov. 30
October, November, and December	[1] Feb. 28

[1] Reports must be made available to the public for inspection and copying on this date.

(2) *For all annual reports.* The period for annual reports shall be for the calendar year ending December 31, with reports completed and available to the public no more than 60 days later.

Subpart B—General Program Requirements

§ 144.11 Prohibition of unauthorized injection.

Any underground injection, except into a well authorized by rule or except as authorized by permit issued under the UIC program, is prohibited. The construction of any well required to have a permit is prohibited until the permit has been issued.

[48 FR 14189, Apr. 1, 1983, as amended at 58 FR 63895, Dec. 3, 1993]

§ 144.12 Prohibition of movement of fluid into underground sources of drinking water.

(a) No owner or operator shall construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR part 142 or may otherwise adversely affect the health of persons. The applicant for a permit shall have the burden of showing that the requirements of this paragraph are met.

(b) For Class I, II and III wells, if any water quality monitoring of an underground source of drinking water indicates the movement of any contaminant into the underground source of drinking water, except as authorized under part 146, the Director shall pre-

construction, corrective action, operation, monitoring, or reporting (including closure of the injection well) as are necessary to prevent such movement. In the case of wells authorized by permit, these additional requirements shall be imposed by modifying the permit in accordance with § 144.39, or the permit may be terminated under § 144.40 if cause exists, or appropriate enforcement action may be taken if the permit has been violated. In the case of wells authorized by rule, see §§ 144.21 through 144.24. For EPA administered programs, such enforcement action shall be taken in accordance with appropriate sections of the SDWA.

(c) For Class V wells, if at any time the Director learns that a Class V well may cause a violation of primary drinking water regulations under 40 CFR part 142, he or she shall:

(1) Require the injector to obtain an individual permit;

(2) Order the injector to take such actions (including, where required, closure of the injection well) as may be necessary to prevent the violation. For EPA administered programs, such orders shall be issued in accordance with the appropriate provisions of the SDWA; or

(3) Take enforcement action.

(d) Whenever the Director learns that a Class V well may be otherwise adversely affecting the health of persons, he or she may prescribe such actions as may be necessary to prevent the adverse effect, including any action authorized under paragraph (c) of this section.

(e) Notwithstanding any other provision of this section, the Director may take emergency action upon receipt of information that a contaminant which is present in or likely to enter a public water system or underground source of drinking water may present an imminent and substantial endangerment to the health of persons. If the Director is an EPA official, he must first determine that the appropriate State and local authorities have not taken appropriate action to protect the health of such persons, before taking emergency action.

[48 FR 14189, Apr. 1, 1983, as amended at 52 FR 20676, June 2, 1987]

§ 144.13 Prohibition of Class IV wells.

(a) The following are prohibited, except as provided in paragraph (c) of this section:

(1) The construction of any Class IV well.

(2) The operation or maintenance of any Class IV well not in operation prior to July 18, 1980.

(3) The operation or maintenance of any Class IV well that was in operation prior to July 18, 1980, after six months following the effective date of a UIC program approved or promulgated for the state.

(4) Any increase in the amount of hazardous waste or change in the type of hazardous waste injected into a Class IV well.

(b) The owner or operator of a Class IV well shall comply with the requirements of § 144.14, and with the requirements of § 144.23 regarding closure of Class IV wells.

(c) Wells used to inject contaminated ground water that has been treated and is being reinjected into the same formation from which it was drawn are not prohibited by this section if such injection is approved by EPA, or a State, pursuant to provisions for cleanup of releases under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. 9601-9657, or pursuant to requirements and provisions under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6901 through 6987.

(d) *Clarification.* The following wells are not prohibited by this action:

(1) Wells used to inject hazardous waste into aquifers or portions thereof that have been exempted pursuant to § 146.4, if the exempted aquifer into which waste is injected underlies the lowermost formation containing a USDW. Such wells are Class I wells as specified in § 144.6(a)(1), and the owner or operator must comply with the requirements applicable to Class I wells.

(2) Wells used to inject hazardous waste where no USDW exists within one quarter mile of the well bore in any underground formation, provided that the Director determines that such injection is into a formation sufficiently isolated to ensure that injected

fluids do not migrate from the injection zone. Such wells are Class I wells as specified in § 144.6(a)(1), and the owner or operator must comply with the requirements applicable to Class I wells.

[49 FR 20181, May 11, 1984, as amended at 67 FR 39593, June 7, 2002]

§ 144.14 Requirements for wells injecting hazardous waste.

(a) *Applicability.* The regulations in this section apply to all generators of hazardous waste, and to the owners or operators of all hazardous waste management facilities, using any class of well to inject hazardous wastes accompanied by a manifest. (See also § 144.13.)

(b) *Authorization.* The owner or operator of any well that is used to inject hazardous waste required to be accompanied by a manifest or delivery document shall apply for authorization to inject as specified in § 144.31 within 6

ble personnel training requirements of 40 CFR 264.16.

(9) *Certification of closure.* When abandonment is completed, the owner or operator must submit to the Director certification by the owner or operator and certification by an independent registered professional engineer that the facility has been closed in accordance with the specifications in § 144.52(a)(6).

(d) *Additional requirements for Class IV wells.* [Reserved]

§ 144.15 [Reserved]

§ 144.16 Waiver of requirement by Director.

(a) *When injection does not occur into, through or above an underground source of drinking water,* the Director may authorize a well or project with less stringent requirements for area of review, construction, mechanical integrity, operation, monitoring, and re-

other information as is deemed necessary to determine whether the owner or operator has acted or is acting in compliance with Part C of the SDWA or its implementing regulations.

[58 FR 63895, Dec. 3, 1993]

Subpart C—Authorization of Underground Injection by Rule

§ 144.21 Existing Class I, II (except enhanced recovery and hydrocarbon storage) and III wells.

(a) An existing Class I, II (except enhanced recovery and hydrocarbon storage) and III injection well is authorized by rule if the owner or operator injects into the existing well within one year after the date at which a UIC program authorized under the SDWA becomes effective for the first time or inventories the well pursuant to the requirements of § 144.26. An owner or operator of a well which is authorized by rule pursuant to this section shall rework, operate, maintain, convert, plug, abandon or inject into the well in compliance with applicable regulations.

(b) *Duration of well authorization by rule.* Well authorization under this section expires upon the effective date of a permit issued pursuant to §§ 144.25, 144.31, 144.33 or 144.34; after plugging and abandonment in accordance with an approved plugging and abandonment plan pursuant to §§ 144.28(c) and 146.10, and upon submission of a plugging and abandonment report pursuant to § 144.28(k); or upon conversion in compliance with § 144.28(j).

(c) *Prohibitions on injection.* An owner or operator of a well authorized by rule

(6) Forty-eight hours after receipt of a determination by the Director pursuant to § 144.28(f)(3) that the well lacks mechanical integrity, unless the Director requires immediate cessation;

(7) Upon receipt of notification from the Director pursuant to § 144.28(l) that the transferee has not demonstrated financial responsibility pursuant to § 144.28(d);

(8) For Class I and III wells:

(i) In States with approved programs, five years after the effective date of the UIC program unless a timely and complete permit application is pending the Director's decision; or

(ii) In States with programs administered by EPA, one year after the effective date of the UIC program unless a timely and complete permit application is pending the Director's decision; or

(9) For Class II wells (except enhanced recovery and hydrocarbon storage), five years after the effective date of the UIC program unless a timely and complete permit application is pending the Director's decision.

(d) *Class II and III wells in existing fields or projects.* Notwithstanding the prohibition in § 144.11, this section authorizes Class II and Class III wells or projects in existing fields or projects to continue normal operations until permitted, including construction, operation, and plugging and abandonment of wells as part of the operation, provided the owner or operator maintains compliance with all applicable requirements.

(e) *Requirements.* The owner or operator of a well authorized under this section shall comply with the applica-

which a UIC program authorized under the SDWA becomes effective for the first time or inventories the well pursuant to the requirements of § 144.26. An owner or operator of a well which is authorized by rule pursuant to this section shall rework, operate, maintain, convert, plug, abandon or inject into the well in compliance with applicable regulations.

(b) *Duration of well authorization by rule.* Well authorization under this section expires upon the effective date of a permit issued pursuant to §§ 144.25, 144.31, 144.33 or 144.34; after plugging and abandonment in accordance with an approved plugging and abandonment plan pursuant to §§ 144.28(c) and 146.10 of this chapter, and upon submission of a plugging and abandonment report pursuant to § 144.28(k); or upon conversion in compliance with § 144.28(j).

(c) *Prohibitions on injection.* An owner or operator of a well authorized by rule pursuant to this section is prohibited from injecting into the well:

(1) Upon the effective date of an applicable permit denial;

(2) Upon failure to submit a permit application in a timely manner pursuant to §§ 144.25 or 144.31;

(3) Upon failure to submit inventory information in a timely manner pursuant to § 144.26;

(4) Upon failure to comply with a request for information in a timely manner pursuant to § 144.27;

(5) Upon failure to provide alternative financial assurance pursuant to § 144.28(d)(7);

(6) Forty-eight hours after receipt of a determination by the Director pursuant to § 144.28(f)(3) that the well lacks mechanical integrity, unless the Director requires immediate cessation; or

(7) Upon receipt of notification from the Director pursuant to § 144.28(l) that the transferee has not demonstrated financial responsibility pursuant to § 144.28(d).

(d) *Requirements.* The owner or operator of a well authorized under this section shall comply with the applicable requirements of § 144.28 and part 147 of this chapter. Such owner or operator shall comply with the casing and cementing requirements no later than 3 years and other requirements no later than 1 year after authorization.

[49 FR 20181, May 11, 1984, as amended at 58 FR 63896, Dec. 3, 1993]

§ 144.23 Class IV wells.

(a) Injection into existing Class IV wells is authorized for up to six months after approval or promulgation of the UIC Program. Such wells are subject to the requirements of §§ 144.13 and 144.14(c).

(b) *Closure.* For EPA administered programs only,

(1) Prior to abandoning any Class IV well, the owner or operator shall plug or otherwise close the well in a manner acceptable to the Regional Administrator.

(2) [Reserved]

(3) The owner or operator of a Class IV well must notify the Regional Administrator of intent to abandon the well at least thirty days prior to abandonment.

(c) Notwithstanding the requirements of paragraphs (a) and (b) of this section, injection wells used to inject contaminated ground water that has been treated and is being injected into the same formation from which it was drawn are authorized by rule for the life of the well if such subsurface emplacement of fluids is approved by EPA, or a State, pursuant to provisions for cleanup of releases under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. 9601-9675, or pursuant to requirements and provisions under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6901-6992k.

[49 FR 20181, May 11, 1984, as amended at 60 FR 33932, June 29, 1995; 64 FR 68566, Dec. 7, 1999]

§ 144.24 Class V wells.

(a) A Class V injection well is authorized by rule, subject to the conditions in § 144.84

(b) *Duration of well authorization by rule.* Well authorization under this section expires upon the effective date of a permit issued pursuant to §§ 144.25, 144.31, 144.33 or 144.34, or upon proper closure of the well.

(c) *Prohibition of injection.* An owner or operator of a well which is authorized by rule pursuant to this section is prohibited from injecting into the well:

(1) Upon the effective date of an applicable permit denial;

(2) Upon failure to submit a permit application in a timely manner pursuant to §§144.25 or 144.31;

(3) Upon failure to submit inventory information in a timely manner pursuant to §144.26; or

(4) Upon failure to comply with a request for information in a timely manner pursuant to §144.27.

[58 FR 63896, Dec. 3, 1993, as amended at 64 FR 68566, Dec. 7, 1999]

§ 144.25 Requiring a permit.

(a) The Director may require the owner or operator of any Class I, II, III or V injection well which is authorized by rule under this subpart to apply for and obtain an individual or area UIC permit. Cases where individual or area UIC permits may be required include:

(1) The injection well is not in compliance with any requirement of the rule;

NOTE: Any underground injection which violates any authorization by rule is subject to appropriate enforcement action.

(2) The injection well is not or no longer is within the category of wells and types of well operations authorized in the rule;

(3) The protection of USDWs requires that the injection operation be regulated by requirements, such as for corrective action, monitoring and reporting, or operation, which are not contained in the rule.

(4) When the injection well is a Class I, II (except existing enhanced recovery and hydrocarbon storage) or III well, in accordance with a schedule established by the Director pursuant to §144.31(c).

(b) For EPA-administered programs, the Regional Administrator may require an owner or operator of any well which is authorized by rule under this subpart to apply for an individual or

effective date of permit denial, or upon failure by the owner or operator to submit an application in a timely manner as specified in the notice. The notice shall include: a brief statement of the reasons for requiring a permit; an application form; a statement setting a time for the owner or operator to file the application; and a statement of the consequences of denial or issuance of the permit, or failure to submit an application, as described in this paragraph.

(c) An owner or operator of a well authorized by rule may request to be excluded from the coverage of this subpart by applying for an individual or area UIC permit. The owner or operator shall submit an application under §144.31 with reasons supporting the request, to the Director. The Director may grant any such requests.

[48 FR 14189, Apr. 1, 1983, as amended at 49 FR 20182, May 11, 1984; 58 FR 63896, Dec. 3, 1993]

§ 144.26 Inventory requirements.

The owner or operator of an injection well which is authorized by rule under this subpart shall submit inventory information to the Director. Such an owner or operator is prohibited from injecting into the well upon failure to submit inventory information for the well within the time frame specified in paragraph (d) of this section.

(a) *Contents.* As part of the inventory, the Director shall require and the owner/operator shall provide at least the following information:

(1) Facility name and location;

(2) Name and address of legal contact;

(3) Ownership of facility;

(4) Nature and type of injection wells; and

(5) Operating status of injection wells.

NOTE: This information is requested on national form "Inventory of Injection Wells," OMB No. 158-R0170.

(b) *Additional contents.* For EPA ad-

(i) Class II enhanced recovery wells;

(ii) Class IV wells;

(iii) The following Class V wells:

(A) Sand or other backfill wells [§ 146.5(e)(8)];

(B) Radioactive waste disposal wells that are not Class I wells (40 CFR 146.5 (e)(11))

(C) Geothermal energy recovery wells [§ 146.5(e)(12)];

(D) Brine return flow wells [§ 146.5(e)(14)];

(E) Wells used in experimental technologies [§ 146.5(e)(15)];

(F) Municipal and industrial disposal wells other than Class I; and

(G) Any other Class V wells at the discretion of the Regional Administrator.

(2) The owner or operator of a well

(d) *Deadlines.* (1) The owner or operator of an injection well shall submit inventory information no later than one year after the date of approval or effective date of the UIC program for the State. The Director need not require inventory information from any facility with interim status under RCRA.

(2) For EPA administered programs the information need not be submitted if a complete permit application is submitted within one year of the effective data of the UIC program. The owner or operator of Class IV well shall submit inventory information no later than 60 days after the effective date of the program.

[48 FR 14189, Apr. 1, 1983, as amended at 49 FR 20182, May 11, 1984; 58 FR 63896, Dec. 3,

setting forth the following information for each well. (A single description of wells at a single facility with substan-

§ 144.27 Requiring other information.

(a) For EPA administered programs

for information within the time period(s) specified by the Director pursuant to paragraph (c) of this section. An owner or operator of a well prohibited from injection under this section shall not resume injection except under a permit issued pursuant to §§144.25, 144.31, 144.33 or 144.34.

[49 FR 20182, May 11, 1984, as amended at 58 FR 63896, Dec. 3, 1993]

§ 144.28 Requirements for Class I, II, and III wells authorized by rule.

The following requirements apply to the owner or operator of a Class I, II or III well authorized by rule under this subpart, as provided by §§144.21(e) and 144.22(d).

(a) The owner or operator shall comply with all applicable requirements of this subpart and subpart B of this part. Any noncompliance with these requirements constitutes a violation of the Safe Drinking Water Act and is grounds for enforcement action, except that the owner or operator need not comply with these requirements to the extent and for the duration such noncompliance is authorized by an emergency permit under §144.34.

(b) *Twenty-four hour reporting.* The owner or operator shall report any noncompliance which may endanger health or the environment, including:

(1) Any monitoring or other information which indicates that any contaminant may cause an endangerment to a USDW; or

(2) Any noncompliance or malfunction of the injection system which may cause fluid migration into or between USDWs.

Any information shall be provided orally within 24 hours from the time the owner or operator becomes aware of the circumstances. A written submission shall also be provided within five days of the time the owner or operator becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause, the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

(c) *Plugging and abandonment plan.* (1) The owner or operator shall prepare, maintain, and comply with a plan for plugging and abandonment of the well or project that meets the requirements of §146.10 of this chapter and is acceptable to the Director. For purposes of this paragraph, temporary intermittent cessation of injection operations is not abandonment.

(2) For EPA administered programs:

(i) The owner or operator shall submit the plan, on a form provided by the Regional Administrator, no later than one year after the effective date of the UIC program in the state.

(ii) The owner or operator shall submit any proposed significant revision to the method of plugging reflected in the plan no later than the notice of plugging required by §144.28(j)(2) (i.e., 45 days prior to plugging unless shorter notice is approved).

(iii) The plan shall include the following information:

(A) The nature and quantity and material to be used in plugging;

(B) The location and extent (by depth) of the plugs;

(C) Any proposed test or measurement to be made;

(D) The amount, size, and location (by depth) of casing to be left in the well;

(E) The method and location where casing is to be parted; and

(F) [Reserved]

(G) The estimated cost of plugging the well.

(iv) After a cessation of operations of two years the owner or operator shall plug and abandon the well in accordance with the plan unless he:

(A) Provides notice to the Regional Administrator;

(B) Describe actions or procedures, satisfactory to the Regional Administrator, that the owner or operator will take to ensure that the well will not endanger USDWs during the period of temporary abandonment. These actions and procedures shall include compliance with the technical requirements applicable to active injection wells unless waived by the Regional Administrator.

(v) The owner or operator of any well that has been temporarily abandoned [ceased operations for more than two

years and has met the requirements of paragraphs (c)(2) (A) and (B) of this section] shall notify the Regional Administrator prior to resuming operation of the well.

(d) *Financial responsibility.* (1) The owner, operator and/or, for EPA-administered programs, the transferor of a Class I, II or III well, is required to demonstrate and maintain financial responsibility and resources to close, plug and abandon the underground injection operation in a manner prescribed by the Director until:

(i) The well has been plugged and abandoned in accordance with an approved plugging and abandonment plan pursuant to §§144.28(c) and 146.10 and submission of a plugging and abandonment report has been made pursuant to §144.28(k);

(ii) The well has been converted in compliance with the requirements of §144.28(j); or

(iii) For EPA-administered programs, the transferor has received notice from the Director that the transferee has demonstrated financial responsibility for the well. The owner or operator shall show evidence of such financial responsibility to the Director by the submission of a surety bond, or other adequate assurance, such as a financial statement.

(2) For EPA-administered programs, the owner or operator shall submit such evidence no later than one year after the effective date of the UIC program in the State. Where the ownership or operational control of the well is transferred more than one year after the effective date of the UIC program, the transferee shall submit such evidence no later than the date specified in the notice required pursuant to §144.28(l)(2).

(3) For EPA administered programs the Regional Administrator may require the owner or operator to submit a revised demonstration of financial responsibility if the Regional Administrator has reason to believe that the original demonstration is no longer adequate to cover the cost of closing, plugging and abandoning the well.

(4) For EPA administered programs the financial responsibility requirements of subpart F of this part.

(5) For EPA-administered programs, an owner or operator must notify the Regional Administrator by certified mail of the commencement of any voluntary or involuntary proceeding under Title 11 (Bankruptcy) of the United States Code which names the owner or operator as debtor, within 10 business days after the commencement of the proceeding. Any party acting as guarantor for the owner or operator for the purpose of financial responsibility must so notify the Regional Administrator, if the guarantor is named as debtor in any such proceeding.

(6) In the event of commencement of a proceeding specified in paragraph (d)(5) of this section, an owner or operator who has furnished a financial statement for the purpose of demonstrating financial responsibility under this section shall be deemed to be in violation of this paragraph until an alternative financial assurance demonstration acceptable to the Regional Administrator is provided either by the owner or operator or by its trustee in bankruptcy, receiver, or other authorized party. All parties shall be prohibited from injecting into the well until such alternate financial assurance is provided.

(e) *Casing and cementing requirements.* For enhanced recovery and hydrocarbon storage wells:

(1) The owner or operator shall case and cement the well to prevent movement of fluids into or between underground sources of drinking water. In determining and specifying casing and cementing requirements, the following factors shall be considered:

(i) Depth to the injection zone;

(ii) Depth to the bottom of all USDWs; and

(iii) Estimated maximum and average injection pressures.

(2) In addition, in determining and specifying casing and cementing requirements the Director may consider information on:

(i) Nature of formation fluids;

(ii) Lithology of injection and confining zones;

(iii) External pressure, internal pres-

(v) Size and grade of all casing strings; and

(vi) Class of cement.

(3) The requirements in paragraphs (e) (1) and (2) of this section need not apply if:

(i) Regulatory controls for casing and cementing existed at the time of drilling of the well and the well is in compliance with those controls; and

(ii) Well injection will not result in the movement of fluids into an underground source of drinking water so as to create a significant risk to the health of persons.

(4) When a State did not have regulatory controls for casing and cementing prior to the time of the submission of the State program to the Administrator, the Director need not apply the casing and cementing requirements in paragraph (e)(1) of this section if he submits as a part of his application for primacy, an appropriate plan for casing and cementing of existing, newly converted, and newly drilled wells in existing fields, and the Administrator approves the plan.

(f) *Operating requirements.* (1) Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited.

(2) The owner or operator of a Class I, II or III injection well authorized by rule shall establish and maintain mechanical integrity as defined in § 146.8 of this chapter until the well is properly plugged in accordance with an approved plugging and abandonment plan pursuant to §§ 144.28(c) and 146.10, and a plugging and abandonment report pursuant to § 144.28(k) is submitted, or until the well is converted in compliance with § 144.28(j). For EPA-administered programs, the Regional Administrator may require by written notice that the owner or operator comply

erator shall cease injection into the well within 48 hours of receipt of the Director's determination. The Director may allow plugging of the well in accordance with the requirements of § 146.10 of this chapter, or require the owner or operator to perform such additional construction, operation, monitoring, reporting and corrective action as is necessary to prevent the movement of fluid into or between USDWs caused by the lack of mechanical integrity. The owner or operator may resume injection upon receipt of written notification from the Director that the owner or operator has demonstrated mechanical integrity pursuant to § 146.8 of this chapter.

(4) The Director may allow the owner or operator of a well which lacks mechanical integrity pursuant to § 146.8(a)(1) of this chapter to continue or resume injection if the owner or operator has made a satisfactory demonstration that there is no movement of fluid into or between USDWs.

(5) For Class I wells, unless an alternative to a packer has been approved under § 146.12(c) of this chapter, the owner or operator shall fill the annulus between the tubing and the long string of casings with a fluid approved by the Director and maintain a pressure, also approved by the Director, on the annulus. For EPA administered programs, the owner or operator of a Class I well completed with tubing and packer shall fill the annulus between tubing and casing with a noncorrosive fluid and maintain a positive pressure on the annulus. For other Class I wells, the owner or operator shall insure that the alternative completion method will reliably provide a comparable level of protection to underground sources of drinking water.

(6) Injection pressure.

(i) For Class I and III wells:

the movement of injection or formation fluids into an underground source of drinking water.

(ii) For Class II wells:

(A) The owner or operator shall not exceed a maximum injection pressure

(ii) The owner or operator shall observe the injection pressure, flow rate, and cumulative volume at least with the following frequencies:

(A) Weekly for produced fluid disposal operations;

at the wellhead which shall be calculated so as to assure that the pressure during injection does not initiate new fractures of propagate existing fractures in the confining zone adjacent to the USDWs; and

(B) The owner or operator shall not inject at a pressure which will cause the movement of injection or formation fluids into an underground source of drinking water.

(g) *Monitoring requirements.* The owner or operator shall perform the monitoring as described in this paragraph. For EPA administered programs, monitoring of the nature of the injected fluids shall comply with applicable analytical methods cited and described in table I of 40 CFR 136.3 or in appendix III of 40 CFR part 261 or by other methods that have been approved by the Regional Administrator.

(1) The owner or operator of a Class I well shall:

(i) Analyze the nature of the injected fluids with sufficient frequency to yield data representative of their characteristics;

(ii) Install and use continuous recording devices to monitor injection pressure, flow rate and volume, and the pressure on the annulus between the tubing and the long string of casing;

(iii) Install and use monitoring wells within the area of review if required by the Director, to monitor any migration of fluids into and pressure in the underground sources of drinking water. The type, number and location of the wells, the parameters to be measured, and the frequency of monitoring must be approved by the Director.

(2) For Class II wells:

(i) The owner or operator shall monitor the nature of the injected fluids with sufficient frequency to yield data representative of their characteristics. For EPA administered programs, this frequency shall be at least once within the first year of the authorization and thereafter when changes are made to

(B) Monthly for enhanced recovery operations;

(C) Daily during the injection of liquid hydrocarbons and injection for withdrawal of stored hydrocarbons; and

(D) Daily during the injection phase of cyclic steam operations.

(iii) The owner or operator shall record one observation of injection pressure, flow rate and cumulative volume at reasonable intervals no greater than thirty days.

(iv) For enhanced recovery and hydrocarbon storage wells:

(A) The owner or operator shall demonstrate mechanical integrity pursuant to §146.8 of this chapter at least once every five years during the life of the injection well.

(B) For EPA administered programs, the Regional Administrator by written notice may require the owner or operator to comply with a schedule describing when such demonstrations shall be made.

(C) For EPA administered programs, the owner or operator of any well required to be tested for mechanical integrity shall notify the Regional Administrator at least 30 days prior to any required mechanical integrity test. The Regional Administrator may allow a shorter notification period if it would be sufficient to enable EPA to witness the mechanical integrity testing if it chose. Notification may be in the form of a yearly or quarterly schedule of planned mechanical integrity tests, or it may be on an individual basis.

(v) The owner or operator of a hydrocarbon storage or enhanced recovery wells may monitor them by manifold monitoring on a field or project basis rather than on an individual well basis if such facilities consist of more than one injection well, operate with a common manifold, and provided the owner or operator demonstrates to the Director that manifold monitoring is comparable to individual well monitoring.

(3)(i) For Class III wells the owner or

qualitative analysis and ranges in concentrations of all constituents of injected fluids at least once within the first year of authorization and thereafter whenever the injection fluid is modified to the extent that the initial data are incorrect or incomplete. The owner or operator may request Federal confidentiality as specified in 40 CFR part 2. If the information is proprietary the owner or operator may in lieu of the ranges in concentrations choose to submit maximum concentrations which shall not be exceeded. In such a case the owner or operator shall retain records of the undisclosed concentrations and provide them upon request to the Regional Administrator as part of any enforcement investigation; and

(ii) Monitor injection pressure and either flow rate or volume semi-monthly, or meter and record daily injected and produced fluid volumes as appropriate;

(iii) Monitor the fluid level in the injection zone semi-monthly, where appropriate;

(iv) All Class III wells may be monitored on a field or project basis rather than an individual well basis by manifold monitoring. Manifold monitoring may be used in cases of facilities consisting of more than one injection well, operating with a common manifold. Separate monitoring systems for each well are not required provided the owner or operator demonstrates to the Director that manifold monitoring is comparable to individual well monitoring.

(h) *Reporting requirements.* The owner or operator shall submit reports to the Director as follows:

(1) For Class I wells, quarterly reports on:

(i) The physical, chemical, and other relevant characteristics of the injection fluids;

(ii) Monthly average, maximum, and minimum values for injection pressure, flow rate and volume, and annular pressure;

(iii) The results from ground-water monitoring wells prescribed in paragraph (g)(1)(iii) of this section;

(iv) The results of any test of the injection well conducted by the owner or operator during the reported quarter if required by the Director; and

(v) Any well work over performed during the reported quarter.

(2) For Class II wells:

(i) An annual report to the Director summarizing the results of all monitoring, as required in paragraph (g)(2) of this section. Such summary shall include monthly records of injected fluids, and any major changes in characteristics or sources of injected fluids. Previously submitted information may be included by reference.

(ii) The owner or operator of hydrocarbon storage and enhanced recovery projects may report on a field or project basis rather than on an individual well basis where manifold monitoring is used.

(3) For Class III wells:

(i) Quarterly reporting on all monitoring, as required in paragraph (g)(3) of this section;

(ii) Quarterly reporting of the results of any periodic tests required by the Director that are performed during the reported quarter;

(iii) Monitoring may be reported on a project or field basis rather than an individual well basis where manifold monitoring is used.

(i) *Retention of records.* The owner or operator shall retain records of all monitoring information, including the following:

(1) Calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, and copies of all reports required by this section, for a period of at least three years from the date of the sample, measurement, or report. This period may be extended by request of the Director at any time; and

(2) The nature and composition of all injected fluids until three years after the completion of any plugging and abandonment procedures specified under § 144.52(1)(6). The Director may require the owner or operator to deliver the records to the Director at the conclusion of the retention period. For EPA administered programs, the owner or operator shall continue to retain the records after the three year retention period unless he delivers the records to the Regional Administrator or obtains written approval from the Regional Administrator to discard the records.

(j) *Notice of abandonment.* (1) The owner or operator shall notify the Director, according to a time period required by the Director, before conversion or abandonment of the well.

(2) For EPA-administered programs, the owner or operator shall notify the Regional Administrator at least 45 days before plugging and abandonment. The Regional Administrator, at his discretion, may allow a shorter notice period.

(k) *Plugging and abandonment report.* For EPA-administered programs, within 60 days after plugging a well or at the time of the next quarterly report (whichever is less) the owner or operator shall submit a report to the Regional Administrator. If the quarterly report is due less than 15 days before completion of plugging, then the report shall be submitted within 60 days. The report shall be certified as accurate by the person who performed the plugging operation. Such report shall consist of either:

(1) A statement that the well was plugged in accordance with the plan previously submitted to the Regional Administrator; or

(2) Where actual plugging differed from the plan previously submitted, an updated version of the plan, on the form supplied by the Regional Administrator, specifying the different procedures used.

(l) *Change of ownership or operational control.* For EPA-administered programs:

(1) The transferor of a Class I, II or III well authorized by rule shall notify the Regional Administrator of a transfer of ownership or operational control of the well at least 30 days in advance of the proposed transfer.

(2) The notice shall include a written agreement between the transferor and the transferee containing a specific date for transfer of ownership or operational control of the well; and a specific date when the financial responsibility demonstration of § 144.28(d) will be met by the transferee.

(3) The transferee is authorized to inject unless he receives notification from the Director that the transferee has not demonstrated financial responsibility pursuant to § 144.28(d).

(m) *Requirements for Class I hazardous waste wells.* The owner or operator of any Class I well injecting hazardous waste shall comply with § 144.14(c). In addition, for EPA-administered programs the owner or operator shall properly dispose of, or decontaminate by removing all hazardous waste residues, all injection well equipment.

[49 FR 20182, May 11, 1984, as amended at 58 FR 63897, Dec. 3, 1993]

Subpart D—Authorization by Permit

§ 144.31 Application for a permit; authorization by permit.

(a) *Permit application.* Unless an underground injection well is authorized by rule under subpart C of this part, all injection activities including construction of an injection well are prohibited until the owner or operator is authorized by permit. An owner or operator of a well currently authorized by rule must apply for a permit under this section unless well authorization by rule was for the life of the well or project. Authorization by rule for a well or project for which a permit application has been submitted terminates for the well or project upon the effective date of the permit. Procedures for applications, issuance and administration of emergency permits are found exclusively in § 144.34. A RCRA permit applying the standards of part 264, subpart C of this chapter will constitute a UIC permit for hazardous waste injection wells for which the technical standards in part 146 of this chapter are not generally appropriate.

(b) *Who applies?* When a facility or activity is owned by one person but is operated by another person, it is the operator's duty to obtain a permit.

(c) *Time to apply.* Any person who performs or proposes an underground injection for which a permit is or will be required shall submit an application to the Director in accordance with the UIC program as follows:

(1) For existing wells, as expeditiously as practicable and in accordance with the schedule in any program description under § 145.23(f) or (for EPA administered programs) on a schedule established by the Regional Administrator, but no later than 4 years from

the approval or promulgation of the UIC program, or as required under § 144.14(b) for wells injecting hazardous waste. For EPA administered programs the owner or operator of Class I or III wells shall submit a complete permit application no later than 1 year after the effective date of the program.

(2) For new injection wells, except new wells in projects authorized under § 144.21(d) or authorized by an existing area permit under § 144.33(c), a reasonable time before construction is expected to begin.

(d) *Completeness.* The Director shall not issue a permit before receiving a complete application for a permit except for emergency permits. An application for a permit is complete when the Director receives an application form and any supplemental information which are completed to his or her satisfaction. The completeness of any application for a permit shall be judged independently of the status of any other permit application or permit for the same facility or activity. For EPA-administered programs, an application which is reviewed under § 124.3 is complete when the Director receives either a complete application or the information listed in a notice of deficiency.

(e) *Information requirements.* All applicants for permits shall provide the following information to the Director, using the application form provided by the Director.

(1) The activities conducted by the applicant which require it to obtain permits under RCRA, UIC, the National Pollution Discharge Elimination system (NPDES) program under the Clean Water Act, or the Prevention of Significant Deterioration (PSD) program under the Clean Air Act.

(2) Name, mailing address, and location of the facility for which the application is submitted.

(3) Up to four SIC codes which best reflect the principal products or services

for under any of the following programs:

(i) Hazardous Waste Management program under RCRA.

(ii) UIC program under SDWA.

(iii) NPDES program under CWA.

(iv) Prevention of Significant Deterioration (PSD) program under the Clean Air Act.

(v) Nonattainment program under the Clean Air Act.

(vi) National Emission Standards for Hazardous Pollutants (NESHAPS) preconstruction approval under the Clean Air Act.

(vii) Ocean dumping permits under the Marine Protection Research and Sanctuaries Act.

(viii) Dredge and fill permits under section 404 of CWA.

(ix) Other relevant environmental permits, including State permits.

(7) A topographic map (or other map if a topographic map is unavailable) extending one mile beyond the property boundaries of the source depicting the facility and each of its intake and discharge structures; each of its hazardous waste treatment, storage, or disposal facilities; each well where fluids from the facility are injected underground; and those wells, springs, and other surface water bodies, and drinking water wells listed in public records or otherwise known to the applicant within a quarter mile of the facility property boundary.

(8) A brief description of the nature of the business.

(9) For EPA-administered programs, the applicant shall identify and submit on a list with the permit application the names and addresses of all owners of record of land within one-quarter mile of the facility boundary. This requirement may be waived by the Regional Administrator where the site is located in a populous area and the Regional Administrator determines that the requirement would be imprac-

under § 144.31 for a period of at least 3 years from the date the application is signed.

(g) *Information Requirements for Class I Hazardous Waste Injection Wells Permits.* (1) The following information is required for each active Class I hazardous waste injection well at a facility seeking a UIC permit:

(i) Dates well was operated.

(ii) Specification of all wastes which have been injected in the well, if available.

(2) The owner or operator of any facility containing one or more active hazardous waste injection wells must submit all available information pertaining to any release of hazardous waste or constituents from any active hazardous waste injection well at the facility.

(3) The owner or operator of any facility containing one or more active Class I hazardous waste injection wells must conduct such preliminary site investigations as are necessary to determine whether a release is occurring, has occurred, or is likely to have occurred.

[48 FR 14189, Apr. 1, 1983, as amended at 49 FR 20185, May 11, 1984; 52 FR 45797, Dec. 1, 1987; 52 FR 46963, Dec. 10, 1987; 58 FR 63897, Dec. 3, 1993]

§ 144.32 Signatories to permit applications and reports.

(a) *Applications.* All permit applications, except those submitted for Class II wells (see paragraph (b) of this section), shall be signed as follows:

(1) *For a corporation:* by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

NOTE: EPA does not require specific assignments or delegations of authority to responsible corporate officers identified in § 144.32(a)(1)(i). The Agency will presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the Director to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate positions under § 144.32(a)(1)(ii) rather than to specific individuals.

(2) *For a partnership or sole proprietorship:* by a general partner or the proprietor, respectively; or

(3) *For a municipality, State, Federal, or other public agency:* by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes: (i) The chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

(b) *Reports.* All reports required by permits, other information requested by the Director, and all permit applications submitted for Class II wells under § 144.31 shall be signed by a person described in paragraph (a) of this section, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described in paragraph (a) of this section;

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

(3) The written authorization is submitted to the Director.

(c) *Changes to authorization.* If an authorization under paragraph (b) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (b) of this section must be submitted to

the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

(d) *Certification.* Any person signing a document under paragraph (a) or (b) of this section shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

(Clean Water Act (33 U.S.C. 1251 *et seq.*), Safe Drinking Water Act (42 U.S.C. 300f *et seq.*), Clean Air Act (42 U.S.C. 7401 *et seq.*), Resource Conservation and Recovery Act (42 U.S.C. 6901 *et seq.*)

[48 FR 14189, Apr. 1, 1983, as amended at 48 FR 39621, Sept. 1, 1983]

§ 144.33 Area permits.

(a) The Director may issue a permit on an area basis, rather than for each well individually, provided that the permit is for injection wells:

(1) Described and identified by location in permit application(s) if they are existing wells, except that the Director may accept a single description of wells with substantially the same characteristics;

(2) Within the same well field, facility site, reservoir, project, or similar

(1) The permittee notifies the Director at such time as the permit requires;

(2) The additional well satisfies the criteria in paragraph (a) of this section and meets the requirements specified in the permit under paragraph (b) of this section; and

(3) The cumulative effects of drilling and operation of additional injection wells are considered by the Director during evaluation of the area permit application and are acceptable to the Director.

(d) If the Director determines that any well constructed pursuant to paragraph (c) of this section does not satisfy any of the requirements of paragraphs (c) (1) and (2) of this section the Director may modify the permit under § 144.39, terminate under § 144.40, or take enforcement action. If the Director determines that cumulative effects are unacceptable, the permit may be modified under § 144.39.

§ 144.34 Emergency permits.

(a) *Coverage.* Notwithstanding any other provision of this part or part 124, the Director may temporarily permit a specific underground injection if:

(1) An imminent and substantial endangerment to the health of persons will result unless a temporary emergency permit is granted; or

(2) A substantial and irretrievable loss of oil or gas resources will occur unless a temporary emergency permit is granted to a Class II well; and

(i) Timely application for a permit could not practicably have been made; and

(ii) The injection will not result in the movement of fluids into under-

if a permit application has been submitted prior to the expiration of the 90-day period, the Director may extend the temporary permit until final action on the application.

(3) Any temporary permit under paragraph (a)(3) of this section shall be issued only after a complete permit application has been submitted and shall be effective until final action on the application.

(4) Notice of any temporary permit under this paragraph shall be published in accordance with § 124.11 within 10 days of the issuance of the permit.

(5) The temporary permit under this section may be either oral or written. If oral, it must be followed within 5 calendar days by a written temporary emergency permit.

(6) The Director shall condition the temporary permit in any manner he or she determines is necessary to ensure that the injection will not result in the movement of fluids into an underground source of drinking water.

[48 FR 14189, Apr. 1, 1983, as amended at 49

modification made as provided in §§ 144.39, 144.40, and 144.41.

(b) Except as provided in § 144.37, the term of a permit shall not be extended by modification beyond the maximum duration specified in this section.

(c) The Director may issue any permit for a duration that is less than the full allowable term under this section.

§ 144.37 Continuation of expiring permits.

(a) *EPA permits.* When EPA is the permit-issuing authority, the conditions of an expired permit continue in force under 5 U.S.C. 558(c) until the effective date of a new permit if:

(1) The permittee has submitted a timely application which is a complete application for a new permit; and

(2) The Regional Administrator, through no fault of the permittee does not issue a new permit with an effective date on or before the expiration date of the previous permit (for example, when issuance is impracticable due to time or resource constraints).

§ 144.35 Effect of a permit.

enforceable.

allows. Otherwise, the facility or activity is operating without a permit from the time of expiration of the old permit to the effective date of the State-issued new permit.

§ 144.38 Transfer of permits.

(a) *Transfers by modification.* Except as provided in paragraph (b) of this section, a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued (under § 144.39(b)(2)), or a minor modification made (under § 144.41(d)), to identify the new permittee and incorporate such other requirements as may be necessary under the Safe Drinking Water Act.

(b) *Automatic transfers.* As an alternative to transfers under paragraph (a) of this section, any UIC permit for a well not injecting hazardous waste may be automatically transferred to a new permittee if:

(1) The current permittee notifies the Director at least 30 days in advance of the proposed transfer date referred to in paragraph (b)(2) of this section;

(2) The notice includes a written agreement between the existing and new permittees containing a specific date for transfer or permit responsibility, coverage, and liability between them, and the notice demonstrates that the financial responsibility requirements of § 144.52(a)(7) will be met by the new permittee; and

(3) The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify or revoke and reissue the permit. A modification under this paragraph may also be a minor modification under § 144.41. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph (b)(2) of this section.

§ 144.39 Modification or revocation and reissuance of permits.

When the Director receives any information (for example, inspects the facility, receives information submitted by the permittee as required in the permit (see § 144.51 of this chapter), receives a request for modification or revocation and reissuance under § 124.5, or conducts a review of the permit file) he or she may determine whether or not one or more of the causes listed in paragraphs (a) and (b) of this section for modification or revocation and reissuance or both exist. If cause exists, the Director may modify or revoke and reissue the permit accordingly, subject to the limitations of paragraph (c) of this section, and may request an updated application if necessary. When a permit is modified, only the conditions subject to modification are reopened. If a permit is revoked and reissued, the entire permit is reopened and subject to revision and the permit is reissued for a new term. See § 124.5(c)(2) of this chapter. If cause does not exist under this section or § 144.41 of this chapter, the Director shall not modify or revoke and reissue the permit. If a permit modification satisfies the criteria in § 144.41 for "minor modifications" the permit may be modified without a draft permit or public review. Otherwise, a draft permit must be prepared and other procedures in part 124 must be followed.

(a) *Causes for modification.* The following are causes for modification. For Class I hazardous waste injection wells, Class II, or Class III wells the following may be causes for revocation and reissuance as well as modification; and for all other wells the following may be cause for revocation or reissuance as well as modification when the permittee requests or agrees.

(1) *Alterations.* There are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit.

(2) *Information.* The Director has received information. Permits other than for Class II and III wells may be modified during their terms for this cause only if the information was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and would have justified the application of different permit conditions at the time of issuance. For UIC area permits (§ 144.33), this cause shall include any

information indicating that cumulative effects on the environment are unacceptable.

(3) *New regulations.* The standards or regulations on which the permit was based have been changed by promulgation of new or amended standards or regulations or by judicial decision after the permit was issued. Permits other than for Class I hazardous waste injection wells, Class II, or Class III wells may be modified during their terms for this cause only as follows:

(i) For promulgation of amended standards or regulations, when:

(A) The permit condition requested to be modified was based on a promulgated part 146 regulation; and

(B) EPA has revised, withdrawn, or modified that portion of the regulation on which the permit condition was based, and

(C) A permittee requests modification in accordance with § 124.5 within ninety (90) days after FEDERAL REGISTER notice of the action on which the request is based.

(ii) For judicial decisions, a court of competent jurisdiction has remanded and stayed EPA promulgated regulations if the remand and stay concern that portion of the regulations on which the permit condition was based and a request is filed by the permittee in accordance with § 124.5 within ninety (90) days of judicial remand.

(4) *Compliance schedules.* The Director determines good cause exists for modification of a compliance schedule, such as an act of God, strike, flood, or materials shortage or other events over which the permittee has little or no control and for which there is no reasonably available remedy. See also § 144.41(c) (minor modifications).

(b) *Causes for modification or revocation and reissuance.* The following are causes to modify or, alternatively, revoke and reissue a permit:

(1) Cause exists for termination under § 144.40, and the Director determines that modification or revocation and reissuance is appropriate.

(2) The Director has received notification (as required in the permit, see § 144.41(d)) of a proposed transfer of the permit. A permit also may be modified to reflect a transfer after the effective date of an automatic transfer (§ 144.38(b)) but will not be revoked and reissued after the effective date of the transfer except upon the request of the new permittee.

(3) A determination that the waste being injected is a hazardous waste as defined in § 261.3 either because the definition has been revised, or because a previous determination has been changed.

(c) *Facility siting.* Suitability of the facility location will not be considered at the time of permit modification or revocation and reissuance unless new information or standards indicate that a threat to human health or the environment exists which was unknown at the time of permit issuance.

[48 FR 14189, Apr. 1, 1983, as amended at 53 FR 28147, July 26, 1988]

§ 144.40 Termination of permits.

(a) The Director may terminate a permit during its term, or deny a permit renewal application for the following causes:

(1) Noncompliance by the permittee with any condition of the permit;

(2) The permittee's failure in the application or during the permit issuance process to disclose fully all relevant facts, or the permittee's misrepresentation of any relevant facts at any time; or

(3) A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination;

(b) The Director shall follow the applicable procedures in part 124 in terminating any permit under this section.

§ 144.41 Minor modifications of permits.

Upon the consent of the permittee, the Director may modify a permit to make the corrections or allowances for changes in the permitted activity listed in this section, without following the procedures of part 124. Any permit modification not processed as a minor modification under this section must be made for cause and with part 124 draft permit and public notice as required in § 144.39. Minor modifications may only:

(a) Correct typographical errors;

(b) Require more frequent monitoring or reporting by the permittee;

(c) Change an interim compliance date in a schedule of compliance, provided the new date is not more than 120 days after the date specified in the existing permit and does not interfere with attainment of the final compliance date requirement; or

(d) Allow for a change in ownership or operational control of a facility where the Director determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittees has been submitted to the Director.

(e) Change quantities or types of fluids injected which are within the capacity of the facility as permitted and, in the judgment of the Director, would not interfere with the operation of the facility or its ability to meet conditions described in the permit and would not change its classification.

(f) Change construction requirements approved by the Director pursuant to § 144.52(a)(1) (establishing UIC permit conditions), provided that any such alteration shall comply with the requirements of this part and part 146.

(g) Amend a plugging and abandonment plan which has been updated under § 144.52(a)(6).

Subpart E—Permit Conditions

§ 144.51 Conditions applicable to all permits.

The following conditions apply to all UIC permits. All conditions applicable to all permits shall be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to these regulations (or the corresponding approved State regulations) must be given in the permit.

(a) *Duty to comply.* The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Safe Drinking Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application; except that the permittee need not comply with the provisions of this permit to the extent and for the duration such noncompliance is authorized in an emergency permit under § 144.34.

(b) *Duty to reapply.* If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.

(c) *Need to halt or reduce activity not a defense.* It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

(d) *Duty to mitigate.* The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

(e) *Proper operation and maintenance.* The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

(f) *Permit actions.* This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

(g) *Property rights.* This permit does not convey any property rights of any sort, or any exclusive privilege.

(h) *Duty to provide information.* The permittee shall furnish to the Director, within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or

terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

(i) *Inspection and entry.* The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

(1) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(3) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(4) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the SDWA, any substances or parameters at any location.

(j) *Monitoring and records.* (1) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

(2) The permittee shall retain records of all monitoring information, including the following:

(i) Calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of the Director at any time; and

(ii) The nature and composition of all injected fluids until three years after the completion of any plugging and abandonment procedures specified under §144.52(a)(6), or under part 146 subpart G as appropriate. The Director may require the owner or operator to deliver the records to the Director at the conclusion of the retention period. For EPA administered programs, the owner or operator shall continue to retain the records after the three year retention period unless he delivers the records to the Regional Administrator or obtains written approval from the Regional Administrator to discard the records.

(3) Records of monitoring information shall include:

(i) The date, exact place, and time of sampling or measurements;

(ii) The individual(s) who performed the sampling or measurements;

(iii) The date(s) analyses were performed;

(iv) The individual(s) who performed the analyses;

(v) The analytical techniques or methods used; and

(vi) The results of such analyses.

(k) *Signatory requirement.* All applications, reports, or information submitted to the Administrator shall be signed and certified. (See §144.32.)

(l) *Reporting requirements.* (1) *Planned changes.* The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility.

(2) *Anticipated noncompliance.* The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(3) *Transfers.* This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Safe Drinking Water Act. (See §144.38; in some cases, modification or revocation and reissuance is mandatory.)

(4) *Monitoring reports.* Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(5) *Compliance schedules.* Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 30 days following each schedule date.

(6) *Twenty-four hour reporting.* The permittee shall report any noncompliance which may endanger health or the environment, including:

(i) Any monitoring or other information which indicates that any contaminant may cause an endangerment to a USDW; or

(ii) Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between USDWs.

Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause, the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(7) *Other noncompliance.* The permittee shall report all instances of noncompliance not reported under paragraphs (l) (4), (5), and (6) of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in para-

intent to inspect or otherwise review the new injection well within 13 days of the date of the notice in paragraph (m)(1) of this section, in which case prior inspection or review is waived and the permittee may commence injection. The Director shall include in his notice a reasonable time period in which he shall inspect the well.

(n) The permittee shall notify the Director at such times as the permit requires before conversion or abandonment of the well or in the case of area permits before closure of the project.

(o) A Class I, II or III permit shall include and a Class V permit may include, conditions which meet the applicable requirements of §146.10 of this chapter to insure that plugging and abandonment of the well will not allow the movement of fluids into or between USDWs. Where the plan meets the requirements of §146.10 of this chapter, the Director shall incorporate it into the permit as a permit condition. Where the Director's review of an application indicates that the permittee's plan is inadequate, the Director may require the applicant to revise the plan, prescribe conditions meeting the requirements of this paragraph, or deny the permit. For purposes of this paragraph, temporary or intermittent cessation of injection operations is not

(q) *Duty to establish and maintain mechanical integrity.* (1) The owner or operator of a Class I, II or III well permitted under this part shall establish prior to commencing injection or on a schedule determined by the Director, and thereafter maintain mechanical integrity as defined in § 146.8 of this chapter. For EPA-administered programs, the Regional Administrator may require by written notice that the owner or operator comply with a schedule describing when mechanical integrity

schedules of compliance), and § 144.4 (considerations under Federal law). Permits for owners or operators of hazardous waste injection wells shall include conditions meeting the requirements of § 144.14 (requirements for wells injecting hazardous waste), § 144.52 (a)(7) and (a)(9), and subpart G of part 146. Permits for other wells shall contain the following requirements, when applicable.

(1) *Construction requirements* as set

of 40 CFR 136.3 or in appendix III of 40 CFR part 261 or in certain circumstances by other methods that have been approved by the Regional Administrator.

(6) After a cessation of operations of two years the owner or operator shall plug and abandon the well in accordance with the plan unless he:

(i) Provides notice to the Regional Administrator;

(ii) Describes actions or procedures, satisfactory to the Regional Administrator, that the owner or operator will take to ensure that the well will not endanger USDWs during the period of temporary abandonment. These actions and procedures shall include compliance with the technical requirements applicable to active injection wells unless waived by the Regional Administrator.

(7) *Financial responsibility.* (i) The permittee, including the transferor of a permit, is required to demonstrate and maintain financial responsibility and

vised demonstration of financial responsibility, if necessary. The owner or operator of a well injecting hazardous waste must comply with the financial responsibility requirements of subpart F of this part.

(8) *Mechanical integrity.* A permit for any Class I, II or III well or injection project which lacks mechanical integrity shall include, and for any Class V well may include, a condition prohibiting injection operations until the permittee shows to the satisfaction of the Director under § 146.08 that the well has mechanical integrity.

(9) *Additional conditions.* The Director shall impose on a case-by-case basis such additional conditions as are necessary to prevent the migration of fluids into underground sources of drinking water.

(b)(1) In addition to conditions required in all permits the Director shall establish conditions in permits as required on a case-by-case basis, to pro-

(c) *Incorporation.* All permit conditions shall be incorporated either expressly or by reference. If incorporated by reference, a specific citation to the applicable regulations or requirements must be given in the permit.

[48 FR 14189, Apr. 1, 1983, as amended at 49 FR 20185, May 11, 1984; 53 FR 28147, July 26, 1988; 58 FR 63898; Dec. 3, 1993; 65 FR 30913, May 15, 2000]

§ 144.53 Schedule of compliance.

(a) *General.* The permit may, when appropriate, specify a schedule of compliance leading to compliance with the SDWA and parts 144, 145, 146, and 124.

(1) *Time for compliance.* Any schedules of compliance shall require compliance as soon as possible, and in no case later than 3 years after the effective date of the permit.

(2) *Interim dates.* Except as provided in paragraph (b)(1)(ii) of this section, if a permit establishes a schedule of compliance which exceeds 1 year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievement.

(i) The time between interim dates shall not exceed 1 year.

(ii) If the time necessary for completion of any interim requirement is more than 1 year and is not readily divisible into stages for completion, the permit shall specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.

(3) *Reporting.* The permit shall be written to require that if paragraph (a)(1) of this section is applicable, progress reports be submitted no later than 30 days following each interim date and the final date of compliance.

(b) *Alternative schedules of compliance.* A permit applicant or permittee may cease conducting regulated activities (by plugging and abandonment) rather than continue to operate and meet permit requirements as follows:

(1) If the permittee decides to cease conducting regulated activities at a given time within the term of a permit which has already been issued:

(i) The permit may be modified to contain a new or additional schedule leading to timely cessation of activities; or

(ii) The permittee shall cease conducting permitted activities before noncompliance with any interim or final compliance schedule requirement already specified in the permit.

(2) If the decision to cease conducting regulated activities is made before issuance of a permit whose term will include the termination date, the permit shall contain a schedule leading to termination which will ensure timely compliance with applicable requirements.

(3) If the permittee is undecided whether to cease conducting regulated activities, the Director may issue or modify a permit to contain two schedules as follows:

(i) Both schedules shall contain an identical interim deadline requiring a final decision on whether to cease conducting regulated activities no later than a date which ensures sufficient time to comply with applicable requirements in a timely manner if the decision is to continue conducting regulated activities;

(ii) One schedule shall lead to timely compliance with applicable requirements;

(iii) The second schedule shall lead to cessation of regulated activities by a date which will ensure timely compliance with applicable requirements;

(iv) Each permit containing two schedules shall include a requirement that after the permittee has made a final decision under paragraph (b)(3)(i) of this section it shall follow the schedule leading to compliance if the decision is to continue conducting regulated activities, and follow the schedule leading to termination if the decision is to cease conducting regulated activities.

(4) The applicant's or permittee's decision to cease conducting regulated activities shall be evidenced by a firm public commitment satisfactory to the Director, such as a resolution of the board of directors of a corporation.

§ 144.54 Requirements for recording and reporting of monitoring results.

All permits shall specify:

(a) Requirements concerning the proper use, maintenance, and installation, when appropriate, of monitoring

equipment or methods (including biological monitoring methods when appropriate);

(b) Required monitoring including type, intervals, and frequency sufficient to yield data which are representative of the monitored activity including when appropriate, continuous monitoring;

(c) Applicable reporting requirements based upon the impact of the regulated activity and as specified in part 146. Reporting shall be no less frequent than specified in the above regulations.

§ 144.55 Corrective action.

(a) *Coverage.* Applicants for Class I, II, (other than existing), or III injection well permits shall identify the location of all known wells within the injection well's area of review which penetrate the injection zone, or in the case of Class II wells operating over the fracture pressure of the injection formation, all known wells within the area of review penetrating formations affected by the increase in pressure. For such wells which are improperly sealed, completed, or abandoned, the applicant shall also submit a plan consisting of such steps or modifications as are necessary to prevent movement of fluid into underground sources of drinking water ("corrective action"). Where the plan is adequate, the Director shall incorporate it into the permit as a condition. Where the Director's review of an application indicates that the permittee's plan is inadequate (based on the factors in § 146.07), the Director shall require the applicant to revise the plan, prescribe a plan for corrective action as a condition of the permit under paragraph (b) of this section, or deny the application. The Director may disregard the provisions of § 146.06 (Area of Review) and § 146.07 (Corrective Action) when reviewing an application to permit an existing Class II well.

(b) *Requirements*—(1) *Existing injection wells.* Any permit issued for an existing injection well (other than Class II) requiring corrective action shall include a compliance schedule requiring any corrective action accepted or prescribed under paragraph (a) of this section to be completed as soon as possible.

(2) *New injection wells.* No owner or operator of a new injection well may begin injection until all required corrective action has been taken.

(3) *Injection pressure limitation.* The Director may require as a permit condition that injection pressure be so limited that pressure in the injection zone does not exceed hydrostatic pressure at the site of any improperly completed or abandoned well within the area of review. This pressure limitation shall satisfy the corrective action requirement. Alternatively, such injection pressure limitation can be part of a compliance schedule and last until all other required corrective action has been taken.

(4) *Class III wells only.* When setting corrective action requirements the Director shall consider the overall effect of the project on the hydraulic gradient in potentially affected USDWs, and the corresponding changes in potentiometric surface(s) and flow direction(s) rather than the discrete effect of each well. If a decision is made that corrective action is not necessary based on the determinations above, the monitoring program required in § 146.33(b) shall be designed to verify the validity of such determinations.

Subpart F—Financial Responsibility: Class I Hazardous Waste Injection Wells

SOURCE: 49 FR 20186, May 11, 1984, unless otherwise noted.

§ 144.60 Applicability.

(a) The requirements of §§ 144.62, 144.63, and 144.70 apply to owners and operators of all existing and new Class I Hazardous waste injection wells, except as provided otherwise in this section.

§ 144.61 Definitions of terms as used in this subpart.

(a) *Plugging and abandonment plan* means the plan for plugging and abandonment prepared in accordance with the requirements of §§ 144.28 and 144.51.

(b) *Current plugging cost estimate* means the most recent of the estimates prepared in accordance with § 144.62 (a), (b) and (c).

(c) *Parent corporation* means a corporation which directly owns at least 50 percent of the voting stock of the corporation which is the injection well owner or operator; the latter corporation is deemed a *subsidiary* of the parent corporation.

(d) The following terms are used in the specifications for the financial test for plugging and abandonment. The definitions are intended to represent the common meanings of the terms as they are generally used by the business community.

Assets means all existing and all probable future economic benefits obtained or controlled by a particular entity.

Current assets means cash or other assets or resources commonly identified as those which are reasonably expected to be realized in cash or sold or consumed during the normal operating cycle of the business.

Current liabilities means obligations whose liquidation is reasonably expected to require the use of existing resources properly classifiable as current

in §§ 144.28 and 144.51. The plugging and abandonment cost estimate must equal the cost of plugging and abandonment at the point in the facility's operating life when the extent and manner of its operation would making plugging and abandonment the most expensive, as indicated by its plugging and abandonment plan.

(b) The owner or operator must adjust the plugging and abandonment cost estimate for inflation within 30 days after each anniversary of the date on which the first plugging and abandonment cost estimate was prepared. The adjustment must be made as specified in paragraphs (b) (1) and (2) of this section, using an inflation factor derived from the annual Oil and Gas Field Equipment Cost Index. The inflation factor is the result of dividing the latest published annual Index by the Index for the previous year.

(1) The first adjustment is made by multiplying the plugging and abandonment cost estimate by the inflation factor. The result is the adjusted plug-

from the options as specified in paragraphs (a) through (f) of this section.

(a) *Plugging and abandonment trust fund.* (1) An owner or operator may satisfy the requirements of this section by establishing a plugging and abandonment trust fund which conforms to the requirements of this paragraph and submitting an originally signed duplicate of the trust agreement to the Regional Administrator. An owner or operator of a Class I well injecting hazardous waste must submit the originally signed duplicate of the trust agreement to the Regional Administrator with the permit application or for approval to operate under rule. The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency.

(2) The wording of the trust agreement must be identical to the wording specified in §144.70(a)(1), and the trust agreement must be accompanied by a formal certification of acknowledgment (for example, see §144.70(a)(2)). Schedule A of the trust agreement must be updated within 60 days after a change in the amount of the current plugging and abandonment cost estimate covered by the agreement.

(3) Payments into the trust fund must be made annually by the owner or operator over the term of the initial permit or over the remaining operating life of the injection well as estimated in the plugging and abandonment plan, whichever period is shorter; this period is hereafter referred to as the "pay-in period." The payments into the plugging and abandonment trust fund must be made as follows:

(i) For a new well, the first payment must be made before the initial injection of hazardous waste. A receipt from the trustee for this payment must be submitted by the owner or operator to the Regional Administrator before this initial injection of hazardous waste. The first payment must be at least equal to the current plugging and abandonment cost estimate, except as provided in §144.70(g), divided by the number of years in the pay-in period. Subsequent payments must be made no later than 30 days after each anniversary date of the first payment. The amount of each subsequent payment must be determined by this formula:

$$\text{Next payment} = \frac{PE - CV}{Y}$$

where PE is the current plugging and abandonment cost estimate, CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

(ii) If an owner or operator establishes a trust fund as specified in §144.63(a) of this chapter, and the value of that trust fund is less than the current plugging and abandonment cost estimate when a permit is awarded for the injection well, the amount of the current plugging and abandonment cost estimate still to be paid into the trust fund must be paid in over the pay-in period as defined in paragraph (a)(3) of this section. Payments must continue to be made no later than 30 days after each anniversary date of the first payment made pursuant to part 144 of this chapter. The amount of each payment must be determined by this formula:

$$\text{Next payment} = \frac{PE - CV}{Y}$$

where PE is the current plugging and abandonment cost estimate, CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

(4) The owner or operator may accelerate payments into the trust fund or he may deposit the full amount of the current plugging and abandonment cost estimate at the time the fund is established. However, he must maintain the value of the fund at no less than the value that the fund would have if annual payments were made as specified in paragraph (a)(3) of this section.

(5) If the owner or operator establishes a plugging and abandonment trust fund after having used one or more alternate mechanisms specified in this section or in §144.63 of this chapter, his first payment must be in at least the amount that the fund would contain if the trust fund were established initially and annual payments made according to specifications of this paragraph.

(6) After the pay-in period is completed, whenever the current plugging

and abandonment cost estimate changes, the owner or operator must compare the new estimate with the trustee's most recent annual valuation of the trust fund. If the value of the fund is less than the amount of the new estimate, the owner or operator, within 60 days after the change in the cost estimate, must either deposit an amount into the fund so that its value after this deposit at least equals the amount of the current plugging and abandonment cost estimate, or obtain other financial assurance as specified in this section to cover the difference.

the Regional Administrator has reason to believe that the cost of plugging and abandonment will be significantly greater than the value of the trust fund, he may withhold reimbursement of such amounts as he deems prudent until he determines, in accordance with § 144.63(i), that the owner or operator is no longer required to maintain financial assurance for plugging and abandonment.

(11) The Regional Administrator will agree to termination of the trust when:

(i) An owner or operator substitutes

this section, the following are not required by these requirements:

(A) Payments into the trust fund as specified in § 144.63(a);

(B) Updating of Schedule A of the trust agreement [see § 144.70(a)] to show current plugging and abandonment cost estimates;

(C) Annual valuations as required by the trust agreement; and

(D) Notices of nonpayment as required by the trust agreement.

(4) The bond must guarantee that the owner or operator will:

(i) Fund the standby trust fund in an amount equal to the penal sum of the bond before beginning of plugging and abandonment of the injection well; or

(ii) Fund the standby trust fund in an amount equal to the penal sum within 15 days after an order to begin plugging and abandonment is issued by the Regional Administrator or a U.S. district court or other court of competent jurisdiction; or

(iii) Provide alternate financial assurance as specified in this section, and obtain the Regional Administrator's written approval of the assurance provided, within 90 days after receipt by both the owner or operator and the Regional Administrator of a notice of cancellation of the bond from the surety.

(5) Under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond.

(6) The penal sum of the bond must be in amount at least equal to the current plugging and abandonment cost estimate, except as provided in § 144.63(g).

(7) Whenever the current plugging and abandonment cost estimate increases to an amount greater than the penal sum, the owner or operator, within 60 days after the increase, must either cause the penal sum to be increased to an amount at least equal to the current plugging and abandonment cost estimate and submit evidence of such increase to the Regional Administrator, or obtain other financial assurance as specified in this section to cover the increase. Whenever the current plugging and abandonment cost estimate decreases, the penal sum may be reduced to the amount of the current plugging and abandonment cost estimate following written approval by the Regional Administrator.

(8) Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner or operator and to the Regional Administrator. Cancellation may not occur, however, during 120 days beginning on the date of the receipt of the notice of cancellation by both owner or operator and the Regional Administrator as evidenced by the returned receipts.

(9) The owner or operator may cancel the bond if the Regional Administrator has given prior written consent based on his receipt of evidence of alternate financial assurance as specified in this section.

(c) *Surety bond guaranteeing performance of plugging and abandonment.* (1) An owner or operator may satisfy the requirements of this section by obtaining a surety bond which conforms to the requirements of this paragraph and submitting the bond to the Regional Administrator. An owner or operator of a new facility must submit the bond to the Regional Administrator with the permit application or for approval to operate under rule. The bond must be effective before injection of hazardous waste is started. The surety company issuing the bond must, at a minimum, be among those listed as acceptable sureties on Federal bonds in Circular 570 of the U.S. Department of the Treasury.

(2) The wording of the surety bond must be identical to the wording specified in § 144.70(c).

(3) The owner or operator who uses a surety bond to satisfy the requirements of this section must also establish a standby trust fund. Under the terms of the bond, all payments made thereunder will be deposited by the surety directly into the standby trust fund in accordance with instructions from the Regional Administrator. The standby trust must meet the requirements specified in § 144.63(a), except that:

(i) An original signed duplicate of the trust agreement must be submitted to the Regional Administrator with the surety bond; and

(ii) Unless the standby trust fund is funded pursuant to the requirements of this section, the following are not required by these regulations:

(A) Payments into the trust fund as specified in § 144.63(a);

(B) Updating of Schedule A of the trust agreement [see § 144.70(a)] to show current plugging and abandonment cost estimates;

(C) Annual valuations as required by the trust agreement; and

(D) Notices of nonpayment as required by the trust agreement.

(4) The bond must guarantee that the owner or operator will:

(i) Perform plugging and abandonment in accordance with the plugging and abandonment plan and other requirements of the permit for the injection well whenever required to do so; or

(ii) Provide alternate financial assurance as specified in this section, and obtain the Regional Administrator's written approval of the assurance provided, within 90 days after receipt by both the owner or operator and the Regional Administrator of a notice of cancellation of the bond from the surety.

(5) Under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond. Following a determination that the owner or operator has failed to perform plugging and abandonment in accordance with the plugging and abandonment plan and other permit requirements when required to do so, under terms of the bond the surety will perform plugging and abandonment as guaranteed by the bond or will deposit the amount of the penal sum into the standby trust fund.

(6) The penal sum of the bond must be in an amount at least equal to the current plugging and abandonment cost estimate.

(7) Whenever the current plugging and abandonment cost estimate increases to an amount greater than the penal sum, the owner or operator, within 60 days after the increase, must either cause the penal sum to be increased to an amount at least equal to the current plugging and abandonment cost estimate and submit evidence of such increase to the Regional Administrator, or obtain other financial assurance as specified in this section. Whenever the plugging and abandonment cost estimate decreases, the penal sum may be reduced to the amount of the current plugging and abandonment cost estimate following written approval by the Regional Administrator.

(8) Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner or operator and to the Regional Administrator. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the Regional Administrator, as evidenced by the return receipts.

(9) The owner or operator may cancel the bond if the Regional Administrator has given prior written consent. The Regional Administrator will provide such written consent when:

(i) An owner or operator substitute alternate financial assurance as specified in this section; or

(ii) The Regional Administrator releases the owner or operator from the requirements of this section in accordance with § 144.63(i).

(10) The surety will not be liable for deficiencies in the performance of plugging and abandonment by the owner or operator after the Regional Administrator releases the owner or operator from the requirements of this section in accordance with § 144.63(i).

(d) *Plugging and abandonment letter of credit.* (1) An owner or operator may satisfy the requirements of this section by obtaining an irrevocable standby letter of credit which conforms to the requirements of this paragraph and submitting the letter to the Regional Administrator. An owner or operator of an injection well must submit the letter of credit to the Regional Administrator during submission of the permit application or for approval to operate under rule. The letter of credit must be effective before initial injection of hazardous waste. The issuing institution must be an entity which has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a Federal or State agency.

(2) The wording of the letter of credit must be identical to the wording specified in § 144.70(d).

(3) An owner or operator who uses a letter of credit to satisfy the requirements of this section must also establish a standby trust fund. Under the terms of the letter of credit, all amounts paid pursuant to a draft by the Regional Administrator will be deposited by the issuing institution directly into the standby trust fund in accordance with instructions from the Regional Administrator. This standby trust fund must meet the requirements of the trust fund specified in § 144.63(a), except that:

(i) An originally signed duplicate of the trust agreement must be submitted to the Regional Administrator with the letter of credit; and

(ii) Unless the standby trust fund is funded pursuant to the requirements of this section, the following are not required by these regulations:

(A) Payments into the trust fund as specified in § 144.63(a);

(B) Updating of Schedule A of the trust agreement (see § 144.70(a)) to show current plugging and abandonment cost estimates;

(C) Annual valuations as required by the trust agreement; and

(D) Notices of nonpayment as required by the trust agreement.

(4) The letter of credit must be accompanied by a letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the following information: the EPA Identification Number, name, and address of the facility, and the amount of funds assured for plugging and abandonment of the well by the letter of credit.

(5) The letter of credit must be irrevocable and issued for a period of at least 1 year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least 1 year unless, at least 120 days before the current expiration date, the issuing institution notifies both the owner or operator and the Regional Administrator by certified mail of a decision not to extend the expiration date. Under the terms of the letter of credit, the 120 days will begin on the date when both the owner or operator and the Regional Administrator have received the notice, as evidenced by the return receipts.

(6) The letter of credit must be issued in an amount at least equal to the current plugging and abandonment cost estimate, except as provided in § 144.63(g).

(7) Whenever the current plugging and abandonment cost estimate increases to an amount greater than the amount of the credit, the owner or operator, within 60 days after the increase, must either cause the amount of the credit to be increased so that it at least equals the current plugging and abandonment cost estimate and submit evidence of such increase to the Regional Administrator, or obtain other financial assurance as specified in this section to cover the increase. Whenever the current plugging and abandonment cost estimate decreases, the amount of the credit may be reduced to the amount of the current plugging and abandonment cost estimate following written approval by the Regional Administrator.

(8) Following a determination that the owner or operator has failed to perform final plugging and abandonment in accordance with the plugging and abandonment plan and other permit requirements when required to do so, the Regional Administrator may draw on the letter of credit.

(9) If the owner or operator does not establish alternate financial assurance as specified in this section and obtain written approval of such alternate assurance from the Regional Administrator within 90 days after receipt by both the owner or operator and the Regional Administrator of a notice from the issuing institution that it has decided not to extend the letter of credit beyond the current expiration date, the Regional Administrator will draw on the letter of credit. The Regional Administrator may delay the drawing if the issuing institution grants an extension of the term of the credit. During the last 30 days of any such extension the Regional Administrator will draw on the letter of credit if the owner or operator has failed to provide alternate financial assurance as specified in this section and obtain written approval of

such assurance from the Regional Administrator.

(10) The Regional Administrator will return the letter of credit to the issuing institution for termination when:

(i) An owner or operator substitutes alternate financial assurance as specified in this section; or

(ii) The Regional Administrator releases the owner or operator from the requirements of this section in accordance with § 144.63(i).

(e) *Plugging and abandonment insurance.* (1) An owner or operator may satisfy the requirements of this section by obtaining plugging and abandonment insurance which conforms to the requirements of this paragraph and submitting a certificate of such insurance to the Regional Administrator. An owner or operator of a new injection well must submit the certificate of insurance to the Regional Administrator with the permit application or for approval operate under rule. The insurance must be effective before injection starts. At a minimum, the insurer must be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States.

(2) The wording of the certificate of insurance must be identical to the wording specified in § 144.70(e).

(3) The plugging and abandonment insurance policy must be issued for a face amount at least equal to the current plugging and abandonment estimate, except as provided in § 144.63(g). The term "face amount" means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer will not change the face amount, although the insurers future liability will be lowered by the amount of the payments.

(4) The plugging and abandonment insurance policy must guarantee that funds will be available whenever final plugging and abandonment occurs. The policy must also guarantee that once plugging and abandonment begins, the issurer will be responsible for paying out funds, up to an amount equal to the face amount of the policy, upon the direction of the Regional Administrator, to such party or parties as the Regional Administrator specifies.

(5) After beginning plugging and abandonment, an owner or operator or any other person authorized to perform plugging and abandonment may request reimbursement for plugging and abandonment expenditures by submitting itemized bills to the Regional Administrator. Within 60 days after receiving bills for plugging and abandonment activities, the Regional Administrator will determine whether the plugging and abandonment expenditures are in accordance with the plugging and abandonment plan or otherwise justified, and if so, he will instruct the insurer to make reimbursement in such amounts as the Regional Administrator specifies in writing. If the Regional Administrator has reason to believe that the cost of plugging and abandonment will be significantly greater than the face amount of the policy, he may withhold reimbursement of such amounts as he deems prudent until he determines, in accordance with § 144.63(i), that the owner or operator is no longer required to maintain financial assurance for plugging and abandonment of the injection well.

(6) The owner or operator must maintain the policy in full force and effect until the Regional Administrator consents to termination of the policy by the owner or operator as specified in paragraph (e)(10) of this section. Failure to pay the premium, without substitution of alternate financial assurance as specified in this section, will constitute a significant violation of these regulations, warranting such remedy as the Regional Administrator deems necessary. Such violation will be deemed to begin upon receipt by the Regional Administrator of a notice of future cancellation, termination, or failure to renew due to nonpayment of the premium, rather than upon the date of expiration.

(7) Each policy must contain provisions allowing assignment to a successor owner or operator. Such assignment may be conditional upon consent of the insurer, provided such consent is not unreasonably refused.

(8) The policy must provide that the insurer may not cancel, terminate, or fail to renew the policy except for failure to pay the premium. The automatic renewal of the policy must, at a

minimum, provide the insured with the option of renewal at the face amount of the expiring policy. If there is a failure to pay the premium, the insurer may elect to cancel, terminate, or fail to renew the policy by sending notice by certified mail to the owner or operator and the Regional Administrator. Can-

(ii) The Regional Administrator releases the owner or operator from the requirements of this section in accordance with § 144.63(i).

(f) *Financial test and corporate guarantee for plugging and abandonment.* (1) An owner or operator may satisfy the requirements of this section by dem-

submit the following items to the Regional Administrator:

(i) A letter signed by the owner's or operator's chief financial officer and worded as specified in § 144.70(f); and

(ii) A copy of the independent certified public accountant's report on examination of the owner's or operator's financial statements for the latest completed fiscal year; and

(iii) A special report from the owner's or operator's independent certified public accountant to the owner or operator stating that:

(A) He has compared the data which the letter from the chief financial officer specifies as having been derived from the independently audited, year-end financial statements for the latest fiscal year with the amounts in such financial statements; and

(B) In connection with that procedure, no matters came to his attention which caused him to believe that the specified data should be adjusted.

(4) An owner or operator of a new injection well must submit the items specified in paragraph (f)(3) of this section to the Regional Administrator within 90 days after the close of each succeeding fiscal year. This information must consist of all three items specified in paragraph (f)(3) of this section.

(5) After the initial submission of items specified in paragraph (f)(3) of this section, the owner or operator must send updated information to the Regional Administrator within 90 days after the close of each succeeding fiscal year. This information must consist of all three items specified in paragraph (f)(3) of this section.

(6) If the owner or operator no longer meets the requirements of paragraph (f)(1) of this section, he must send notice to the Regional Administrator of intent to establish alternate financial assurance as specified in this section. The notice must be sent by certified mail within 90 days after the end of the fiscal year for which the year-end financial data show that the owner or operator no longer meets the requirements. The owner or operator must provide the alternate financial assurance within 120 days after the end of such fiscal year.

(7) The Regional Administrator may, based on a reasonable belief that the owner or operator may no longer meet the requirements of paragraph (f)(1) of this section, require reports of financial condition at any time from the owner or operator in addition to those specified in paragraph (f)(3) of this section. If the Regional Administrator finds, on the basis of such reports or other information, that the owner or operator no longer meets the requirements of paragraph (f)(1) of this section, the owner or operator must provide alternate financial assurance as specified in this section within 30 days after notification of such a finding.

(8) The Regional Administrator may disallow use of this test on the basis of qualifications in the opinion expressed by the independent certified public accountant in his report on examination of the owner's or operator's financial statements [see paragraph (f)(3)(ii) of this section]. An adverse opinion or disclaimer of opinion will be cause for disallowance. The Regional Administrator will evaluate other qualifications on an individual basis. The owner or operator must provide alternate financial assurance as specified in this section within 30 days after notification of the disallowance.

(9) The owner or operator is no longer required to submit the items specified in paragraph (f)(3) of this section when:

(i) An owner or operator substitutes alternate financial assurance as specified in this section; or

(ii) The Regional Administrator releases the owner or operator from the requirements of this section in accordance with § 144.63(i).

(10) An owner or operator may meet the requirements of this section by obtaining a written guarantee, hereafter referred to as "corporate guarantee." The guarantee must be the parent corporation of the owner or operator. The guarantee must meet the requirements for owners or operators in paragraphs (f)(1) through (f)(8) of this section and must comply with the terms of the corporate guarantee. The wording of the corporate guarantee must be identical to the wording specified in § 144.70(h). The corporate guarantee must accompany the items sent to the Regional

Administrator as specified in paragraph (f)(3) of this section. The terms of the corporate guarantee must provide that:

(i) If the owner or operator fails to perform plugging and abandonment of the injection well covered by the corporate guarantee in accordance with the plugging and abandonment plan and other permit requirements whenever required to do so, the guarantee

fund for the other mechanisms. A single standby trust may be established for two or more mechanisms. The Regional Administrator may invoke any or all of the mechanisms to provide for plugging and abandonment of the injection well.

(h) *Use of a financial mechanism for multiple facilities.* An owner or operator may use a financial assurance mechanism specified in this section to meet

§ 144.64 Incapacity of owners or operators, guarantors, or financial institutions.

(a) An owner or operator must notify the Regional Administrator by certified mail of the commencement of a voluntary or involuntary proceeding under title 11 (Bankruptcy), U.S. Code, naming the owner or operator as debtor, within 10 business days after the commencement of the proceeding. A guarantor of a corporate guarantee as specified in § 144.63(f) must make such a notification if he is named as debtor, as required under the terms of the guarantee (§ 144.70(f)).

(b) An owner or operator who fulfills the requirements of § 144.63 by obtaining a letter of credit, surety bond, or insurance policy will be deemed to be without the required financial assurance or liability coverage in the event of bankruptcy, insolvency, or a suspension or revocation of the license or charter of the issuing institution. The owner or operator must establish other financial assurance or liability cov-

ceptable for meeting the requirements of this subpart. The submittal must include the following information: The facility's EPA Identification Number, name and address, and the amounts of funds for plugging and abandonment coverage assured by the mechanism. The Regional Administrator will notify the owner or operator of his determination regarding the mechanism's acceptability. The Regional Administrator may require the owner or operator to submit additional information as is deemed necessary for making this determination.

(b) If a State-required mechanism is found acceptable as specified in paragraph (a) of this section except for the amount of funds available, the owner or operator may satisfy the requirements of this subpart by increasing the funds available through the State-required mechanism or using additional mechanisms as specified in this subpart. The amounts of funds available through the State and Federal mecha-

be considered acceptable for meeting the requirements of this subpart. The letter from the State must include, or have attached to it, the following information: the facility's EPA Identification Number, name and address, and the amounts of funds for plugging and abandonment coverage that are guaranteed by the State. The Regional Administrator will notify the owner or operator of his determination regarding the acceptability of the State's guarantee in lieu of mechanisms specified in this subpart. The Regional Administrator may require the owner or operator to submit additional information as is deemed necessary to make this determination. Pending this determination, the owner or operator will be deemed to be in compliance with § 144.63.

(b) If a State's assumption of responsibility is found acceptable as specified in paragraph (a) of this section except for the amount of funds available, the owner or operator may satisfy the requirements of this subpart by use of both the State's assurance and additional financial mechanisms as specified in this subpart. The amount of funds available through the State and Federal mechanisms must at least equal the amount required by this subpart.

§ 144.70 Wording of the instruments.

(a)(1) A trust agreement for a trust fund, as specified in § 144.63(a) of this chapter, must be worded as follows, except that instructions in brackets are to be replaced with the relevant infor-

Whereas, the Grantor has elected to establish a trust to provide all or part of such financial assurance for the facility(ies) identified herein,

Whereas, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this agreement, and the Trustee is willing to act as trustee,

Now, therefore, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

(c) Facility or activity means any "underground injection well" or any other facility or activity that is subject to regulation under the Underground Injection Control Program.

Section 2. Identification of Facilities and Cost Estimates. This Agreement pertains to the facilities and cost estimates identified on attached Schedule A [on Schedule A, for each facility list the EPA Identification Number, name, address, and the current plugging and abandonment cost estimate, or portions thereof, for which financial assurance is demonstrated by this Agreement].

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, the "Fund," for the benefit of EPA. The Grantor and the Trustee intend that no third party have access to the Fund except as herein provided. The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agree-

writing. In addition, the Trustee shall refund to the Grantor such amounts as the EPA Regional Administrator specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this Section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; *except that:*

(i) Securities or other obligations of the Grantor, or any other owner or operator of

tions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depositary with other securities deposited therein by another person, or to deposit or arrange for the deposit

prior to the anniversary date of establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and the EPA Regional Administrator shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any question arising as to the construction of this Agreement of any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the EPA Regional Administrator, and the present Trustee by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instructions by the Grantor to the Trustee shall be in writing, shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or EPA hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor and/or EPA, except as provided for herein.

Section 15. Notice of Nonpayment. The Trustee shall notify the Grantor and the appropriate EPA Regional Administrator, by certified mail within 10 days following the expiration of the 30-day period after the anniversary of the establishment of the Trust, if no payment is received from the Grantor during that period. After the pay-in period is completed, the Trustee shall not be required to send a notice of nonpayment.

Section 16. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the appropriate EPA Regional Administrator, or by the Trustee and the appropriate EPA Regional Administrator if the Grantor ceases to exist.

Section 17. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 16, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the EPA Regional Administrator, or by the Trustee and the EPA Regional Administrator if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

Section 18. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or the EPA Regional Administrator issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by rea-

In Witness Whereof the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written. The parties below certify that the wording of this Agreement is identical to the wording specified in 40 CFR 144.70(a)(1) as such regulations were constituted on the date first above written.

[Signature of Grantor]
By [Title]
Attest:

[TITLE]

[SEAL]

[Signature of Trustee]
By
Attest:

[TITLE]

[SEAL]

(2) The following is an example of the certification of acknowledgment which must accompany the trust agreement for a trust fund as specified in §144.63(a). State requirements may differ on the proper content of this acknowledgment.

State of _____
County of _____

On this [date], before me personally came [owner or operator] to me known, who, being by me duly sworn, did depose and say that she/he resides at [address], that she/he is [title] of [corporation], the corporation described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order to the Board of Directors of said corporation, and that she/he signed her/his name thereto by like order.

[Signature of Notary Public]

(b) A surety bond guaranteeing payment into a trust fund, as specified in §144.63 of this chapter, must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

FINANCIAL GUARANTEE BOND

Dated bond executed: _____
Effective date: _____

Principal: [legal name and business address of owner or operator].

Type of organization: [insert "individual," "joint venture," "partnership," or "corporation"].

State of incorporation: _____

Surety(ies): [name(s) and business address(es)].

EPA Identification Number, name, address, and plugging and abandonment amount(s) for each facility guaranteed by this bond [indicate plugging and abandonment amounts separately]: _____

Total penal sum of bond: $_____

Surety's bond number: _____

Know All Persons By These Presents, That we, the Principal and Surity(ies) hereto are firmly bound to the U.S. Environmental Protection Agency (hereinafter called EPA), in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally; provided that, where the Surety(ies) are corporations acting as cosurties, we, the Sureties, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety, but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

Whereas said Principal is required, under the Underground Injection Control Regulations (UIC), to have a permit or comply with requirements to operate under rule in order to own or operate each injection well identified above, and

Whereas said Principal is required to provide financial assurance for plugging and abandonment as a condition of the permit or provisions to operate under rule, and

Whereas said Principal shall establish a standby trust fund as is required when a surety bond is used to provide such financial assurance;

Now, therefore, the conditions of the obligation are such that if the Principal shall faithfully, before the beginning of plugging and abandonment of each injection well identified above, fund the standby trust fund in the amount(s) identified above for the injection well,

Or if the Principal shall fund the standby trust fund in such amount(s) within 15 days after an order to begin plugging and abandonment is issued by an EPA Regional Administrator or a U.S. district court or other court of competent jurisdiction,

Or, if the Principal shall provide alternate financial assurance, as specified in subpart F of 40 CFR part 144, as applicable, and obtain the EPA Regional Administrator's written approval of such assurance, within 90 days after the date of notice of cancellation is received by both the Principal and the EPA Regional Administrator(s) from the Surety(ies), then this obligation shall be null and void, otherwise it is to remain in full force and effect.

The Surety(ies) shall become liable on this bond obligation only when the Principal has failed to fulfill the conditions described above. Upon notification by an EPA Regional Administrator that the Principal has failed to perform as guaranteed by this bond, the Surety(ies) shall place funds in the amount guaranteed for the injection well(s) into the standby trust funds as directed by the EPA Regional Administrator.

The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the Surety(ies) hereunder exceed the amount of said penal sum.

The Surety(ies) may cancel the bond by sending notice of cancellation by certified mail to the Principal and to the EPA Regional Administrator(s) for the Region(s) in which the injection well(s) is (are) located, provided, however, that that cancellation shall not occur during the 120 days beginning on the date of receipt of the notice of cancellation by both the Principal and the EPA Regional Administrator(s), as evidenced by the return receipts.

The Principal may terminate this bond by sending written notice to the Surety(ies), provided, however, that no such notice shall become effective until the Surety(ies) receive(s) written authorization for termination of the bond by the EPA Regional Administrator(s) of the Region(s) in which the bonded facility(ies) is (are) located.

[The following paragraph is an optional rider that may be included but is not required.]

Principal and Surety(ies) hereby agree to adjust the penal sum of the bond yearly so that it guarantees a new plugging and abandonment amount, provided that the penal sum does not increase by more than 20 percent in any one year, and no decrease in the penal sum takes place without the written permission of the EPA Regional Administrator(s).

In Witness Whereof, the Principal and Surety(ies) have executed this Financial Guarantee Bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording of this surety bond is identical to the wording specified in 40 CFR 144.70(b) as such regulations were constituted on the date this bond was executed.

PRINCIPAL

[Signature(s)]
[Name(s)]
[Title(s)]
[Corporate seal]

CORPORATE SURETY(IES)

[Name and address]
State of incorporation: _____.
Liability limit: $_____.
[Signature(s)]
[Name(s) and title(s)]
[Corporate seal]
[For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for Surety above.]
Bond premium: $_____.

(c) A surety bond guaranteeing performance of plugging and abandonment, as specified in §144.63(c), must be worded as follows, except that the instructions in brackets are to be replaced with the relevant information and the brackets deleted:

PERFORMANCE BOND

Date bond executed: _____.
Effective date: _____.
Principal: [legal name and business address of owner or operator].
Type of organization: [insert "individual," "joint venture," "partnership," or "corporation"].
State of incorporation: _____.
Surety(ies): [name(s) and business address(es)]

_____

EPA Identification Number, name, address, and plugging and abandonment amounts(s) for each injection well guaranteed by this bond [indicate plugging and abandonment amounts for each well]:

_____

Total penal sum of bond: $_____.
Surety's bond number: _____.

Know All Persons By These Presents, That We, the Principal and Surety(ies) hereto are firmly bound to the U.S. Environmental Protection Agency [hereinafter called EPA], in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally; provided that, where the Surety(ies) are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety, but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

Whereas said Principal is required, under the Undergound Injection Control Regulations, as amended, to have a permit or comply with provisions to operate under rule for each injection well identified above, and

Whereas said Principal is required to provide financial assurance for plugging and abandonment as a condition of the permit or approval to operate under rule, and

Whereas said Principal shall establish a standby trust fund as is required when a surety bond is used to provide such financial assurance;

Now, Therefore, the conditions of this obligation are such that if the Principal shall faithfully perform plugging and abandonment, whenever required to do so, of each injection well for which this bond guarantees plugging and abandonment, in accordance with the plugging and abandonment plan and other rquirements of the permit or provisions for operating under rule and other requirements of the permit or provisions for operating under rule as may be amended, pursuant to all applicable laws, statutes, rules and regulations, as such laws, statutes, rules, and regulations may be amended,

Or, if the Principal shall provide alternate financial assurance as specified in subpart F of 40 CFR part 144, and obtain the EPA Regional Administrator's written approval of such assurance, within 90 days after the date of notice of cancellation is received by both the Principal and the EPA Regional Administrator(s) from the Surety(ies), then this obligation shall be null and void, otherwise it is to remain in full force and effect.

The Surety(ies) shall become liable on this bond obligation only when the Principal has failed to fulfill the conditions described above.

Upon notification by an EPA Regional Administrator that the Principal has been found in violation of the plugging and abandonment requirements of 40 CFR part 144, for an injection well which this bond guarantees performances of plugging and abandonment, the Surety(ies) shall either perform plugging and abandonment in accordance with the plugging and abandonment plan and other permit requirements or provisions for operating under rule and other requirements or place the amount for plugging and abandonment into a standby trust fund as directed by the EPA Regional Administrator.

Upon notification by an EPA Regional Administrator that the Principal has failed to provide alternate financial assurance as specified in subpart F of 40 CFR part 144, and obtain written approval of such assurance from the EPA Regional Administrator(s) during the 90 days following receipt by both the Principal and the EPA Regional Administrator(s) of a notice of cancellation of the bond, the Surety(ies) shall place funds in the amount guaranteed for the injection well(s) into the standby trust fund as directed by the EPA Regional Administrator.

The surety(ies) hereby waive(s) notification of amendments to plugging and abandonment plans, permits, applicable laws, statutes, rules, and regulations and agrees that no such amendment shall in any way alleviate its (their) obligation on this bond.

The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the Surety(ies) hereunder exceed the amount of said penal sum.

The Surety(ies) may cancel the bond by sending notice by certified mail to the owner or operator and to the EPA Regional Administrator(s) for the Region(s) in which the injection well(s) is (are) located, provided, however, that cancellation shall not occur during the 120 days beginning on the date of receipt of the notice of cancellation by both the Principal and the EPA Regional Administrator(s), as evidenced by the return receipts.

The principal may terminate this bond by sending written notice to the Surety(ies), provided, however, that no such notice shall become effective until the Surety(ies) receive(s) written authorization for termination of the bond by the EPA Regional Administrator(s) of the EPA Region(s) in which the bonded injection well(s) is (are) located.

[The following paragraph is an optional rider that may be included but is not required.]

Principal and Surety(ies) hereby agree to adjust the penal sum of the bond yearly so that it guarantees a new plugging and abandonment amount, provided that the penal sum does not increase by more than 20 percent in any one year, and no decrease in the penal sum takes place without the written permission of the EPA Regional Administrator(s).

In Witness Whereof, The Principal and Surety(ies) have executed this Performance Bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording on this surety bond is identical to the wording specified in 40 CFR 144.70(c) as such regulation was constituted on the date this bond was executed.

Principal.
[Signature(s)]
[Name(s)]
[Title(s)]
[Corporate seal]
[Corporate Surety(ies)]
[Name and address]
State of incorporation:

Liability limit: $_____.
[Signature(s)]
[Name(s) and title(s)]
Corporate seal:

[For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for Surety above.]

Bond premium: $_____.

(d) A letter of credit, as specified in § 144.63(d) of this chapter, must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

IRREVOCABLE STANDBY LETTER OF CREDIT

Regional Administrator(s)
Region(s) _____
U.S. Environmental Protection Agency.
Dear Sir or Madam:

We hereby establish our Irrevocable Standby Letter of Credit No. _____ in your favor, at the request and for the account of [owner's or operator's name and address] up to the aggregate amount of [in words] U.S. dollars $_____, available upon presentation [insert, if more than one Regional Administrator is a beneficiary, "by any one of you"] of

(1) Your sight draft, bearing reference to this letter of credit No. _____, and

(2) Your signed statement reading as follows: "I certify that the amount of the draft is payable pursuant to regulations issued under authority of the Safe Drinking Water Act."

This letter of credit is effective as of [date] and shall expire on [date at least 1 year later], but such expiration date shall be automatically extended for a period of [at least 1 year] on [date] and on each successive expiration date, unless, at least 120 days before the current expiration date, we notify both you and [owner's or operator's name] by certified mail that we have decided not to extend this letter of credit beyond the current expiration date. In the event you are so notified, any unused portion of the credit shall be available upon presentation of your sight draft for 120 days after the date of receipt by both you and [owner's or operator's name], as shown on the signed return receipts.

Whenever this letter of credit is drawn on under and in compliance with the terms of this credit, we shall duly honor such draft upon presentation to us, and we shall deposit the amount of the draft directly into the standby trust fund of [owner's or operator's name] in accordance with your instructions.

We certify that the wording of this letter of credit is identical to the wording specified in 40 CFR 144.70(d) as such regulations were constituted on the date shown immediately below.

[Signature(s) and title(s) of official(s) of issuing institution]
[Date]

This credit is subject to [insert "the most recent edition of the Uniform Customs and Practice for Documentary Credits, published and copyrighted by the International Chamber of Commerce," or "the Uniform Commercial Code"].

(e) A certificate of insurance, as specified in § 144.63(e) of this chapter, must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Certificate of Insurance for Plugging and Abandonment

Name and Address of Insurer (herein called the "insurer"):

_____

Name and Address of Insurer (herein called the "insurer"):

_____

Injection Wells covered: [list for each well: The EPA Identification Number, name, address, and the amount of insurance for plugging and abandonment (these amounts for all injection wells covered must total the face amount shown below).]

Face Amount: _____
Policy Number: _____
Effective Date: _____

The insurer hereby certifies that it has issued to the Insured the policy of insurance identified above to provide financial assurance for plugging and abandonment for the injection wells identified above. The Insurer further warrants that such policy conforms in all respects with the requirements of 40 CFR 144.63(e), as applicable and as such regulations were constituted on the date shown immediately below. It is agreed that any provision of the policy inconsistent with such regulations is hereby amended to eliminate such inconsistency.

Whenever requested by the EPA Regional Administrator(s) of the U.S. Environmental Protection Agency, the Insurer agrees to furnish to the EPA Regional Administrator(s) a duplicate original of the policy listed above, including all endorsements thereon.

I hereby certify that the wording of this certificate is identical to the wording specified in 40 CFR 144.70(e) as such regulations were constituted on the date shown immediately below.

[Authorized signature of Insurer]
[Name of person signing]
[Title of person signing]
[Signature of witness or notary:]

_____
[Date]

(f) A letter from the chief financial officer, as specified in § 144.63(f) of this chapter, must be worded as follows, except that instructions in brackets are

to be replaced with the relevant information and the brackets deleted:

LETTER FROM CHIEF FINANCIAL OFFICER

[Address to Regional Administrator of every Region in which injection wells for which financial responsibility is to be demonstrated through the financial test are located.]

I am the chief financial officer of [name and address of firm.] This letter is in support of this firm's use of the financial test to demonstrate financial assurance, as specified in subpart F of 40 CFR part 144.

[Fill out the following four paragraphs regarding injection wells and associated cost estimates. If your firm has no injection wells that belong in a particular paragraph, write "None" in the space indicated. For each injection well, include its EPA Identification Number, name, address, and current plugging and abandonment cost estimate.]

1. This firm is the owner or operator of the following injection wells for which financial assurance for plugging and abandonment is demonstrated through the financial test specified in subpart F of 40 CFR part 144. The current plugging and abandonment cost estimate covered by the test is shown for each injection well: _____.

2. This firm guarantees, through the corporate guarantee specified in subpart F of 40 CFR part 144, the plugging and abandonment of the following injection wells owned or operated by subsidaries of this firm. The current cost estimate for plugging and abandonment so guaranteed is shown for each injection well: _____.

3. In States where EPA is not administering the financial requirements of subpart F of 40 CFR part 144, this firm, as owner or operator or guarantor, is demonstrating financial assurance for the plugging and abandoment of the following injection wells through the use of a test equivalent or substantially equivalent to the financial test specified in subpart F of 40 CFR part 144. The current plugging and abandonment cost estimate covered by such a test is shown for each injection well: _____.

4. This firm is the owner or operator of the following injection wells for which financial assurance for plugging and abandonment is not demonstrated either to EPA or a State through the financial test or any other financial assurance mechanism specified in subpart F of 40 CFR part 144 or equivalent or substantially equivalent State mechanisms. The current plugging and abandonment cost estimate not covered by such financial assurance is shown for each injection well: _____.

This firm [insert "is required" or "is not required"] to file a Form 10K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

The fiscal year of this firm ends on [month, day]. The figures for the following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year, ended [date].

[Fill in Alternative I if the criteria of paragraph (f)(1)(i) of § 144.63 of this chapter are used. Fill in Alternative II if the criteria of paragraph (f)(1)(ii) of § 144.63 of this chapter are used.]

ALTERNATIVE I

1. (a) Current plugging and abandonment cost	$_____
(b) Sum of the company's financial responsibilities under 40 CFR Parts 264 and 265, Subpart H, currently met using the financial test or corporate guarantee	_____
(c) Total of lines a and b	_____
*2. Total liabilities [if any portion of the plugging and abandonment cost is included in total liabilities, you may deduct the amount of that portion from this line and add that amount to lines 3 and 4]	_____
*3. Tangible net worth	_____
*4. Net worth	_____
*5. Current assets	_____
*6. Current liabilities	_____
*7. Net working capital [line 5 minus line 6]	_____
*8. The sum of net income plus depreciation, depletion and amortization	_____
*9. Total assets in U.S. (required only if less than 90% of firm's assets are located in U.S.)	_____

	Yes	No
10. Is line 3 at least $10 million?	_____	_____
11. Is line 3 at least 6 times line 1(c)?	_____	_____
12. Is line 7 at least 6 times line 1(c)?	_____	_____
*13. Are at least 90% of firm's assets located in the U.S.? If not, complete line 14.	_____	_____
14. Is line 9 at least 6 times line 1(c)?	_____	_____
15. Is line 2 divided by line 4 less than 2.0?	_____	_____
16. Is line 8 divided by line 2 greater than 0.1?	_____	_____
17. Is line 5 divided by line 6 greater than 1.5?	_____	_____

ALTERNATIVE II

1. (a) Current plugging and abandonment cost	$_____
(b) Sum of the company's financial responsibilities under 40 CFR Parts 264 and 265, Subpart H, currently met using the financial test or corporate guarantee	_____
(c) Total of lines a and b	_____
2. Current bond rating of most recent issuance of this firm and name of rating service	_____
3. Date of issuance of bond	_____
4. Date of maturity of bond	_____
*5. Tangible net worth [if any portion of the plugging and abandonment cost estimate is included in "total liabilities" on your firm's financial statements, you may add the amount of that portion to this line]	_____

ALTERNATIVE II—Continued

*6. Total assets in U.S. (required only if less than 90% of firm's assets are located in U.S.)		
	Yes	No
7. Is line 5 at least $10 million?		
8. Is line 5 at least 6 times line 1(c)?		
*9. Are at least 90% of the firm's		

[owner or operator] in the amount of the adjusted plugging and abandonment cost estimates prepared as specified in 40 CFR 144.62.

5. Guarantor agrees that, if at the end of any fiscal year before termination of this guarantee, the guarantor fails to meet the financial test criteria, guarantor will send within 90 days, by certified mail, notice to the EPA Regional Administrator(s) for the Region(s) in which the facility(ies) is (are)

11. Guarantor expressly waives notice of acceptance of this guarantee by the EPA or by [owner or operator]. Guarantor also expressly waives notice of amendments or modifications of the plugging and abandonment plan.

I hereby certify that the wording of this guarantee is identical to the wording specified in 40 CFR 144.70(f).

Effective date: _____.

[Name of guarantor]

[Authorized signature for guarantor]

[Type name of person signing]

[Title of person signing]

Signature of witness or notary: _____

[48 FR 14189, Apr. 1, 1983, as amended at 59 FR 29959, June 10, 1994]

Subpart G—Requirements for Owners and Operators of Class V Injection Wells

SOURCE: 64 FR 68566, Dec. 7, 1999, unless otherwise noted.

§ 144.79 General.

This subpart tells you what requirements apply if you own or operate a Class V injection well. You may also be required to follow additional requirements listed in the rest of this part. Where they may apply, these other requirements are referenced rather than repeated. The requirements described in this subpart and elsewhere in this part are to protect underground sources of drinking water and are part of the Underground Injection Control (UIC) Program established under the Safe Drinking Water Act. This subpart

mile of the well bore, an underground source of drinking water.

(2) Other industrial and municipal disposal wells which inject fluids beneath the lowermost formation containing, within one quarter mile of the well bore, an underground source of drinking water;

(3) Radioactive waste disposal wells which inject fluids below the lowermost formation containing an underground source of drinking water within one quarter mile of the well bore.

(b) *Class II.* Wells which inject fluids:

(1) Which are brought to the surface in connection with natural gas storage operations, or conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection.

(2) For enhanced recovery of oil or natural gas; and

(3) For storage of hydrocarbons which are liquid at standard temperature and pressure.

(c) *Class III.* Wells which inject fluids for extraction of minerals including:

(1) Mining of sulfur by the Frasch process;

(2) *In situ* production of uranium or other metals; this category includes only in situ production from ore bodies which have not been conventionally mined. Solution mining of conventional mines such as stopes leaching is included in Class V.

above a formation which within one quarter (¼) mile of the well contains an underground source of drinking water.

(3) Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to dispose of hazardous waste, which cannot be classified under paragraph (a)(1) or (d)(1) and (2) of this section (e.g., wells used to dispose of hazardous waste into or above a formation which contains an aquifer which has been exempted pursuant to 40 CFR 146.04).

(e) *Class V.* Injection wells not included in Class I, II, III or IV. Typically, Class V wells are shallow wells used to place a variety of fluids directly below the land surface. However, if the fluids you place in the ground qualify as a hazardous waste under the Resource Conservation and Recovery Act (RCRA), your well is either a Class I or Class IV well, not a Class V well. Examples of Class V wells are described in § 144.81.

§ 144.81 Does this subpart apply to me?

This subpart applies to you if you own or operate a Class V well, for example:

(1) Air conditioning return flow wells used to return to the supply aquifer the water used for heating or cooling in a heat pump;

(2) Large capacity cesspools including multiple dwelling, community or regional cesspools, or other devices that receive sanitary wastes, containing human excreta, which have an open bottom and sometimes perforated sides. The UIC requirements do not apply to single family residential cesspools nor to non-residential cesspools which receive solely sanitary waste and have the capacity to serve fewer than 20 persons a day.

(3) Cooling water return flow wells used to inject water previously used for cooling;

(4) Drainage wells used to drain surface fluids, primarily storm runoff, into a subsurface formation;

(5) Dry wells used for the injection of wastes into a subsurface formation;

(6) Recharge wells used to replenish the water in an aquifer;

(7) Salt water intrusion barrier wells used to inject water into a fresh aquifer to prevent the intrusion of salt water into the fresh water;

(8) Sand backfill and other backfill wells used to inject a mixture of water and sand, mill tailings or other solids into mined out portions of subsurface mines whether what is injected is a radioactive waste or not.

(9) Septic system wells used to inject the waste or effluent from a multiple dwelling, business establishment, community or regional business establishment septic tank. The UIC requirements do not apply to single family residential septic system wells, nor to non-residential septic system wells which are used solely for the disposal of sanitary waste and have the capacity to serve fewer than 20 persons a day.

(10) Subsidence control wells (not used for the purpose of oil or natural gas production) used to inject fluids into a non-oil or gas producing zone to reduce or eliminate subsidence associated with the overdraft of fresh water;

(11) Injection wells associated with the recovery of geothermal energy for heating, aquaculture and production of electric power;

(12) Wells used for solution mining of conventional mines such as stopes leaching;

(13) Wells used to inject spent brine into the same formation from which it was withdrawn after extraction of halogens or their salts;

(14) Injection wells used in experimental technologies.

(15) Injection wells used for in situ recovery of lignite, coal, tar sands, and oil shale.

(16) Motor vehicle waste disposal wells that receive or have received fluids from vehicular repair or maintenance activities, such as an auto body repair shop, automotive repair shop, new and used car dealership, specialty repair shop (*e.g.*, transmission and muffler repair shop), or any facility that does any vehicular repair work. Fluids disposed in these wells may contain organic and inorganic chemicals in concentrations that exceed the maximum contaminant levels (MCLs) established by the primary drinking water regulations (see 40 CFR part 141). These fluids also may include waste petroleum

products and may contain contaminants, such as heavy metals and volatile organic compounds, which pose risks to human health.

[64 FR 68566, Dec. 7, 1999, as amended at 67 FR 39593, June 7, 2002]

REQUIREMENTS FOR ALL CLASS V INJECTION WELLS

§ 144.82 What must I do to protect underground sources of drinking water?

If you own or operate any type of Class V well, the regulations below require that you cannot allow movement of fluid into USDWs that might cause endangerment, you must comply with other Federal UIC requirements in 40 CFR parts 144 through 147, and you must comply with any other measures required by your State or EPA Regional Office UIC Program to protect USDWs, and you must properly close your well when you are through using it. You also must submit basic information about your well, as described in § 144.83.

(a) *Prohibition of fluid movement.* (1) As described in § 144.12(a), your injection activity cannot allow the movement of fluid containing any contaminant into USDWs, if the presence of that contaminant may cause a violation of the primary drinking water standards under 40 CFR part 141, other health based standards, or may otherwise adversely affect the health of persons. This prohibition applies to your well construction, operation, maintenance, conversion, plugging, closure, or any other injection activity.

(2) If the Director of the UIC Program in your State or EPA Region learns that your injection activity may endanger USDWs, he or she may require you to close your well, require you to get a permit, or require other actions listed in § 144.12(c), (d), or (e).

(b) *Closure requirements.* You must close the well in a manner that complies with the above prohibition of fluid movement. Also, you must dispose or otherwise manage any soil, gravel, sludge, liquids, or other materials removed from or adjacent to your well in accordance with all applicable Federal, State, and local regulations and requirements.

(c) *Other requirements in Parts 144 through 147.* Beyond this subpart, you are subject to other UIC Program requirements in 40 CFR parts 144 through 147. While most of the relevant requirements are repeated or referenced in this subpart for convenience, you need to read these other parts to understand the entire UIC Program.

(d) *Other State or EPA requirements.* 40 CFR parts 144 through 147 define minimum Federal UIC requirements. EPA Regional Offices administering the UIC Program have the flexibility to establish additional or more stringent requirements based on the authorities in parts 144 through 147, if believed to be necessary to protect USDWs. States can have their own authorities to establish additional or more stringent requirements if needed to protect USDWs. You must comply with these additional requirements, if any exist in your area. Contact the UIC Program Director in your State or EPA Region to learn more.

§ 144.83 Do I need to notify anyone about my Class V injection well?

Yes, you need to provide basic "inventory information" about your well to the UIC Director, if you haven't already. You also need to provide any additional information that your UIC Program Director requests in accordance with the provisions of the UIC regulations.

(a) *Inventory requirements.* Unless you know you have already satisfied the inventory requirements in § 144.26 that were in effect prior to the issuance of this Subpart G, you must give your UIC Program Director certain information about yourself and your injection operation.

NOTE: This information is requested on national form "Inventory of Injection Wells," OMB No. 2040-0042.

(1) The requirements differ depending on your well status and location, as described in the following table:

If your well is . . .	And you're in one of these locations ("Primacy" States, where the State runs the Class V UIC Program): Alabama, Arkansas, Commonwealth of Northern Mariana Islands, Connecticut, Delaware, Florida, Georgia, Guam, Idaho, Illinois, Kansas, Louisiana, Maine, Maryland, Massachusetts, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Puerto Rico, Rhode Island, South Carolina, Texas, Utah, Vermont, Washington, West Virginia, Wisconsin, or Wyoming	Or you're in one of these locations ("Direct Implementation" or DI Programs, where EPA runs the Class V UIC Program): Alaska, American Samoa, Arizona, California, Colorado, Hawaii, Indiana, Iowa, Kentucky, Michigan, Minnesota, Montana, New York, Pennsylvania, South Dakota, Tennessee, Virginia, Virgin Islands, Washington, DC, or any Indian Country
(i) New (prior to construction of your well)	. . . then you must contact your State UIC Program to determine what you must submit and by when..	. . . then you must submit the inventory information described in (a)(2) of this section prior to constructing your well.
(ii) Existing (construction underway or completed).	. . . then you must contact your State UIC Program to determine what you must submit and by when..	. . . then you must cease injection and submit the inventory information. You may resume injection 90 days after you submit the information unless the UIC Program Director notifies you that injection may not resume or may resume sooner.

(2) If your well is in a Primacy State or a DI Program State, here is the information you must submit:

(i) No matter what type of Class V well you own or operate, you must submit at least the following information for each Class V well: facility name and location; name and address of legal contact; ownership of facility; nature and type of injection well(s); and operating status of injection well(s).

(ii) *Additional information.* If you are in a Direct Implementation State and you own or operate a well listed below you must also provide the information listed in paragraph (a) (2) (iii) as follows:

(A) Sand or other backfill wells (40 CFR 144.81(8) and 146.5(e)(8) of this chapter);

(B) Geothermal energy recovery wells (40 CFR 144.81(11) and 146.5 (e)(12) of this chapter);

(C) Brine return flow wells (40 CFR 144.81(13) and 146.5 (e)(14) of this chapter);

(D) Wells used in experimental technology (40 CFR 144.81(14) and 146.5 (e) (15) of this chapter);

(E) Municipal and industrial disposal wells other than Class I; and

(F) Any other Class V wells at the discretion of the Regional Administrator.

(iii) You must provide a list of all wells owned or operated along with the following information for each well. (A single description of wells at a single facility with substantially the same characteristics is acceptable).

(A) Location of each well or project given by Township, Range, Section, and Quarter-Section, or by latitude and longitude to the nearest second, according to the conventional practice in your State;

(B) Date of completion of each well;

(C) Identification and depth of the underground formation(s) into which each well is injecting;

(D) Total depth of each well;

(E) Construction narrative and schematic (both plan view and cross-sectional drawings);

(F) Nature of the injected fluids;

(G) Average and maximum injection pressure at the wellhead;

(H) Average and maximum injection rate; and

(I) Date of the last inspection.

(3) Regardless of whether your well is in a Primacy State or DI Program you are responsible for knowing about, understanding, and complying with these inventory requirements.

(b) *Information in response to requests.* If you are in one of the DI Programs listed in the table above, the UIC Program Director may require you to submit other information believed necessary to protect underground sources of drinking water.

(1) Such information requirements may include, but are not limited to:

(i) Perform ground water monitoring and periodically submit your monitoring results;

(ii) Analyze the fluids you inject and periodically submit the results of your analyses;

(iii) Describe the geologic layers through which and into which you are injecting; and

(iv) Conduct other analyses and submit other information, if needed to protect underground sources of drinking water.

(2) If the Director requires this other information, he or she will request it from you in writing, along with a brief statement on why the information is required. This written notification also will tell you when to submit the information.

(3) You are prohibited from using your injection well if you fail to comply with the written request within the time frame specified. You can start injecting again only if you receive a permit.

§ 144.84 Do I need to get a permit?

No, unless you fall within an exception described below:

(a) *General authorization by rule.* With certain exceptions listed in paragraph (b) of this section, your Class V injection activity is "authorized by rule," meaning you have to comply with all the requirements of this subpart and the rest of the UIC Program but you don't have to get an individual permit. Well authorization expires once you have properly closed your well, as described in § 144.82(b).

(b) *Circumstances In Which Permits or other Actions are Required.* If you fit into one of the categories listed below, your Class V well is no longer authorized by rule. This means that you have to either get a permit or close your injection well. You can find out by contacting the UIC Program Director in your State or EPA Region if this is the case. Subpart D of this Part tells you how to apply for a permit and describes other aspects of the permitting proc-

which case, you have to get a permit, close your well, and/or comply with other conditions determined by the UIC Program Director in your State or EPA Region);

(2) You own or operate a Class V large-capacity cesspool (in which case, you must close your well as specified in the additional requirements below) or a Class V motor vehicle waste disposal well in a ground water protection area or sensitive ground water area (in which case, you must either close your well or get a permit as specified in the additional requirements in this subsection). New motor vehicle waste disposal wells and new cesspools are prohibited as of April 5, 2000;

(3) You are specifically required by the UIC Program Director in your State or EPA Region to get a permit (in which case, rule authorization expires upon the effective date of the permit issued, or you are prohibited from injecting into your well upon:

(i) Failure to submit a permit application in a timely manner as specified in a notice from the Director; or

(ii) Upon the effective date of permit denial);

(4) You have failed to submit inventory information to your UIC Program Director, as described in § 144.83(a) (in which case, you are prohibited from injecting into your well until you comply with the inventory requirements); or

(5) If you are in a DI State and you received a request from your UIC Program Director for additional information under § 144.83(b), and have failed to comply with the request in a timely manner (in which case, you are prohibited from injecting into your well until you get a permit).

ADDITIONAL REQUIREMENTS FOR CLASS V LARGE-CAPACITY CESSPOOLS AND MOTOR VEHICLE WASTE DISPOSAL WELLS

§ 144.85 Do these additional requirements apply to me?

(a) *Large-Capacity Cesspools.* The ad-

(b) *Motor Vehicle Waste Disposal Wells Existing on April 5, 2000.* If you have a Class V motor vehicle waste disposal well these requirements apply to you if your well is located in a ground water protection area or other sensitive ground water area that is identified by your State or EPA Region. If your State or EPA Region fails to identify ground water protection areas and/or other sensitive ground water areas these requirements apply to all Class V motor vehicle wells in the State.

(c) *New Motor Vehicle Waste Disposal Wells.* The additional requirements apply to all new motor vehicle waste disposal wells as of April 5, 2000.

§ 144.86 What are the definitions I need to know?

(a) *State Drinking Water Source Assessment and Protection Program.* This is a new approach to protecting drinking water sources, specified in the 1996 Amendments to the Safe Drinking Water Act at Section 1453. States must prepare and submit for EPA approval a program that sets out how States will conduct local assessments, including: delineating the boundaries of areas providing source waters for public water systems; identifying significant potential sources of contaminants in such areas; and determining the susceptibility of public water systems in the delineated areas to the inventoried sources of contamination.

(b) *Complete Local Source Water Assessment for Ground Water Protection Areas.* When EPA has approved a State's Drinking Water Source Assessment and Protection Program, States will begin to conduct local assessments for each public water system in their State. For the purposes of this rule, local assessments for community water systems and non-transient non-community systems are complete when four requirements are met: First, a State must delineate the boundaries of the assessment area for community and non-transient non-community water systems. Second, the State must identify significant potential sources of contamination in these delineated areas. Third, the State must "determine the susceptibility of community and non-transient non-community water systems in the delineated area to such contaminants." Lastly, each State will develop its own plan for making the completed assessments available to the public.

(c) *Ground Water Protection Area.* A ground water protection area is a geographic area near and/or surrounding community and non-transient non-community water systems that use ground water as a source of drinking water. These areas receive priority for the protection of drinking water supplies and States are required to delineate and assess these areas under section 1453 of the Safe Drinking Water Act. The additional requirements in § 144.88 apply to you if your Class V motor vehicle waste disposal well is in a ground water protection area for either a community water system or a non-transient non-community water system, in many States, these areas will be the same as Wellhead Protection Areas that have been or will be delineated as defined in section 1428 of the SDWA.

(d) *Community Water System.* A community water system is a public water system that serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

(e) *Non-transient Non-community Water System.* A public water system that is not a community water system and that regularly serves at least 25 of the same people over six months a year. These may include systems that provide water to schools, day care centers, government/military installations, manufacturers, hospitals or nursing homes, office buildings, and other facilities.

(f) *Delineation.* Once a State's Drinking Water Source Assessment and Protection Program is approved, the States will begin delineating their local assessment areas. Delineation is the first step in the assessment process in which the boundaries of ground water protection areas are identified.

(g) *Other Sensitive Ground Water Areas.* States may also identify other areas in the State in addition to ground water protection areas that are critical to protecting underground sources of drinking water from contamination. These other sensitive ground water areas may include areas

such as areas overlying sole-source aquifers; highly productive aquifers supplying private wells; continuous and highly productive aquifers at points distant from public water supply wells; areas where water supply aquifers are recharged; karst aquifers that discharge to surface reservoirs serving as public water supplies; vulnerable or sensitive hydrogeologic settings, such as glacial outwash deposits, eolian sands, and fractured volcanic rock; and areas of special concern selected based on a combination of factors, such as hydrogeologic sensitivity, depth to ground water, significance as a drinking water source, and prevailing land-use practices.

§ 144.87 How does the identification of ground water protection areas and other sensitive ground water areas affect me?

(a) You are subject to these new requirements if you own or operate an existing motor vehicle well and you are located in a ground water protection area or an other sensitive ground water area. If your State or EPA Region fails to identify these areas within the specified time frames these requirements apply to all existing motor vehicle waste disposal wells within your State.

(b) *Ground Water Protection Areas.* (1) For the purpose of this subpart, States are required to complete all local source water assessments for ground water protection areas by January 1, 2004. Once a local assessment for a ground water protection area is complete every existing motor vehicle waste disposal well owner in that ground water protection area has one year to close the well or receive a permit. If a State fails to complete all local assessments for ground water protection areas by January 1, 2004, the following may occur:

(i) The new requirements in this subpart will apply to all existing motor vehicle waste disposal wells in the State and owners and operators of motor vehicle waste disposal wells located outside of completed assessments for ground water protection areas must close their well or receive a permit by January 1, 2005.

(ii) EPA may grant a State an extension for up to one year from the January 1, 2004 deadline if the State is making reasonable progress in completing the source water assessments for ground water protection areas. States must apply for the extension by June 1, 2003. If a State fails to complete the assessments for the remaining ground water protection areas by the extended date the rule requirements will apply to all motor vehicle waste disposal wells in the State and owners and operators of motor vehicle waste disposal wells located outside of ground water protection areas with completed assessments must close their well or receive a permit by January 1, 2006.

(2) The UIC Program Director may extend the compliance deadline for specific motor vehicle waste disposal wells for up to one year if the most efficient compliance option for the well is connection to a sanitary sewer or installation of new treatment technology.

(c) *Other Sensitive Ground Water Areas.* States may also delineate other sensitive ground water areas by January 1, 2004. Existing motor vehicle waste disposal well owners and operators within other sensitive ground water areas have until January 1, 2007 to receive a permit or close the well. If a State or EPA Region fails to identify these additional sensitive ground water areas by January 1, 2004, the new requirements of this rule will apply to all motor vehicle waste disposal wells in the State effective January 1, 2007 unless they are subject to a different compliance date pursuant to paragraph (b) of this section. Again, EPA may extend the January 1, 2004 deadline for up to one year for States to delineate other sensitive ground water areas if the State is making reasonable progress in identifying the sensitive areas. States must apply for this extension by June 1, 2003. If a State has been granted an extension, existing motor vehicle waste disposal well owners and operators within the sensitive ground water areas have until January 1, 2008 to close the well or receive a permit, unless they are subject to a different compliance date pursuant to paragraph (b) of this section. If a State has been granted an extension and fails to delineate sensitive areas by the extended date, the rule requirements will apply to all motor vehicle waste disposal

wells in the State and owners and operators have until January 1, 2008 to close the well or receive a permit, unless they are subject to a different compliance date pursuant to paragraph (b) of this section.

(d) *How to Find Out if Your Well is in a Ground Water Protection Area or Sensitive Ground Water Area.* States are required to make their local source water assessments widely available to the public through a variety of methods after the assessments are complete. You can find out if your Class V well is in a ground water protection area by contacting the State agency responsible for the State Drinking Water Source Assessment and Protection Program in your area. You may call the Safe Drinking Water Hotline at 1-800-426-4791 to find out who to call in your State for this information. The State office responsible for implementing the Drinking Water Source Assessment and Protection Program makes the final and official determination of boundaries for ground water protection areas. Because States that choose to delineate other sensitive ground water areas are also required to make the information on these areas accessible to the public, they may do so in a manner similar to the process used by the States in publicizing the EPA approved Drinking Water Source Assessment and Protection Program. You can find out if your Class V well is in an other sensitive ground water area by contacting the State or Federal agency responsible for the Underground Injection Control Program. You may call the Safe Drinking Water Hotline at 1-800-426-4791 to find out who to call for information.

(e) *Changes in the Status of the EPA Approved State Drinking Water Source Assessment and Protection Program.* After January 1, 2004 your State may assess a ground water protection area for ground water supplying a new community water system or a new non-transient non-community water system that includes your Class V injection well. Also, your State may officially re-delineate the boundaries of a previously delineated ground water protection area to include additional areas that includes your motor vehicle waste disposal well. This would make the additional regulations apply to you if your motor vehicle waste disposal well is in such an area. The additional regulations start applying to you one year after the State completes the local assessment for the ground water protection area for the new drinking water system or the new re-delineated area. The UIC Program Director responsible for your area may extend this deadline for up to one year if the most efficient compliance option for the well is connection to a sanitary sewer or installation of new treatment technology.

(f) *What Happens if My State Doesn't Designate Other Sensitive Ground Water Areas?* If your State or EPA Region elects not to delineate the additional sensitive ground water areas, the additional regulations apply to you regardless of the location of your well by January 1, 2007, or January 2008 if an extension has been granted as explained in paragraph (c) of this section, except for wells in ground water protection areas which are subject to different compliance deadlines explained in paragraph (b) of this section.

(g) [Reserved]

(h) *Application of Requirements Outside of Ground Water Protection Areas and Sensitive Ground Water Areas.* EPA expects and strongly encourages States to use existing authorities in the UIC program to take whatever measures are needed to ensure Class V wells are not endangering USDWs in any other areas outside of delineated ground water protection areas and sensitive ground water areas. Such measures could include, if believed to be necessary by a UIC Program Director, applying the additional requirements below to other areas and/or other types of Class V wells. Therefore, the Director may apply the additional requirements to you, even if you are not located in the areas listed in paragraph (a) of this section.

§ 144.88 What are the additional requirements?

The additional requirements are specified in the following tables:

(a) TABLE 1—ADDITIONAL REQUIREMENTS FOR LARGE-CAPACITY CESSPOOLS STATEWIDE

[See § 144.85 to determine if these additional requirements apply to you]

Well Status	Requirement	Deadline
If your cesspool is. . .	Then you. . .	By. . .
(1) Existing (operational or under construction by April 5, 2000).	(i) Must close the well	April 5, 2005.
	(ii) Must notify the UIC Program Director (both Primacy States and Direct Implementation States) of your intent to close the well.. Note: This information is requested on national form "Preclosure Notification for Closure of Injection Wells,".	At least 30 days prior to closure.
(2) New or converted (construction not started before April 5, 2000).	Are prohibited	April 5, 2000.

(b) TABLE 2—ADDITIONAL REQUIREMENTS FOR MOTOR VEHICLE WASTE DISPOSAL WELLS

[See § 144.85 to determine if these additional requirements apply to you]

Well status	Requirement	Deadline
If your motor vehicle waste disposal well is	Then. . .	By. . .
(1) Existing (operational or under construction by April 5, 2000).	(i) If your well is in a ground water protection area, you must close the well or obtain a permit.	Within 1 year of the completion of your local source water assessment; your UIC Program Director may extend the closure deadline, but not the permit application deadline, for up to one year if the most efficient compliance option is connection to a sanitary sewer or installation of new treatment technology.
	(ii) If your well is in an other sensitive ground water area, you must close the well or obtain a permit.	By January 1, 2007; your UIC Program Director may extend the closure deadline, but not the permit application deadline, for up to one year if the most efficient compliance option is connection to a sanitary sewer or installation of new treatment technology.
	(iii) If you plan to seek a waiver from the ban and apply for a permit, you must meet MCLs at the point of injection while your permit application is under review, if you choose to keep operating your well.	The date you submit your permit application.
	(iv) If you receive a permit, you must comply with all permit conditions, if you choose to keep operating your well, including requirements to meet MCLs and other health based standards at the point of injection, follow best management practices, and monitor your injectate and sludge quality.	The date(s) specified in your permit.
	(v) If your well is in a State which has not completed all their local assessments by January 1, 2004 or by the extended date if your State has obtained an extension as described in 144.87, and you are outside an area with a completed assessment you must close the well or obtain a permit.	January 1, 2005 unless your State obtains an extension as described in 144.87 (b) in which case your deadline is January 1, 2006; your UIC Program Director may extend the closure deadline, but not the permit application deadline, for up to one year if the most efficient compliance option is connection to a sanitary sewer or installation of new treatment technology.

(b) TABLE 2—ADDITIONAL REQUIREMENTS FOR MOTOR VEHICLE WASTE DISPOSAL WELLS—Continued

[See § 144.85 to determine if these additional requirements apply to you]

Well status	Requirement	Deadline
If your motor vehicle waste disposal well is	Then. . .	By. . .
	(vi) If your well is in a State that has not delineated other sensitive ground water areas by January 1, 2004 and you are outside of an area with a completed assessment you must close the well or obtain a permit regardless of your location.	January 1, 2007 unless your State obtains an extension as described in 144.87(c) in which case your deadline is January 2008.
	(vii) If you plan to close your well, you must notify the UIC Program Director of your intent to close the well (this includes closing your well prior to conversion). Note: This information is requested on national form "Preclosure Notification for Closure of Injection Wells"..	At least 30 days prior to closure.
(2) New or converted (construction not started before April 5, 2000).	Are prohibited	April 5, 2000.

[64 FR 68566, Dec. 7, 1999; 64 FR 70316, Dec. 16, 1999]

§ 144.89 How do I close my Class V in- and recycling petroleum-based fluids,

physical barriers and are not allowed to enter the well; and, injection of motor vehicle waste is unlikely based on a facility's compliance history and records showing proper waste disposal. The use of a semi-permanent plug as the means to segregate waste is not sufficient to convert a motor vehicle waste disposal well to another type of Class V well.

[64 FR 68566, Dec. 7, 1999; 65 FR 5024, Feb. 2, 2000]

PART 145—STATE UIC PROGRAM REQUIREMENTS

Subpart A—General Program Requirements

Sec.
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145.2 Definitions.

Subpart B—Requirements for State Programs

145.11 Requirements for permitting.
145.12 Requirements for compliance evaluation programs.
145.13 Requirements for enforcement authority.
145.14 Sharing of information.

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Subpart D—Program Approval, Revision and Withdrawal

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145.33 Criteria for withdrawal of State programs.
145.34 Procedures for withdrawal of State programs.

Subpart E—Indian Tribes

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145.56 Request by an Indian Tribe for a determination of eligibility.
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AUTHORITY: 42 U.S.C. 300f *et seq.*

SOURCE: 48 FR 14202, Apr. 1, 1983, unless otherwise noted.

Subpart A—General Program Requirements

§ 145.1 Purpose and scope.

(a) This part specifies the procedures EPA will follow in approving, revising, and withdrawing State programs under section 1422 (underground injection control—UIC) of SDWA, and includes the elements which must be part of submissions to EPA for program approval and the substantive provisions which must be present in State programs for them to be approved.

(b) State submissions for program approval must be made in accordance with the procedures set out in subpart C. This includes developing and submitting to EPA a program description (§ 145.23), an Attorney General's Statement (§ 145.24), and a Memorandum of Agreement with the Regional Administrator (§ 145.25).

(c) The substantive provisions which must be included in State programs to obtain approval include requirements for permitting, compliance evaluation, enforcement, public participation, and sharing of information. The requirements are found in subpart B. Many of the requirements for State programs are made applicable to States by cross-referencing other EPA regulations. In particular, many of the provisions of parts 144 and 124 are made applicable to States by the references contained in § 145.11.

(d) Upon submission of a complete program, EPA will conduct a public hearing, if interest is shown, and determine whether to approve or disapprove the program taking into consideration the requirements of this part, the Safe Drinking Water Act and any comments received.

(e) Upon approval of a State program, the Administrator shall suspend the issuance of Federal permits for those activities subject to the approved State program.

(f) Any State program approved by the Administrator shall at all times be conducted in accordance with the requirements of this part.

(g) Nothing in this part precludes a State from:

(1) Adopting or enforcing requirements which are more stringent or

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Environmental PROTECTION
Management And Problem Solving For Environmental Professionals

News & Trends

EDR report looks at issues facing environmental consultants

Purchasers of commercial real estate who seek environmental liability protection under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as superfund, will for the first time be required to follow federal guidelines for property screening or risk losing liability protection-perhaps as early as year-end 2005. EPA's impending "All Appropriate Inquires (AAI)" rule not only specifies how a Phase I environmental site assessment (ESA) must be conducted, but who is qualified to conduct one. With implications for every commercial real estate transaction, the proposed AAI rule has environmental professionals who conduct ESAs gearing up for change.

According to Environmental Data Resources' 2005 Environmental Site Assessment Industry Benchmark Report, three out of four environmental consultants predict that the AAI rule will require a greater level of effort compared to current Phase I ESA practices. One in seven consultants, according to the report, falls short of EPA's definition of "environmental professional." By shrinking the pool of qualified consultants and adding new research and documentation requirements, the AAI rule, if finalized in its draft form, will drive up prices for Phase I ESAs, predict 85 percent of environmental consultants surveyed by EDR's Market Research Group. Nine percent predict a jump of 20 percent or more.

Regulatory change is only one of the major challenges faced by environmental consultants performing Phase I ESAs on commercial real estate transactions, according to the report. In response to a growing awareness of the impact environmental issues can have on property values, purchasers of commercial property are increasingly requesting add-on assessment services like asbestos and lead-based paint screenings. Mold assessments in particular are on the rise, with 66 percent of survey respondents reporting greater demand today than just one year ago. The number of ESAs conducted annually is also increasing: 31 percent of respondents report higher demand from commercial lenders in 2004 over 2003, and one in four reports more work from corporate clients. Even as the scope and number of Phase I ESAs are growing, clients are requesting faster turnaround times. The percentage of consultants completing their ESA reports in less than 20 hours increased from 43 percent since EDR's last benchmarking survey was conducted in 2002 to just over 50 percent in 2004. To meet that demand, consultants have stepped up their efforts to explore, and even invest in, technologies to streamline the Phase I ESA process. More prevalent, according to the report, is the use of new technologies such as hand-held personal digital assistants (one in ten respondents), and ESA report-writing platforms (nine percent). Significantly, 47 percent of consultants who do not yet use a platform expect to do so in the future -- 17 percent in the next two years.

"Growing pressure from clients to do more in less time and the proposed requirements of the federal AAI rule are converging to create an intensely challenging market for Phase I ESA providers," said Dianne Crocker, senior economist and managing director of EDR's Market Research Group. "Consultants who are preparing now for the new requirements and keeping abreast of technological developments have a distinct competitive edge."

Another early development in the Phase I ESA market highlighted in the report is the impact of the

Sarbanes-Oxley Act (SOX), which has elevated the importance of financial disclosures about all types of risk, including environmental risk. Although the link between SOX and environmental due diligence is still new, EDR's survey results indicate that clients are starting to ask their consultants to tap into prior site assessments for critical information about their environmental risk exposure. With the threat of criminal prosecution for non-compliance, SOX could represent a new market for consultants whose corporate clients need to track environmental risk, the survey indicates.

About the Report

Between August 12 and September 3, 2004, EDR surveyed nearly 360 environmental consultants at 283 unique companies, of all sizes in all geographic regions of the United States. The survey gathered information on industry trends, pricing, technology use and reactions to the developing federal AAI rule.

EDR's 2005 Environmental Site Assessment Industry Benchmark Report delivers the survey findings in more than 70 pages of comprehensive facts, data and timely analysis on the state of today's environmental due diligence practices. The report can be purchased online, and free sample excerpts are available, at http://www.edrnet.com/EPbenchmark/info.htm.

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Cover Story : Property Environmental Due Diligence: AAI vs. ASTM

AMBER ALERT: This is the Code Amb

Pollution

compromise, the committee reached consensus on Nov. 14, 2003. Based on the draft AAI rule, it is clear that property environmental due diligence requirements will change. While there are many similarities to the ASTM standard, there also are a number of key differences (see **Table 1**). This article will focus on the major and conditional differences between the two sets of requirements, so that those involved in the industry can better prepare for the new rule before its promulgation.

Defenses to CERCLA liability

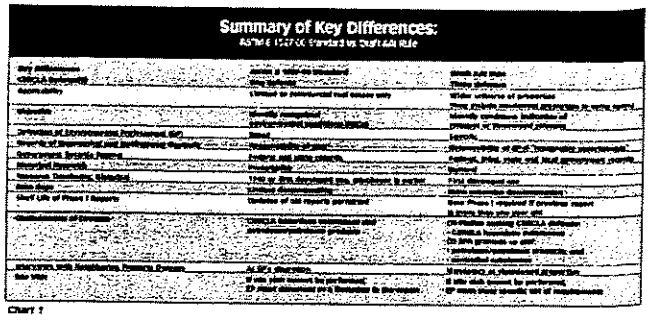

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Table 1

In addition to amending the existing innocent landowner defense, the Federal Brownfields Law added the following two new landowner liability protections:

- The Bona Fide Prospective Purchaser defense creates, for the first time, liability protection for a property owner who knowingly purchases a contaminated property, provided the owner can demonstrate that contamination on-site occurred prior to purchase.
- The Contiguous Property Owner defense provides liability protection for the owner from contamination caused by the migration of hazardous substances from an adjacent property, provided the owner demonstrates that he/she did not know of the contamination on his/her property at the time of purchase.

To qualify for CERCLA liability protections, a property owner must meet certain conditions, not the least of which is conducting an AAI before purchase. Hence, a proper AAI provides the ability to recognize and respond to all of these liability protections, while ASTM currently recognizes and responds only to one (although the ASTM standard is now in the process of being revised).

Applicability

The draft AAI rule applies to a wider universe of properties than the ASTM standard. While the ASTM standard is limited solely to commercial properties, the draft AAI rule extends well beyond brownfield sites, and even beyond commercial properties. Owners of any residential property used for commercial purposes (irrespective of the number of units), as well as residential properties under government ownership, will now need to conduct a Phase I investigation under the AAI rule in order to be protected from a CERCLA liability. Moreover, AAI will be mandatory for individuals whose ESAs are funded under the EPA's brownfields program.

Definition of environmental professional

The definition of an environmental professional (EP) in the draft AAI rule raises the bar beyond ASTM in an effort to discourage those who lack sufficient education, federal or state licensing or relevant experience from conducting environmental inquiries. To qualify, one needs to: be a licensed P.E. or P.G. license with three years relevant experience; hold a government license to perform environmental inquiries with three years relevant experience; or have a baccalaureate (or higher) degree in engineering, environmental science or earth science with five years relevant experience. The rule also "grandfathers" any EPs with a baccalaureate degree or higher and 10 years relevant experience. "Relevant experience" is defined as "participation in the performance of ESAs that may include environmental analyses, investigations and remediation which involve the understanding of surface and subsurface environmental conditions and the processes used to evaluate these conditions." EPs are also required "to remain current in his or her field through participation in continuing education or other activities and should be able to demonstrate such efforts." It is important to note that the draft rule does allow individuals who do not meet the EP definition to perform AAI tasks, provided they are under "the supervision or responsible charge" of someone who does. Clearly, the experience of individuals in the field will still be critical in terms of making accurate observations and asking the right questions, regardless of who reviews the final report. To ensure at least some level of accountability, the draft rule also requires that the inquiry include a signed declaration by the EP(s) stating that the rule's professional criteria were met.

Broader government records review

Government Records Review:

ASTM E 1527-00 Standard vs Draft AAI Rule

- **Tribal and local government records**
  A second significant expansion in the draft AAI rule's requirements is the mandatory review of "reasonably ascertainable" records maintained by Indian tribes and local government agencies. ASTM categorizes federal and state government records as mandatory sources, but leaves the review of other sources, such as tribal and local government records, up to the EP's judgment. Although the AAI rule does not reference specific tribal and local databases to be researched, it doesn't [illegible]

concerns that the rule could become obsolete over time if new databases [illegible]

- **Research interval**
  With respect to conducting historical research, ASTM is more prescriptive on the sources that must be investigated and the process to be used (e.g., "use as many of the standard historical sources as necessary..."), whereas AAI essentially leaves decisions about the sources and extent of research to the EP's discretion. ASTM also goes so far as to define industry practice as guidance for the EP with respect to the research interval or gap, i.e., "review of standard historical sources at less than approximately five-year intervals is not required." The industry has for the most part translated this into five-year intervals, except under specific situations (also defined in the ASTM standard). AAI, on the other hand, provides no guidance and leaves this issue entirely up to what can be collected by the EP, as well as his/her opinion about it with respect to drawing conclusions related to past uses of the property. In today's competitive market environment, it is not inconceivable that considerable liberty may be taken, which could adversely impact the quality of historical research under AAI. This is particularly unfortunate because allegations of inadequate historical research are one of the most common causes of litigation against Phase I consultants.

- **Data gaps**
  The draft AAI rule requires the EP to document any data gaps that remain after examining all "reasonably ascertainable" sources and explain the reason for such gaps (as under ASTM E 1527-00's Section 7.3.2, Uses of the Property). The AAI rule then goes further by requiring the EP's report to expressly identify the sources consulted to address such data gaps and comment upon their significance with respect to the inquiry. If a data gap prevents the EP from reaching an opinion on the subject property, such information must also be documented.

- **Shelf life**
  Both the ASTM standard and draft AAI rule are consistent in giving the site visit, interviews and records review a six-month shelf life. However, the draft AAI rule is more stringent than ASTM. A five-year-old Phase I ESA report could still be used under ASTM if the necessary updates are made, but under the draft AAI rule, if the assessment is more than one year-old, the user may no longer rely on it.

Conditional differences

There are a number of differences between the draft AAI rule and ASTM that represent new requirements for EPs beyond current practice, but will only apply under certain conditions.

Contaminants of concern

There are a number of differences between the draft AAI rule and ASTM that represent new requirements for EPs beyond current practice, but will only apply under certain conditions.

Contaminants of concern

Under §312.1(c)(1) of the draft AAI rule, if the environmental inquiry is being conducted to qualify a property owner for one of the three liability protections, the EP must "identify conditions indicative of releases or threatened releases of hazardous substances" under CERCLA. This is more or less consistent with ASTM's purpose of identifying "recognized environmental conditions" meaning "the presence or likely presence of any hazardous substances or petroleum products on a property..." However, under the draft AAI rule, only if the ESA is funded by an EPA grant must the EP include petroleum/petroleum products. In addition, the EPA grantees must also consider controlled substances (i.e., drugs) at the subject property during the environmental inquiry.

Interviews with neighboring property owners

The draft AAI rule extends the EP's mandatory interview requirements to include one or more neighboring property owners in cases of abandoned properties in which "there is evidence of potential unauthorized uses...or evidence of uncontrolled access..." For any Phase I investigation conducted at a brownfield site, interviewing neighbors will therefore be mandatory. In all other cases, the EP decides whether interviews with neighbors are necessary.

Exemption for on-site visit

The draft AAI rule addresses the "unusual circumstance" when an on-site visual inspection of the subject property will not be possible (e.g., if the EP is denied access). In this case, the EP must meet a separate set of site visit requirements that include documenting the failed attempts to obtain site access and inspecting the site using some other method. Under the ASTM standard, if there are any limiting conditions to completing the site reconnaissance, the subject property would be observed in the same way as the adjoining properties and surrounding area.

Timeline for final AAI rule

The EPA is now writing a proposed rule that incorporates the recommendations of the Negotiated Rulemaking Committee and a preamble that provides interpretation and guidance on how the rule applies to CERCLA's landowner liability protections. The EPA is also required to submit a Regulatory Impact Analysis of the regulation to the Office of Management and Budget for approval, in addition to meeting other obligations. The agency will publish the proposed rule in the Federal Register in May or June 2004, officially opening a 90-day public comment period. After any necessary changes are made, the EPA will promulgate the final regulation, most likely in late 2004.

The AAI rule clearly has the potential to affect virtually all commercial real estate transactions. As such, it behooves environmental professionals to follow its progress closely over the coming months and to prepare for any necessary changes to their practices and professional qualifications now, rather than later. ***PE***

ADDITIONAL INFORMATION

Anthony J. Buonicore, P.E., DEE, QEP is the CEO of Environmental Data Resources Inc. (EDR) and was Chairman of the ASTM Task Group responsible for developing the Phase I and Transaction Screen standard practices. He is available for questions at (800)352-0050.

Dianne P. Crocker is managing director of EDR's Market Research Group. With 15 years of experience in the environmental industry, she is also the editor of ESA Report, a monthly newsletter dedicated to Phase I environmental site assessments, and a current member of the ASTM E 50.02.06 Phase I/Transaction Screen Task Group. She is available for questions at (800) 352-0050.

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Federal Register

Thursday,
August 26, 2004

Part II

Environmental Protection Agency

40 CFR Part 312

Standards and Practices for All Appropriate Inquiries and Notice of Public Meeting To Discuss Standards and Practices for All Appropriate Inquiries; Proposed Rules

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 312

[SFUND–2004–0001; FRL–7806–2]

RIN 2050–AF04

SFUND–2004–0001. In addition, please mail a copy of your comments on the information collection provisions to the Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), Attn: Desk Officer for EPA, 725 17th St. NW., Washington, DC 20503

http://www.epa.gov/edocket. Although listed in the index, some information is not publicly available, *i.e.*, CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy

appropriate inquiries prior to obtaining ownership of the property may lose their ability to claim protection from CERCLA liability as an innocent landowner, bona fide prospective purchaser, or contiguous property owner.

In addition, today's proposal will affect any party who receives a brownfields grant awarded under

Industry category	NAICS code
Wholesale Trade	42
Retail Trade	44–45
Finance and Insurance	52
Real Estate	531
Professional, Scientific and Technical Services	541
Accommodation and Food Services	72
Repair and Maintenance	811

Certain types of information will not be placed in EDOCKET. Information claimed as CBI and other information whose disclosure is restricted by statute, which is not included in the official public docket, will not be available for public viewing in EPA's electronic public docket. EPA's policy is that copyrighted material will not be placed in EPA's electronic public docket but

b. *Submitting CBI.* Do not submit information that you consider to be confidential business information (CBI) electronically through EPA's electronic public docket or by e-mail. Send or deliver information identified as CBI only to the following address: CERCLA CBI Document Control Officer, Office of Solid Waste and Emergency Response (5101T), U.S. EPA, 1200 Pennsylvania Avenue, NW., Washington, DC 20460, Attention: Docket ID No. SFUND–2004–0001. You may claim information that you submit to EPA as CBI by marking any part or all of that information as CBI (if you submit CBI on disk or CD ROM, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is CBI). Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR, Part 2.

In addition to one complete version of the comment that includes any information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket and EPA's electronic public docket. If you submit the copy that does not contain CBI on disk or CD ROM, mark the outside of the disk or CD ROM clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and EPA's electronic public docket without prior notice. If you have any questions about CBI or the procedures for claiming CBI, please consult the person identified in the FOR FURTHER INFORMATION CONTACT section.

c. *Tips for Preparing Your Comments.* You may find the following suggestions helpful for preparing your comments:

i. Identify the rulemaking by docket number and other identifying information (*e.g.*, subject heading, **Federal Register** date and page number).

ii. Explain your views as clearly as possible.

iii. Explain why you agree or disagree; suggest alternatives and substitute language for your requested changes.

iv. Describe any assumptions and provide any technical information and/or data that you used to support your views.

v. If you estimate potential burden or costs, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced.

vi. Provide specific examples to illustrate your concerns and suggest alternative.

vii. Make sure to submit your comments by the comment period deadline identified.

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I. Statutory Authority

These regulations are proposed under the authority of Section 101(35)(B) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601), as amended, most importantly by the Small Business Liability Relief and Brownfields Redevelopment Act.

II. Background

A. What Is the Intent of Today's Proposed Rule?

The intent of today's proposed rule is to propose regulations setting federal standards and practices for the conduct of "all appropriate inquiries." This regulatory action was initiated in response to legislative amendments to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). On January 11, 2002, President Bush signed the Small Business Liability Relief and Brownfields Revitalization Act (Pub. L. 107–118, 115 stat. 2356, "the Brownfields Amendments"). The Brownfields Amendments amend CERCLA by providing funds to assess and clean up brownfields sites, clarifying CERCLA liability provisions for certain landowners, and providing funding to enhance state and tribal clean up programs. Today's regulatory action proposes standards and practices for the conduct of "all appropriate inquiries," a key provision of the Brownfields Amendments. Subtitle B of Title II of the Brownfields Amendments revises CERCLA Section 101(35), clarifying the requirements necessary to establish the innocent landowner defense. In addition, the Brownfields Amendments add protections from CERCLA liability for bona fide prospective purchasers and contiguous property owners who meet certain statutory requirements.

Each of the CERCLA liability provisions for innocent landowners, bona fide prospective purchasers, and contiguous property owners, requires that, among other requirements, persons

claiming the liability protections conduct all appropriate inquiries into prior ownership and use of a property prior to or at the time at which a person acquires a property. The law requires EPA to develop regulations establishing standards and practices for how to conduct all appropriate inquiries and promulgate the standards within two years of enactment of the Amendments. Congress included in the Brownfields Amendments a list of criteria that the Agency must address in the regulations establishing standards and practices for conducting all appropriate inquiries § 101(35)(2)(B)(ii) and (iii). The Brownfields Amendments also require that parties receiving a federal brownfields grant awarded under CERCLA Section 104(k)(2)(B) conduct site characterizations and assessments and must conduct these activities in accordance with the standards and practices for all appropriate inquiries.

The regulations proposed today only address the all appropriate inquiries provisions of CERCLA Sections 101(35)(B)(i)(I) and 101(35)(B)(ii) and

know and had no reason to know" prior to purchasing a property that any hazardous substance that is the subject of a release or threatened release was disposed of on, in, or at the property. Such persons, to demonstrate that they had "no reason to know" must have undertaken, prior to, or at the time of acquisition of the property, "all appropriate inquiries" into the previous ownership and uses of the property consistent with good commercial or customary practice. The 2002 Brownfields Amendments added potential liability protections for "contiguous property owners" and "bona fide prospective purchasers" who also must demonstrate they conducted all appropriate inquiries, among other requirements, to benefit from the liability protection.

C. What Are the Current Standards for All Appropriate Inquiries?

As part of the Brownfields Amendments to CERCLA, Congress established interim standards for the conduct of all appropriate inquiries. The

be considered to satisfy the requirements" for all appropriate inquiries. In addition, such properties are not within the scope of today's proposed rule.

The interim standards remain in effect until EPA promulgates federal regulations establishing standards and practices for conducting all appropriate inquiries.

On May 9, 2003, EPA published a final rule (68 FR 24888) clarifying that for the purposes of achieving the all appropriate inquiries standards of CERCLA Section 101(35)(B), and until the Agency promulgates regulations implementing standards for all appropriate inquiries, the procedures for persons who purchase property on or after May 31, 1997 may include either the procedures provided in ASTM E1527–2000, entitled "Standard Practice for Environmental Site Assessment: Phase I Environmental Site Assessment Process," or the earlier standard cited by Congress in the Brownfields amendments, ASTM E1527–97.

Today's notice is a proposed rule and

D. What Are the Liability Protections Established Under the Brownfields Amendments?

The Brownfields Amendments provide important liability protections for landowners who qualify as contiguous property owners, bona fide prospective purchasers, or innocent landowners. To meet the statutory requirements for any of these landowner liability protections, a landowner must meet certain threshold requirements and satisfy certain continuing obligations. To qualify as a bona fide prospective purchaser, contiguous property owner, CERCLA liability, and limits EPA's recourse for unrecovered response costs to a lien on property for the increase in fair market value attributable to EPA's response action. To meet the statutory requirements for a bona fide prospective purchaser, a person must meet the requirements set forth in CERCLA Section 101(40). A bona fide prospective purchaser must have bought property after January 11, 2002 (the date of enactment of the Brownfields Amendments). A bona fide prospective purchaser may purchase property with knowledge of contamination after

requirements for obtaining the liability protections. Landowners must comply with all the statutory requirements to obtain the liability protection. For example, an inability to identify a release or threatened release during the conduct of all appropriate inquiries does not negate the landowner's responsibilities under the statute to take reasonable steps to stop a release, prevent a threatened release, and prevent exposure to a release or threatened release. None of the other statutory requirements for the bona fide prospective purchaser liability

The contiguous property owner liability protection "protects parties that are essentially victims of pollution incidents caused by their neighbor's actions." S. Rep. No. 107–2, at 10 (2001). Contiguous property owners must perform all appropriate inquiries prior to purchasing property. However, performing all appropriate inquiries in accordance with the regulatory requirements alone is not sufficient to assert the liability protections afforded under CERCLA. Property owners must fully comply with all of the statutory requirements to be afforded the contiguous property owner liability protection. Persons who know, or have reason to know, that the property is or could be contaminated prior to purchasing a property cannot qualify for the liability protection as a contiguous property owner, but may be entitled to bona fide prospective purchaser status.

Persons claiming to be contiguous property owners should keep in mind that failure to identify an environmental condition or identify a release or threatened release of a hazardous substance on, at, in or to a property during the conduct of all appropriate inquiries, does not relieve a landowner from complying with the other statutory requirements for obtaining the contiguous landowner liability limitation. Landowners must comply with all the statutory requirements to qualify for the liability protections. For example, an inability to identify a release or threatened release during the conduct of all appropriate inquiries does not negate the landowner's responsibilities under the statute to take reasonable steps to stop the release, prevent a threatened release, and prevent exposure to the release or threatened release. None of the other statutory requirements for the contiguous property owner liability protection is contingent upon the results of the conduct of all appropriate inquiries.

3. Innocent Landowner

The Brownfields Amendments also clarify the innocent landowner affirmative defense. To qualify as an innocent landowner, a person must conduct all appropriate inquiries and meet all of the statutory requirements. The requirements include, without limitation:

- Having no reason to know that any hazardous substance which is the subject of a release or threatened release was disposed of on, in, or at the facility;
- Providing full cooperation, assistance and access to persons authorized to conduct response actions at the property;
- Complying with any land use restrictions and not impeding the effectiveness or integrity of any institutional controls;
- Taking reasonable steps to stop continuing releases, prevent any threatened release, and prevent or limit human, environmental, or natural resource exposure to any hazardous substances released on or from the landowner's property;

To succeed in an innocent landowner liability defense, a property owner must demonstrate compliance with CERCLA Section 107(b)(3) as well. Such persons must establish, by a preponderance of the evidence:

- That the act or omission that caused the release or threat of release of hazardous substances and the resulting damages were caused by a third party with whom the person does not have employment, agency, or a contractual relationship;
- The person exercised due care with respect to the hazardous substance concerned, taking into consideration the characteristics of such hazardous substance, in light of all relevant facts and circumstances;
- Took precautions against foreseeable acts or omissions of any such third party and the consequences that could foreseeable result from such acts or omissions.

Like contiguous property owners, innocent landowners must perform all appropriate inquiries prior to acquiring a property and cannot know, or have reason to know, of contamination to qualify for this landowner liability protection. Persons claiming to be innocent landowners also should keep in mind that failure to identify an environmental condition or identify a release or threatened release of a hazardous substance on, at, in or to a property during the conduct of all appropriate inquiries, does not relieve or exempt a landowner from complying with the other statutory requirements for making the innocent landowner defense. Landowners must comply with all the statutory requirements to obtain the defense. For example, an inability to identify a release or threatened release during the conduct of all appropriate inquiries does not negate the landowner's responsibilities under the statute to take reasonable steps to stop the release, prevent a threatened release, and prevent exposure to the release or threatened release. None of the other statutory requirements for the innocent landowner defense is contingent upon the results of the conduct of all appropriate inquiries.

E. What Criteria Did Congress Establish for the All Appropriate Inquiries Standard?

Congress included in the Brownfields Amendments a list of criteria that the Agency must include in the regulations establishing standards and practices for conducting all appropriate inquiries. These criteria are set forth in CERCLA Section 101(35)(2)(B)(ii) and include:

- The results of an inquiry by an environmental professional.
- Interviews with past and present owners, operators, and occupants of the facility for the purpose of gathering information regarding the potential for contamination at the facility.
- Reviews of historical sources, such as chain of title documents, aerial photographs, building department records, and land use records, to determine previous uses and occupancies of the real property since the property was first developed.
- Searches for recorded environmental cleanup liens against the facility that are filed under federal, state, or local law.
- Reviews of federal, state, and local government records, waste disposal records, underground storage tank records, and hazardous waste handling, generation, treatment, disposal, and spill records, concerning contamination at or near the facility.
- Visual inspections of the facility and of adjoining properties.
- Specialized knowledge or experience on the part of the defendant.
- The relationship of the purchase price to the value of the property, if the property was not contaminated.
- Commonly known or reasonably ascertainable information about the property.
- The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation.

In addition, Congress instructed EPA, in the Brownfields Amendments to develop regulations establishing standards and practices for conducting all appropriate inquiries in accordance with generally accepted good commercial and customary standards and practices.

F. How Did EPA Go About Developing the Proposed Rule?

Consistent with the Negotiated Rulemaking Act of 1996, 5 U.S.C. 561 *et seq.* (The Negotiated Rulemaking Act), EPA decided to use the negotiated rulemaking process to develop the proposed federal standards for conducting all appropriate inquiries.

The most important reason for using the regulatory negotiation process for developing the proposed federal standards is that all stakeholders, when consulted, strongly supported a consensus-based negotiated rulemaking effort. In addition, the Agency determined that a negotiated rulemaking committee composed of stakeholders familiar with good commercial and customary standards and practices, as well as the technical, scientific, and environmental policy issues relevant to environmental due diligence, would provide great benefit to the Agency in its attempt to fulfill the Congressional mandate. EPA also believed that a regulatory negotiation process would be less adversarial than if the Agency were to develop a proposed rule using its internal regulatory development process and that a regulatory negotiation could result in a proposed rule that would effectively reflect Congressional intent.

G. What Is Negotiated Rulemaking?

Using negotiated rulemaking to develop the proposed rule is fundamentally different than the Agency's internal rulemaking development process. Negotiated rulemaking is a process in which a proposed rule is developed by a committee composed of representatives of those interests that will be

professional, or facilitator, impartially assists the negotiated rulemaking committee by applying proven consensus building techniques to the committee's activities. This professional facilitator serves several roles, including convening the process, facilitating meetings and mediating committee negotiations.

The negotiated rulemaking process involves a mutual education of the negotiating parties by each other on the practical concerns about the impact of each approach considered by the committee. All committee members participate in seeking to reach a consensus that resolves the concerns of the other members, rather than leaving it up to EPA to bridge different points of view. A key principle of negotiated rulemaking is that agreement is by consensus of all the members. Thus, no one interest or group of interests is able to control the process. The Negotiated Rulemaking Act defines consensus as "the unanimous concurrence among interests represented on a negotiated rulemaking committee, unless the committee itself unanimously agrees to use a different definition." 5 U.S.C. 562(2).

When a regulatory negotiation advisory committee reaches consensus on the provisions of a proposed rule, the

determine the potential for stakeholder issues to be successfully addressed through a regulatory negotiation. Following an evaluation of stakeholder interest and input, the facilitator found that there was sufficient enthusiasm among stakeholders for a negotiated rulemaking process and almost all stakeholders that EPA identified and the facilitator interviewed expressed a belief that potential issues and differences between interested parties could be successfully addressed and negotiated through the regulatory negotiation process. A description of the issues raised by identified stakeholders and a list of interested stakeholders, as well as the findings of the facilitator are contained in the final report entitled *Convening Assessment Report on the Feasibility of a Negotiated Rulemaking Process to Develop the All Appropriate Inquiry Standard Required under the Small Business Liability Relief and Brownfields Revitalization Act.* A copy of this final report is included in the regulatory docket for today's notice.

Following the convening process, the Agency determined that the use of a regulatory negotiation process in this matter was appropriate. The Agency then identified stakeholders and interest groups who potentially would be affected by the rulemaking under

primary purpose of the committee was to negotiate a consensus on the terms of a proposed rule setting standards and practices for the conduct of all appropriate inquiries. The committee was composed of 25 members and each member of the committee represented a specific stakeholder interest. EPA had one seat on the committee. The Agency member on the committee represented the Federal government's own set of interests. A neutral facilitator assisted the Negotiated Rulemaking Committee by applying proven consensus building

meeting in November 2003. The consensus of all Committee members was confirmed in December 2003 through approval of the facilitator's summary of that meeting, including the text of the proposed rule. The Agency, consistent with the intent of the Negotiated Rulemaking Act of 1990 and in compliance with the Committee's ground rules, is using the Committee's consensus regulatory language as the basis of today's proposed rule.

I. What Are the Benefits of Negotiated

interests to assume conflicting and antagonistic positions and to engage in expensive and time-consuming litigation * * *" (5 U.S.C. 581(2), Pub. L. 101–648). Congress also stated that "adversarial rulemaking deprives the affected parties and the public of the benefits of face-to-face negotiations and cooperation in developing and reaching agreement on a rule. It also deprives them of the benefits of shared information, knowledge, expertise, and technical abilities possessed by the affected parties." (*Id* at 5 U.S.C. 581(3))

interests. After identifying a preliminary list of organizations to invite to participate in the negotiated rulemaking process, publishing the preliminary list in the **Federal Register** in a *Notice of Intent To Negotiate* (68 FR 10675), and considering public comment on the list of organizations invited to represent

III. Detailed Description of Today's Proposed Rule

A. What Is the Purpose and Scope of the Proposed Rule?

As outlined in the Brownfields Amendments to CERCLA, the purpose of today's rule is to establish federal

and characterization activities at brownfields sites, the scope of the all appropriate inquiries may include these other pollutants and contaminants, as outlined in proposed § 312.1(c)(2), to ensure that persons receiving brownfields grants can appropriately and fully assess the properties that are

activities. Persons receiving such grant monies must conduct the site characterization and assessment in compliance with the all appropriate inquiries regulatory requirements.

C. Does the Proposed Rule Include Any New Reporting or Disclosure Obligations?

The proposed rule does not include any new reporting or disclosure obligations. The proposed rule only would apply to those property owners who may seek the landowner liability protections provided under CERCLA for innocent landowners, contiguous property owners or bona fide prospective purchasers. The documentation requirements included in this proposed rule are primarily intended to enhance the inquiries by requiring the environmental professional to record the results of the inquiries and his or her conclusions regarding conditions indicative of releases and threatened releases on, at, in, or to the property and to provide a record of the environmental professional's inquiry. There are no proposed requirements to notify or submit information to EPA or any other government entity.

The proposed rule does require, in proposed § 312.21(c), that the conducting all appropriate inquiries to retain the written report or any other documentation discovered, consulted, or created in the course of conducting the inquiries, the retention of such documentation and records may be helpful should the property owner need to assert protection from CERCLA liability after purchasing a property.

The proposed rule would require that a written report documenting the results of the all appropriate inquiries include an opinion of an environmental professional as to whether the all appropriate inquiries conducted identified conditions indicative of releases or threatened releases of hazardous substances on, at, in or to the subject property. The proposed rule also would require that the report identify data gaps in the information collected that affect the ability of the environmental professional to render such an opinion or determine the significance of data gaps.

The proposed rule, at proposed § 312.21(d), would require that the environmental professional who conducts or oversees the all appropriate inquiries sign the written report. There are two purposes for the proposed requirement to include a signature in the report. First, the individual signing the report would declare, on the for professional engineers, issued by states, tribes, and the federal government. To avoid such implications, the proposed rule does not include a certification requirement. However, the proposed rule would require that each all appropriate inquiries report include a signature of the environmental professional as well as two statements above the signature. One statement would read "[I, We] declare that, to the best of [my, our] professional knowledge and belief, [I, we] meet the definition of Environmental Professional as defined in § 312.21 of 40 CFR part 312." The proposal also includes a second statement to be included above the signature, stating: "[I, We] have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. [I, We] developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR part 312." These statements are meant to document that an individual meeting the proposed qualifications of an environmental professional was involved in the conduct of the all appropriate inquiries and that the activities performed by, or under the supervision or responsible

defined in CERCLA Section 102(b) from the facility or vessel. Today's proposed rule proposes no changes to this reporting requirement and proposes no changes to any other reporting or disclosure requirements under federal, tribal, or state law.

D. What Are the Proposed Qualifications for an Environmental Professional?

1. What Is the Intent of the Proposed Definition of an Environmental Professional?

environmental professionals to remain current in their field of practice.

2. What Are the Minimum Qualifications for Meeting the Definition of an Environmental Professional?

Today's proposed rule includes a definition of an environmental professional that reflects the Negotiated Rulemaking Committee's extensive efforts to identify a set of minimum qualifications, including minimum levels of education and experience, that characterize the type of professional

professional judgment to develop opinions and conclusions regarding the presence of releases or threatened releases * * * to the surface or subsurface of a property, sufficient to meet the objectives and performance factors" that are provided in the proposed regulation. The proposed definition of an environmental professional includes individuals who possess the following combinations of education and experience.

• Hold a current Professional Engineer's or Professional Geologist's license or registration from a state, tribe,

are conducted under the supervision or responsible charge of an individual well qualified to oversee the collection and interpretation of site-specific information and render informed opinions and conclusions regarding the environmental conditions at a property, including opinions and conclusions regarding the presence of releases or threatened releases of hazardous substances and other contaminants on, at, in, or to the property. The Agency's decision to recognize tribal and state-licensed P.E.s and P.G.s reflects the fact that tribal governments and state legislatures hold such professionals responsible (legally and ethically) for safeguarding public safety, public

the surface or subsurface of a property, sufficient to meet the [proposed rule's] objectives and performance factors."

Although the proposed rule recognizes tribal and state-licensed P.E. and P.G.s and other such government licensed environmental professionals with three years of experience to be environmental professionals, the proposed rule does not restrict the definition of an environmental professional to these licensed individuals. The proposed definition of an environmental professional also would include individuals who hold a Baccalaureate or higher degree from an accredited institution of higher education in a relevant discipline of

qualifications are necessary to ensure that an individual is qualified to oversee the conduct of all appropriate inquiries, review the results of all inquiries for a particular property and be capable of assessing this information in light of all other relevant site-specific information about a property (*e.g.*, hydrogeologic setting), and develop sound opinions and conclusions regarding the environmental conditions at a property and the potential presence of a release or threatened release on, at, in or to the property. The Committee determined that the individuals best qualified to review all available and relevant information about a property and render

During the Committee's deliberations on the definition of an environmental professional, public commenters raised particular concerns with regard to individuals who currently are employed in the business of conducting all appropriate inquiries or environmental site assessments, but who do not meet the Committee's proposed qualifications of an environmental professional. The Committee gave careful consideration of public comments that pointed out the potential impacts that the proposed

environmental professional but have more than ten years of experience in conducting environmental site assessments to be included as environmental professionals. This provision is proposed as a "grandfather" clause and would only apply to those individuals with ten or more years of experience in the field of all appropriate inquiries investigations on the date of promulgation of the final rule. The Committee made this recommendation after careful consideration of public

on the definition of an environmental professional. The Committee considered restricting the definition of an environmental professional to state-licensed certification programs. However, based upon many comments received from the public, as well as the concerns of some members of the Committee, the Committee members concluded that there is a need to recognize individuals who have similar qualifications to P.E.s and P.G.s but do not hold a state issued license or

qualifications. Therefore, the Committee recommended, and EPA is proposing, to include within the regulatory definition of an environmental professional, a generic performance-based qualifications standard that includes education and experience qualifications, but does not recognize any private organization's certification program. However, the Agency notes that any individual with a certification from a private certification organization where the organization's certification qualifications include the same or more stringent education and experience requirements as those included in the federal regulation will meet the definition of an environmental professional for the purposes of this regulation. As stated above, the proposed definition of an environmental professional includes individuals who hold a Baccalaureate or higher degree from an accredited institution of higher education in a relevant discipline of engineering, environmental science, or earth science and the equivalent of five (5) years of full-time relevant experience.

4. Can Persons Not Meeting the Proposed Definition of an Environmental Professional Contribute to the Conduct of All Appropriate Inquiries?

During the Committee's deliberations on the definition of an environmental professional, members of the public also raised concerns about restricting the conduct of all appropriate inquiries to only those individuals meeting the definition of an environmental professional. The Negotiated Rulemaking Committee considered requiring that all the activities necessary to complete the all appropriate inquiries investigation be conducted by persons meeting the proposed definition of an environmental professional. Such a requirement could ensure that all of the required activities are conducted at a high standard of quality. In addition, requiring that all activities be conducted by an environmental professional could ensure, to a high level of confidence, the accuracy and reliability of the environmental professional's interpretation of the inquiries results. However, after careful review of specific activities required to complete the all appropriate inquiries, consideration of public comments offered during the Committee's deliberations, and consideration of the costs and impacts to the market for environmental site assessment services, the Committee decided that it is not necessary for an environmental professional to perform all aspects of the all appropriate inquiries.

Therefore, the proposed definition of an environmental professional would allow for many of the individual inquiry activities to be conducted by individuals that may not qualify as an environmental professional per the proposed definition. The proposed rule would allow individuals not meeting the definition of an environmental professional to contribute to the conduct of the all appropriate inquiries, as long as such individuals are working under the supervision or responsible charge of an individual who meets the proposed definition of an environmental professional. This provision would allow for a team of individuals working for the same firm or organization (*e.g.*, individuals working for the same government agency) to share the workload for conducting all appropriate inquiries for a single property, provided that one member of the team meets the proposed definition of an environmental professional and reviews the results and conclusions of the inquiries and signs the final report.

The Agency requests comments on all of the proposed qualifications included in the definition of an environmental professional and the provisions allowing for individuals who do not qualify as environmental professionals to contribute to inquiry activities.

E. References

Today's proposed rule includes no references. However, the Agency is reserving a reference section and may include references in the final rule. As explained later in this preamble, EPA is inviting the public to identify potentially applicable standards developed by standards developing organizations that may be applicable and compliant with the regulations proposed today. Prior to promulgating a final regulation setting federal standards and practices for all appropriate inquiries, the Agency may consider citing or referencing applicable and compliant voluntary consensus standards in the final regulation. This may facilitate implementation of the final regulations and avoid disruption to parties using voluntary consensus standards that are found to be fully compliant with the federal regulations.

F. What Is Included in "All Appropriate Inquiries?"

The proposed Federal regulations for conducting all appropriate inquiries include standards and practices for conducting the activities included in each of the statutory criterion established by Congress in the Brownfields Amendments. These criteria are set forth in CERCLA Section 101(35)(2)(B)(iii) and are:

- The results of an inquiry by an environmental professional (proposed § 312.21).
- Interviews with past and present owners, operators, and occupants of the facility for the purpose of gathering information regarding the potential for contamination at the facility (proposed § 312.23).
- Reviews of historical sources, such as chain of title documents, aerial photographs, building department records, and land use records, to determine previous uses and occupancies of the real property since the property was first developed (proposed § 312.24).
- Searches for recorded environmental cleanup liens against the facility that are filed under Federal, State, or local law (proposed § 312.25).
- Reviews of Federal, State, and local government records, waste disposal records, underground storage tank records, and hazardous waste handling, generation, treatment, disposal, and spill records, concerning contamination at or near the facility (proposed § 312.26).
- Visual inspections of the facility and of adjoining properties (proposed § 312.27).
- Specialized knowledge or experience on the part of the defendant (proposed § 312.28).
- The relationship of the purchase price to the value of the property, if the property was not contaminated (proposed § 312.29).
- Commonly known or reasonably ascertainable information about the property (proposed § 312.30).
- The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation (proposed § 312.31).

1. Who Is Responsible for Conducting the All Appropriate Inquiries?

The Brownfields Amendments to CERCLA require persons claiming any of the landowner liability protections to conduct all appropriate inquiries into the past uses and ownership of subject property. The criteria included in the Brownfields Amendments for the regulatory standards for all appropriate inquiries require that the inquiries include an inquiry by an environmental professional. The statute does not require that all criteria or inquiries be conducted by an environmental professional. After careful review and consideration of each statutory criterion,

the Negotiated Rulemaking Committee determined that many, but not all, of the inquiries activities must be conducted by, or under the supervision or responsible charge of, an individual meeting the qualifications within the proposed definition of an environmental professional.

The Committee recommended, and EPA is proposing, that several of the activities included in the inquiries may be conducted either by the purchaser, or the landowner, and do not have to be conducted under the supervision or responsible charge of the environmental professional. The proposed rule would require that the results of all activities not conducted by or under the supervision or responsible charge of the environmental professional be provided to the environmental professional to ensure that such information may be fully considered when the environmental professional draws conclusions based on the inquiry activities or renders an opinion as to whether conditions at the property are indicative of a release or threatened release of a hazardous substance (or other contaminant) on, at, in, or to the property which causes the incurrence of response costs.

The proposed rule allows for the following activities to be the responsibility of, or conducted by, the purchaser or landowner and not necessarily by the environmental professional, provided the results of such inquiries or activities are provided to an environmental professional overseeing the all appropriate inquiries:

- Searches for environmental cleanup liens against the subject property that are filed or recorded under federal, tribal, state, or local law, as required by proposed § 312.25.
- Assessments of any specialized knowledge or experience on the part of the purchaser or landowner, as required by § 312.28.
- An assessment of the relationship of the purchase price to the fair market value of the subject property, if the property was not contaminated, as required by § 312.29.
- An assessment of commonly known or reasonably ascertainable information about the subject property, as required by § 312.30.

The proposed rule would require that all other required inquiries and activities, beyond those listed above to be conducted by, or under the supervision or responsible charge of, an environmental professional. The Agency requests comment on the proposed division of responsibilities.

2. When Must All Appropriate Inquiries Be Conducted?

CERCLA, as amended, requires innocent landowners, bona fide prospective purchasers, and contiguous property owners to conduct all appropriate inquiries prior to acquiring a property for the purposes of either establishing that the purchaser "did not know and had no reason to know" of releases or threatened releases of hazardous substances on, at, in, or to the property, or in the case of the bona fide prospective purchaser, to identify environmental conditions indicative of releases or threatened releases at the property prior to taking ownership of the property. In the case of contiguous property owners, CERCLA Section 107(q)(1)(A)(viii) requires that a person claiming to be a contiguous property owner conduct all appropriate inquiries "at the time at which the person acquired the property." In the case of innocent landowners, Section 101(35)(B) of CERCLA requires that the property owner conduct all appropriate inquiries "on or before the date on which the defendant acquired the facility."

Other than to specify that all appropriate inquiries must be conducted at or prior to the time a person acquires a property, the statute is silent regarding how close to the actual purchase date the inquiries must be completed. The proposed rule requires that all appropriate inquiries be conducted within one year prior to taking title to a property. As explained below, purchasers may use information collected as part of previous inquiries for the same property, if the inquiries were completed or updated within one year prior to the date the property is acquired. The proposed rule would require that certain information collected as part of the all appropriate inquiries be updated if it was collected more than 180 days prior to the date a purchaser acquires the property. In addition, the Agency is proposing to define the date of acquisition of a property as the date on which the purchaser acquires title to the property.

The Agency believes that the event that most closely reflects the Congressional intent of the date on which the defendant acquired the property is the date on which a purchaser received title to the property. The Agency considered other dates, such as the date a prospective purchaser signs a purchase or sale agreement. However, EPA believes that it could be burdensome to require a prospective purchaser to have completed the all appropriate inquiries prior to having an agreement with a seller to complete a sales transaction. In fact, the time period between the date on which a sales agreement is signed and the date on which the title to the property is actually transferred to the purchaser may be the most convenient time for the prospective purchaser to obtain access to the property and undertake the all appropriate inquiries. In addition, requiring that all appropriate inquiries be completed on some date prior to the date of title transfer could result in requiring prospective purchasers to undertake all appropriate inquiries so early in the property acquisition process as to require the inquiries to be completed prior to the purchaser making a final decision on whether to actually acquire the property. EPA requests comment on the proposal to establish the date on which title is transferred as the date on which the property is acquired.

To increase the potential that the information collected for the all appropriate inquiries accurately reflects the proposed objectives and performance factors, as well as to increase the potential that opinions and judgments regarding the environmental conditions at a property that are included in an all appropriate inquiries report are based on current and relevant information, the Agency is proposing that all appropriate inquiries be conducted within one year prior to the purchaser acquiring the property. Such inquiries may include information collected for previous all appropriate inquiries that were conducted or updated within one year prior to the acquisition date of the property. In addition, as explained in more detail below, the proposed rule would require that several of the components of the inquiries be updated within 180 days prior to the date the property is acquired (*i.e.*, the date the landowner obtains title to the property).

3. Can a Purchaser Use Information Collected for Previous Inquiries Completed for the Same Property?

The proposed rule, at § 312.20(b), would allow parties conducting all appropriate inquiries to use previous inquiries completed for the same property, under certain conditions. First, the previous inquiries must have been conducted in compliance with the regulations applicable at the time the previous all appropriate inquiries investigation was completed. In addition, the previous inquiries must have been completed with information that was collected or updated no longer than a year prior to the current acquisition date for the property.

Certain types of information collected more than 180 days prior to the current date of acquisition must be updated for the current all appropriate inquiries. Also, the information required under some specific criterion (*e.g.*, relationship of purchase price to property value, specialized knowledge on part of defendant) must be collected specifically for the current transaction.

When discussing the issue of whether or not to provide for the use of all appropriate inquiries conducted by a previous owner, or the seller, of a particular property, the Negotiated Rulemaking Committee recognized that there is value in using previously collected information when such information was collected in accordance with the regulatory standards, particularly when the use of such previously-collected information will reduce the need to undertake duplicative efforts. In its deliberations, the Committee discussed the potential impacts that allowing the use of all appropriate inquiries conducted by third parties could have upon the legality and legitimacy of the all appropriate inquiries required to be conducted by a purchaser not involved in the collection of the information. The Committee also discussed how often certain information required to be collected as part of the all appropriate inquiries should be updated to ensure its accuracy. A particular focus of the Committee's discussions was the need for information collected and used by an environmental professional to be accurate and current, therefore allowing the environmental professional to make informed judgments regarding the environmental conditions of the property and provide informed opinions as to the likelihood that conditions are indicative of a release or threatened release of a hazardous substance on, at, in, or to the property.

The Committee recommended, and EPA is proposing, to allow all appropriate inquiries to include information contained in previous inquiries, including inquiries conducted by third parties, for the same property. However, such information must have been updated or collected within one year prior to the date the current purchaser acquires the property (the date on which the owner takes title to the property) and collected in compliance with the regulatory requirements that were in effect at the time the previous all appropriate inquiries were conducted. Note that if the previous all appropriate inquiries were conducted prior to the effective date of the final federal standards for all appropriate inquiries, the inquiries must have been conducted in compliance with either the interim standard established by Congress in the Brownfields Amendments and clarified by EPA on May 9, 2003 (68 FR 24888), or in the case of properties purchased prior to May 31, 1997, in compliance with practices consistent with good commercial or customary business practices.

The Committee recognized that it is not sufficient to wholly adopt previously conducted all appropriate inquiries for the same property without any review. Certain aspects of the all appropriate inquiries investigation are specific to the current purchaser and the current purchase transaction. Therefore, the proposed rule would require that each all appropriate inquiries investigation include current information related to:

- Any relevant specialized knowledge held by the current purchaser and the environmental professional responsible for overseeing and signing the all appropriate inquiries report (*i.e.*, requirements of proposed § 312.28); and
- The relationship of the current purchase price to the value of the property, if the property were not contaminated (*i.e.*, requirements of proposed § 312.29).

In addition, the Committee recommended that certain information be updated if it was not collected within 180 days prior to the date of acquisition of the property (or the date on which the purchaser takes title to the property) to ensure that an all appropriate inquiries investigation accurately reflects the environmental conditions at a property. To increase the potential that information collected is accurate, as well as increase the potential that opinions and judgments regarding the environmental conditions at a property that are included in an all appropriate inquiries report are based on current and relevant information, the proposed rule would require that many of the components of the inquiries be updated within 180 days prior to the date of acquisition of the property. The components of the all appropriate inquiries that must be updated within 180 days prior to the date of acquisition of the property are:

- Interviews with past and present owners, operators, and occupants (proposed § 312.23);
- Searches for recorded environmental cleanup liens (proposed § 312.25);
- Reviews of federal, tribal, state, and local government records (proposed § 312.26);
- Visual inspections of the facility and of adjoining properties (proposed § 312.27); and
- The declaration by the environmental professional (proposed § 312.21(d)).

An all appropriate inquiries investigation may include the information listed above when previously collected by the purchaser or a third party for the same property, provided that the information was collected no longer than one year prior to the current purchaser's date of acquisition of the property and provided that it is updated for the current all appropriate inquiries investigation, if it was collected more than 180 days prior to the acquisition date. Also, in all cases where a purchaser is using previously collected information, the all appropriate inquiries for the current purchase must include a summary of any changes to the conditions of the property that occurred since the previous inquiries were conducted.

The Agency requests comment on the proposed provisions for using previously conducted all appropriate inquiries.

4. Can All Appropriate Inquiries Be Conducted by One Party and Transferred to Another Party?

The proposed rule, at proposed § 312.20(c), allows for all appropriate inquiries to be conducted by one party and transferred to another party, provided that certain conditions are met. It was brought to the attention of the Negotiated Rulemaking Committee that under certain circumstances, the person purchasing a property may obtain a report of all appropriate inquiries conducted for the property from another party, either the seller of the property or another independent party. In particular, the Committee discussed situations where the federal government or a state government agency may conduct the all appropriate inquiries on behalf of the local government on a property being purchased by a local government. For example, the EPA Brownfields program conducts "targeted brownfields assessments" on behalf of local governments. This situation also may occur when a state government is covering the cost of the all appropriate inquiries for a property owned by a local government or in a situation where the local government does not have access to appropriate staff or capital resources to conduct the all appropriate inquiries and it therefore is conducted by a state government agency. Another example is when a local government conducts all appropriate inquiries for a

third party in its community, such as a private prospective purchaser. In addition, local brownfields redevelopment agencies that are connected to local government may seek

To avoid requiring duplicative efforts, but to ensure that the proposed regulations include standards and practices that result in a comprehensive assessment of the environmental

visual inspection. Information obtained during the interviews may be useful for locating and inspecting potential sources of environmental concerns during the visual inspection.

• Current and past corrective actions and response activities undertaken to address past and on-going releases of hazardous substances;
• Engineering controls;
• Institutional controls; and
• Properties adjoining or located nearby the subject property that have environmental conditions that could have resulted in conditions indicative of releases or threatened releases of hazardous substances on, at, in, or to the subject property.

The Negotiated Rulemaking Committee also developed a set of performance factors for the conduct and performance of each of the individual proposed standards and practices that make up the proposed rule. These performance factors, which are included in proposed § 312.20(e), include: (1) Gather the information that is required for each standard and practice that is publicly available (or otherwise releases, prior to acquiring the property. This information may facilitate compliance with the additional statutory requirements applicable for claiming the liability protections after acquiring the property.

Failure to identify an environmental condition or identify a release or threatened release of a hazardous substance on, at, in or to a property during the conduct of all appropriate inquiries, does not relieve a landowner from complying with the other post-acquisition statutory requirements for obtaining the landowner liability protections. Landowners must comply with all the statutory requirements to obtain protection from liability. For example, an inability to identify a release or threatened release during the conduct of all appropriate inquiries does not negate the landowner's post-acquisition responsibilities under the statute to take reasonable steps to stop appropriate inquiries is twofold. First, institutional controls are usually necessary and important components of a remedy. Failure to abide by an institutional control may put people at risk of harmful exposure to hazardous substances. Second, an owner wishing to maintain protections from CERCLA liability as an innocent landowner, contiguous property owner, or bona fide prospective purchaser must fulfill ongoing obligations to comply with any land use restrictions established or relied on in connection with a response action and to not impede the effectiveness or integrity of any institutional control employed in connection with a response action. For a more detailed discussion of these requirements please see EPA, *Interim Guidance Regarding Criteria Landowners Must Meet in Order to Quality for Bona Fide Prospective Purchaser, Contiguous Property Owner,*

recipient) to gather such information pursuant to the proposed objectives for all appropriate inquiries. Proposed § 312.20(f) requires environmental professionals, prospective landowners and grant recipients to identify data gaps that affect their ability to identify conditions indicative of releases or threatened releases of hazardous substances (and in the case of grant recipients pollutants, contaminants, petroleum, and controlled substances). In addition, the proposal would require such persons to identify the sources of information consulted to address, or fill, the data gaps, and require such persons to comment upon the significance of the data gaps with regard to the ability to identify conditions indicative of releases or threatened releases in the all appropriate inquiries report. In addition, proposed § 312.21(c)(2) would require that environmental professionals include in the inquiries report an identification of data gaps that affect the ability of the environmental professional to identify conditions indicative of releases or threatened releases on, at, in, or to the subject property. Proposed § 312.21(c)(2) also would require that the inquiries report include comments regarding the significance of any data gaps on the environmental professional's ability to provide an opinion as to whether the inquiries have identified conditions indicative of releases or threatened releases.

A lack of information or an inability to obtain information that may affect the ability of an environmental professional to determine whether or not there are conditions indicative of a release or threatened release of a hazardous substance (or other contaminant) on, at, in or to a property can have significant consequences regarding a prospective acquiring the property. This may result in an inability to claim protection against CERCLA liability for any ongoing release. The proposed rule states the need to identify data gaps, address them when possible, and document their significance. Prospective landowners must consider the potential significance of any data gaps that may exist after conducting the pre-acquisition all appropriate inquiries on the landowner's ability to fulfill the additional statutory requirements after purchasing a property.

If a person properly conducts all appropriate inquiries pursuant to this rule, including the requirements concerning data gaps at proposed §§ 312.10, 312.20(f) and 312.21(c)(2), the person can fulfill the all appropriate inquiries requirements of CERCLA Sections 107(q), 107(r), and 101(35), even when there are data gaps in the inquiries. However, as explained further in this preamble, a fulfillment of the all appropriate inquiries requirements does *not*, by itself, provide a person with a protection from or defense to CERCLA liability. An inability to identify a release or threatened release during the conduct of all appropriate inquiries does not negate the landowner's ongoing or continuing responsibilities under the statute, including the requirements to take reasonable steps to stop the release, prevent a threatened release, and prevent exposure to the release or threatened release once the landowner has acquired a property. Also, if an existing institutional control or land use restriction is not identified during the conduct of all appropriate inquiries prior to the acquisition of a property, a landowner is not exempt from complying with the institutional control or land use restriction after acquiring the property. None of the [illegible] release during the conduct of all appropriate inquiries does not exempt a landowner from his or her post-acquisition continuing obligations under other provisions of the statute.

Proposed § 312.20(f) points out that one way to address data gaps may be to conduct sampling and analysis. The Agency notes that the proposed regulation does *not* require that sampling and analysis be conducted to comply with the all appropriate inquiries requirements. The proposal only notes that sampling and analysis may be conducted, where appropriate, to obtain information to address data gaps.

The Agency requests comments on the proposed provisions addressing data gaps. The Agency also explicitly requests comments on the decision not to require sampling as part of the proposed all appropriate inquiries standards.

8. Do Small Quantities of Hazardous Substances That Do Not Pose Threats to Human Health and the Environment Have To Be Identified in the Inquiries?

The environmental professional should identify and evaluate all evidence of releases or threatened releases on, at, in or to the subject property, in accordance with generally accepted good commercial and customary standards and practices. However, as provided in proposed § 312.20(g), the environmental professional need not specifically identify, in the written report prepared pursuant to proposed § 312.21(c), extremely small quantities or amounts of contamination, except as needed to fairly describe the evidence identified by the environmental professional of releases and threatened releases that could pose a threat to human health or

have to be conducted by the environmental professional or within the supervision or responsible charge of the environmental professional. The intent is that an individual meeting the definition of an environmental professional (§ 312.10) must oversee the conduct of, or review and approve the results of, the interviews to ensure the interviews are conducted in compliance with the proposed objectives and performance factors (§ 312.20). EPA also intends this proposed provision be used to help ensure that the information obtained from the interviews provides sufficient information, in conjunction with the results of all other inquiries, to allow the environmental professional to render an opinion with regard to conditions at the property that may be indicative of releases or threatened releases of hazardous substances (and pollutants, contaminants, petroleum and controlled substances, if applicable).

The proposed rule would require the environmental professional's inquiry to include interviewing the current owner and occupant of the subject property. In addition, the proposal provides that the inquiry of the environmental professional include interviews of additional individuals, including current and past facility managers with relevant knowledge of the property, past owners, occupants, or operators of the subject property, or employees of

recommends that the environmental professional, or an individual under the supervision or responsible charge of the environmental professional, develop the interview questions prior to conducting the interview, and tailor the questions to the rule's objectives and performance factors. Interviews with current and past owners and occupants may provide opportunities to collect information about a property that is not previously recorded nor well documented or may provide valuable perspectives on how to find or interpret information required to complete other aspects of the all appropriate inquiries. Information gathered during the interview portion of the all appropriate inquiries may in turn provide valuable information for the on-site visual inspection. Persons conducting the interviews of current and past owners and occupants may want to spend some time during the interviews requesting information on the locations of operations or units used to store or manage hazardous substances on the property.

In the case of properties where there may be more than one owner or occupant, or many owners or occupants, the proposed rule would require the inquiry to include interviews of major occupants and those occupants that are using, storing, treating, handling or disposing (or are likely to have used, stored, treated, handled or disposed) of hazardous substances (or pollutants,

current or past owners and occupants of the property. Therefore, the Committee recommended that the conduct of all appropriate inquiries include interviewing at least one owner or occupant of a neighboring property to obtain information regarding past owners or uses of property in cases where the subject property is abandoned. The proposed rule defines an abandoned property as a "property that can be presumed to be deserted, or an intent to relinquish possession or control can be inferred from the general disrepair or lack of activity thereon such that a reasonable person could believe that there was an intent on the part of the current owner to surrender rights to the property." As is the case with interviews conducted with current and past owners and occupants of the property, interview questions should be developed prior to the conduct of the interviews, and tailored to gather information to achieve the rule's objectives and performance factors.

The Agency requests comments on the proposed standards for conducting interviews of past and present owners and occupants of a property. EPA also requests comments on the proposed requirements to interview owners or occupants of neighboring properties in the case of abandoned properties.

H. What Are the Proposed Requirements for Reviews of Historical Sources of Information?

previous uses and occupancies of the real property since the property was first developed." The Committee recommended, and EPA is proposing, that records be searched for information on the property covering a time period as far back in history as there is documentation that the property contained structures or was placed into use of some form. The Committee believed, and EPA agrees, that this provision follows Congressional intent. Historical documents and information must be reviewed to obtain information relevant to the proposed objectives and performance factors of proposed § 312.20(d) and (e). If a search of historical sources of information results in an inability of the inquiry to document previous uses and occupancies of the property as far back in history as there is documentation that the property contained structures or was placed into use of some form and such information cannot be addressed through the implementation of other inquiries or regulatory criteria, then the unavailable information must be documented as a data gap to the inquiries. The proposed requirements of §§ 312.20(f) and 312.21(c)(2) are applicable to all instances in the all appropriate inquiries that result in data gaps.

The proposed rule would not require that any specific type of historic information be collected. In particular, the proposed rule does not require that persons obtain a chain of title document for the property. The proposed rule provides that the purchaser or environmental professional use professional judgment when determining what types of historical documentation may provide the most useful information about a property's ownership, uses, and potential environmental conditions when seeking to comply with the proposed objectives and performance factors for the inquiries. The Negotiated Rulemaking Committee considered developing a specific list of historical documents that must be reviewed for each property. However, given the wide variety of property types and locations to which this proposed rule could apply, the accordance with generally accepted good commercial and customary standards and practices, in locating the best available sources of historical information and reviewing such sources for information necessary to comply with the rule's objectives and performance factors.

As explained in section III.E.2 of this preamble, the purchaser or environmental professional may make use of previously collected information about a property when conducting all appropriate inquiries. The collection of historical information about a property may be a particular case where previously collected information may be valuable, as well as easily accessible. In addition, nothing in the proposed rule prohibits a person from using secondary sources (*e.g.*, a previously conducted title search) when gathering information about historical ownership and usage of a property. As explained in section III.E.2, information must be updated if it was last collected more than 180 days prior to the date of acquisition of the property.

The Agency requests comments on the proposed standards for reviews of historical sources of information.

I. What Are the Proposed Requirements for Searching for Recorded Environmental Cleanup Liens?

For purposes of this rule, recorded environmental cleanup liens are encumbrances on property for the recovery of incurred cleanup costs on the part of a state, tribal or federal government agency or other third party. Recorded environmental cleanup liens often provide an indication that environmental conditions currently or previously existed on a property that may have included the release or threatened release of a hazardous substance. The existence of an environmental cleanup lien should be used as an indicator of potential environmental concerns and as a basis for further investigation into the potential existence of on-going or continued releases or threatened releases of hazardous substances on, at, in, or to the subject property.

The Committee recommended, and EPA is proposing at proposed § 312.25 Such liens may be included as part of the chain of title documents or may be recorded in some other format by state or local government agencies. If such information is collected by the purchaser, or other agent of the purchaser who is not under the supervision or responsible charge of the environmental professional, the proposed rule would require that any information on environmental cleanup liens that is collected on the part of the purchaser be provided to the environmental professional. The environmental professional can then make use of such information during the conduct of the all appropriate inquiries and when rendering conclusions or opinions regarding the environmental conditions of the property.

The Committee recommended that the all appropriate inquiries regulation require that purchasers and environmental professionals search for those environmental cleanup liens that are recorded under federal, tribal, state, or local law. Liens that are not recorded by government programs or agencies are not addressed by the language of the statute on the criteria for all appropriate inquiries (the statute speaks only of recorded liens). One caution about the conclusion one can draw from not finding a recorded environmental cleanup lien is that if EPA is in the process of cleaning up a site at the time of acquisition there is nothing to prevent EPA from recording such a lien post acquisition. This type of lien, a so-called windfall lien, has no statute of limitations on it and arises at the time EPA first spends Superfund money. States and localities may have similar mechanisms.

The Agency requests comments on the proposed standards for searching for recorded environmental cleanup liens.

J. What Are the Proposed Requirements for Reviewing Federal, State, Tribal, and Local Government Records?

The proposed rule, at proposed § 312.26, would require that federal, state, tribal and local government records be searched for information necessary to achieve the proposed objectives and performance factors, including information regarding the use

such information, may include information on previously reported releases of hazardous substances, pollutants, contaminants, petroleum products and controlled substances. Government records may include information on institutional controls related to a particular property. For example, in the case of NPL sites, EPA Superfund records, including Action Memoranda and Records of Decision, may have information on institutional controls in place at such properties. Government records also may include information on activities or property uses that could cause releases or threatened releases to be present at a property. The proposed rule, at § 312.26(b), requires that federal, tribal, state, and local government records be searched for information indicative of environmental conditions at the subject property. The types of government records or data bases of records searched should include:

1. Government records of reported releases or threatened releases at the subject property, including previously conducted site investigation reports.

2. Government records of activities, conditions, or incidents likely to cause or contribute to releases or threatened releases, including records documenting regulatory permits that were issued to current or previous owners or operators at the property for waste management activities and government records that identify the subject property as the location of landfills, storage tanks, or as the location for generating and handling activities for hazardous substances, pollutants, contaminants, petroleum or controlled substances.

3. CERCLIS records—EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database contains general information on sites across the nation and in the U.S. territories that have been assessed by EPA, including sites listed on the National Priorities List (NPL). CERCLIS includes information on facility location, status, contaminants, institutional controls, and actions taken at particular sites. CERCLIS also contains information on sites being assessed under the Superfund Program, hazardous waste sites and potential hazardous waste sites.

4. Government-maintained records of public risks (if available)—the all appropriate inquiries government records search should include a search for available records documenting public health threats or concerns caused by, or related to, activities currently or previously conducted at the site.

5. Emergency Response Notification System (ERNS) records—ERNS is EPA's data base of oil and hazardous substance spill reports. The data base can be searched for information on reported spills of oil and hazardous substances by state.

6. Government registries, or publicly available lists of engineering controls, institutional controls, and land use restrictions. The all appropriate inquiries government records search must include a search for registries or publicly available lists of recorded engineering and institutional controls and recorded land use restrictions. Such records may be useful in identifying past releases on, at, in, or to the subject property or identifying continuing environmental conditions at the property.

In the case of all the government records listed above, the requirements of this criterion may be met by searching data bases containing the same government records mentioned in the list above that are accessible and available through government entities or private sources. The review of actual records is not necessary, provided that the same information contained in the government records and required to meet the requirements of this criterion and achieve the proposed objectives and performance factors for these regulations is attainable by searching available data bases.

In addition to reviewing government records, or data bases of information contained in government records, for information about the subject property, the proposed rule would require that government records for nearby and adjoining properties be reviewed to assess the potential impact to the subject property from hazardous substances and petroleum contamination migrating from contiguous or nearby properties. The proposed rule would require all appropriate inquiries to include a search of government records or data bases for information about nearby or adjoining properties to assess potential impacts to the environmental conditions of the subject property from off-site sources of contamination. The proposed rule would require that government records be searched to identify information relative to the proposed objectives and in accordance with the performance factors on: (1) Adjoining and nearby properties for which there are governmental records of reported releases or threatened releases (*e.g.*, properties currently listed on the National Priorities List (NPL), properties subject to corrective action orders under the Resource Conservation and Recovery Act (RCRA), properties with reported releases from leaking underground storage tanks); (2) adjoining and nearby properties previously identified or regulated by a government entity due to environmental conditions at a site (*e.g.*, properties previously listed on the NPL, former CERCLIS sites with notices of no further response actions planned); and (3) adjoining and nearby properties that have government-issued permits to conduct waste management activities (*e.g.*, facilities permitted to manage RCRA hazardous wastes).

In the case of government records searches for nearby properties, the proposed rule (at § 312.26(c)) includes minimum search distances for obtaining and reviewing records or data bases concerning activities and facilities located on nearby properties. The minimum search distances proposed are based on the Negotiated Rulemaking Committee's professional judgment regarding the value of obtaining information on potential releases or threatened releases from properties and activities within a given distance from the subject property that could have an impact on the subject property. For example, government records identifying properties listed on the NPL should be searched to obtain information on NPL sites located within one-half mile of the subject property. The Committee generally believed that NPL sites located beyond one-half mile of a property most likely would have little or no impact on the environmental conditions at the subject property. For nearby properties, the proposed rule includes proposed minimum search distances (*e.g.*, properties located either within one mile or one-half mile of the subject property) for each type of record to be searched to facilitate defining the scope of the records searches. In the case of two types of records, records of RCRA small quantity and large quantity generators and records of registered storage tanks, the all appropriate inquiries search need only identify RCRA generators and storage tanks located on adjoining properties (the proposal contains no requirement to search for these two types government records for other nearby properties).

EPA and the Negotiated Rulemaking Committee realize that property-specific and regional conditions may influence the appropriateness of the proposed search distances for any given type of record and property. Appropriate search distances for properties located in rural settings may differ from appropriate search distances for urban settings. In addition, ground water flow direction, depth to ground water, arid weather

conditions, the types of facilities located on nearby properties, as well as other factors may influence the degree of impact to a property from off-site

The Committee recommended, and EPA included in today's proposed rule, a requirement that a visual on-site

transactions conducted by two private parties, where the economic and legal liability interests of both parties and the

would require that the all appropriate inquiries report must include documentation of other sources of information that were consulted to obtain information necessary to achieve the proposed objectives and performance factors. This documentation should include comments, from the environmental professional who signs the report, regarding any significant limitations to the ability of the environmental professional to identify conditions indicative of releases or threatened releases on, at, in, or to the subject property, that may arise due to the inability of the purchaser or environmental professional to obtain on-site access to the property.

In addition, in those limited cases where an on-site visual inspection cannot be conducted prior to the date a property is acquired, EPA recommends that once a property is purchased, the property owner conduct an on-site visual inspection of the property. Such an inspection may provide important information necessary for the property owner to fully comply with the other statutory provisions, including on-going obligations, governing the CERCLA liability protections.

2. Visual Inspections of Adjoining Properties

The proposed rule, at proposed § 312.27, would require that the all appropriate inquiries investigation include visual inspections or observations of properties that adjoin the subject property. Visual inspections of adjoining properties may provide excellent information on the potential for the subject property to be affected by migrating contamination from adjoining properties. The Negotiated Rulemaking Committee discussed the merits and legalities of requiring parties to conduct on-site visual inspections of adjoining properties. Although several Committee members expressed a preference for visual inspections to be conducted on-site, the Committee was concerned that requiring purchasers or environmental professionals to gain on-site access to properties adjoined to the subject include observing areas where hazardous substances currently may be, or previously may have been, stored, treated, handled, or disposed. Visual inspections or observations of adjoining properties otherwise also must be conducted to achieve the proposed objectives and performance goals for the all appropriate inquiries. Physical limitations to the visual inspections or observations of adjoining properties should be noted.

The Agency requests comments on the proposed requirements for conducting visual inspections of the subject property and adjoining properties, including the proposed exemption from the on-site visual inspection requirement in cases where good faith efforts result in an ability to gain access to a property.

3. Role of the Environmental Professional in the Visual Inspection

As mentioned in section III.D.4 of this preamble, EPA and the Negotiated Rulemaking Committee considered proposing to require all activities in the all appropriate inquiries investigation to be conducted by persons meeting the proposed definition of an environmental professional. Requiring that an environmental professional conduct all activities could ensure that all data collection and investigations are conducted in a manner and to a degree of specificity that allows the environmental professional to make best use of all information in forming opinions and conclusions regarding the environmental conditions at a property. However, after careful review of the specific activities included in the statutory criteria and conducting an assessment of the costs and burdens of such a requirement, EPA and the Committee concluded that it is not necessary for each and every regulatory requirement to be conducted by an environmental professional. As outlined in section III.E.1 of this preamble, the proposed rule would allow for certain aspects of the inquiries to be conducted solely by the purchaser or property owner, while providing that all other aspects be conducted under the many other aspects of the all appropriate inquiries may be conducted sufficiently and accurately by individuals other than an environmental professional (*e.g.*, a research associate or librarian may be well qualified to search government records, an attorney may be well qualified to conduct a search for an environmental lien), EPA believes that an environmental professional is best qualified to conduct a visual inspection and locate and interpret information regarding the physical and geological characteristics of the property as well as information on the location and condition of equipment and other resources located on the property. EPA recognizes that other individuals who do not meet the proposed regulatory definition of an environmental professional, particularly when these individuals are conducting such activities under the supervision or responsible charge of an environmental professional, may have the required skills and knowledge to conduct an adequate on-site visual inspection. However, EPA believes that the professional judgment of an individual meeting the proposed definition of an environmental professional is vital to ensuring that all circumstances at the property indicative of environmental conditions and potential releases or threatened releases are properly identified and analyzed. An environmental professional is best qualified for identifying such situations and conditions and rendering a judgment or opinion regarding the potential existence of conditions indicative of environmental concerns.

An environmental professional should, at a minimum, be involved in planning for the on-site visual inspection. Information collected during the conduct of other required activities such as interviews with owners and occupants and reviews of government records should be reviewed in preparing for the on-site visual inspection. Although the proposed rule would not require the activities proposed as part of all appropriate inquiries investigation to be done in any particular sequence, EPA

currently used for general retail purposes once was owned by individuals issued permits for the storage or treatment of hazardous wastes, this could be noted during the preparation for the on-site visual inspection and the persons conducting the inspection should be prepared to look for remaining storage units or evidence of conditions caused by past spills or releases from on-site management units. In addition, it may be important to consider any specialized knowledge held by the purchaser or the environmental professional regarding current or past uses and ownership of the property prior to conducting the on-site visual inspection.

L. What Are the Proposed Requirements for the Inclusion of Specialized Knowledge or Experience on the Part of the "Defendant?"

Because the conduct of all appropriate inquiries is one element of a protection against CERCLA liability, and the situation under which a property owner may need to assert that he or she qualifies for liability protection is when the property owner must defend his or her status as an innocent landowner, a contiguous property owner, or a bona fide prospective purchaser, the statute refers to the property owner, or the user of the all appropriate inquiries investigation, as the "defendant." The Committee believed, and EPA agrees, that Congressional intent is to ensure that any information or special knowledge held by the purchaser or property owner with regard to a property and the conditions or situations present at the subject property be included in the pre-acquisition inquiries and be considered, along with all information collected during the conduct of all appropriate inquiries, when an environmental professional renders a judgment or opinion regarding the presence of environmental conditions indicative of releases or potentials releases of hazardous substances on, at, in, or to the subject property. This information should be revealed to all parties conducting the all appropriate inquiries and considered earlier in the inquiries process so that any specialized knowledge may be taken into account through the conduct of the other required aspects of the all appropriate inquiries.

Congress first added the innocent landowner defense to CERCLA in 1986. The Brownfields Amendments amended the innocent landowner defense and added to CERCLA the bona fide prospective purchaser and the contiguous property owner liability protections to CERCLA liability. The 1986 amendments to CERCLA established that among other elements necessary for a defendant to successfully assert the innocent landowner defense, a defendant must demonstrate that he or she had, at the time of acquisition of the property in question, made all appropriate inquiries into previous ownership and uses of the property. Congress directed courts evaluating a defendant's showing of all appropriate inquiries to take into account, among other things, "any specialized knowledge or experience on the part of the defendant." Nothing in today's proposed rule would change the nature or intent of this requirement as it has existed in the statute since 1986 or in how the courts have interpreted the requirement to date.

The Negotiated Rulemaking Committee decided not to extend the proposed requirements for the consideration of any specialized knowledge or experience of the property owner beyond what was previously required under CERCLA and established through case law. The proposed rule, at proposed § 312.28, would require that all appropriate inquiries include specialized knowledge on the part of the prospective property owner of the subject property, the area surrounding the subject property, the conditions of adjoining properties, as well as other experience relative to the inquiries that may be applicable to identifying conditions indicative of releases or threatened releases at the subject property. The proposed rule also would require that the results of the inquiries take into account any specialized knowledge related to the property, surrounding areas, and adjoining properties held by the persons responsible for undertaking the inquiries, including any specialized knowledge on the part of the environmental professional.

In reviewing existing case law related to the innocent landowner defense, courts appear to have interpreted the "specialized knowledge" factor to mean that the professional or personal experience of the defendant may be taken into account when analyzing whether the defendant made all appropriate inquiries. For example, in *Foster* v. *United States*, 922 F. Supp. 642 (D. D.C. 1996), the owner of a property formerly owned by the General Services Administration and contaminated by, among other things, lead, mercury and PCBs, brought an action against the United States and District of Columbia, prior owners or operators of the site. The plaintiff was a principal in Long & Foster companies and purchased the property through a general partnership, and received it by quitclaim deed. The U.S. and D.C. counterclaimed against plaintiff. Foster asserted the innocent landowner defense. The court rejected the plaintiff's claim based in part on the defendant's specialized knowledge. The court found that his specialized knowledge included his position at Long & Foster, which did hundreds of millions of dollars of commercial real estate transactions, and his position as a partner in at least 15 commercial real estate partnerships. The partnership was involved as an investor in a number of real estate transactions, some of which involved industrial or commercial or mixed-use property. The court ruled that "it cannot be said that [the partnership] is a group unknowledgeable or inexperienced in commercial real estate transactions." *Foster*, 922 F. Supp. at 656.

In *American National Bank and Trust Co. of Chicago* v. *Harcros Chemicals, Inc.*, 1997 WL 281295 (N.D. Ill. 1997), the plaintiff was a company "involved in brownfields development, purchasing environmentally distressed properties at a discount, cleaning them up, and selling them for a profit." *American National Bank*, 1997 WL 281295 at *4. As a counter-claim defendant, the company asserted it was an innocent landowner and therefore not liable pursuant to CERCLA. The court found that among other reasons the defense failed because the company possessed specialized knowledge. The court ruled that the company was an expert environmental firm and possessed knowledge that should have alerted it to the potential problems at the site.

EPA points out that the proposed rule requires that the specialized knowledge of prospective landowners and the persons responsible for undertaking the all appropriate inquiries be taken into account when conducting the all appropriate inquiries for the purposes of identifying conditions indicative of releases or threatened releases at a property. However, as evidenced by the case law cited above, the determination of whether or not the all appropriate inquiries standard is met with regard to specialized knowledge remains within the discretion of the courts.

The Agency requests comments on the proposed provisions governing the inclusion of specialized knowledge or experience on the part of the purchaser and the environmental professional.

M. What Are the Proposed Requirements for the Relationship of the Purchase Price to the Value of the Property, if the Property Was Not Contaminated?

The proposed rule, at § 312.29, would require that the purchaser of the property consider whether or not the

local community, including owners or occupants of neighboring properties to the subject property, local or state government officials, local media sources, and local libraries and historical societies. Much of this information may be incidental to other

There is some case law, related to the innocent landowner defense, that provide guidance for considering commonly known or reasonably ascertainable information about the property. For example, in *Wickland Oil Terminals v. Asarco, Inc.*, 1988 WL

substances (or other substances, pollutants or contaminants) on, at, in, or to the property. In addition, the proposed rule would require parties to consider whether or not the totality of information collected prior to acquiring the property indicates that the parties should be able to detect a release or threatened release on, at, in, or to the property. Persons should undertake these considerations keeping in mind that ultimately it is for a court to assess the degree of obviousness of contamination.

The previous innocent landowner defense (added to CERCLA in 1986) required a court to consider the degree of obviousness of the presence or likely presence of contamination at a property, and the ability of the defendant (*i.e.*, the landowner) to detect the contamination by appropriate investigation. Nothing in today's proposed rule would change the nature or intent of this requirement as it has existed in the statute since 1986 or in how the courts have interpreted the requirement to date. Case law relevant to this criterion indicates that defendants may not be able to claim an innocent landowner defense if a preponderance of information available to a prospective landowner prior to acquiring the property indicates that the defendant should have concluded that there is a high likelihood of contamination at the site. In some cases (*e.g.*, *Hemingway Transport Inc.* v. *Kahn*, 174 F.R. 148 (Bankr. D. Mass. 1994), and *Foster* v. *United States*, 922 F. Supp. 642 (D.D.C. 1996), courts have ruled that if a defendant had done a bit

presence and extent of potential contamination at a property. In addition, the fact that the all appropriate inquiry standards would not require sampling and analysis may not prevent a court from concluding that, under the circumstances of a particular case, sampling and analysis should have been conducted to meet "the degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation" criterion and obtain protection from CERCLA liability. Prospective landowners should keep in mind that the conduct of all appropriate inquiries prior to purchasing a property is only one requirement to which a purchaser must comply to claim protection from CERCLA liability once the purchase has taken place. The statute requires that persons, after acquiring a property, comply with continuing obligations to take reasonable steps to stop on-going releases at the property, prevent any threatened future releases, and prevent or limit any human, environmental, or natural resource exposure to any previously released hazardous substances (these criteria are summarized in detail in section II.D. of this preamble). In certain instances, depending upon site-specific circumstances and the totality of the information collected during the all appropriate inquiries prior to the property acquisition, it may be necessary to conduct sampling and

investigation. The Agency also specifically requests comments on the decision not to require sampling and analysis as part of the all appropriate inquiries regulations.

IV. Requests for Public Comments

EPA is requesting comment on the standards and practices included as part of today's proposed rule. Public comments may be submitted to the Agency electronically or by mail, as explained in the **SUPPLEMENTARY INFORMATION** section of this preamble. As explained in that section, the Agency requests that when submitting comments, please state your views as clearly as possible, describe any assumptions applicable to your comments, provide any technical information and data that support your views, and provide specific examples to illustrate your concerns. Specifically, the Agency is interested in receiving public comment on the following:

- The proposed requirements for an all appropriate inquiries report, including the signature requirements for the all appropriate inquiries report.
- The proposed qualifications included in the definition of an environmental professional and the provisions allowing for individuals who do not qualify as environmental professionals to contribute to inquiry activities.
- The proposed division of responsibilities for conducting all appropriate inquiries.

• The proposed standards for searching for recorded environmental cleanup liens.

• The proposed standards for reviewing federal, state, tribal and local government records.

• The proposed requirements for conducting visual inspections of the subject property and adjoining properties, including the limited exemption from conducting an on-site inspection when good faith efforts result in an inability to obtain access to a property.

• The proposed provisions governing the inclusion of specialized knowledge or experience on the part of the purchaser and the environmental professional.

• The proposed requirements for considering the relationship of the purchase price to the value of a property, if the property was not contaminated.

• The proposed requirements for commonly known or reasonably ascertainable information about the property.

• The proposed requirements for the degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation.

• The proposed information collection requirements, including the need for such information, the accuracy of the provided burden estimates associated with the requirements, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques.

• The methodology used to estimate the costs and impacts of today's proposed rule, including the estimated incremental labor hours used to estimate the incremental cost of the proposed rule.

• The methodology employed to identify impacted small entities and estimating the potential impacts on small entities.

• The identification of voluntary consensus standards that are applicable to and compliant with today's proposed standards and practices for all appropriate inquiries.

V. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735), the Agency must determine whether this regulatory action is "significant" and therefore subject to formal review by the Office of Management and Budget (OMB) and to the requirements of the Executive Order. The Executive Order defines "significant regulatory action" as one that is likely to result in a rule that may: (1) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, it has been determined that today's proposed rule is a "significant regulatory action" because this proposed rule contains novel legal or policy issues.

Based upon the results of its Economic Impacts Analysis (EIA), EPA has determined that this proposed rule will have an annual effect on the economy of less than $100 million. The annualized benefits associated with today's proposed rule have not been monetized but are identified and summarized in the document titled "Economic Impacts Analysis for the Proposed All Appropriate Inquiries Regulation." A copy of the EIA is available in the docket for today's proposed rule. The Agency solicits comment on the methodology and results from the analysis as well as any data that the public believes would be useful in a revised analysis.

1. Methodology

The value of any regulatory action is traditionally measured by the net change in social welfare that it generates. The Economic Impacts Analysis (EIA) conducted in support of today's proposed rule examines both costs and qualitative benefits in an effort to assess the overall net change in social welfare. The primary focus of the EIA document is on compliance costs and economic impacts. Below, EPA summarizes the analytical methodology and findings for the proposed all appropriate inquiries rule. The information presented is derived from the EIA.

The all appropriate inquiries regulation potentially will apply to most commercial property transactions. The requirements will be applicable to any public or private party, who may potentially claim protection from CERCLA liability as an innocent landowner, a bona fide prospective purchaser, or a contiguous property owner. However, the conduct of all appropriate inquiries, or environmental due diligence, is not new to the commercial property market. Prior to the Brownfields Amendments to CERCLA, commercial property transactions often included an assessment of the environmental conditions at properties prior to the closing of any real estate transaction whereby ownership was acquired for the purposes of confirming the conditions at the property or to establish an innocent landowner defense should environmental contamination be discovered after the property was acquired. The process most prevalently used for conducting all appropriate inquiries, or environmental site assessments, is the process developed by the American Society for Testing and Materials (ASTM) and entitled "E1527, Phase I Environmental Site Assessment Process." In addition, some properties, particularly in cases where the subject property is assumed not to be contaminated or was never used for industrial or commercial purposes, were assessed using another, less rigorous process developed by ASTM, sometimes referred to as a "transaction screen" and entitled "E1528 Standard Practice for Environmental Site Assessments: Transaction Screen Process."

Our first step in assessing the economic impacts of the proposed rule was establishing a baseline to represent the relevant aspects to the commercial real estate market in the absence of any changes in regulations. Because under existing conditions almost all transactions concerning commercial properties are accompanied by either an environmental site assessment (ESA) conducted in accordance with ASTM E1527–2000 or a transaction screen as specified in ASTM E1528, these practices were assumed to continue even in the absence of the all appropriate inquiries regulation. The numbers of each type of assessment were estimated on the basis of industry data for recent years, with recent growth rates in transactions assumed to continue for the 10 year period covered by the EIA. An adjustment in the relative numbers of the ESAs and transaction screens was made to account for the fact that, under the proposed rule, an ESA will provide more certain protection from liability. This adjustment was made by comparing shifts between the two procedures that

occurred when the Brownfields Amendments established the ASTM E1527–2000 standard as the interim standard for all appropriate inquiries, and thus as one requirement for qualifying as an innocent landowner, bona fide purchaser, or contiguous property owner.

We then considered the requirements included in the recommendation of the Negotiated Rulemaking Committee and

considered by the Negotiated Rulemaking Committee to an option that would entail using the ASTM E1527–2000 standard as the federal regulation. As explained in more detail below, it is EPA's opinion that the ASTM E1527–2000 standard is not compliant with the statutory requirements for all appropriate inquires, and therefore if adopted may not provide the benefits of the CERCLA liability protections.

and impacts of today's proposed rule, including comments on our estimates of the incremental labor hours necessary to conduct activities required by the proposed rule but not currently conducted using the baseline standard (*i.e.*, ASTM E1527–2000).

The EIA provides a qualitative assessment of the benefits of the proposed rule. The benefits discussed are those that may be attributed to an

changes in behaviors and practices in response to the availability of the liability protections. EPA is confident that the new liability protections afforded to prospective property owners, if they comply with the all appropriate inquiries provisions, will result in increased benefits. EPA is not able to quantify, with any significant level of confidence, the exact proportion of the benefits attributed only to the availability of the liability protections and the all appropriate inquiries regulations. For these reasons, the costs and benefits could not be directly compared.

2. Summary of Regulatory Costs

For a given property, the costs of compliance with the proposed rule relative to the baseline depend on whether that property would have been assessed, in absence of the all appropriate inquiries regulation, with an ASTM E1527–2000 assessment process or with a simpler transaction screen (ASTM E1528). The table below shows that the average incremental cost of the proposed rule relative to conducting an ASTM E1527–2000 is estimated to be between $41 and $47. For the small percentage of cases for which a transaction screen would have been preferred to the ASTM E1527–2000 in the baseline, but which now would require an assessment in compliance with the proposed rule, the average incremental cost is estimated to be between $1,448 and $1,454. We estimate that approximately 97 percent of property transactions will bear only the incremental cost of the proposed rule relative to the ASTM E1527–2000 process. Therefore, the weighted average incremental cost per transaction is estimated to be fairly low, between $84 and $89.

The three regulatory options considered by the Negotiated Rulemaking Committee, but not recommended, would result in higher incremental costs from the base case. Option 1, which would require all of the non-clerical tasks in the all appropriate inquiries to be performed by an individual meeting the definition of environmental professional, would add an average of $539 per property assessment (or approximately $1,946 per property, assuming a transition from a transaction screen). Option 2 would have the same interviewing requirements as the baseline standard (*i.e.*, ASTM E1527–2000), rather than require that interviews be conducted with neighboring property owners in the case of abandoned properties. EPA estimates that the incremental cost of Option 2, or the incremental cost of incorporating all the additional aspects of the proposed rule, over the baseline, except for the neighboring property owners/occupants interview requirement for abandoned properties, would be $54 per assessment (or $1,460 per property, assuming a transition from a transaction screen). Option 3, which would require the all appropriate inquiries to include limited sampling and analysis, would result in average incremental costs of either $1,439 or $2,845, depending on whether, under baseline conditions, an ASTM E1527–2000 process or a transaction screen (ASTM E1528) would have been used. The alternative of using the ASTM E1527–2000 standard as the federal regulation would result in no ($0) incremental cost per property assessment (or, on average, $1,407 per property, assuming a transition from a transaction screen). We note, however, that EPA has found that the ASTM E1527–2000 standard is inconsistent with the statutory requirements for all appropriate inquiries.

SUMMARY OF INCREMENTAL PER-ASSESSMENT COST ESTIMATES

	Average incremental cost relative to phase I ESA under ASTM E1527–2000 (97% of transactions)	Average incremental cost for transition from transaction screen (under ASTME1528) (3% of transactions)
Proposed AAI Rule	$41–$47	$1,448–$1,454
Option 1—Environmental Professional Only	539	1,946
Option 2—Unchanged Interview Requirement	54	1,460
Option 3—Limited Sampling ASTM E1527–2000	1,439	2,845
	0	1,407

The total annualized costs of the proposed rule and the four additional options considered, in total and relative to the base case, are shown in the exhibit below. The total costs were calculated over a period of ten years from the start of 2004 and then annualized at a three and seven percent discount rate. When a discount rate of three percent is used, the estimated total annual costs for the options considered by the Negotiated Rulemaking Committee range from just under $700 million to over $1 billion per year, compared to the baseline costs of $663.8 million and the costs associated with the option of using the ASTM E1527–2000 standard of over $677 million. The proposed regulation adds between $26 and $28 million per year, while the incremental costs association with the options considered by the Negotiated Rulemaking Committee range from $30 million to almost $460 million per year. The incremental cost of the alternative of using the ASTM 1527–2000 standard is over $13 million. When a discount rate of seven percent is used, the estimated total annual costs for the options considered by the Negotiated Rulemaking Committee range from $710 million to over $1 billion per year, compared to the baseline costs of $683.5 million and the costs associated with using the ASTM E1527 standard of over $697 million. The proposed regulation adds between $27 and $29 million per year, while the incremental costs association with the options considered by the Negotiated Rulemaking Committee range from $31 million to over $470 million per year. The incremental cost of using the ASTM E1527–2000 standard is close to $14 million.

SUMMARY OF ANNUAL COST ESTIMATES (IN MILLIONS), DISCOUNTED AT THREE PERCENT

	Base case	Proposed rule	Option 1	Option 2	Option 3	ASTM E1527
Total Annual Cost	$663.8	$690.1–$691.9	$844.0	$693.9	$1,122.0	$677.3
Incremental Total Annual Cost Relative to the Base Case	0	26.3–28	180.2	30.0	458.1	13.5

SUMMARY OF ANNUAL COST ESTIMATES (IN MILLIONS), DISCOUNTED AT THREE PERCENT

	Base case	Proposed rule	Option 1	Option 2	Option 3	ASTM E1527
Total Annual Cost	$683.5	$710.5–$712.3	$868.9	$714.4	$1,155.0	$697.3
Incremental Total Annual Cost Relative to the Base Case	0	27–28.8	185.4	30.8	471.5	13.8

As shown in the table above, the estimated total annual cost of today's proposed rule, calculated using a discount rate of seven percent, would be between $710.5 and $712.3 million and the estimated total annual incremental cost would be between $27 and $29 million. Thus, the proposed rule will have an incremental annual effect on the economy of less than $100 million per year.

B. Paperwork Reduction Act

The information collection

for the release or threatened release of a hazardous substance is challenged in a court.

The activities associated with today's proposed rule that go beyond current customary and usual business practices include interviews with neighboring property owners and/or occupants in those cases where the subject property is abandoned, documentation of all environmental cleanup liens in the Phase I Environmental Site Assessment report, discussion of the relationship of purchase price to value of the property

information; and transmit or otherwise disclose the information.

An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in 40 CFR are listed in 40 CFR part 9.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and suggested methods for minimizing respondent burden, EPA has established

economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For the purposes of assessing the impacts of today's rule on small entities, small entity is defined as: (1) A small business that is defined by the Small Business Administration by category of business using the North American Industrial Classification System (NAICS) and codified at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

Since all non-residential property transactions could be affected by today's proposed rule, if it is promulgated, large numbers of small entities could be affected to some degree. However, we estimate that the effects, on the whole, will not be significant for small entities. We estimate that, for the majority of small entities, the average incremental cost of today's proposed rule relative to conducting an ASTM E1527–2000 will be between $41 and $47. When we annualize the incremental cost of $47 per property transaction over ten years at a seven percent discount rate, we estimate that the average annual cost increase per establishment per property transaction will be $7. Thus, the cost impact to small entities is estimated to not be significant. A more detailed summary of our analysis of the potential impacts of today's proposed rule to small entities is included in "Economic Impacts Analysis of the Proposed All Appropriate Inquiries Regulation." This document is included in the docket for today's proposed rule.

for which a transaction screen would have been preferred to the ASTM E1527–2000 in the baseline, but which now will require an assessment in compliance with the proposed rule, the average incremental cost of conducting an environmental site assessment will be between $1,448 and $1,454. When we annualize the incremental cost per property transaction over ten years at a seven percent discount rate, we estimate that for the majority of small entities the average annual cost increase per establishment per property transaction will be approximately $7. For the small percentage of entities transitioning from transaction screens to the all appropriate inquiries requirements of the proposed rule, the average annual cost increase per establishment per property transaction will be $207.[4]

Although this proposed rule will not have a significant economic impact on a substantial number of small entities, EPA nonetheless considered impacts to small entities in the development of this rule. As described in Section II.F. of this preamble, we developed this proposed rule using a negotiated rulemaking committee. The interests of small entities, including small businesses and small communities, were represented on the Negotiated Rulemaking Committee for All Appropriate Inquiries. Committee members representing small entities, including representatives from small environmental services firms and representatives from organizations representing small and rural communities, participated in each meeting of the Committee. Today's proposed rule includes provisions that are the direct result of input from these representatives to the Committee.

EPA continues to be interested in the potential impacts of the proposed rule on small entities. EPA welcomes comments on issues related to such impacts. In addition, EPA requests

Law 104–4, establishes requirements for federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation of why that alternative was not adopted.

Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA, a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials to have meaningful and timely input in the development of regulatory proposals with significant federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

Today's proposed rule contains no federal mandates (under the regulatory provisions of Title II of the UMRA) for

accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government."

proposed rule does not significantly or uniquely affect the communities of Indian tribal governments, nor would it impose direct compliance costs on them. Thus, Executive Order 13175 does not apply to this rule.

Although Executive Order 13175 does not apply to this proposed rule, EPA did ensure that meaningful and timely input was obtained from tribal officials when developing the proposed rule. Representatives from two different tribal communities participated on the

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Public Law 104–113, section 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities, unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical

standard "shall include * * * interviews with past and present owners, operators, and occupants of the facility for the purpose of gathering information regarding the potential for contamination at the facility." CERCLA Section 101(35)(B)(iii)(II).

In addition, ASTM's existing standard does not meet other statutory requirements. CERCLA 101(35)(B)(iii)(III) mandates that EPA shall include in the federal regulations setting standards for all appropriate inquiries: "Reviews of historical sources, such as chain of title documents, aerial photographs, building department records, and land use records, to determine the previous uses and occupancies of the real property since the property was first developed." ASTM E1527–2000 requires identification of all obvious uses of the property from the present, back to the property's obvious first developed use or back to 1940, whichever is earlier. Congress did not qualify the review to obvious uses, and did not give an alternate date regarding the review.

Further, CERCLA 101(35)(B)(iii)(VI) states that: "Visual inspections of the facility and adjoining properties" shall be included in the inquiry. ASTM E1527–2000 does not mandate visual inspections of adjoining properties.

As a result, use of the ASTM standards would be inconsistent with applicable law. We welcome comments on this aspect of the proposed rulemaking. Specifically, we invite the public to comment on our determination that the alternative of adopting the ASTM E1527–2000 standard as the federal standards for conducting all appropriate inquiries would be inconsistent with applicable law. In addition, we invite the public to identify other potentially applicable voluntary consensus standards for conducting all appropriate inquiries and to explain why EPA should use such standards in promulgating this regulation. Prior to promulgating a final regulation setting federal standards and practices for all appropriate inquiries, the Agency will cite or reference applicable and compliant voluntary consensus standards in the final regulation to facilitate implementation of the final regulations and avoid disruption to parties using voluntary consensus standards that are found to be fully compliant with the federal regulations.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

concerns specific to environmental justices communities. Many of the communities and neighborhoods that are most significantly impacted by brownfields are environmental justice communities. EPA's brownfields program targets such communities for assessment, cleanup, and revitalization. The brownfields program has a long history of working with environmental justice communities and advocates through our technical assistance and grant programs. In addition to the monies awarded to such communities in the form of assessment and cleanup grants, the brownfields program also works with environmental justice communities through our job training grants program. The job training grants provide money to government entities to facilitate the training of persons living in or near brownfields communities to attain skills for conducting site assessments and cleanups.

Given that environmental justice communities are significantly impacted by brownfields, and the federal standards for all appropriate inquiries may play a primary role in encouraging the assessment and cleanup of brownfields sites, EPA made it a priority to obtain input from representatives of environmental justice interest groups

312.11 References.

Subpart C—Standards and Practices

312.20 All appropriate inquiries.
312.21 Results of inquiry by an environmental professional.
312.22 Additional inquiries.
312.23 Interviews with past and present owners, operators, and occupants.
312.24 Reviews of historical sources of information.
312.25 Searches for recorded environmental cleanup liens.
312.26 Reviews of Federal, State, tribal and local government records.
312.27 Visual inspections of the facility and of adjoining properties.
312.28 Specialized knowledge or experience on the part of the defendant.
312.29 The relationship of the purchase price to the value of the property, if the property was not contaminated.
312.30 Commonly known or reasonably ascertainable information about the property.
312.31 The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation.

Authority: Section 101(35)(B) of CERCLA, as amended, 42 U.S.C. 9601(35)(B).

Subpart A—Introduction

§ 312.1 Purpose, applicability, scope and disclosure obligations.

(a) *Purpose.* The purpose of this section is to provide standards and procedures for "all appropriate inquiries" for the purposes of CERCLA Section 101(35)(B).

(b) *Applicability.* The requirements of this part are applicable to:

(1) Persons seeking to qualify for:

(i) The innocent landowner defense

investigations required in this part, including an inquiry by an environmental professional, as required under § 312.21, and the additional inquiries defined in § 312.22, to identify conditions indicative of releases and threatened releases of hazardous substances, as defined in CERCLA Section 101(22), and as applicable per the terms and conditions of the grant or cooperative agreement, releases and threatened releases of:

(i) Pollutants and contaminants, as defined in CERCLA Section 101(33);

(ii) Petroleum or petroleum products excluded from the definition of "hazardous substance" as defined in CERCLA Section 101(14); and

(iii) Controlled substances, as defined in 21 U.S.C. 802.

(d) *Disclosure obligations.* None of the requirements of this part limits or expands disclosure obligations under any federal, state, tribal, or local law, including the requirements under CERCLA Sections 101(40)(C) and 107(q)(1)(A)(vii) requiring persons, including environmental professionals, to provide all legally required notices with respect to the discovery of releases of hazardous substances. It is the obligation of each person, including environmental professionals, conducting the inquiry to determine his or her respective disclosure obligations under Federal, State, tribal, and local law and to comply with such disclosure requirements.

Subpart B—Definitions and References

§ 312.10 Definitions.

Data gap means: a lack of or inability to obtain information required by the standards and practices listed in subpart C of this part despite good faith efforts by the environmental professional or persons identified under § 312.1(b), as appropriate, to gather such information pursuant to §§ 312.20(d)(1) and 312.20(d)(2).

Environmental Professional means:

(1) A person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding the presence of releases or threatened releases (per § 312.1(c)) to the surface or subsurface of a property, sufficient to meet the objectives and performance factors in § 312.20(d) and (e).

(2) Such a person must:

(i) Hold a current Professional Engineer's or Professional Geologist's license or registration from a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) and have the equivalent of three (3) years of full-time relevant experience; or

(ii) Be licensed or certified by the federal government, a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) to perform environmental inquiries as defined in § 312.21 and have the equivalent of three (3) years of full-time relevant experience; or

(iii) Have a Baccalaureate or higher degree from an accredited institution of higher education in a relevant discipline of engineering, environmental science, or earth science and the equivalent of five (5) years of full-time relevant experience; or

in accordance with this part if such person is under the supervision or responsible charge of a person meeting the definition of an environmental professional provided above when conducting such activities.

Good faith means: the absence of any intention to seek an unfair advantage or to defraud another party; an honest and sincere intention to fulfill one's obligations in the conduct or transaction concerned.

Institutional controls means: Non-engineered instruments, such as administrative and/or legal controls, that help to minimize the potential for human exposure to contamination and/or protect the integrity of a remedy.

Relevant experience, as used in the definition of environmental professional in this section, means: participation in the performance of environmental site assessments that may include environmental analyses, investigations, and remediation which involve the understanding of surface and subsurface environmental conditions and the processes used to evaluate these conditions and for which professional judgment was used to develop opinions regarding conditions indicative of releases or threatened releases (per § 312.1(c)) to the subject property.

§ 312.11 References.

(a) When used in part 312 of this chapter, the following publications are incorporated by reference:

(1)–(2) [Reserved]

(b) [Reserved]

Subpart C—Standards and Practices

§ 312.20 All appropriate inquiries.

(a) "All appropriate inquiries" pursuant to CERCLA section 101(35)(B) must include:

(1) An inquiry by an environmental professional (as defined in § 312.10), as provided in § 312.21;

(2) The collection of information pursuant to § 312.22 by persons identified under § 312.1(b); and

(3) Searches for recorded environmental cleanup liens, as required in § 312.25.

(b) All appropriate inquiries may include the results of and information contained in an inquiry previously conducted by, or on the behalf of, persons identified under § 312.1(b) and who are responsible for the inquiries for the subject property, provided:

(1) Such information was collected during the conduct of all appropriate inquiries in compliance with the requirements of this part (40 CFR Part 312) and with CERCLA Sections 101(35)(B), 101(40)(B) and 107(q)(A)(viii);

(2) Such information was collected or updated within one year prior to the date of acquisition of the subject property;

(3) Not withstanding paragraph (b)(2) of this section, the following components of the inquiries were conducted or updated within a 180 days of and prior to the date of purchase of the subject property:

(i) Interviews with past and present owners, operators, and occupants (see § 312.23);

(ii) Searches for recorded environmental cleanup liens (see § 312.25);

(iii) Reviews of federal, tribal, state, and local government records (see § 312.26);

(iv) Visual inspections of the facility and of adjoining properties (see § 312.27); and

(v) The declaration by the environmental professional (see § 312.21(d)).

(4) Previously collected information is updated to include relevant changes in the conditions of the property and specialized knowledge, as outlined in § 312.28, of the persons conducting the all appropriate inquiries for the subject property, including persons identified in § 312.1(b) and the environmental professional, defined in § 312.10.

(c) All appropriate inquiries can include the results of report(s) specified in § 312.21(c), that have been prepared by or for other persons, provided that:

(1) The report(s) meets the objectives and performance factors of this regulation, as specified in paragraphs (d) and (e) of this section; and

(2) The person specified in § 312.1(b) and seeking to use the previously collected information reviews the information and conducts the additional inquiries pursuant to §§ 312.28, 312.29 and 312.30 and the all appropriate inquiries are updated per paragraph (b)(3) of this section, as necessary.

(d) *Objectives*. The standards and practices set forth in this part for All Appropriate Inquiries are intended to result in the identification of conditions indicative of releases and threatened releases of hazardous substances on, at, in, or to the subject property.

(1) In performing the all appropriate inquiries, as defined in this section and provided in the standards and practices set forth this subpart, the persons identified under § 312.1(b)(1) and the environmental professional, as defined in § 312.10, must seek to identify through the conduct of the standards and practices set forth in this subpart, the following types of information about the subject property:

(i) Current and past property uses and occupancies;

(ii) Current and past uses of hazardous substances;

(iii) Waste management and disposal activities that could have caused releases or threatened releases of hazardous substances;

(iv) Current and past corrective actions and response activities undertaken to address past and on-going releases of hazardous substances;

(v) Engineering controls;

(vi) Institutional controls; and

(vii) Properties adjoining or located nearby the subject property that have environmental conditions that could have resulted in conditions indicative of releases or threatened releases of hazardous substances to the subject property.

(2) In the case of persons identified in § 312.1(b)(2), the standards and practices for All Appropriate Inquiries set forth in this part are intended to result in the identification of conditions indicative of releases and threatened releases of hazardous substances, pollutants, contaminants, petroleum and petroleum products, and controlled substances (as defined in 21 U.S.C. 802) on, at, in, or to the subject property. In performing the all appropriate inquiries, as defined in this section and provided in the standards and practices set forth in this subpart, the persons identified under § 312.1(b) and the environmental professional, as defined in § 312.10, must seek to identify through the conduct of the standards and practices set forth in this subpart, the following types of information about the subject property:

(i) Current and past property uses and occupancies;

(ii) Current and past uses of hazardous substances, pollutants, contaminants, petroleum and petroleum products, and controlled substances (as defined in 21 U.S.C. 802);

(iii) Waste management and disposal activities;

(iv) Current and past corrective actions and response activities undertaken to address past and on-going releases of hazardous substances, pollutants, contaminants, petroleum and petroleum products, and controlled substances (as defined in 21 U.S.C. 802);

(v) Engineering controls;

(vi) Institutional controls; and

(vii) Properties adjoining or located nearby the subject property that have environmental conditions that could have resulted in conditions indicative of releases or threatened releases of hazardous substances, pollutants, contaminants, petroleum and petroleum products, and controlled substances (as

defined in 21 U.S.C. 802) to the subject property.

(e) Performance factors. In performing each of the standards and practices set forth in this subpart and to meet the objectives stated in paragraph (d) of this section, the persons identified under § 312.1(b) or the environmental professional as defined in § 312.10 (as appropriate to the particular standard and practice) must seek to:

(1) Gather the information that is required for each standard and practice listed in this subpart that is publicly available, obtainable from its source within reasonable time and cost constraints, and which can practicably be reviewed; and

(2) Review and evaluate the thoroughness and reliability of the information gathered in complying with each standard and practice listed in this subpart taking into account information gathered in the course of complying with the other standards and practices of this subpart.

(f) To the extent there are data gaps (as defined in § 312.10) in the information developed as part of the inquiries per paragraph (e) of this section that affect the ability of persons (including the environmental professional) conducting the all appropriate inquiries to identify conditions indicative of releases or threatened releases (such as in the historical record of property uses) in each area of inquiry under each standard and practice such persons should identify such data gaps, identify the sources of information consulted to address such data gaps, and comment upon the significance of such data gaps with regard to the ability to identify conditions indicative of releases or threatened releases of hazardous substances [and in the case of persons identified in § 312.1(b)(2), hazardous substances, pollutants, contaminants, petroleum and petroleum products, and controlled substances (as defined in 21 U.S.C. 802)] on, at, in, or to the subject property. Sampling and analysis may be conducted to develop information to address data gaps.

(g) Releases and threatened releases identified as part of the all appropriate inquiries should be noted in the report of the inquiries. These standards and practices however are not intended to require the identification of quantities or amounts, either individually or in the aggregate, of hazardous substances pollutants, contaminants, petroleum and petroleum products, and controlled substances (as defined in 21 U.S.C. 802) that because of said quantities and amounts, generally would not pose a threat to human health or the environment.

§ 312.21 Results of inquiry by an environmental professional.

(a) Persons identified under § 312.1(b) must undertake an inquiry, as defined in paragraph (b) of this section, by an environmental professional, or conducted under the supervision or responsible charge of, an environmental professional, as defined in § 312.10. Such inquiry is hereafter referred to as "the inquiry of the environmental professional."

(b) The inquiry of the environmental professional must include the requirements set forth in §§ 312.23 (interviews with past and present owners * * *), 312.24 (reviews of historical sources * * *), 312.26 (reviews of government records), 312.27 (visual inspections), 312.30 (commonly known or reasonably attainable information), and 312.31 (degree of obviousness of the presence * * * and the ability to detect the contamination * * *). In addition, the inquiry should take into account information provided to the environmental professional as a result of the additional inquiries conducted by persons identified in § 312.1(b) and in accordance with the requirements of § 312.22.

(c) The results of the inquiry by an environmental professional must be documented in a written report that, at a minimum, includes the following:

(1) An opinion as to whether the inquiry has identified conditions indicative of releases or threatened releases of hazardous substances [and in the case of inquiries conducted for persons identified in § 312.1(b)(2) conditions indicative of releases and threatened releases of pollutants, contaminants, petroleum and petroleum products, and controlled substances (as defined in 21 U.S.C. 802)] on, at, in, or to the subject property;

(2) An identification of data gaps (as defined in § 312.10) in the information developed as part of the inquiry that affect the ability of the environmental professional to identify conditions indicative of releases or threatened releases of hazardous substances [and in the case of inquiries conducted for persons identified in § 312.1(b)(2) conditions indicative of releases and threatened releases of pollutants, contaminants, petroleum and petroleum products, and controlled substances (as defined in 21 U.S.C. 802)] on, at, in, or to the subject property and comments regarding the significance of such data gaps on the environmental professional's ability to provide an opinion as to whether the inquiry has identified conditions indicative of releases or threatened releases on, at, in, or to the subject property. If there are data gaps such that the environmental professional cannot reach an opinion regarding the identification of conditions indicative of releases and threatened releases, such data gaps must be noted in the environmental professional's opinion per paragraph (c)(1) of this section; and

(3) The qualifications of the environmental professional(s).

(d) The environmental professional must place the following statement in the written document identified in paragraph (c) of this section and sign the document:

[I, We] declare that, to the best of [my, our] professional knowledge and belief, [I, we] meet the definition of Environmental Professional as defined in § 312.10 of this part.

[I, We] have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. [I, We] have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR part 312.

§ 312.22 Additional inquiries.

(a) Persons identified under § 312.1(b) must provide the following information to the environmental professional responsible for conducting the activities listed in § 312.21:

(1) As required by § 312.25 and if not otherwise obtained by the environmental professional, environmental cleanup liens against the subject property that are filed or recorded under Federal, tribal, State, or local law;

(2) As required by § 312.28, specialized knowledge or experience of the person identified in § 312.1(b);

(3) As required by § 312.29, the relationship of the purchase price to the fair market value of the subject property, if the property was not contaminated; and

(4) As required by § 312.30, commonly known or reasonably ascertainable information about the subject property.

(b) [Reserved].

§ 312.23 Interviews with past and present owners, operators, and occupants.

(a) Interviews with past and present owners, operators, and occupants of the subject property must be conducted for the purposes of achieving the objectives and performance factors of § 312.20(d) and (e).

(b) The inquiry of the environmental professional must include interviewing the current owner and occupant of the

subject property. If the property has multiple occupants, the inquiry of the environmental professional shall include interviewing major occupants, as well as those occupants likely to use, store, treat, handle or dispose of hazardous substances (and in the case of inquiries conducted for persons identified in § 312.1(b)(2) pollutants, contaminants, petroleum and petroleum products, and controlled substances (as defined in 21 U.S.C. 802)), or those who have likely done so in the past.

(c) The inquiry of the environmental professional also should include, to the extent necessary to achieve the objectives and performance factors of § 312.20(d) and (e), interviewing one or more of the following persons:

(1) Current and past facility managers with relevant knowledge of uses and physical characteristics of the property;

(2) Past owners, occupants, or operators of the subject property; or

(3) Employees of current and past occupants of the subject property.

(d) In the case of inquiries conducted at "abandoned properties," as defined in § 312.10, where there is evidence of potential unauthorized uses of the subject property or evidence of uncontrolled access to the subject property, the environmental professional's inquiry must include interviewing one or more (as necessary) owners or occupants of neighboring or nearby properties from which it appears possible to have observed uses of, or releases at, such abandoned properties for the purpose of gathering information necessary to achieve the objectives and performance factors of § 312.20(d) and (e).

§ 312.24 Reviews of historical sources of information.

(a) Historical documents and records must be reviewed for the purposes of achieving the objectives and performance factors of § 312.20(d) and (e). Historical documents and records may include, but are not limited to, aerial photographs, fire insurance maps, building department records, chain of title documents, and land use records.

(b) Historical documents and records reviewed must cover a period of time as far back in the history of the subject property as it can be shown that the property contained structures or from the time the property was first used for residential, agricultural, commercial, industrial, or governmental purposes. For the purpose of achieving the objectives and performance factors of § 312.20(d) and (e), the environmental professional may exercise professional judgment in context of the facts available at the time of the inquiry as to how far back in time it is necessary to search historical records.

§ 312.25 Searches for recorded environmental cleanup liens.

(a) All appropriate inquiries must include a search for the existence of environmental cleanup liens against the subject property that are filed or recorded under federal, tribal, state, or local law.

(b) All information collected regarding the existence of such environmental cleanup liens associated with the subject property must be provided to the environmental professional.

§ 312.26 Reviews of Federal, State, tribal and local government records.

(a) Federal, tribal, State, and local government records or data bases of government records of the subject property and adjoining properties must be reviewed for the purposes of achieving the objectives and performance factors of § 312.20(d) and (e).

(b) With regard to the subject property, the review of federal, tribal, and state government records or data bases of such government records and local government records and data bases of such records should include:

(1) Records of reported releases or threatened releases, including site investigation reports for the subject property;

(2) Records of activities, conditions, or incidents likely to cause or contribute to releases or threatened releases as defined in § 312.1(c), including landfill and other disposal unit location records and permits, storage tank records and permits, hazardous waste handler and generator records and permits, federal, tribal and state government listings of sites identified as priority cleanup sites, and spill reporting records;

(3) CERCLIS records;

(4) Public health records;

(5) Emergency Response Notification System records;

(6) Registries or publicly available lists of engineering controls; and

(7) Registries or publicly available lists of institutional controls, including environmental land use restrictions, applicable to the subject property.

(c) With regard to nearby or adjoining properties, the review of federal, tribal, state, and local government records or databases of government records should include the identification of the following:

(1) Properties for which there are government records of reported releases or threatened releases. Such records or databases containing such records and the associated distances from the subject property for which such information should be searched include the following:

(i) Records of NPL sites or tribal- and state-equivalent sites (one mile);

(ii) RCRA facilities subject to corrective action (one mile);

(iii) Records of federally-registered, or state-permitted or registered, hazardous waste sites identified for investigation or remediation, such as sites enrolled in state and tribal voluntary cleanup programs and tribal- and state-listed brownfields sites (one-half mile);

(iv) Records of leaking underground storage tanks (one-half mile); and

(2) Properties that previously were identified or regulated by a government entity due to environmental concerns at the property. Such records or databases containing such records and the associated distances from the subject property for which such information should be searched include the following:

(i) Records of delisted NPL sites (one-half mile);

(ii) Registries or publicly available lists of engineering controls (one-half mile);

(iii) Registries or publicly available lists of institutional controls (one-half mile); and

(iv) Records of former CERCLIS sites with no further remedial action notices (one-half mile).

(3) Properties for which there are records of federally-permitted, tribal-permitted or registered, or state-permitted or registered waste management activities. Such records or databases that may contain such records include the following:

(i) Records of RCRA small quantity and large quantity generators (adjoining properties)

(ii) Records of federally-permitted, tribal-permitted, or state-permitted (or registered) landfills and solid waste management facilities (one-half mile); and

(iii) Records of registered storage tanks (adjoining property).

(4) A review of additional government records with regard to sites identified under paragraphs (c)(1) through (c)(3) of this section may be necessary in the judgment of the environmental professional for the purpose of achieving the objectives and performance factors of § 312.20(d) and (e).

(d) The search distance from the subject property boundary for reviewing government records or databases of government records listed in paragraph (c) of this section may be modified based upon the professional judgment of

the environmental professional. The rationale for such modifications must be documented by the environmental professional. The environmental professional may consider one or more of the following factors in determining an alternate appropriate search distance:

(1) The nature and extent of a release;

(2) Geologic, hydrogeologic, or topographic conditions of the subject property and surrounding environment;

(3) Land use or development densities;

(4) The property type;

(5) Existing or past uses of surrounding properties;

(6) Potential migration pathways (*e.g.*, groundwater flow direction, prevalent wind direction); or

(7) Other relevant factors.

§ 312.27 Visual inspections of the facility and of adjoining properties.

(a) For the purpose of achieving the objectives and performance factors of § 312.20(d) and (e), the inquiry of the environmental professional must include:

(1) A visual on-site inspection of the subject property and facilities and improvements on the subject property, including a visual inspection of the areas where hazardous substances may be or may have been used, stored, treated, handled, or disposed. Physical limitations to the visual inspection must be noted.

(2) A visual inspection of adjoining properties, from the subject property line, public rights-of-way, or other vantage point (*e.g.*, aerial photography), including a visual inspection of areas where hazardous substances may be or may have been stored, treated, handled or disposed. Physical limitations to the inspection of adjacent properties must be noted.

(b) Persons conducting site characterization and assessments using a grant awarded under CERCLA section 104(k)(2)(B) must include in the inquiries referenced in § 312.27(a) visual inspections of areas where hazardous substances, and may include, as applicable per the terms and conditions of the grant or cooperative agreement, pollutants and contaminants, petroleum and petroleum products, and controlled substances as defined in 21 U.S.C. 802 may be or may have been used, stored, treated, handled or disposed at the subject property and adjoining properties.

(c) Except as noted in this subsection, a visual on-site inspection of the subject property must be conducted. In the unusual circumstance where an on-site visual inspection of the subject property cannot be performed because of physical limitations, remote and inaccessible location, or other inability to obtain access to the property, provided good faith (as defined in § 312.10) efforts have been taken to obtain such access, an on-site inspection will not be required. (The mere refusal of a voluntary seller to provide access to the subject property does not constitute an unusual circumstance.) In such unusual circumstances, the inquiry of the environmental professional must include:

(1) Visually inspecting the subject property via another method (such as aerial imagery for large properties), or visually inspecting the subject property from the nearest accessible vantage point (such as the property line or public road for small properties);

(2) Documentation of efforts undertaken to obtain access and an explanation of why such efforts were unsuccessful; and

(3) Documentation of other sources of information regarding releases or threatened releases at the subject property that were consulted in accordance with § 312.20(e). Such documentation should include comments by the environmental professional on the significance of the failure to conduct a visual on-site inspection of the subject property with regard to the ability to identify conditions indicative of releases or threatened releases on, at, in, or to the subject property, if any.

§ 312.28 Specialized knowledge or experience on the part of the defendant.

(a) Persons to whom this part is applicable per § 312.1(b) must take into account, their specialized knowledge of the subject property, the area surrounding the subject property, the conditions of adjoining properties, and any other experience relevant to the inquiry, for the purpose of identifying conditions indicative of releases or threatened releases at the subject property, as defined in § 312.1(c).

(b) All appropriate inquiries, as outlined in § 312.20, are not complete unless the results of the inquiries take into account the relevant and applicable specialized knowledge and experience of the persons responsible for undertaking the inquiry (as described in § 312.1(b)).

§ 312.29 The relationship of the purchase price to the value of the property, if the property was not contaminated.

(a) Persons to whom this part is applicable per § 312.1(b) must consider whether the purchase price of the subject property reasonably reflects the fair market value of the property, if the property were not contaminated.

(b) Persons who conclude that the purchase price of the subject property does not reasonably reflect the fair market value of that property, if the property were not contaminated, should consider whether or not the differential in purchase price and fair market value is due to the presence of releases or threatened releases of hazardous substances.

(c) Persons conducting site characterization and assessments with the use of a grant awarded under CERCLA section 104(k)(2)(B) and who know that the purchase price of the subject property does not reasonably reflect the fair market value of that property, if the property were not contaminated, should consider whether or not the differential in purchase price and fair market value is due to the presence of releases or threatened releases of hazardous substances, pollutants, contaminants, petroleum and petroleum products, and/or controlled substances as defined in 21 U.S.C. 802.

§ 312.30 Commonly known or reasonably ascertainable information about the property.

(a) Throughout the inquiries, persons to whom this part is applicable per § 312.1(b) and environmental professionals conducting the inquiry must take into account commonly known or reasonably ascertainable information within the local community about the subject property and consider such information when seeking to identify conditions indicative of releases or threatened releases, as set forth in § 312.1(c), at the subject property.

(b) Commonly known information may include information obtained by the person to whom this part applies per § 312.1(b) or by the environmental professional about releases or threatened releases at the subject property that is incidental to the information obtained during the inquiry of the environmental professional.

(c) To the extent necessary to achieve the objectives and performance factors of § 312.20(d) and (e), the environmental professional should gather information from varied sources whose input either individually or taken together may provide commonly known or reasonably ascertainable information about the subject property; the environmental professional may refer to one or more of the following sources of information:

(1) Current owners or occupants of neighboring properties or properties adjacent to the subject property;

(2) Local and state government

information related to, the subject property;

(3) Others with knowledge of the subject property; and

(4) Other sources of information (*e.g.*, newspapers, websites, community organizations, local libraries and historical societies).

§ 312.31 The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation.

(a) Persons to whom this part is applicable per § 312.1(b) and environmental professionals conducting an inquiry of a property on behalf of such persons must take into account the information collected under § 312.23 through 312.30 in considering the degree of obviousness of the presence of releases or threatened releases at the subject property.

(b) Persons to whom this part is applicable per § 312.1(b) and environmental professionals conducting an inquiry of a property on behalf of such persons must take into account the information collected under § 312.23 through 312.30 in considering the

www.epa.gov/brownfields before the date of the public meeting. The public meeting will be held on Wednesday, September 22, 2004 in St. Louis, Missouri at the times and location specified below.

The purpose of the public meeting is for EPA to listen to the views of stakeholders and the general public on the Agency's proposed standards and practices for all appropriate inquiries. During the public meeting, EPA officials will discuss the proposed rule, as well as accept public comment and input on the proposed rule.

DATES: The public meeting will be held on September 22, 2004 at America's Center in St. Louis, Missouri. The meeting will be held from 1 p.m. to 3 p.m. c.d.t.

ADDRESSES: The public meeting will be held in America's Ballrooms 221 and 222 of The America's Center, 701 Convention Plaza, St. Louis, Missouri, 63101.

FOR FURTHER INFORMATION CONTACT: For additional information, contact Patricia Overmeyer of EPA's Office of Brownfields Cleanup and

assistance, such as sign language interpretation or other reasonable accommodations, contact Patricia Overmeyer, at the above email address or phone number.

Interested parties not able to attend the public meeting on September 22, 2004 may submit written comments to the Agency. All written comments must be submitted to EPA in compliance with the instructions that will be provided in the preamble to the proposed rule. This instructions are summarized below.

Parties wishing to comment on the proposed rule may submit written comments to EPA. Submit your written comments, identified by Docket ID No. SFUND–2004–0001, by one of the following methods:

1. *Federal eRulemaking Portal: http://www.regulations.gov.* Follow the on-line instructions for submitting comments.

2. *Agency Web site: http://www.epa.gov/edocket.* EDOCKET, EPA's electronic public docket and comment system, is EPA's preferred method for receiving comments. Follow the on-line instructions for submitting comments.

CA-IR-39

Ref: Environmental Protection Agency Regulation 316 (b) Intake Structure Regulation.

Please provide the following:

a. A copy of the noted regulation;

b. A copy of all plans and studies undertaken to-date to respond to enacted regulation;

c. The construction investment budgeted by month, by NARUC account associated with compliance for each month of the 2005 test year;

d. The actual construction investment by month, by NARUC account associated with compliance for each month available to-date since enactment;

e. The actual operation and maintenance expense incurred by month, by NARUC account for each month available since enactment of the regulation; and

f. The budgeted operation and maintenance expense by month, by NARUC account for each month of the 2005 test year.

HECO Response:

a. Due to the voluminous nature of regulation 316(b), one copy will be provided as Attachment 1 (229 pages) to the Consumer Advocate and the Public Utilities Commission under separate transmittal.

b. Copies of all plans and studies undertaken to date are provided on pages 3 to 38 to this response. This includes consultant's (EPRI Solutions) proposal and implementation schedule.

c. There is no construction-related investment budget proposed for 2005 at this time. Currently, efforts to comply with 316(b) regulations are to develop a cost effective compliance strategy, develop and implement a monitoring plan, and conduct preliminary assessment of alternative technological and/or operational measures for compliance. After studies are completed in approximately three years, a determination will be made if capital

expenditures for engineering controls will be required. Construction of such controls may commence in 2008.

d. Not available at this time. See response to (c) above.

e. There were no outside services incurred during 2004. HECO O&M labor to track and interpret 316(b) rules and solicit/negotiate consultant proposals were mainly covered under ABM Activity 876 and is not discernible from other water related O&M charges. A separate tracking account was established to track 316(b) implementation costs/charges for 2005 and beyond.

f. Commencing in February 2005, a separate tracking account was established to track 316(b) implementation costs/charges for 2005 and beyond.

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EPRI SOLUTIONS

July 15, 2004

Mr. Kirk Tomita
HECO

via electronic mail

Subject: **RFP for 316(b) Compliance Support for HECO**

Dear Kirk:

We are very pleased to enclose our proposal for providing 316(b) Compliance Support for three of HECOs's facilities, Kahe, Waiau and Honolulu. We have provided prices as requested for our Options 3. EPRIsolutions in partnership with Alden Research Laboratories and ASA has assembled a unique and deeply experienced team that has been actively engaged in the 316(b) rule development, conducted many preliminary assessments for facilities based on the proposed rule, and now is providing strategic compliance planning assessments based on the final 316(b) Phase II regulations. As we submit this proposal for your consideration, we would like to make the following points:

1. Our scope of work is based on our recent experience in performing exactly the type of compliance efforts that HECO needs for numerous other utility companies. We have worked at over 80 power plants located throughout the U.S. on all waterbody types. Our clients have found that our approach meets all of their 316(b) compliance needs.
2. Our price, which we believe to be very competitive, is based on a realistic assessment of the complexity of the proposed rule and the steps that will best meet your strategic and financial goals. In addition, HECO TC funds can be used for this work although it is our understanding you have elected not to use them for this project.
3. The work you have requested offers a thoughtful and systematic compliance assessment approach and provides HECO an excellent opportunity to reduce future compliance costs. We fully intend to work with you and your staff to make use of the depth and breadth of HECO's experience to ensure the best possible product.
4. Our team has extensive experience working with regulatory agencies responsible for 316(b) permitting. Through multiple past projects, we have developed solid relationships with federal agency staff and successfully earned their respect. As State regulators continue to increase number of complex compliance options available under the final Phase II Rule, the experience of this team will be an asset to HECO.

Environment Division
1299 4th Street | Ste 307 | San Rafael CA 94901 USA | 415.454.8800 | Fax 415.454.8012
EPRIsolutions, Inc., A SUBSIDIARY OF EPRI
3412 Hillview Avenue | Palo Alto CA 94304-1395 USA | 650.855.2000 | Customer Service 800.313.3774 | www.eprisolutions.com

5. We have full capability to provide HECO with additional services for follow on work that is likely to be required after the assessment studies requested in the current RFP are complete.

We invite your close review of the material submitting; it reflects the dedication of our staff and contractors who have spent much of their careers working exclusively on understanding and providing solutions to issues presented by Section 316 of the Clean Water Act. We are very proud of our team and welcome your questions. Thank you for the opportunity to provide this proposal.

Sincerely,

David E. Bailey
Associate Director, Clean Water Act Programs

Cc: Mr. Donn Fukuda
Mr. Mr. Mike Carberry

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PROPOSAL FOR SERVICES

Project Title:
316(b) Compliance Strategy for Cooling Water Intake Structures
(Option 3)

Proposal 221080

Submitted to:
Hawaiian Electric Company (HECO)
Kirk Tomita
July 15, 2004

Point of Contact:
David Bailey, EPRIsolutions
Telephone: 571-643-2320
Email: dbailey@eprisolutions.com

This proposal contains proprietary information and data that shall not be duplicated, used or disclosed – in whole or in part – for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offer as a result of, or in connection

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1 INTRODUCTION

The Clean Water Act calls for the Environmental Protection Agency (EPA) to establish the best technology available to protect fish, shellfish and other forms of aquatic life. On February 16, 2004, EPA established location, design, construction and capacity standards for cooling water intake structures at large power plants. The EPA Phase II § 316 (b) regulations (Rule) for existing utility intake structures requires all existing power plants that withdraw over 50 MGD of cooling water from a designated water of the United States to meet flexible "best technology available" (BTA) standards.

EPA's final § 316 (b) Phase II rule requires all existing power plants to meet technology based standards by reducing impingement 80 to 95% and if applicable a requirement to reduce entrainment by 60 to 90%. However, there is considerable flexibility in terms of compliance options.

The Rule requires all existing power plants to reduce impingement losses by 80% to 95% and many facilities to meet entrainment reduction performance standards of 60% to 90%. Optimizing a corporate strategy for complying with the Rule requires a thorough understanding of regulatory, ecological, and technological components of the Rule.

EPRIsolutions, Alden Research Laboratory, Inc. (Alden) and ASA Analysis & Communications, Inc. (ASA) have joined together to provide the industry's most experienced and qualified team available for addressing §316 (b) compliance issues. Our Team includes national experts in the fields of engineering, biology, and policy regulations. We have developed a six-step approach that will ensure that HECO's needs are met in a cost-effective manner. For a more detailed description of our capabilities and approach, please refer to our "Statement of Experience and Qualifications" document.

The EPRIsolutions, Alden, ASA partnership produced the industry's most qualified team for addressing 316(b) compliance issues.

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2 PROJECT DESCRIPTION

Project Need

HECO has requested that the Team perform the initial work required to cost-effectively comply with the Rule by making use of the regulatory flexibility provided by the Rule. Specifically, the Team will develop strategic compliance plans based on alternative fish protection technologies, prepare the Proposal for Information Collection, provide HECO with budget estimates to comply, and complete the Comprehensive Demonstration Study. The preliminary information provided by HECO indicates that Kahe, Waiau, and Honolulu are required to meet both the impingement mortality and entrainment (IM&E) reduction standards.

HECO has 3 facilities subject to 316(b) requirements.

The facilities to be evaluated in this proposal include:

FACILITY NAME	WATERBODY
Kahe generating station	Pacific Ocean
Waiau generating station	Pearl Harbor, Pacific Ocean
Honolulu generating station	Honolulu Harbor, Pacific Ocean

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Project Goals

The Team will provide HECO with:

1. **A Cost-Effective Compliance Strategy** – Each facility will be evaluated to develop the most cost-effective §316(b) compliance strategy. The Rule provides a variety of options for achieving compliance, as well as collecting and developing the necessary supporting information. This project will utilize the Rule's flexibility to develop a compliance approach that uses the most cost-effective compliance plan and data collection requirements to support that plan.
2. **A Preliminary Assessment of Technologies and/or Operational Measures** – The Rule is technology based. All of the options require an examination of intake design and operational measures at some level to demonstrate fish and shellfish will be protected in conformance with applicable performance standards. Most of the options require a detailed evaluation of alternative technological and/or operational measures that will allow HECO to determine the feasibility, effectiveness, and cost for of fish protection technologies and/or operational measures for compliance. Because several options include use of restoration as an alternative means of compliance, use of such measures are also considered in the evaluation. The results of this assessment will provide the basis for the overall compliance strategy.
3. **A Proposal for Information Collection** – The first element of the Comprehensive Demonstration Study (CDS) is the Pro-

This work will provide HECO with:

- A Cost-Effective Compliance Strategy.
- A Preliminary Assessment of Technologies and/or Operational Measures.
- An Estimate of 316(b) Compliance Costs.
- Agency Negotiation Support (optional)

and will address the following EPA requirements:

- Best Professional Judgment Analysis (BPJ) of alternative fish protection options
- Identify opportunities for credit against the Calculation Baseline
- Reveal options for the Impingement Mortality

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nologies and/or operational measures, as well as restoration measures will provide HECO with an estimate of the approximate cost for each compliance option.

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Methodology

The approach used in this proposal allows HECO to complete all necessary work for cost-effective strategy planning and budgeting. This work will be implemented through the six (6) tasks discussed below.

Task 1 – Review of Facility Information and Site Visits

The main focus of Task 1 will be to understand the site-specific conditions of each facility through a preliminary review of the available facility information and a site visit. The task will consider the current intake configuration, operation and maintenance. Any fish protection technologies or operational measures currently being used to reduce impingement mortality and entrainment will be evaluated to determine whether credit is available to at least partially meet the Rule's performance standards. This task will also include a review of available data on the source waterbody, the fish and shellfish community in the vicinity of the plant intake, and previously collected impingement and entrainment data.

During the site visit at each facility a meeting will be held with appropriate HECO personnel for the purpose of directly observing and understanding facility operations relevant to the cooling water intake structure (CWIS) and cooling system evaluation. Any questions concerning the approach and permitting process for this project will also be addressed.

Our condensed methodology includes six (6) main Tasks:

- Review facility information and visit sites.
- Conduct preliminary assessment of technologies and operational measures.
- Prepare Strategic Compliance Plan.
- Prepare PIC.
- Report results.
- Support agency meetings and communication.

The goal of Task 1 is to understand the site-specific conditions of each facility and clarify any questions raised by the review of facility information.

Prior to the site visits, HECO will provide the key information listed below for review. A detailed checklist of all the information required from HECO is provided in the Supplement section of this proposal. We assume that all data listed in the detailed checklist will be available for each facility at the start of Task 1. The general categories of information required are:

1) Information Provided to EPA to Support Their Phase II Rule Development
2) Circulating Water System
3) Cooling Water Intake Structure
4) Circulating Water Pumps
5) Condenser Data
6) Facility Operations
7) Biological Data
8) Restoration Data

We recognize that, in some cases, not all of the information will be available. However, as much of the information as possible should be provided. Any critical piece of missing information will be discussed with HECO prior to or during the site visit.

In order to maximize Task 1, each facility will need to provide information on the following topics:

- Information Provided to EPA to Support Their Phase II Rule Development
- Circulating Water System
- Cooling Water Intake Structure (CWIS)
- Circulating Water Pumps
- Condenser Data
- Facility Operations
- Biological Data
- Restoration Data

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(IM&E) reduction. These include coarse or fine mesh Ristroph traveling screens, coarse or fine mesh wedgewire screens, artificial filter barriers, and barrier nets. In addition, the Team will evaluate technologies that might meet the performance standards but were not identified by EPA. The results of Task 2 will be summarized in a confidential letter to HECO.

The "Best Professional Judgment" (BPJ) analysis presented in this letter will be adequate for:

- assessing potential use of the Cost-Cost test for requesting a site-specific determination of BTA, by providing engineering cost estimates for feasible technologies and comparing them to the costs EPA considered when formulating the Rule (Appendix A and B);
- providing the cost basis for consideration of using the Cost-Benefit test as a basis for requesting a site-specific determination of BTA;
- provide the engineering information to support that technologies and/or operational measures are less feasible, cost effective or environmentally desirable than use of restoration;
- identifying alternative cost-effective technologies or [illegible]

The information developed in Task 2 is critical to developing a Strategic Compliance Strategy and the EPA required Proposal for Information Collection (PIC), and will supply a Best Professional Judgment (BPJ) analysis as to the feasibility, effectiveness, and cost of alternative fish protection technologies.

credit against the "calculation baseline" and cost effective approaches for the "IM&E Characterization Study". The Strategic Compliance Plan for each facility will consider the following aspects of the Rule:

- **Five options for compliance:**

1. Demonstrating flows commensurate with wet closed-cycle cooling or a maximum design intake through-screen velocity of 0.5 ft/sec for impingement.
2. Demonstrating that technologies, operational measures, and/or restoration measures have been implemented to meet the performance standards.
3. Proposing installation of technologies, operational measures, and/or restoration measures that will meet the performance standards.
4. Proposing use of EPA-approved design and construction technology.
5. Demonstrating that the facility qualifies for site-specific standards by satisfying the requirements of either the Cost-Cost Test or Cost-Benefit Test.

- **Four possible alternatives for providing Impingement Mortality and Entrainment Characterization Study (IM&E Study)**

1. Use of historical data
2. New impingement and/or entrainment studies
3. Use of source waterbody biological data
4. Use of data from another facility that can be demonstrated to be appropriate for the facility evaluated

The strategic assessment will consider these four alternatives for the IM&E study in order to recommend the most cost-effective approach for completing this component of the CDS. The strategy will fully consider opportunities to avoid costs of new studies. However, care will be taken to ensure that adequate data are collected to demonstrate performance standards compliance, while still providing the data required for the verification study or restoration monitoring after compliance measures are implemented.

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- **The technologies and/or operational measures identified**

The Strategic Compliance Plan will address the fish protection technologies and/or operational measures identified in Task 2 and their associated effectiveness and estimated costs. It will

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The strategic compliance plan will include cost estimates and multi-year budgets to:

1) Implement technology and/or operational measures needed to meet the selected compliance alternative as developed in Task 2;
2) Prepare and Implement the Comprehensive Demonstration Study Plan as recommended in Task 3;
3) Implement the Verification Monitoring Plan; and,
4) Meet the record keeping and reporting requirements.

The strategic plan will also provide a multi-year schedule to implement the §316(b) requirements based on the strategic compliance plan. First, a general schedule for overall compliance will be developed to provide HECO with a framework and schedule to achieve compliance. A facility-specific schedule will also be developed based on the strategic compliance approach developed for

ods to be used, methods used in other studies in the source waterbody, a description of the study area (including area of influence of the CWIS) and taxonomic identifications for all life stages and species of fish and shellfish to the extent known prior to sampling.

In addition, if Cost-Benefit analyses are to be conducted, the proposal must identify methods that will be used for valuation of benefits and details of impingement and/or entrainment survival studies, if such studies are proposed. Unless directed otherwise, we will use a benefits transfer approach. That is, we will attempt to find existing studies that deal with situations and species similar to the ones relevant to us. These values will be updated and adjusted for relevant factors such as inflation. If during the PIC, the situation should arise that more precision is necessary, then we would develop another proposal that would, in all likelihood, require sampling the general population and anglers. The cost of a study of this nature depends on the extent of the population studied but would undoubtedly be in excess of the cost of the benefit transfer approach. Use values of commercially and recreationally species will be based on the following process:

1.) Assess the general magnitude of the reduced mor-

ties, state and federal agencies. There are existing databases of sportfish values that can be accessed that may focus the search.

5.) Use available information on prices and commercial harvests to make an assessment of the potential for lost profits to commercial fishermen. In general, the USEPA procedure of using some percentage of lost revenue (0-40 %) will be followed.

6.) Determine the extent of losses to consumers of commercially harvested fish. This will entail use of an existing study or using available data to obtain a demand or inverse demand function.

7.) Using information obtain in 1.) - 6.) determine the likely range of losses associated with each species.

While non-use values are not expected to be proposed, however, if required by the NPDES permitting authority the process will involve:

1) Determine, in conjunction with state and federal officials, the likelihood that any change will result in increase numbers of ecological keystone, rare, or sensitive species, increase numbers of exotic or disruptive species, lessen disruption of ecological niches and ecological strategies used by aquatic species, increase local biodiversity, lessen disruption of predator-prey relationships, lessen disruption

will be presented. This will show the costs per saved organism (or similar metric) for various technologies that may not be as costly as the closed-cycle cooling approach.

Our initial PIC benefits valuation method pricing is based on the assumption that use values only will be required.

Presuming that the cost/benefit approach is deemed appropriate, an onsite examination of the fishing area is proposed late in the implementation stage. By speaking with anglers and developing a decent knowledge of the local circumstances, we can adequately assess whether an existing study is relevant. Moreover, an examination will make contact with plant personnel who may know of gray literature that would be useful. They will also know whether our information is in concert with their general beliefs about the circumstances. If it is necessary to do sampling of fishermen, this visit will help determine the best study design.

The overall PIC will be prepared in a manner that fully conforms to the requirements in the Rule and consistent with the strategic compliance plan developed in Task 3. In developing the PIC, every effort will be made to maximize use of existing data, recognizing that biological sampling is the most costly component of the CDS. However, the plan will consider the establishment of a calculation baseline that provides a sound basis for comparison with data collected during Verification Monitoring. Should IM&E sampling be required, it will fully conform to the requirements identified in item 4 of the PIC.

The results of Task 2 (Preliminary Assessment of Technologies and/or Operational Measures) will satisfy item 1 of the PIC by identifying the proposed technologies and/or operational measures to be evaluated. The Team will rely on HECO to provide previous IM&E study reports and documentation of resource agency consultations. This information will be summarized and used to satisfy the requirements of items 2 and 3. The price of the technology and operational measures component of the PIC is based on the assumption that the initial PIC work will be an evaluation of the feasibility, effectiveness and costs of alternative fish protection technologies. Once HECO has determined that one or more technologies and/or operational measures are a cost-effective approach to compliance, more detailed work in the form of pilot studies can be

considered. Such studies will verify site-specific feasibility (i.e. biofouling, debris loads, etc.) and/or biological effectiveness (i.e., ability to meet the standards) of the options selected in Task 2. The Team may recommend site-specific pilot studies to address these issues.

Should HECO wish to include pilot studies in the PIC, estimated costs for preparing study plans will be provided to HECO as part of a future proposal. Such plans are considered to be beyond the scope of the currently proposed project because of the scope of pilot studies that may be required cannot be defined at this time. The PIC will be managed in an adaptive manner such that it can be modified at any point to accommodate pilot studies.

Based on the Strategic Compliance Plan and PIC, the nature of the monitoring plan (Para. 125.96 of the Rule) and record keeping and reports requirements (Para. 125.97 of the Rule) will be discussed. This discussion will focus on the key compliance options identified in the facility plan based on the compliance option selected for the facility.

The goal of Task 5 is to prepare and present the results of the study.

If included in the Strategic Compliance Plan, the PIC will discuss HECO's intention to use restoration measures, the nature of such restoration measures, and the general approach to evaluate these alternatives. Similarly, should a Cost-Benefit test be proposed, the methods for benefits valuation will be provided as required by the Rule.

Task 5– Reporting and Presentation of Results

Task 5 will communicate the results of this project by preparing the necessary reports and documents. Four documents will be prepared during the course of this project, as described in the Deliverables section of this report.

Task 6 (optional) – Support for Meeting with State and/or Federal Agencies

The goal of Task 6 is to support HECO in meeting with Federal and/or state agencies.

As an optional Task, the Team will support HECO in a meeting with NPDES permitting authorities and any other state or federal agencies that are appropriate to invite. This meeting will help educate the agency or agencies on consistency of the overall compliance plan with the final §316(b) Phase II Rule and will provide the basis for the PIC. This work would include preparation of a Microsoft PowerPoint® presentation and attendance at the meeting.

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The presentation, at the direction of HECO, will include a summary of the §316(b) Phase II Rule, a summary of the compliance approach (based on the Strategic Compliance Plan developed in Task 3), and a summary of the PIC. The cost estimate for this task is based on a one-day meeting, time for preparation of the presentation, and a two-week notice prior to meeting with the State in order to ensure low cost airfares for travel to the meeting.

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Deliverables

There are four primary deliverables for this work:

1. **A "Preliminary Assessment of Fish Protection Technologies and Operational Measures" based on the results of Task 2.** The engineering assessment is limited to a 4-6 page letter report with a table listing the feasibility, effectiveness, and cost of the fish protection technologies and/or operational measures that could be used to meet the performance standards. The potential for each technology or operation measure to meet the appropriate performance standards will be evaluated. While this document would not meet the standard for use in the CDS, it is entirely adequate for the purpose of developing the strategic cost-effective compliance plan. It is also suitable to serve as the basis for identification of the technologies and/or operational measures to be evaluated in the PIC. Development of the complete technology and operational assessment report is deferred to a later date. The cost for completing a full engineering assessment is identified in the cost estimates to implement the PIC and prepare the CDS.

2. **A "Strategic §316(b) Compliance Plan" based on the results of Tasks 2 and 3.** This document will also contain estimates of costs for completion of the CDS and a preliminary estimate of potential compliance costs based

This work will provide HECO with the following important deliverables:

- An Assessment of Fish Protection Technologies and Operational Measures.
- A Strategic 316(b) Compliance Plan with budget forecasts for studies, reporting and compliance.
- A Proposal for Information Collection.
- An optional presentation to agencies.

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3 PROJECT TEAM

We are pleased to provide an experienced multi-discipline project team to meet the needs of HECO. We have assembled a team of experienced professionals possessing a wealth of combined expertise. Our Team will provide HECO with the highest quality services and deliver a successful project.

Our demonstrated ability to provide clients with excellent technical services and strong, responsive project management is unsurpassed.

Our clients are an invaluable part of our project, and we work closely with them. We keep them well informed of all progress and consistently incorporate their input into project development and implementation. We are committed to providing our clients with high quality professional services that will be the foundation of long-term relations.

The engineering evaluation of alternative fish protection technologies and/or operational measures will be performed by Alden. Alden is a national expert on fish protection technologies and provided technical consultation for UWAG and EPRI during the Phase I and Phase II rulemaking.

Alden is currently conducting or has recently completed detailed §316(b) alternative fish protection technology and operational assessments for Detroit Edison's Belle River facility, Mirant's Bowline and Canal Stations, four Southern Company plants (under contract to EPRI), and Ameren's Sioux, Newton, and Meramec facilities. In addition to these detailed evaluations, Alden is currently conducting or has recently completed numerous preliminary §316(b) technology reviews for several power companies with EPRI and EPRIsolutions, including Dominion Energy, NPPD, Exelon, Entergy, FirstEnergy, AES, Dairyland, LADWP, Reliant, and SCE&G. Additional fish protection intake evaluations are being conducted for Ontario Power Generation.

ASA will be responsible for evaluating baseline impingement mortality and entrainment, and determining the biological and economic benefits of existing and proposed intake technology, operational and restoration alternatives for each facility. As necessary, ASA will design biological monitoring programs (e.g., impingement mortality and entrainment characterization) that are specifically suited to each site and can conduct or supervise these monitoring programs or other biological sampling to obtain data required for a CDS.

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ASA staff have conducted §316(b)-related studies at more than 35 power plants throughout the country, and each senior ASA staff member has more than 25 years of continuous experience in such studies. These studies include three of the most complex §316(b) assessments conducted anywhere (Salem Generating Station, Diablo Canyon Power Plant, and Hudson River Utilities). Ongoing studies are being conducted for Dynegy, Mirant, Entergy, Consolidated Edison, KeySpan, New York Power Authority, Public Service Electric and Gas, and Pacific Gas and Electric, all of which include site-specific quantitative modeling of the biological benefits of intake alternatives.

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Team Roles and Responsibilities

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projects as an alternative to BTA to satisfy §316(b) requirements and more recently has successfully negotiated a memorandum of understanding to credit production of a company-owned aquaculture facility toward compliance with §316(b) Phase II final regulations. He has published numerous articles on §316(b) in peer-reviewed literature.

Thomas Cook, Alden - Engineer

Mr. Cook will manage the project activities for Alden. Mr. Cook will be assisted by Mr. Nathaniel Olken (Civil Engineer) and Mr. Jonathan Black (Biologist).

As Director of Environmental Engineering, Mr. Cook is responsible for conceptual and detailed design engineering efforts related

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- Developed deterrent/behavioral devises
- Specializing in economic

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Nathaniel Olken, Alden – Civil Engineer

Mr. Olken will assist Mr. Cook in all engineering tasks. Mr. Olken received his B.S. in Civil Engineering from University of Massachusetts, Amherst. Nate is responsible for analyzing the current structural components of cooling water intakes and determining which technologies will meet the proposed regulations and the costs associated with their application. Mr. Olken contributed technical comments to UWAG and EPRI during the recent EPA rulemaking. His ability to comprehend both technical engineering and biological reports makes him an important member of Alden's §316(b) team.

William Dey, ASA

Mr. William Dey will serve as the manager of all biological study components for ASA, and will be supported by Drs. James McLaren and John Young. Mr. Dey, in particular, will be responsible for the performance of cost-benefit evaluations. Mr. Dey has more than 30 years of experience in the design and analysis of biological monitoring programs to estimate losses resulting from impingement and entrainment at cooling water intake structures. He has personally directed impingement and entrainment monitoring studies and assessments at more than 15 power plants throughout the United States and is currently principal investigator for the development of national guidelines for design of entrainment and impingement monitoring studies, being sponsored by the Electric Power Research Institute.

James McLaren, Senior Scientist (ASA)

Dr. McLaren, along with Dr. Young, will provide support to Mr. Dey, including preparation of impingement and entrainment characterization sampling plans, data analysis, and reporting activities for the impingement and entrainment characterization study. Dr. McLaren has more than 30 years of experience in designing and conducting environmental monitoring studies, including numerous CWA §316(a) and (b) studies for which he has served as technical director, project manager or senior advisor. His extensive experience in Natural Resource Damage Assessments will be used in support of restoration alterative evaluations.

RELEVANT EXPERTISE OF SUPPORTING TEAM

- Biological
- Civil engineering
- Financial analysis

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John R. Young, Senior Scientist/Associate (ASA)

Dr. Young has over 25 years of experience in §316(b) and other environmental issues, both as a consultant and an employee of the electric utility industry. He has been instrumental in the continuing Hudson River §316(b) monitoring programs since the 1970's and is intimately familiar with current issues and practices of §316(b) permitting. Through participation in UWAG and EPRI efforts, he has helped coordinate the industry response to environmental regulations involving §316(b), pesticides, electromagnetic fields, dredging, transmission corridor management, wetlands and wildlife. Dr. Young also provides technical direction for ASA's applied statistics and empirical modeling services.

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Other Key Team Members Available As Needed:

Douglas Dixon, Ph.D., EPRI - Manager, Water Quality and Fisheries Research

Dr. Dixon has over 25 years of professional experience in aquatic ecology, fisheries science, and environmental impact assessment for public and private sector clients. His current professional focus is in fisheries research and the assessment of environmental impacts on aquatic resources from operation of thermal and hydroelectric power plants. Research interests include the early life history (e.g., age, growth, mortality, and recruitment) of migratory fish.

As Manager of the Hydropower Environmental Issues Research Program (instream flows, fish passage and protection, dam removal, ecosystem restoration, and water resource management research), Dr. Dixon provides management and technical support to the Clean Water Act Section 316 (a & b) Fish Protection Issues Research Program (aquatic ecosystem evaluation, ecological risk analysis, fish protection technologies).

Edward P. Taft, Alden – President

Mr. Taft is President of Alden and currently oversees Alden's 316(b) team. He received his B.S. in Biology from Brown University and his M.S. in Biology from Northeastern University. In addition to his role as President, Ned is responsible for Alden's environmental services. He has over 30 years experience in developing and testing fish protection technologies for both cooling water and hydroelectric project intakes. This experience currently places him in a unique position to oversee all aspects of 316(b)-related issues.

Stephen V. Amaral, Alden – Director, Fisheries

Mr. Amaral has extensive experience in the assessment and resolution of fish passage and protection issues at all types of water intakes. This experience has been developed over the past 14 years through the management of laboratory and field evaluations of developing and existing fish passage technologies. Mr. Amaral also performs evaluations of aquatic resource impacts for Federal Energy Regulatory Commission (FERC) Environmental Impact Statements and for meeting Clean Water Act (CWA) Section

Additional experts are available as needed.

316(b) requirements. Mr. Amaral is the author of several comprehensive reports describing the status of fish passage technologies and he was the lead in the development of a guideline document for turbine entrainment and survival studies. Recent projects that Mr. Amaral has been involved with include overseeing the biological evaluation of a Fish-Friendly Turbine, the development of an entrainment and impingement database for cooling water intakes, estimation of turbine and spillway survival at small hydro plants, a laboratory assessment of wedge-wire screen entrainment and impingement, and an evaluation of estuarine fish responses to behavioral technologies.

Steven M. Jinks, ASA – President

Dr. Jinks is a senior scientist with 30 years of experience supervising and conducting environmental research, field investigations, literature reviews, regulatory analysis, preparation of environmental impact statements and reports, litigation support and expert testimony, and other client services. He spent 21 years as a scientist, project manager, and vice president at EA Engineering, Science and Technology, Inc. where he was involved in dozens of projects involving ecological and human health risk assessment, development of biological monitoring equipment and protocols, and environmental management and restoration. Since establishing ASA Analysis & Communication in 1997, he has consulted extensively on the impacts industrial and municipal high-volume water intakes, including §316(b) demonstrations and alternative technology evaluations.

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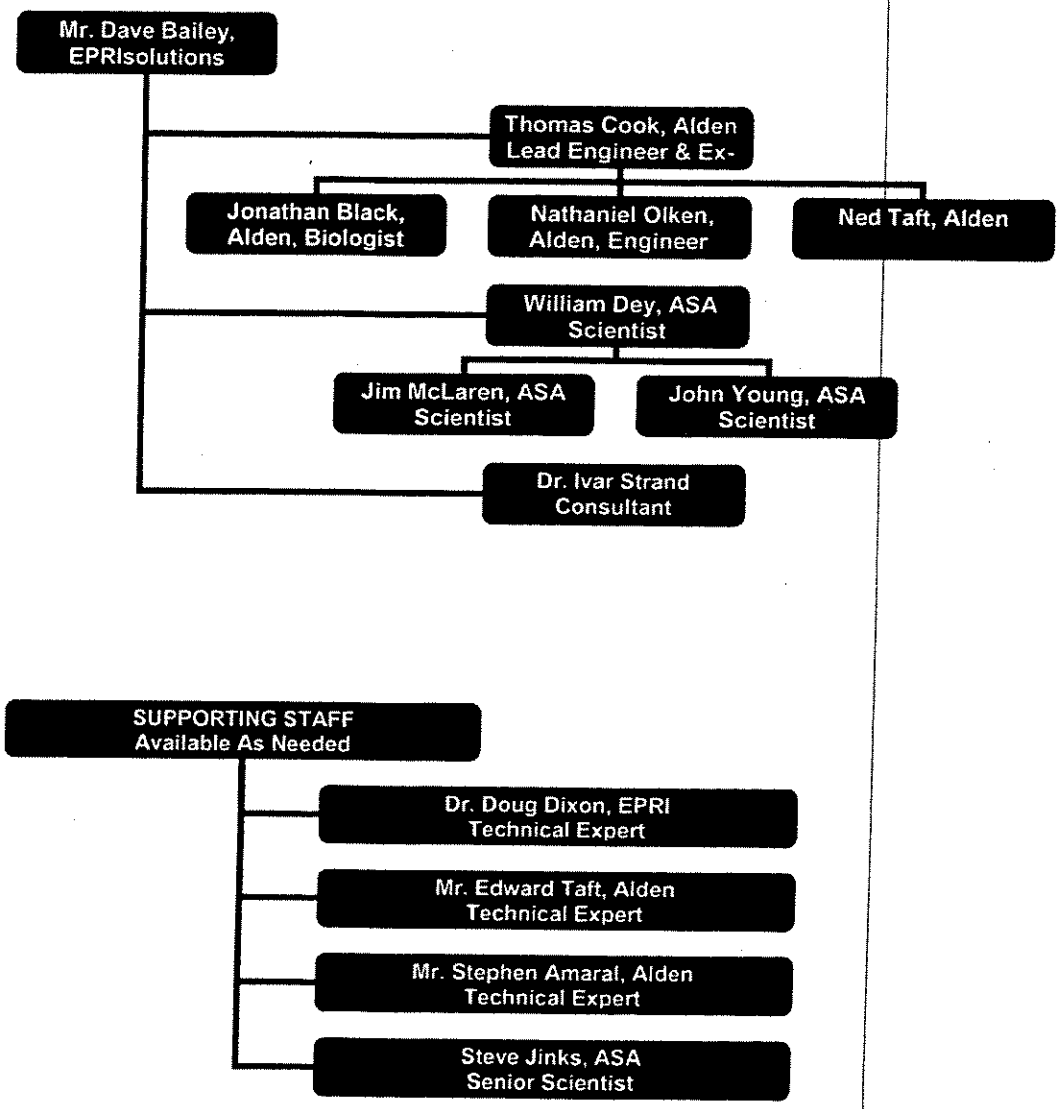
Organization of Expert Team



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4 PRICE & SCHEDULE

Schedule

The schedule for completing the work will be metered by achieving certain milestones and assumes contract signature by July 30,

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Price

The proposal is budgeted on the assumption that all 3 Phase II facilities can be visited over a 2 day period with about one-half day needed for each site.

The fixed price for the work offered in this proposal is $154,000. The additional price for the optional trip and meeting with regulatory agencies is $12,500.

The Price for the Proposed Services is $154,000.

Payment Schedule

Billing for this project will be on a milestone basis with the following schedule:

Project Initiation:	$25,000
Draft Technology Report & Strategic Plan:	$50,000
Draft PIC Submitted:	$50,000
Final PIC Submitted:	$29,000
Optional Trip:	$12,500

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5 TERMS AND CONDITIONS

The terms in this proposal are valid for a period of 60 days from date of submission.

EPRIsolutions standard billable services terms and conditions apply.

This proposal contains proprietary information and data that shall not be duplicated, used or disclosed – in whole or in part – for any purpose other than to evaluate this proposal. If, however, a con-

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6 SUPPLEMENTAL INFORMATION

Complete Checklist of Information Needed For Task 1

1) Information Provided to EPA to Support Their Phase II Rule Development
   - ☐ Assigned plant code for 308 Questionnaire
   - ☐ Completed (long or short-form) EPA 308 Questionnaire

2) Circulating Water System
   - ☐ Project general arrangement/overall site drawings
   - ☐ Piping layout and profile
   - ☐ Hydraulic grade line estimates
   - ☐ Discharge structure drawings

3) Cooling Water Intake Structure (CWIS)
   - ☐ Plans and sections showing intake bays, bar racks, traveling screens, and pumps
   - ☐ Details of any existing fish protection features, including fish return troughs/pipes
   - ☐ Debris troughs configuration
   - ☐ CWIS design flows
   - ☐ CWIS actual flows
   - ☐ Water surface elevations
   - ☐ Screen mesh size and geometry
   - ☐ Screen spraywash volumes (high pressure and low pressure)
   - ☐ Screen rotational speeds
   - ☐ Bathymetric data in vicinity of the CWIS
   - ☐ Icing conditions (problem, inspection, and/or maintenance reports)
   - ☐ Sedimentation/dredging issues (problem, inspection, and/or maintenance reports)
   - ☐ Available velocity data (magnitude and direction) upstream of, and in, the CWIS
   - ☐ Debris history (type, time, frequency for screen, and trash rack cleaning)
   - ☐ Any other operational problems

4) Circulating Water Pumps
   - ☐ Performance curve
   - ☐ Recent performance data or test results
   - ☐ Design data, specification, configuration drawings
   - ☐ Pumphouse plans and sections

5) Condenser Data
   - ☐ Design drawings (general arrangement, steam dome)
   - ☐ Recent performance data
   - ☐ Any significant as-built modifications (such as Taprogge debris filter)
   - ☐ Inlet water temperatures throughout year

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6) Facility Operations

- ☐ Facility output (MW)
- ☐ Operating mode (peaking, base load) with information on schedule
- ☐ Facility capacity factor
- ☐ Five years (minimum) of operational data (MW, MWh, and intake flow) that is considered to be representative of the expected plant operation reflecting seasonal variations.
- ☐ Evaluated cost of a MW (capacity and energy) with seasonal variations
- ☐ Estimated remaining facility life

7) Biological Data

- ☐ Existing impingement and entrainment monitoring data (for example, historical 316(b) demonstration studies)
- ☐ Description of biological resources in the vicinity of the CWIS
- ☐ Species to be protected (include threatened or endangered, if appropriate)
- ☐ Life stage occurrence and abundance
- ☐ Diurnal and seasonal differences is species composition or abundance

8) Restoration Data

- ☐ Existing off-site mitigation projects that directly address intake impacts (such as wetland restoration, fish hatchery, artificial reef construction, and other habitat restoration related projects)
- ☐ Major ecological assets (wetlands, shoreline habitat) that could be used/donated to offset CWIS impacts
- ☐ Facility or corporate stewardship programs that can be further developed to meet restoration requirements in EPA's Rule
- ☐ Restoration activities of interest to state and federal resource agencies and tribes in your operating area (for example, is your state agency engaged [or interested] in restoration activities such as wetland restoration or other habitat restoration).

We recognize that, in many cases, not all of the above information will be available. However, as much of the information as possible should be provided. Any critical missing information will be discussed prior to or during the site visit (Task 1).

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Our Comprehensive Methodology

1. Site Visit – The process begins with a site visit to view the existing cooling water intake structure (CWIS) and meet with appropriate client staff. The goal of this visit is to fully understand the CWIS design, operation, and location on the waterbody. The visit is also used to address questions on information required prior to the site visit and to discuss some alternative compliance strategies that will be evaluated.

2. Engineering Assessment of Fish Protection Technologies and Operational Measures – Based on the site visit and discussions with appropriate company/facility our team will begin by evaluating whether each facility can meet the performance standard based on the existing CWIS design, location, construction and operation compared to the Rule's "calculation baseline" set by EPA in the final rule. For example, if a facility has an offshore intake it may be found to be in compliance based on lower offshore fish densities or be able to take substantial credit toward meeting the performance standard. This assessment will involve input from both Alden's engineers and ASA's biological experts. Such assessments are conducted for each facility. If a facility cannot comply based on existing technologies and operational measures Alden will conduct an evaluation of alternative fish protection technologies and operational measures to meet applicable performance standards using its extensive experience and databases.

3. Development of Cost-Effective Compliance Plan – Based on the results of the Engineering Assessment and the site visit, recommendations are developed for cost effective compliance. The strategic assessment considers the results of the technology assessment, as well as potential credit for any restoration measures. The plan will evaluate all five compliance alternatives, including the use of new restoration measures and the use of site-specific standards. The Team will determine the applicability of satisfying the cost-cost or cost benefit test to obtain a site-specific BTA determination. This analysis will also consider cost- effective methods for obtaining the necessary information to support the compliance plan. In addition to the collection of data through new studies, The Team will consider use of existing information, source water body information, and information from other facilities. Our team recognizes that the need for data and/or information in a cost-effective compliance plan is substantially determined by the overall compliance strategy and the alternative fish protection technologies and/or operational measures that may be selected. The existing information may be deemed adequate for use in the CDS, depending on factors that include:
   a. the quality of the information and the extent to which it can be demonstrated to represent current waterbody conditions
   b. the extent to which the facility can receive credit toward meeting the performance standards based on the baseline calculation
   c. the compliance option selected.

   Once the client has approved the compliance plan work can begin on Step 4.

4. Preparation of "Proposal for Information Collection" (PIC) – The PIC is the first element of the Comprehensive Demonstration Study and is required for submittal by all facilities except those facilities that have or will have closed cycle cooling, or have or will have maximum design through screen velocities less than 0.5 ft/sec for sites where only the impingement mortality standard is required. (Compliance

PIC will be developed based on the facility compliance plan developed in Step 3. The PIC will include all of the information required including technologies to be evaluated, use of restoration, use of site specific standards, nature of biological information to be used (including detailed study designs for any necessary studies), and a summary of existing biological information.

5. Discussion of Monitoring Plan and Record Keeping and Reporting – Based on client needs the nature of the monitoring plan (Para. 125.96 of the Rule) and record keeping and reports requirements (Para. 125.97 of the Rule) can also be included as part of the strategic assessment. This discussion will focus on the key compliance options identified in the facility plan, since the nature of monitoring plans and record keeping can vary considerably based on the compliance option selected for the facility.

6. Preparation of Cost Estimates to Implement the Compliance Plan and PIC – Based on the strategic compliance plan and PIC, cost estimates will be prepared to assist clients in developing budgets for 316(b) compliance. This cost estimates will include:
   - costs for implementing and operating the technology and/or operational measures that could meet the performance standards
   - costs for biological monitoring (both current levels of impingement mortality and entrainment and verification
   - costs for conducting the benefits valuation using the cost-benefit test.
   - "Costs preparing the Comprehensive Demonstration Study" report based on the strategic compliance plan.

   These costs will allow utilities to develop a budget for implementing the compliance plan in 2005 and preliminary budgets for the rest of the compliance process. The budgets for development of the impingement and entrainment baseline calculations, which are anticipated to be conducted in 2006 and 2007, should be considered preliminary since PIC studies are defined as "adaptive" in the Rule. Based on 2005 study results, utilities may want to modify either the PIC or compliance plan based on further evaluation of alternative fish protection technologies and/or operational measures and/or the analysis of historical biological data and the results of 2005 biological studies. Such revisions, if necessary, could result in changes to 2006 and 2007 budget estimates. Budget estimates will be presented in the strategic compliance plan document.

7. Regulatory Support – Clients may want to take advantage of our Teams reputation and experience in meeting with appropriate State and/or Federal NPDES permitting authorities. Such assistance may include educating regulators on 316(b) requirements and providing support for the utility's overall compliance plan based on Step 3 or the PIC based on Step 4.

The number of steps listed above can be modified to meet a client's budget needs.

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Part II

Environmental Protection Agency

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40 CFR Parts 9, 122 et al.

National Pollutant Discharge Elimination System--Final **Regulations** To Establish Requirements for Cooling Water Intake Structures at Phase II Existing Facilities; Final Rule

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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 9, 122, 123, 124, and 125

[FRL-7625-9]
RIN 2040-AD62

National Pollutant Discharge Elimination System--Final **Regulations** to Establish Requirements for Cooling Water Intake Structures at Phase II Existing Facilities

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: Today's final rule implements section 316(b) of the Clean

Water Act (CWA) for certain existing power producing facilities that employ a cooling water intake structure and are designed to withdraw 50 million gallons per day (MGD) or more of water from rivers, streams, lakes, reservoirs, estuaries, oceans, or other waters of the United States for cooling purposes. This final rule constitutes Phase II of EPA's section 316(b) regulation development and establishes national requirements, and procedures for implementing those requirements, applicable to the location, design, construction, and capacity of cooling water intake structures at these facilities. The rule applies to existing facilities that, as their primary activity, both generate and transmit electric power or generate electric power but sell it to another entity for transmission. The national requirements, which will be implemented through National Pollutant Discharge Elimination System (NPDES) permits, are based on the best technology available to minimize the adverse environmental impact associated with the use of cooling water intake structures.

Today's final rule establishes performance standards that are projected to reduce impingement mortality by 80 to 95 percent and, if applicable, entrainment by 60 to 90 percent. With the implementation of today's final rule, EPA intends to minimize the adverse environmental impact of cooling water intake structures by reducing the number of aquatic organisms lost as a result of water withdrawals associated with these structures.

DATES: This regulation is effective September 7, 2004. For judicial review purposes, this final rule is promulgated as of 1 p.m. Eastern Standard Time (EST) on July 23, 2004, as provided in 40 CFR 23.2.

ADDRESSES: The docket for today's final rule is available for public inspection at the Water Docket in the EPA Docket Center, (EPA/DC) EPA West, Room B102, 1301 Constitution Ave., NW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: For additional technical information contact Martha Segall at (202) 566-1041 or Debra Hart at (202) 566-6379. The e-mail address for the above contacts is rule.316b@epa.gov.

SUPPLEMENTARY INFORMATION:

I. General Information

A. What Entities Are Regulated by This Action?

This final rule applies to Phase II existing facilities that are point sources; as their primary activity both generate and transmit electric power or generate electric power for sale to another entity for transmission; use or propose to use one or more cooling water intake structures with a total design intake flow of 50 million gallons per day (MGD) or more to withdraw water from waters of the United States; and use 25 percent of water withdrawn exclusively for cooling water purposes. This rule defines ``existing facility'' as any facility that commenced constructions on or before January 17, 2002, and any modification of, or any addition of a unit at such a facility that does not meet the definition of a new facility at Sec. 125.83.

This rule defines the term ``cooling water intake structure'' to mean the total physical structure and any associated constructed waterways used to withdraw cooling water from waters of the United States. The cooling water intake structure extends from the point at which water is withdrawn from the surface water source up to, and including, the intake pumps.

Category	Examples of regulated entities	Standard Industri
Federal, State, and Local Government..	Steam electric generating point source dischargers that employ cooling water intake structures.	4911 and 493.....
Industry.....	Steam electric generating industrial point source dischargers that employ cooling water intake structures (this includes utilities and nonutilities).	4911 and 493.....

This exhibit is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This exhibit lists the types of entities that EPA is now aware could potentially be regulated by this action. Other types of entities not listed in the exhibit could also be regulated. To determine whether your facility is regulated by this action, you should carefully examine the applicability criteria in Sec. 125.91 of the rule. If you have questions regarding the applicability of this action to a particular entity, consult the person listed for technical information in the preceding FOR FURTHER INFORMATION CONTACT section.

B. How Can I Get Copies of This Document and Other Related Information?

1. Docket

EPA has established an official public docket for this action under Docket ID No. OW 2002-0049. The official public docket consists of the documents specifically referenced in this action, any public comments received, and other information related to this action. Although a part of the official docket, the public docket does not include information claimed as Confidential Business Information (CBI) or other information the disclosure of which is restricted by statute. The official public docket is the collection of materials that is available for public viewing at the Water Docket in the EPA Docket Center, (EPA/DC) EPA West, Room B102, 1301 Constitution Ave., NW., Washington, DC. The EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the Water Docket is (202) 566-2426. To view docket materials,

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please call ahead to schedule an appointment. Every user is entitled to copy 266 pages per day before incurring a charge. The Docket may charge 15 cents for each **page** over the 266-**page** limit plus an administrative fee of $25.00.

2. Electronic Access

You may access this Federal Register document electronically through the EPA Internet under the ``Federal Register'' listings at http://www.epa.gov/fedrgstr/.

An electronic version of the public docket is available through

EPA's electronic public docket and comment system, EPA Dockets. You may use EPA Dockets at http://www.epa.gov/edocket/ to view public comments,

access the index listing of the contents of the official public docket, and to access those documents in the public docket that are available electronically. Although not all docket materials may be available electronically, you may still access any of the publicly available docket materials through the docket facility identified in section I.B.1. Once in the system, select ``search,'' then key in the appropriate docket identification number.

C. Supporting Documentation

The final regulation is supported by three major documents:

1. Economic and Benefits Analysis for the Final Section 316(b) Phase II Existing Facilities Rule (EPA-821-R-04-005), hereafter referred to as the Economic and Benefits Analysis. This document presents the analysis of compliance costs, closures, energy supply effects, and benefits associated with the final rule.

2. Regional Analysis for the Final Section 316(b) Phase II Existing Facilities Rule (EPA-821-R-04-006), hereafter referred to as the Regional Analysis Document or the Regional Study(ies) Document. This document examines cooling water intake structure impacts and regulatory benefits at the regional level.

3. Technical Development Document for the Final Section 316(b) Phase II Existing Facilities Rule (EPA-821-R-04-007), hereafter referred to as the Technical Development Document. This document presents detailed information on the methods used to develop unit costs and describes the set of technologies that may be used to meet the final rule's requirements.

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II. Scope and Applicability of the Final Rule

This rule applies to owners and operators of existing facilities, as defined in Sec. 125.93 of today's rule that meet all of the following criteria:

The facility's primary activity is to generate electric power. The facility either transmits the electric power itself, or sells the electric power to another entity for transmission;

The facility is a point source that uses or proposes to use one or more cooling water intake structures, including a cooling water intake structure operated by an independent supplier that withdraws water from waters of the United States and provides cooling water to the facility by any sort of contract or other arrangement;

The cooling water intake structure(s) withdraw(s) cooling water from waters of the United States and at least twenty-five (25) percent of the water withdrawn is used exclusively for cooling purposes measured on an average annual basis;

The facility is a point source; and

The cooling water intake structures have a total design intake flow of 50

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million gallons per day (MGD) or greater.

In the case of a Phase II existing facility that is co-located with a manufacturing facility, only that portion of the cooling water flow that is used by the Phase II facility to generate electricity for sale to another entity will be considered when determining whether the 50 MGD and 25 percent criteria are met. Facilities subject to this final rule are referred to as ``Phase II existing facilities.'' Existing facilities with design flows below the 50 MGD threshold, as well as most existing manufacturing facilities, offshore seafood processors, and offshore and coastal oil and gas extraction facilities are not subject to this rule. Those facilities have different characteristics as compared to the large, power-generating facilities subject to

today's rule. If an existing facility is a point source and has or is required to have an NPDES permit, but does not meet the applicability thresholds in today's rule, it is subject to permit conditions implementing section 316(b) of the CWA set by the permit director on a case-by-case basis, using best professional judgment. EPA expects to address at least some of these facilities in a separate rulemaking, referred to as Phase III.

In the preamble to the proposed rule EPA indicated that its intent was to exclude from regulation under the Phase II rule existing facilities whose primary business is manufacturing. See, e.g., 67 FR 17124 (April 9, 2002). At the same time, in Sec. 125.91(a)(3) of the proposed rule, the applicability criteria covered facilities that both generate and transmit electric power, or generate electric power but sell it to another entity for transmission. Numerous commenters indicated concerns that, as proposed, Sec. 125.91(a)(3) would not clearly exclude all existing manufacturing facilities from the Phase II

rule since some facilities generate electric power primarily for their own use, but transmit or sell any surplus. Therefore, for the final rule, EPA revised Sec. 125.91 so that it reaches only those existing facilities that generate and transmit or sell electric power as their primary activity. The final rule does not apply to existing manufacturing facilities, including manufacturing facilities that generate power for their own use and transmit any surplus power, or sell it for transmission, provided the primary activity of the facility is not electric power generation.

A. What Is an ``Existing Facility'' for Purposes of the Section 316(b) Phase II Rule?

In today's rule, EPA is defining the term ``existing facility'' to include any facility that commenced construction as described in 40 CFR 122.29(b)(4) \1\ on or before January 17, 2002. EPA established January 17, 2002 as the date for distinguishing new facilities from existing ones because that is the effective date of the Phase I new facility rule. In addition, EPA is defining the term ``existing facility'' in this rule to include modifications and additions to such facilities, the construction of which commences after January 17, 2002, that do not meet the definition of a new facility at 40 CFR 125.83, the definition used to define the scope of the Phase I rule. That definition states:

\1\ Construction is commenced if the owner or operator has undertaken certain installation and site preparation activities that are part of a continuous on-site construction program, and it includes entering into certain specified binding contractual obligations as one criterion (40 CFR 122.29(b)(4)).

``New facility means any building, structure, facility, or installation that meets the definition of a `new source' or `new

discharger' in [other NPDES **regulations**] and is a greenfield or stand-alone facility; commences construction after January 17, 2002; and uses either a newly constructed cooling water intake structure, or an existing cooling water intake structure whose design capacity is increased to accommodate the intake of additional cooling water. New facilities include only `greenfield' and `stand-alone' facilities. A greenfield facility is a facility that is constructed at a site at which no other source is located or that totally replaces the process or production equipment at an existing facility

(see 40 CFR 122.29(b)(1)(i) and (ii). A stand-alone facility is a new, separate facility that is constructed on property where an existing facility is located and whose processes are substantially independent of the existing facility at the same site (see 40 CFR 122.29(b)(1)(iii). New facility does not include new units that are added to a facility for purposes of the same general industrial operation (for example, a new peaking unit at an electrical

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generating station).'' \2\

\2\ The Phase I rule also listed examples of facilities that would be ``new'' facilities and facilities that would ``not be considered a `new facility' in two numbered paragraphs. These read

water intake structure for its own use.

(ii) A facility is demolished and another facility is constructed in its place. The newly-constructed facility uses the original facility's cooling water intake structure, but modifies it to increase the design capacity to accommodate the intake of additional cooling water.

(iii) A facility is constructed on the same property as an existing facility, but is a separate and independent industrial operation. The cooling water intake structure used by the original facility is modified by constructing a new intake bay for the use of the newly constructed facility or is otherwise modified to increase the intake capacity for the new facility.

(2) Examples of facilities that would not be considered a `new facility' include, but are not limited to, the following scenarios:

(i) A facility in commercial or industrial operation is modified and either continues to use its original cooling water intake structure or uses a new or modified cooling water intake structure.

(ii) A facility has an existing intake structure. Another facility (a separate and independent industrial operation), is constructed on the same property and connects to the facility's cooling water intake structure behind the intake pumps, and the design capacity of the cooling water intake structure has not been increased. This facility would not be considered a `new facility' even if routine maintenance or repairs that do not increase the design capacity were performed on the intake structure.''

The preamble to the final Phase I rule discusses this definition at 66 FR 65256; 65258-65259; 65285-65287, December 18, 2001.

EPA included in its Phase II proposed rule a freestanding definition of ``existing facility.'' That definition read as follows:

``Existing facility means any facility that commenced construction before January 17, 2002; and

(1) Any modification of such a facility;

(2) Any addition of a unit at such a facility for purposes of the same industrial operation;

(3) Any addition of a unit at such a facility for purposes of a different industrial operation, if the additional unit uses an existing cooling water intake structure and the design capacity of the intake structure is not increased; or

(4) Any facility constructed in place of such a facility, if the newly constructed facility uses an existing cooling water intake structure whose design intake flow is not increased to accommodate the intake of additional cooling water.'' 67 FR 17221.

Upon further consideration, EPA has decided that it would be clearest to define existing facility primarily by stating that any facility that is not a new facility under 40 CFR 125.83 is an existing facility for purposes of this subpart. Accordingly, the language in this final rule is intended to be clear and consistent with EPA's definition of new facility in the Phase I rule at 40 CFR 125.83. In addition, the definition in today's regulation is also intended to ensure that sources excluded from the definition of new facility in the Phase I rule are captured by the definition of existing facility for the purposes of today's rule. At the same time, EPA believes that the approach taken in

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today's rule is identical in terms of effect to the approach in the

proposed rule. Thus, the approach taken in today's final rule is in no way intended to change the scope of the rule as compared with the proposal as far as the facilities treated as ``existing'' facilities under the rule. The change is in drafting technique, not in meaning.

The facility encompassed by today's regulation is the point source that uses a cooling water intake structure to generate electric power. This is because the requirements of CWA section 316(b) are implemented through NPDES permits, which are issued only to point source dischargers of pollutants to waters of the United States. A point source generating electric power would be subject to Phase I or Phase II even if the cooling water intake structure it uses is located elsewhere. Similarly, modifications or additions to the cooling water intake structure (or even the total replacement of an existing cooling water intake structure with a new one) does not convert an otherwise unchanged existing facility into a new facility, regardless of the purpose of such changes (e.g., to comply with today's rule or to increase capacity). Rather, the determination as to whether a facility is new or existing focuses on the power-generating point source itself, i.e., whether it is a greenfield facility or a stand-alone facility. This focus on the point source discharger is consistent with section 316(b), which by its express terms applies only to point sources.

Under this rule, an existing power generating facility that uses a cooling water intake structure and repowers by either replacing or modifying an existing generating unit would remain subject to regulation as a Phase II existing facility, unless the existing facility were completely demolished and another facility constructed in its place that used either a new intake structure or the existing structure with an increased design capacity. For example, the following facility modifications or additions would result in a facility being characterized as an existing facility under today's rule:

An existing power generating facility undergoes a modification of its process short of total replacement of the process and concurrently increases the design capacity of its existing cooling water intake structures;

An existing power generating facility builds a new process at its site for purposes of the same industrial operation and concurrently increases the design capacity of its existing cooling water intake structures;

An existing power generating facility completely rebuilds its process but uses the existing cooling water intake structure with no increase in design capacity.

Phase II existing facilities subject to today's rule include point sources that do not presently use, but propose to use, cooling water intake structures and do not meet the definition of new facility at Sec. 125.83. This is appropriate because there may be some cases in which an existing facility historically withdrew its cooling water from a municipal or other source, but then decides to withdraw cooling water from a water of the United States. In these cases, the facility may not previously have met all of the criteria applicable to an existing facility under today's rule (i.e., the facility did not previously withdraw cooling waters from a water of the United States) but may make changes that would place the facility within the scope of today's rule. A comparable situation would be when a facility previously relied on units that do not require cooling water, and then adds or modifies a unit for purposes of the same industrial operation (i.e., power generation) such that cooling water is subsequently required. For example, an existing power generating facility that adds a new generating unit at the same site for purposes of repowering and concurrently increases the design capacity of its existing cooling water intake structure(s), or adds a new intake structure where it did

not previously need one, for example when converting a gas turbine to a combined cycle unit, would be considered an existing facility.

In the preamble to the Phase I rule, EPA noted that it had defined ``existing facility'' in a manner consistent with existing NPDES **regulations** with a limited exception. EPA noted that it had generally deferred regulation of new sources constructed on a site at which an existing source is located until the Agency had completed analysis of its survey data on existing facilities. 66 FR 65286. Accordingly, the Phase I rule treated almost all changes to existing facilities for purposes of the same industrial operation as existing facilities. These included the addition of new generating units at the same site, even where they required an increase in cooling water intake structure design capacity or the construction of a new cooling water intake

and its replacement with a new facility, so long as it did not increase the design capacity of the cooling water intake structure. The only exception was the demolition of an existing facility and its replacement with a new facility accompanied by an increase in design capacity of the cooling water intake structure. As the preamble explained: ``The definition of a new facility in the final rule applies to a facility that is repowered only if the existing facility has been demolished and another facility is constructed in its place, and modifies the existing cooling water intake structure to increase the design intake capacity.'' Id.\2a\ By contrast, the Phase I rule treated the addition of a new unit for purposes of a different industrial operation as an existing facility only if it used an existing cooling water intake structure whose design intake flow was not increased.

\2a\ Because they are part of the same ``industrial operation,'' such units are not ``stand-alone'' facilities for purposes of the ``new facility'' definition. As the fifth sentence of the definition of ``new facility'' explains, they are categorically treated as ``existing facilities'' regardless of any other considerations

while still being regulated as an ``existing facility'' rather than a ``new facility.'' Id. at 17128.

On the basis of the analysis of the survey data and other information in the record, the Agency now has concluded that it should adhere to its provisional

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decision generally giving wide latitude to existing facilities to make changes or additions to their facilities at the same site. In particular, new units that are added to a facility for purposes of the same general industrial operation should be treated as existing facilities because limitations associated with an existing site make it inappropriate to subject such units to new facility requirements. These limitations include space, existing location on a waterbody, location in already congested areas which could affect (if Phase 1 requirements were applied) visibility impairment, highway and airport safety issues, noise abatement issues, salt drift and corrosion problems and additional energy requirements. Moreover, power generation facilities should not be discouraged from making any upgrade, modification, or repowering that would increase energy efficiency or supply out of concern that they would be considered a new facility for purposes of section 316(b). Additional benefits will be realized in terms of reducing industrial sprawl if incremental power generation is not discouraged at existing power generation sites. These considerations counsel in favor of treating new units locating at existing sites as existing rather than new facilities. EPA also noted when it promulgated the Phase I rule (see 66 FR 65286) that it is not feasible for the permit authority to judge whether the facility could have been located elsewhere for the purpose of determining whether the facility is subject to the new facility rules. Accordingly, EPA has decided to retain the Phase I definition's provision that a new facility does not include new units that are added to a facility for purposes of the same general industrial operation. As noted above, this decision is fully consistent with the approach to this issue laid out in the proposed Phase II rule.

The final rule definition of ``existing facility'' is sufficiently broad that it encompasses facilities that will be addressed under the Phase III rule (e.g., existing power generating facilities with design flows below the 50 MGD threshold, certain existing manufacturing facilities, seafood processors, and offshore and coastal oil and gas extraction facilities). EPA notes, however, that these facilities are not covered under this rule because they do not meet the requirements of Sec. 125.91.

B. What Is ``Cooling Water'' and What Is a ``Cooling Water Intake Structure?''

Today's rule adopts for Phase II existing facilities the same definition of a ``cooling water intake structure'' that applies to new facilities. A cooling water intake structure is defined as the total physical structure and any associated constructed waterways used to withdraw cooling water from waters of the United States. Under the definition in today's rule, the cooling water intake structure extends from the point at which water is withdrawn from the surface water source up to, and including, the intake pumps. Today's rule adopts the new facility rule's definition of ``cooling water'': Water used for contact or noncontact cooling, including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent

water is to absorb waste heat rejected from the processes used, or auxiliary operations on the facility's premises. The definition also indicates that water used in a manufacturing process either before or after it is used for cooling is process water for both cooling and non-cooling purposes and would not be considered cooling water for purposes of determining whether 25 percent or more of the flow is cooling water. This clarification is necessary because cooling water intake structures typically bring water into a facility for numerous purposes, including industrial processes; use as circulating water, service water, or evaporative cooling tower makeup water; dilution of effluent heat content; equipment cooling; and air conditioning. EPA notes that this clarification does not change the fact that only the intake water used exclusively for cooling purposes is counted when determining whether the 25 percent threshold in Sec. 125.91(a)(4) is met.

This definition of ``cooling water intake structure'' differs from the definition provided in the 1977 Draft Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment: Section 316(b) P.L. 92-500 (U.S. EPA, 1977). The final rule definition clarifies that the cooling water intake structure includes the physical structure that extends from the point at which water is withdrawn from the surface water up to and including the intake pumps. Inclusion of the term ``associated constructed waterways'' in today's rule is intended to clarify that the definition includes those canals, channels, connecting waterways, and similar structures that may be built or modified to facilitate the withdrawal of cooling water. The explicit inclusion of the intake pumps in the definition reflects the key role pumps play in determining the capacity (i.e., dynamic capacity) of the intake. These pumps, which bring in water, are an essential component of the cooling water intake structure since without them the intake could not work as designed.

C. Is My Facility Covered if It Withdraws From Waters of the United States?

The requirements finalized today apply to cooling water intake structures that have the design capacity to withdraw amounts of water equal to or greater than the specified intake flow threshold from ``waters of the United States.'' Waters of the United States include the broad range of surface waters that meet the regulatory definition at 40 CFR 122.2, which includes lakes, ponds, reservoirs, nontidal rivers or streams, tidal rivers, estuaries, fjords, oceans, bays, and coves. These potential sources of cooling water may be adversely affected by impingement and entrainment.

Some facilities discharge heated water to cooling ponds, then withdraw water from the ponds for cooling purposes. EPA recognizes that cooling ponds may, in certain circumstances, constitute part of a closed-cycled cooling system. See, e.g., 40 CFR 125.83. However, EPA does not intend this rule to change the regulatory status of cooling

requirement that the facility has or will be required to obtain an NPDES permit) are subject to today's rule. The EPA and the U.S. Army Corps of Engineers have jointly issued jurisdictional guidance concerning the term ``waters of the United States'' in light of the Supreme Court's decision in Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, 531 U.S. 159 (2001) (SWANCC). A copy of that guidance was published as an Appendix to an Advanced Notice of Proposed

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Rulemaking on the definition of the phrase ``waters of the U.S.,'' see 68 FR 1991 (January 15, 2003), and may be obtained at (http://www.epa.gov/owow/wetla). Section 125.91(d) also

provides, similar to the new facility rule, that facilities that obtain cooling water from a public water system or use treated effluent are not deemed to be using a cooling water intake structure for purposes of this rule.

D. Is My Facility Covered if It Is a Point Source Discharger?

Today's rule applies only to facilities that are point sources (i.e., have an NPDES permit or are required to obtain one) because they discharge or might discharge pollutants, including storm water, from a point source to waters of the Unites States. This is the same requirement EPA included in the Phase I new facility rule at 40 CFR 125.81(a)(1). Requirements for complying with section 316(b) will continue to be applied through NPDES permits.

Based on the Agency's review of potential Phase II existing facilities that employ cooling water intake structures, the Agency anticipates that most existing power generating facilities that will be subject to this rule will control the intake structure that supplies them with cooling water, and discharge some combination of their cooling water, wastewater, and storm water to a water of the United States through a point source regulated by an NPDES permit. In this scenario, the requirements for the cooling water intake structure will be specified in the facility's NPDES permit. In the event that a Phase II existing facility's only NPDES permit is a general permit for storm water discharges, the Agency anticipates that the Director would write

an individual NPDES permit containing requirements for the facility's cooling water intake structure. Alternatively, requirements applicable to cooling water intake structures could be incorporated into general permits. If requirements are placed into a general permit, they must meet the criteria set out at 40 CFR 122.28.

The Agency also recognizes that some facilities that have or are required to have an NPDES permit might not own and operate the intake structure that supplies their facility with cooling water. For example, electric power-generating facilities operated by separate entities might be located on the same, adjacent, or nearby property(ies); one of these facilities might take in cooling water and then transfer it to other facilities prior to discharge of the cooling water to a water of the United States. Section 125.91(c) of today's rule addresses such a

situation. It provides that use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement

that is not itself a Phase II existing facility.

In addressing facilities that have or are required to have an NPDES permit that do not directly control the intake structure that supplies their facility with cooling water, section 125.91(d) also provides, similar to the new facility rule, that facilities that obtain cooling water from a public water system or use treated effluent are not deemed to be using a cooling water intake structure for purposes of this rule.

As EPA stated in the preamble to the final Phase I rule (66 FR 65256 December 18, 2001), the Agency encourages the Director to closely examine scenarios in which a facility withdraws significant amounts of cooling water from waters of the United States but is not required to obtain an NPDES permit. As appropriate, the Director should apply other legal requirements, such as section 404 or 401 of the Clean Water Act, the Coastal Zone Management Act, the National Environmental Policy Act, the Endangered Species Act, or similar State or Tribal authorities to address adverse environmental impact caused by cooling water intake structures at those facilities.

E. What Cooling Water Use and Design Intake Flow Thresholds Result in an Existing Facility Being Subject to This Rule?

This final rule applies to existing facilities that are point sources and use cooling water intake structures that (1) withdraw cooling water from waters of the United States and use at least twenty-five (25) percent of the water withdrawn exclusively for cooling purposes, and (2) have a total design intake capacity of 50 MGD or more measured on an average annual basis (see Sec. 125.91). Today's rule further provides that where a Phase II existing facility is co-located with a manufacturing facility, only that portion of the cooling water intake flow that is used by the Phase II facility to generate electricity for sale to another entity will be considered for purposes of determining whether the 50 MGD and 25 percent criteria have been exceeded.

EPA chose the 50 MGD threshold to focus the rule on the largest existing power generating facilities. EPA estimates that the 50 MGD threshold will subject approximately 543 of 902 (60 percent) existing power generating facilities to this final rule and will address approximately 90 percent of the total flow withdrawn by these facilities. EPA established the 50 MGD threshold because the regulation of existing facilities with flows of 50 MGD or greater in Phase II will address those existing power generating facilities with the greatest potential to cause or contribute to adverse environmental impact. In addition, EPA has limited data on impacts at facilities withdrawing less than 50 MGD. Deferring regulation of such facilities to Phase III provides an additional opportunity for the Agency to collect impingement and entrainment data for these smaller facilities.

Similarly, because Phase II existing facilities typically use far more than 25 percent of the water they withdraw for cooling purposes, EPA established the 25 percent threshold to ensure that nearly all cooling water and the largest existing facilities using cooling water intake structures are addressed by today's requirements. As in the Phase I rule, water used for both cooling and non-cooling purposes does not count towards the 25 percent threshold. Thus, the rule does not discourage the reuse of cooling water as process water or vice versa. Water that serves as cooling water but is either previously or subsequently used as process water is not considered cooling water for purposes of determining the percentage of the water withdrawn that is used for cooling and whether that percentage equals or exceeds 25 percent. Water withdrawn for non-cooling purposes includes water withdrawn for warming by liquified natural gas facilities and water

withdrawn for public water systems by desalinization facilities.

III. Legal Authority, Purpose, and Background of Today's Regulation

A. Legal Authority

Today's final rule is issued under the authority of sections 101, 301, 304, 308, 316, 401, 402, 501, and 510 of the Clean Water Act (CWA), 33 U.S.C. 1251, 1311, 1314, 1318, 1326, 1341, 1342, 1361, and 1370. This rule partially fulfills the obligations of the U.S. Environmental Protection Agency (EPA) under a consent decree in Riverkeeper, Inc. v. Leavitt, No. 93 Civ. 0314, (S.D.N.Y).

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B. Purpose of Today's Regulation

Section 316(b) of the CWA provides that any standard established pursuant to section 301 or 306 of the CWA and applicable to a point source must require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available (BTA) for minimizing adverse environmental impact. Today's rule establishes requirements reflecting the best technology available for minimizing adverse environmental impact, applicable to the location, design, construction, and capacity of cooling water intake structures at Phase II existing power generating facilities that have the design capacity to withdraw at least fifty (50) MGD of cooling water from waters of the United States and use at least twenty-five (25) percent of the water they withdraw exclusively for cooling purposes.

C. Background

1. The Clean Water Act

Water Act (CWA), 33 U.S.C. 1251 et seq., seeks to ``restore and maintain the chemical, physical, and biological integrity of the nation's waters.'' 33 U.S.C. 1251(a). The CWA establishes a comprehensive regulatory program, key elements of which are (1) a prohibition on the discharge of pollutants from point sources to waters of the United States, except as authorized by the statute; (2) authority for EPA or authorized States or Tribes to issue National

pollutant or combination of pollutants from a point source into waters of the United States. Forty-five States and one U.S. territory are authorized under section 402(b) to administer the NPDES permitting program. NPDES permits restrict the types and amounts of pollutants, including heat, that may be discharged from various industrial, commercial, and other sources of wastewater. These permits control the discharge of pollutants primarily by requiring dischargers to meet effluent limitations established pursuant to section 301 or section 306. Effluent limitations may be based on promulgated Federal effluent limitations guidelines, new source performance standards, or the best professional judgment of the permit writer. Limitations based on these guidelines, standards, or best professional judgment are known as technology-based effluent limits. Where technology-based effluent limits are inadequate to ensure attainment of water quality standards applicable to the receiving water, section 301(b)(1)(C) of the Clean Water Act requires permits to include more stringent limits based on applicable water quality standards. NPDES permits also routinely include monitoring and reporting requirements, standard conditions, and special conditions. In addition, NPDES permits contain conditions to implement the requirements of section 316(b). Section 301 of the CWA prohibits the discharge of any pollutant by any person, except in compliance with specified statutory requirements, including section 402.

Section 510 of the Clean Water Act provides, that except as provided in the Clean Water Act, nothing in the Act shall (1) preclude or deny the right of any State or political subdivision thereof to adopt or enforce any requirement respecting control or abatement of pollution; except that if a limitation, prohibition or standard of performance is in effect under the Clean Water Act, such State or political subdivision may not adopt or enforce any other limitation prohibition or standard of performance which is less stringent than the limitation prohibition or standard of performance under the Act. EPA interprets this to reserve for the States authority to implement requirements that are more stringent than the Federal requirements under state law. PUD No. 1 of Jefferson County. Washington Dep't of Ecology, 511 U.S. 700, 705 (1994).

Sections 301, 304, and 306 of the CWA require that EPA develop technology-based effluent limitations guidelines and new source performance standards that are used as the basis for technology-based minimum discharge requirements in wastewater discharge permits. EPA issues these effluent limitations guidelines and standards for categories of industrial dischargers based on the pollutants of concern

available for minimizing adverse environmental impact.

The phrase ``best technology available'' in CWA section 316(b) is not defined in the statute, but its meaning can be understood in light of similar phrases used elsewhere in the CWA. See Riverkeeper v. EPA, slip op. at 11 (2nd Cir. Feb. 3, 2004) (noting that the cross-reference in CWA section 316(b) to CWA section 306 ``is an invitation to look to section 306 for guidance in discerning what factors Congress intended the EPA to consider in determining the `best technology available' '' for new sources).

In sections 301 and 306, Congress directed EPA to set effluent discharge standards for new sources based on the ``best available demonstrated control technology'' and for existing sources based on the ``best available technology economically achievable.'' For new sources, section 306(b)(1)(B) directs EPA to establish ``standards of performance.'' The phrase ``standards of performance'' under section 306(a)(1) is defined as being the effluent reduction that is

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``achievable through application of the best available demonstrated control technology, processes, operating methods or other alternatives * * *.'' This is commonly referred to as ``best available demonstrated technology'' or ``BADT.'' For existing dischargers, section 301(b)(1)(A) requires the establishment of effluent limitations based on ``the application of best practicable control technology currently available.'' This is commonly referred to as ``best practicable technology'' or ``BPT.'' Further, section 301(b)(2)(A) directs EPA to establish effluent limitations for certain classes of pollutants ``which shall require the application of the best available technology economically achievable.'' This is commonly referred to as ``best available technology'' or ``BAT.'' Section 301 specifies that both BPT and BAT limitations must reflect determinations made by EPA under Clean Water Act section 304. Under these provisions, the discharge of pollutants from point sources is based not on the impact of the

discharge on the receiving waters, but instead upon the capabilities of the equipment or ``control technologies'' available to control those discharges.

The phrases ``best available demonstrated technology''; and ``best available technology''--like ``best technology available'' in CWA section 316(b)--are not defined in the statute. However, section 304 of the CWA specifies factors to be considered in establishing the best practicable control technology currently available, and best available technology.

For best practicable control technology currently available, the CWA directs EPA to consider

the total cost of application of technology in relation to the

effluent reduction benefits to be achieved from such application, and shall also take into account the age of the equipment and

techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impacts (including energy requirements), and such other factors as [EPA] deems appropriate.

33 U.S.C. 1314(b)(2)(B).

Section 316(b) expressly refers to section 301, and the phrase ``best technology available'' is very similar to ``best technology available'' in that section. These facts, coupled with the brevity of section 316(b) itself, prompted EPA to look to section 301 and, ultimately, section 304 for guidance in determining the ``best technology available to minimize adverse environmental impact'' of cooling water intake structures for existing Phase II facilities.

By the same token, however, there are significant differences between section 316(b) and sections 301 and 304. See Riverkeeper, Inc. v. United States Environmental Protection Agency, slip op. at 13, (2nd Cir. Feb. 3, 2004) (``not every statutory directive contained [in sections 301 and 306] is applicable'' to a section 316(b) rulemaking). Section 316(b) requires that cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. In contrast to the effluent limitations provisions, the object of the ``best technology available'' is explicitly articulated by reference to the receiving water: To minimize adverse environmental impact in the waters from which cooling water is withdrawn. This difference is reflected in EPA's past practices in implementing sections 301, 304, and 316(b). While EPA has established effluent limitations guidelines based on the efficacy of one or more technologies to reduce pollutants in wastewater in relation to cost without necessarily considering the impact on the receiving waters, EPA has previously considered the costs of technologies in relation to the benefits of minimizing adverse environmental impact in establishing 316(b) limits which historically have been done on a case-by case basis. In Re Public Service Co. of New Hampshire, 10 ERC 1257 (June 17, 1977); In Re Public Service Co. of New Hampshire, 1 EAD 455 (Aug. 4, 1978); Seacoast Anti-Pollution League v. Costle, 597 F. 2d 306 (1st Cir. 1979).

For this Phase II rulemaking, EPA therefore interprets CWA section 316(b) as authorizing EPA to consider not only technologies but also their effects on and benefits to the water from which the cooling water is withdrawn. Based on these two considerations, EPA has established in today's rule national requirements for facilities to install technology that is technically available, economically practicable, and cost-effective while at the same time authorizing a range of technologies that achieve comparable reductions in adverse environmental impact.

2. Consent Decree

[illegible] final rule partially fulfills EPA's obligation to comply

EPA take final action by February 16, 2004, with respect to Phase II **regulations** that are ``applicable to, at a minimum: (1) Existing utilities (i.e., facilities that both generate and transmit electric power) that employ a cooling water intake structure, and whose intake flow levels exceed a minimum threshold to be determined by EPA during the Phase II rulemaking process; and (2) existing nonutility power producers (i.e., facilities that generate electric power but sell it to another entity for transmission) that employ a cooling water intake structure, and whose intake flow levels exceed a minimum threshold to be determined by EPA during the Phase II rulemaking process.'' The consent decree further requires that EPA propose **regulations** governing cooling water intake structures used, at a minimum, by smaller-flow power plants and facilities in four industrial sectors (pulp and paper

manufacturing, and primary metal manufacturing) by November 1, 2004, and take final action by June 1, 2006 (Phase III).

3. What Other EPA Rulemakings and Guidance Have Addressed Cooling Water Intake Structures?

In April 1976, EPA published a final rule under section 316(b) that addressed cooling water intake structures. 41 FR

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17387 (April 26, 1976), see also the proposed rule at 38 FR 34410 (December 13, 1973). The rule added a new Sec. 401.14 to 40 CFR Chapter I that reiterated the requirements of CWA section 316(b). It also added a new part 402, which included three sections: (1) Sec. 402.10 (Applicability), (2) Sec. 402.11 (Specialized definitions), and (3) Sec. 402.12 (Best technology available for cooling water intake structures). Section 402.10 stated that the provisions of part 402 applied to ``cooling water intake structures for point sources for which effluent limitations are established pursuant to section 301 or standards of performance are established pursuant to section 306 of the Act.'' Section 402.11 defined the terms ``cooling water intake structure,'' ``location,'' ``design,'' ``construction,'' ``capacity,'' and ``Development Document.'' Section 402.12 included the following language:

The information contained in the Development Document shall be considered in determining whether the location, design,

Draft Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment: Section 316(b) P.L. 92-500 (U.S. EPA, 1977). This draft guidance described the studies recommended for evaluating the impact of cooling water intake structures on the aquatic environment and recommended a basis for determining the best technology available for minimizing adverse environmental impact. The 1977 section 316(b) draft guidance states, ``The environmental-intake interactions in question are highly site-specific and the decision as to best technology available for intake design, location, construction, and capacity must be made on a case-by-case basis.'' (Section 316(b) Draft Guidance, U.S. EPA, 1977, p. 4). This case-by-case approach was also consistent with the approach described in the 1976 Development Document referenced in the remanded regulation.

The 1977 section 316(b) draft guidance suggested a general process for developing information needed to support section 316(b) decisions and presenting that information to the permitting authority. The process involved the development of a site-specific study of the environmental effects associated with each facility that uses one or more cooling water intake structures, as well as consideration of that study by the permitting authority in determining whether the facility must make any changes for minimizing adverse environmental impact. Where adverse environmental impact is present, the 1977 draft guidance suggested a stepwise approach that considers screening systems, size, location, capacity, and other factors.

Although the draft guidance described the information that should be developed, key factors that should be considered, and a process for supporting section 316(b) determinations, it did not establish uniform technology-based national standards for best technology available for minimizing adverse environmental impact. Rather, the guidance left the decisions on the appropriate location, design, capacity, and construction of cooling water intake structures to the permitting authority. Under this framework, the Director determined whether appropriate studies have been performed, whether a given facility has minimized adverse environmental impact, and what, if any, technologies may be required.

4. Phase I New Facility Rule

On November 9, 2001, EPA took final action on **regulations** governing cooling water intake structures at new facilities. 66 FR 65255 (December 18, 2001). On December 26, 2002, EPA made minor changes to the Phase I **regulations**. 67 FR 78947. The final Phase I new facility rule (40 CFR Part 125, Subpart I) establishes requirements applicable to the location, design, construction, and capacity of cooling water intake structures at new facilities that withdraw at least two (2) million gallons per day (MGD) and use at least twenty-five (25) percent of the water they withdraw solely for cooling purposes. In the new facility rule, EPA adopted a two-track approach. Under Track I, for facilities with a design intake flow more than 10 MGD, the intake flow of the cooling water intake structure is restricted, at a minimum, to a level commensurate with that which could be attained by use of a closed-cycle, recirculating cooling system. For facilities with a design intake flow more than 2 MGD, the design through-screen intake velocity is restricted to 0.5 ft/s and the total quantity of intake is restricted to a proportion of the mean annual flow of a freshwater river or stream, or to maintain the natural thermal stratification or turnover patterns (where present) of a lake or reservoir except in cases where the disruption is beneficial, or to a percentage of the tidal excursions of a tidal river or estuary. If certain environmental conditions exist, an applicant with intake capacity greater than 10 MGD must select and implement appropriate design and construction

technologies for minimizing impingement mortality and entrainment. (Applicants with 2 to 10 MGD flows are not required to reduce intake flow to a level commensurate with a closed-cycle, recirculating cooling system, but must install technologies for reducing impingement mortality at all locations.) Under Track II, the applicant has the opportunity to demonstrate that impacts to fish and shellfish, including important forage and predator species, within the watershed will be comparable to the reduction in impingement mortality and entrainment it would achieve were it to implement the Track I intake flow and velocity requirements.

With the new facility rule, EPA promulgated national minimum requirements for the design, capacity, and construction of cooling water intake structures at new facilities. EPA believes that the final new facility rule establishes a reasonable framework that creates certainty for permitting of new facilities, while providing significant flexibility to take site-specific factors into account.

5. Proposed Rule for Phase II Existing Facilities

On April 9, 2002, EPA published proposed requirements for cooling water intake structures at Phase II existing facilities to implement section 316(b) of the Clean Water Act. EPA proposed to establish requirements that gave facilities three different compliance options for meeting performance standards that vary based on waterbody

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type, the percentage of the source waterbody withdrawn, and the facility capacity utilization rate. 67 FR 17122. EPA received numerous comments and data submissions concerning the proposal.

6. Notice of Data Availability

On Wednesday, March 19, 2003, EPA published a Proposed Rule Notice of Data Availability (NODA). 68 FR 13522. This notice presented a summary of the data EPA had received or collected since proposal, an assessment of the relevance of the data to EPA's analysis, revisions to EPA's estimate of the costs and benefits of the proposed rule, new proposed compliance alternatives, and potential modifications to EPA's proposed regulatory approach. As part of the NODA, EPA also reopened

the comment period on the complete contents of the proposed rule.

7. Public Participation

EPA has worked extensively with stakeholders from the industry, public interest groups, State agencies, and other Federal agencies in the development of this final rule. These public participation activities have focused on various section 316(b) issues, including issues relevant to development of the Phase I rule and Phase II rule.

EPA conducted outreach to industry groups, environmental groups,

in other industry conferences, met upon request on numerous occasions with representatives of industry and environmental groups.

In the months leading up to publication of the proposed Phase I rule, EPA conducted a series of stakeholder meetings to review the draft regulatory framework for the proposed rule and invited stakeholders to provide their recommendations for the Agency's consideration. EPA managers have met with the Utility Water Act Group, Edison Electric Institute, representatives from an individual utility, and with representatives from the petroleum refining, pulp and paper, and iron and steel industries. EPA conducted several meetings with environmental groups attended by representatives from 15 organizations. EPA also met with the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) and, with the assistance of ASIWPCA, conducted a conference call in which representatives from 17 States or interstate organizations participated. After publication of the proposed Phase I rule, EPA continued to meet with stakeholders at their request. Summaries of these meetings are in the docket.

EPA received many comments from industry stakeholders, government agencies, and private citizens on the Phase I proposed rule 65 FR 49059 (August 10, 2000). EPA received additional comments on the Phase I Notice of Data Availability (NODA) 66 FR 28853 (May 25, 2001). These comments informed the development of the Phase II proposal.

In January, 2001, EPA also attended technical workshops organized by the Electric Power Research Institute and the Utilities Water Act Group. These workshops focused on the presentation of key issues associated with different regulatory approaches considered under the Phase I proposed rule and alternatives for addressing section 316(b) requirements.

On May 23, 2001, EPA held a day-long forum to discuss specific issues associated with the development of **regulations** under section 316(b) of the Clean Water Act. 66 FR 20658 (April 24, 2001). At the meeting, 17 experts from industry, public interest groups, States, and academia reviewed and discussed the Agency's preliminary data on cooling water intake structure technologies that are in place at existing facilities and the costs associated with the use of available technologies for reducing impingement and entrainment. Over 120 people attended the meeting.

In August 21, 2001, EPA staff participated in a technical symposium sponsored by the Electric Power Research Institute in association with the American Fisheries Society on issues relating to the definition and assessment of adverse environmental impact under section 316(b) of the CWA.

During development of the Phase I final rule and Phase II proposed rule, EPA coordinated with the staff from the Nuclear Regulatory Commission (NRC) to ensure that there would not be a conflict with NRC safety requirements. NRC staff reviewed the proposed Phase II rule and did not identify any apparent conflict with nuclear plant safety. NRC licensees would continue to be obligated to meet NRC requirements for design and reliable operation of cooling systems. NRC staff recommended that EPA consider adding language which states that in cases of conflict between an EPA requirement under this rule and an NRC safety requirement, the NRC safety requirement take precedence. EPA added language to address this concern in this final rule.

In a concerted effort to respond to a multitude of questions concerning the data and analyses that EPA developed as part of the Phase II proposal, EPA held a number of conference calls with multiple stakeholders to clarify issues and generally provide additional information. To supplement these verbal discussions, EPA drafted three supporting documents: one that explained the methodology EPA used to calculate entrainment rates; and two others that provided specific

examples of how EPA applied this methodology to calculate benefits for the proposed rule. In addition, EPA prepared written responses to all questions submitted by the stakeholders involved in the initial conference calls.

Finally, EPA sponsored a Symposium on Cooling Water Intake Technologies to Protect Aquatic Organisms, held on May 6-7, 2003, at the Hilton Crystal City at National Airport in Arlington, Virginia. This symposium brought together professionals from Federal, State, and Tribal regulatory agencies; industry; environmental organizations; engineering consulting firms; science and research organizations; academia; and others concerned with mitigating harm to the aquatic environment by cooling water intake structures. Efficacy and costs of various technologies to mitigate impacts to aquatic organisms from cooling water intake structures, as well as research and other future

These coordination efforts and all of the meetings described in this section are documented or summarized in the docket established for this rule.

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IV. Environmental Impacts Associated With Cooling Water Intake Structures

With the implementation of today's final rule, EPA intends to minimize the adverse environmental impacts of cooling water intake structures by minimizing the number of aquatic organisms lost as a result of water withdrawals associated with these structures or through restoration measures that compensate for these losses. In the Phase I new facility rule and proposed Phase II existing facility rule, EPA provided an overview of the magnitude and type of environmental impacts associated with cooling water intake structures, including several illustrative examples of documented environmental impacts at existing facilities (see 65 FR 49071-4; 66 FR 65262-5; and 67 FR 17136-40).

For the same reasons set forth in the preamble to the Phase I rule (66 FR 65256, 65291-65297), EPA has determined that there are multiple types of undesirable and unacceptable environmental impacts that may be associated with Phase II existing facilities, depending on conditions at the individual site. These types of impacts include entrainment and impingement; reductions of threatened and endangered species; damage to critical aquatic organisms, including important elements of the food chain; diminishment of a population's compensatory reserve; losses to populations including reductions of indigenous species populations, commercial fisheries stocks, and recreational fisheries; and stresses to overall communities and ecosystems as evidenced by reductions in diversity or other changes in system structure and function. Similarly, based on the analyses and for the same reasons set forth in the preamble to the new facility rule (66 FR 65256, 65291-65297), EPA has selected reductions in impingement and entrainment as a quick, certain, and consistent metric for determining performance at Phase II existing facilities. Further, EPA considered the non-impingement and entrainment

saline withdrawals from waters of the United States in 1995.\3\ The withdrawal of such large quantities of cooling water in turn has the potential to affect large quantities of aquatic organisms including phytoplankton (tiny, free-floating photosynthetic organisms suspended in the water column), zooplankton (small aquatic animals, including fish eggs and larvae, that consume phytoplankton and other zooplankton), fish, and shellfish. Aquatic organisms drawn into cooling water intake structures are either impinged on components of the cooling water intake structure or entrained in the cooling water system itself.

\2\ EPA 1999. Detailed Industry Questionnaires: Phase II Cooling Water Intake Structures & Watershed Case Study Short Questionnaire. U.S. Environmental Protection Agency, Office of Wastewater Management, Washington, D.C. OMB Control No. 2040-0213.

\3\ Solley, W.B., R.R. Pierce and H.A. Perlman. 1998. Estimated Use of Water in the United States in 1995. U.S. Geological Survey Circular 1200.

Impingement takes place when organisms are trapped against intake screens by the force of the water being drawn through the cooling water intake structure. The velocity of the water withdrawal by the cooling water intake structure may prevent proper gill movement, remove fish scales, and cause other physical harm or death of affected organisms through exhaustion, starvation, asphyxiation, and descaling. Death from impingement (``impingement mortality'') can occur immediately or subsequently as an individual succumbs to physical damage upon its return to the waterbody.

Entrainment occurs when organisms are drawn through the cooling water intake structure into the cooling system. Organisms that become entrained are typically relatively small, aquatic organisms, including early life stages of fish and shellfish. Many of these small, fragile organisms serve as prey for larger organisms higher on the food chain which are commercially and recreationally desirable species. As entrained organisms pass through a facility's cooling system they may be subject to mechanical, thermal, and at times, chemical stress. Sources of such stress include physical impacts in the pumps and condenser tubing, pressure changes caused by diversion of the cooling water into the plant or by the hydraulic effects of the condensers, sheer stress, thermal shock in the condenser and discharge tunnel, and chemical toxic effects from antifouling agents such as chlorine. Similar to impingement mortality, death from entrainment can occur immediately or subsequently as the individual succumbs to the damage from the stresses encountered as it passed through the cooling water system once it is discharged back into the waterbody.

The environmental impacts attributable to impingement mortality and entrainment at individual facilities include losses of early life stages of fish and shellfish, reductions in forage species, and [illegible] recreational and commercial landings. EPA estimates that the

to impingement and entrainment.\4\ Although the number of age 1 equivalent fish killed by impingement and entrainment is very large, precise quantification of the nature and extent of impacts to populations and ecosystems is difficult. Population dynamics and the physical, chemical, and biological processes of ecosystems are extremely complex. While generally accepted as a simple and transparent method for modeling losses, the proportional methodology that EPA uses to estimate impingement and entrainment nationwide has uncertainties that may result in under or over estimating actual impingement and entrainment rates.

\4\ For more information, please see Chapter D2: Evaluation of Impingement and Entrainment in the Mid-Atlantic Region in the Section 316(b) Existing Facilities Regional Studies, Part D: Mid-Atlantic.

Decreased numbers of aquatic organisms can disrupt aquatic food webs and alter species composition and overall levels of biodiversity. For example, a model that examined the effect of large entrainment losses of forage fish, such as bay anchovy, predicted subsequent reductions in predator populations (including commercially and recreationally important species such as striped bass, weakfish, and blue fish) as high as 25%.\5\ This is because forage species, which comprise a majority of

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entrainment losses at many facilities, are often a primary food source for predator species.

\5\ Summers, J.K. 1989. Simulating the indirect effects of power plant entrainment losses on an estuarine ecosystem. Ecological Modelling, 49: 31-47.

EPA is also concerned about the potential impacts of cooling water intake structures located in or near habitat areas that support threatened, endangered, or other species of concern (those species that might be in need of conservation actions, but are not currently listed as threatened or endangered under State or Federal law).\6\ In the San Francisco Bay-Delta Estuary, California, in the vicinity of the Pittsburg and Contra Costa Power Plants several fish species (e.g., Delta smelt, Sacramento splittail, chinook salmon, and steelhead) are now considered threatened or endangered by State and/or Federal authorities. EPA evaluated facility data on impingement and entrainment rates for these species and estimated that potential losses of special status fish species at the two facilities may average 8,386 age 1 equivalents per year resulting from impingement and 169 age 1 equivalents per year due to entrainment.\7\ In another example, EPA is aware that from 1976 to 1994, approximately 3,200 threatened or endangered sea turtles entered enclosed cooling water intake canals at the St. Lucie Nuclear Generating Plant in Florida.\8\ The facility developed a capture-and-release program in response to these events. Most of the entrapped turtles were captured and released alive; however, approximately 160 turtles did not survive. An incidental take limit established by NMFS in a 2001 biological opinion for this facility has been set at no more than 1,000 sea turtles captured in the

intake, with less than one percent killed or injured as a result of plant operations (only two of those killed or injured may be Kemp's turtles).\9\ Although the extent to which threatened, endangered, and other special status species are taken by cooling water intake structures more generally is yet to be determined, EPA is concerned about potential impacts to such species.

\6\ For more information, please see Chapter A12: Threatened & Endangered Species Analysis Methods in the Regional Studies for the Final Section 316(b) Phase II Existing Facilities Rule.

\7\ Impingement and entrainment data were obtained from the 2000 Draft Habitat Conservation Plan for the Pittsburg and Contra Costa facilities. Please see EPA's Regional Studies for the Final Section 316(b) Phase II Existing Facilities Rule for detailed information on EPA's evaluation of impingement and entrainment at these facilities.

\8\ Florida Power and Light Company. 1995. Assessment of the impacts at the St. Lucie Nuclear Generating Plant on sea turtle species found in the inshore waters of Florida.

\9\ Florida Power and Light Company, 2002. Florida Power & Light Company St. Lucie Plant Annual Environmental Operating Report 2002.

Examples of Environmental Impacts Caused by Cooling Water Intakes

1. Hudson River

The power generation facilities on the Hudson River in New York are some of the most extensively studied in the nation. The fish populations in the Hudson River have also been studied extensively to measure the impacts of these power plants. Studies of entrainment at five Hudson River power plants during the 1980s predicted year-class reductions ranging from six percent to 79 percent, depending on the fish species.\10\ A Draft Environmental Impact Statement (DEIS) prepared by industry of entrainment at three Hudson River facilities (Roseton, Bowline, and Indian Point) predicted year-class reductions of up to 20 percent for striped bass, 25 percent for bay anchovy, and 43

position on SPDES permit renewals for Roseton, Bowline Point 1 & 2, and Indian Point 2 & 3 generating stations.

In contrast, the Final Environmental Impact Statement (FEIS) prepared by NYSDEC for these three facilities concludes that impacts are associated with the power plants and notes that these impacts are more like habitat degradation than the ``selective cropping'' of fish that occurs during regulated fishing because the entire community is impacted rather than specific species higher on the food chain.\13\ The multiple facilities on the Hudson River act cumulatively on the entire aquatic community. New York State's 2002 section 316(b) report lists the Hudson River downstream from the Federal dam at Troy, New York, as impacted by cooling water use by power plants due to the loss each year of a substantial percentage of annual fish production. The FEIS estimates, from samples collected between 1981 and 1987, that the average annual entrainment losses from these three facilities includes 16.9 million American shad, 303.4 million striped bass, 409.6 million bay anchovy, 468 million white perch, and 826.2 million river herring.\14\ In addition, related studies have found a small long-term decline in both species richness and diversity within the resident fish community. A commenter on the DEIS cited further evidence that Atlantic tomcod, Atlantic sturgeon, bluefish, weakfish, rainbow smelt, white perch and white catfish are showing long-term trends of declining abundance of 5 to 8% per annum.\15\ Declines in abundances of several species and changes in species composition have raised concerns about the overall health of the community. The FEIS concluded that additional technology was necessary to minimize the adverse environmental impact from these three once-through systems.\16\

\13\ New York State Department of Environmental Conservation (NYSDEC). 2003. Final Environmental Impact Statement: Concerning the Applications to Renew NYSPDES Permits for the Roseton 1 & 2, Bowling 1 & 2 and Indian Point 2 & 3 Steam Electric Generating Stations, Orange, Rockland and Westchester Counties.

\14\ Ibid.

\15\ Henderson, P.A. and R.M. Seaby. 2000. Technical comments on the Draft Environmental Impact Statement for the State Pollution Discharge Elimination System Permit Renewal for Bowline Point 1 & 2, Indian Point 2 & 3, and Roseton 1 & 2 Steam Generating Stations. Pisces Conservation Ltd.

\16\ New York State Department of Environmental Conservation (NYSDEC). 2003. Final Environmental Impact Statement: Concerning the Applications to Renew NYSPDES Permits for the Roseton 1 & 2, Bowline 1 & 2 and Indian Point 2 & 3 Steam Electric Generating Stations, Orange, Rockland and Westchester Counties.

The FEIS further concluded that entrainment at these facilities has diminished the forage base for each species so there is less food available for the survivors. This disruption of the food chain compromises the health of the entire aquatic community. The FEIS used, as a simplified hypothetical example, the loss of an individual bay anchovy that would ordinarily serve as prey for a juvenile striped bass. If this individual bay anchovy is killed via entrainment and disintegrated upon

passage through a CWIS, it is no longer available as food to a striped bass, but rather it is only useful as food to lower trophic level organisms, such as detritivores (organisms that feed on dead organic material). Further, the bay anchovy would no longer be available to consume phytoplankton, which upsets the distribution of nutrients in the ecosystem.\17\

\17\ Ibid.

The Hudson River, like many waterbodies in the nation, has undergone many changes in the past few decades. These changes, which have affected fish populations either positively or negatively, include improvements to water quality as a result of upgrades to sewage treatment plants, invasions by exotic species such as zebra mussels, chemical contamination by toxins such as PCBs and heavy metals, global climate shifts such as increases in annual mean temperatures and higher frequencies of extreme weather events (e.g., the El Nino-Southern Oscillation), and strict management of individual species stocks such as striped bass.\18\ In addition, there are dramatic natural changes in fish populations on an annual basis and in the long term due to natural phenomena because the Hudson River, like many waterbodies, is a dynamic system with many fundamental, fluctuating environmental parameters--such as flow, temperature, salinity, dissolved oxygen, nutrients, and disease--that cause natural variation in fish populations each year.\19\ The existence of these interacting variables makes it difficult to determine the exact contribution of impingement and entrainment losses on a population's relative health. Nonetheless, as described later in this section, EPA is concerned about the potential for cumulative impacts resulting from multiple facility intakes that collectively impinge and/or entrain aquatic organisms within a specific waterbody.

\18\ Ibid.
\19\ Ibid.

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2. Mount Hope Bay

Environmental impacts were also studied in another recent permit reissuance for the Brayton Point Station in Somerset, Massachusetts, where EPA is the permitting authority. EPA determined that, among other things, the facility's cooling water system had contributed to the collapse of the fishery and inhibited its recovery despite stricter commercial and recreational fishing limits and improved water quality due to sewage treatment upgrades. The facility currently withdraws nearly one billion gallons of water each day and the average annual losses of aquatic organisms due to impingement and entrainment are estimated in the trillions, including 251 million winter flounder, 375 million windowpane flounder, 3.5 billion tautog and 11.8 billion bay anchovy. A dramatic change in the fish populations in Mount Hope Bay is apparent after 1984 with a decline by more than 87 percent, which coincides with a 45 percent increase in cooling water withdrawal from the bay due to the modification of Unit 4 from a closed-cycle recirculating system to a once-through cooling water system and a similar increase in the facility's thermal discharge.\20\ \21\ The downward trend of finfish abundance in Mount Hope Bay is significantly greater than declines in adjacent Narragansett Bay that is not influenced by the operation of Brayton Point Station.\22\ Despite

fishing restrictions, fish stocks have not recovered.

\20\ Ibid.

\21\ T Gibson, M. 1995 (revised 1996). Comparison of trends in the finfish assemblages of Mt. Hope Bay and Narragansett Bay in relation to operations for the New England Power Brayton Point station. Rhode Island Division of Fish and Wildlife, Marine Fisheries Office.

\22\ EPA-New England. 2002. Clean Water Act NPDES Permitting Determinations for Thermal Discharge and Cooling Water Intake from Brayton Point Station in Somerset, MA (NPDES Permit No. MA 0003654), July 22, 2002.

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3. Southern California Bight

At the San Onofre Nuclear Generating Station (SONGS), in a normal (non-El Ni[ntilde]o) year, an estimated 57 tons of fish were killed per year when all units were in operation.\23\ The amount lost per year included approximately 350,000 juveniles of white croaker, a popular sport fish; this number represents 33,000 adult equivalents or 3.5 tons of adult fish. In shallow water, densities of queenfish and white croaker decreased 60 percent within one kilometer of SONGS and 35 percent within three kilometers from SONGS as compared to densities prior to facility operations. Densities of local midwater fish decreased 50 to 70 percent within three kilometers of the facility. In contrast, relative abundances of some bottom-dwelling species in the same areas were higher because of the enriched nature of the SONGS discharge, which in turn supported elevated numbers of prey items for bottom-dwelling fish.

\23\ Murdoch, W.W., R.C. Fay, and B.J. Mechalas. 1989. Final Report of the Marine Review Committee to the California Coastal Commission. August 1989. MRC Document No. 89-02.

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4. Missouri River

In contrast to these examples, facilities sited on waterbodies previously impaired by anthropogenic activities such as channelization demonstrate limited entrainment and impingement losses. The Neal Generating Complex facility, located near Sioux City, Iowa, on the Missouri River is coal-fired and utilizes once-through cooling systems. According to a ten-year study conducted from 1972-82, the Missouri River aquatic environment near the Neal complex was previously heavily impacted by channelization and very high flow rates meant to enhance barge traffic and navigation.\24\ These anthropogenic changes to the natural river system resulted in significant losses of fish habitat. At this facility, there was found to be little impingement and entrainment by cooling water intakes.

\24\ Tondreau, R., J. Hey and E. Shane, Morningside College. 1982. Missouri River Aquatic Ecology Studies: Ten Year Summary (1972-1982). Prepared for Iowa Public Service Company, Sioux City, Iowa.

Studies like those described in this section provide only a partial picture of the range of environmental impacts associated with cooling

water intake structures. Although numerous studies were conducted to determine the environmental impacts caused by impingement and entrainment at existing facilities, many of them are based on limited data that were collected as long as 25 years ago. EPA's review of available facility impingement and entrainment studies identified a substantial number of serious study design limitations, including data collections for only one to two years or limited to one season and for a subset of the species affected by cooling water intakes; limited taxonomic detail (i.e., many losses not identified to the species level); a general lack of statistical information such as inclusion of variance measures in impingement and entrainment estimates; and the lack of standard methods and metrics for quantifying impingement and entrainment, which limits the potential for evaluating cumulative impacts across multiple facilities. Further, in many cases it is likely that facility operating conditions and/or the state of the waterbody itself has changed since these studies were conducted. Finally, the methods for monitoring impingement and entrainment used in the 1970s and 1980s, when most section 316(b) evaluations were performed, were often inconsistent and incomplete, making quantification of impacts difficult in some cases. Recent advances in environmental assessment techniques

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provide new and in some cases better tools for monitoring impingement and entrainment and quantifying the current magnitude of the impacts.[25] [26]

\25\ Schmitt, R.J. and C.W. Osenberg. 1996. Detecting Ecological Impacts. Academic Press, San Diego, CA.

\26\ EPRI 1999. Catalog of Assessment Methods for Evaluating the Effects of Power Plant Operations on Aquatic Communities. TR-112013, EPRI, Palo Alto, CA.

EPA is also concerned about the potential for cumulative impacts related to cooling water withdrawal. Cumulative impacts may result from (1) multiple facility intakes impinging and/or entraining aquatic organisms within a specific waterbody, watershed, or along the migratory pathway of specific species; (2) the existence of multiple stressors within a waterbody/watershed, including cooling water intake withdrawals; and (3) long-term occurrences of impingement and/or entrainment losses that may result in the diminishment of the compensatory reserve of a particular fishery stock.

Historically, environmental impacts related to cooling water intake structures have been evaluated on a facility-by-facility basis. These historical evaluations do not consider the potential for a fish or shellfish species to be concomitantly impacted by cooling water intake structures belonging to other facilities that are located within the same waterbody or watershed in which the species resides or along the coastal migratory route of a particular species. The potential cumulative effects of multiple intakes located within a specific waterbody or along a coastal segment are difficult to quantify and are not typically assessed. (One relevant example is provided for the Hudson River; see discussion earlier in this section.) Nonetheless, EPA analyses suggest that almost a quarter of all Phase II existing facilities are located on a waterbody with another Phase II existing facility (DCN 4-4009). Thus, EPA is concerned that although the potential for aquatic species to be affected by cooling water

withdrawals from multiple facility intakes is high, this type of cumulative impact is largely unknown and has not adequately been accounted for in evaluating impacts. However, recently the Atlantic States Marine Fisheries Commission (ASMFC) was requested by its member States to investigate the cumulative impacts on commercial fishery stocks, particularly overutilized stocks, attributable to cooling water intakes located in coastal regions of the Atlantic.\27\ Specifically, the ASMFC study will evaluate the potential cumulative impacts of multiple intakes on Atlantic menhaden stock \28\ which range along most of the U.S. Atlantic coast with a focus on revising existing fishery management models so that they accurately consider and account for fish losses from multiple intake structures. Results from these types of studies, although currently unavailable, will provide significant insight into the degree of impact attributable to intake withdrawals from multiple facilities.

\27\ Personal communication, D. Hart (EPA) and L. Kline (ASMFC), 2001.

\28\ Personal communication, D. Hart (EPA) and L. Kline (ASMFC), 2003.

EPA also considered information suggesting that impingement and entrainment, in conjunction with other factors, may be a nontrivial stress on a waterbody. EPA recognizes that cooling water intake structures are not the only source of human-induced stress on aquatic systems. Additional stresses to aquatic systems include, but are not limited to, nutrient, toxics, and sediment loadings; low dissolved oxygen; habitat loss; and stormwater runoff. Although EPA recognizes that a nexus between a particular stressor and adverse environmental impact may be difficult to establish with certainty, EPA believes stressors that cause or contribute to the loss of aquatic organisms and habitat such as those described above, may incrementally impact the viability of aquatic resources. EPA analyses suggest that over 99 percent of all existing facilities with cooling water withdrawal that EPA surveyed in its section 316(b) survey of existing facilities are located within two miles of waters that are identified as impaired by a State or Tribe (see 66 FR 65256, 65297). Thus, the Agency is concerned that to the extent that many of the aquatic organisms subject to the effects of cooling water withdrawals reside in impaired waterbodies, they are potentially more vulnerable to cumulative impacts from an array of physical and chemical anthropogenic stressors.

Finally, EPA believes that an aquatic population's potential compensatory ability--the capacity for a species to increase its survival, growth, or reproduction in response to reductions sustained to its overall population size--may be compromised by impingement and entrainment losses in conjunction with all the other stressors encountered within a population's natural range, as well as impingement and entrainment losses occurring consistently over extended periods of time. As discussed in the Phase I new facility rule (see 66 FR 65294), EPA is concerned that even if there is little evidence that cooling water intakes alone reduce a population's compensatory reserve, the multitude of stressors experienced by a species can potentially adversely affect its ability to recover.\29\ Moreover, EPA notes that the opposite effect or ``depensation'' (decreases in recruitment as stock size declines\30\) may occur if a population's size is reduced beyond a critical threshold. Depensation can lead to further decreases in population abundances that are already seriously depleted and, in some cases, recovery of the population may not be possible even if the

stressors are removed. In fact, there is some evidence that depensation may be a factor in some recent fisheries collapses.\31\ \32\ \33\

\29\ Hutchings, J.A. and R.A. Myers. 1994. What can be learned from the collapse of a renewable resource? Atlantic cod, Gadus morhus, of Newfoundland and Labrador. Canadian Journal of Fisheries and Aquatic Sciences 51:2126-2146.

\30\ Goodyear, C.P. 1977. Assessing the impact of power plant mortality on the compensatory reserve of fish populations. Pages 186-195 in W. Van Winkle, ed., Proceedings of the Conference on Assessing the Effects of Power Plant Induced Mortality on Fish Populations. Pergamon Press, New York, NY.

Rosenburg. 1995. Population dynamics of exploited fish stocks at low population levels. Science 26:1106-1108.

\32\ Hutchings, J.A. and R.A. Myers. 1994. What can be learned from the collapse of a renewable resource? Atlantic cod, Gadus morhus, of Newfoundland and Labrador. Canadian Journal of Fisheries and Aquatic Sciences 51:2126-2146.

\33\ Liermann, M. and R. Hilborn. 1997. Depensation in fish stocks: A hierarchic Bayesian meta-analysis. Can. J. Fish. Aquatic. Sci. 54:1976-1985.

Another problem associated with assessing the environmental impact of cooling water intakes is that existing fishery resource baselines may be inaccurate.\34\ There is much evidence that the world's fisheries are in general decline,\35\ \36\ however, many fishery stocks have not been adequately assessed. According to a 2002 study, only 23 percent of U.S. managed fish stocks have been fully assessed and of these, over 40 percent are considered depleted or are being fished beyond sustainable levels.\37\ Another study estimated that more than 70 percent of commercial fish stocks are fully

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exploited, overfished or collapsed.\38\ Another estimated that large predatory fish stocks are only a tenth of what they were 50 years ago.\39\ Most studies of fish populations last only a few years, do not encompass the entire life span of the species examined, and do not account for cyclical environmental changes such as ENSO events, and other long term cycles of oceanographic productivity.\40\

J.A. Estes, T.P. Hughes, S. Kidwell, C.B. Lange, H.S. Lenihan, J.M. Pandolfi, C.H. Peterson, R.S. Steneck, M.J. Tegner, and R.R. Warner. 2001. Historical overfishing and the recent collapse of coastal ecosystems. Science 293(5530):629-638.

Although a clear and detailed picture of the status of all our fishery resources does not exist,\41\ it is undisputed that fishermen are struggling to sustain their livelihood despite strict fishery management restrictions which aim to rebuild fish populations. EPA shares the concerns expressed by expert fishery scientists that historical overfishing has increased the sensitivity of aquatic ecosystems to subsequent disturbance, making them more vulnerable to other stressors, including cooling water intake structures.

\41\ National Marine Fisheries Service (NMFS). 2002. Annual Report to Congress on the Status of U.S. Fisheries--2001. U.S. Dep

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In conclusion, EPA's mission includes ensuring the sustainability of communities and ecosystems. Thus, EPA must comprehensively evaluate all potential threats to resources and work towards eliminating or reducing identified threats. As discussed in this section, EPA believes that impingement and entrainment losses attributable to cooling water intakes do pose a threat to aquatic organisms and through today's rule is seeking to minimize that threat.

V. Description of the Final Rule

Clean Water Act section 316(b) requires that any standard established pursuant to section 301 or section 306 of the CWA and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. Today's final rule establishes national performance requirements for Phase II existing facilities that ensure such facilities fulfill the mandate of section 316(b).

This rule applies to Phase II existing facilities that use or propose to use a cooling water intake structure to withdraw water for cooling purposes from waters of the United States and that have or are required to have a National Pollutant Discharge Elimination System

factors, including the facility's location (i.e., source waterbody), rate of use (capacity utilization rate), and the proportion of the waterbody withdrawn. Exhibit V-1 summarizes the performance standards based on waterbody type.

In most cases, EPA believes that these performance standards can be met using design and construction technologies or operational measures. However, under the rule, the performance standards also can be met, in whole or in part, by using restoration measures, following consideration of design and construction technologies or operational measures and provided such measures meet restoration requirements (see Sec. 125.94(c)).

As noted earlier in this section, today's rule generally requires that impingement mortality of all life stages of fish and shellfish must be reduced by 80 to 95 percent from the calculation baseline; and for some facilities, entrainment of all life stages of fish and shellfish must be reduced by 60 to 90 percent from the calculation baseline (see Sec. 125.94(b)).

Exhibit V-1.--Performance Standard Requirements

Waterbody type	Capacity utilization rate	Design intake flo
Freshwater River or Stream.....	Less than 15%.....	N/A \1\.....
	Equal to or greater than 15%.	5% or less mean annu flow. Greater than 5% of m annual flow.
Tidal river, Estuary or Ocean.....	Less than 15%.....	N/A \1\.....
	Equal to or greater than 15%.	N/A.....
Great Lakes.....	Less than 15%.....	N/A.....
	Equal to or greater than 15%.	N/A.....
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Lakes or Reservoirs.....	N/A.....	Increase in design intake flow must no disrupt thermal stratification exce where it does not adversely affect th management of fisheries.

\1\ Determination of appropriate compliance reductions is not applicable.

This final rule identifies five alternatives a Phase II existing facility may use to achieve compliance with the requirements for best technology available for minimizing adverse environmental impacts associated with cooling water intake structures. Four of these are based on meeting the applicable performance standards and the fifth allows the facility to request a site-specific determination of best technology available for minimizing adverse environmental impacts under

certain circumstances. EPA has established these compliance

alternatives for meeting the performance standards to provide a significant degree of flexibility to Phase II existing facilities, to ensure that the rule requirements are economically practicable, and to provide the ability for Phase II existing facilities to address unique site-specific factors. Application requirements vary based on the compliance alternative selected and, for some facilities, include development of a Comprehensive Demonstration Study. Application requirements are discussed later in this section. The five compliance alternatives are described in the following paragraphs.

Under Sec. 125.94(a)(1)(i) and (ii), a Phase II existing facility may demonstrate to the Director that it has already reduced its flow commensurate with a closed-cycle recirculating system, or that it has already reduced its design intake velocity to 0.5 ft/s or less. If a facility can demonstrate to the Director that it has reduced, or will reduce, flow commensurate with a closed-cycle recirculating system, the facility is deemed to have met the performance standards to reduce impingement mortality and entrainment (see Sec. 125.94 (a)(1)(i)). Those facilities would not be required to submit a Comprehensive Demonstration Study with their NPDES application. If the facility can demonstrate to the Director that is has reduced, or will reduce maximum through-screen design intake velocity to 0.5 ft/s or less, the facility is deemed to have met the performance standards to reduce impingement mortality only. Facilities that meet the velocity requirements would only need to submit application studies related to determining entrainment reduction, if subject to the performance standards for entrainment.

Under Sec. 125.94(a)(2) and (3), a Phase II existing facility may demonstrate to the Director, either that its current cooling water intake structure configuration meets the applicable performance standards, or that it has selected design and construction technologies, operational measures, and/or restoration measures that, in combination with any existing design and construction technologies, operational measures, and/or restoration measures, meet the specified

Sec. 125.94(c).

Under Sec. 125.94(a)(4), a Phase II existing facility may demonstrate to the Director that it has installed and is properly operating and maintaining a rule-specified and approved design and construction technology in accordance with Sec. 125.99(a). Submerged cylindrical wedgewire screen technology is a rule-specified design and construction technology that may be used in instances in which a facility's cooling water intake structure is located in a freshwater

approval of the technology (Sec. 125.99(b)).

Under Sec. 125.94(a)(5) (i) or (ii), if the Director determines that a facility's costs of compliance would be significantly greater than the costs considered by the Administrator for a like facility to meet the applicable performance standards, or that the costs of compliance would be significantly greater than the benefits of meeting the applicable performance standards at the facility, the Director must make a site-specific determination of best technology available for minimizing adverse environmental impact. Under this alternative, a facility would either compare its projected costs of compliance using a particular technology or technologies to the costs the Agency considered for a like facility in establishing the applicable performance standards, or compare its projected costs of compliance with the projected benefits at its site of meeting the applicable performance standards of today's rule (see section IX.H). If in either case costs are significantly greater, the technology selected by the Director must achieve an efficacy level that comes as close as practicable to the applicable performance standards without resulting in significantly greater costs.

During the first permit term, a facility that chooses compliance alternatives in Sec. 125.94(a)(2), (3), (4), or (5) may request that compliance with the requirements of this rule be determined based on the implementation of a Technology Installation and Operation Plan indicating how the facility will install and ensure the efficacy, to the extent practicable, of design and construction

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technologies and/or operational measures, and/or a Restoration Plan (Sec. 125.95(b)(5)). The Technology Installation and Operation Plan must be developed and submitted to the Director in accordance with Sec. 125.95(b)(4)(ii). The Restoration Plan must be developed in accordance with Sec. 125.95(b)(5). During subsequent permit terms, if the facility has been in compliance with the construction, operational, maintenance, monitoring, and adaptive management requirements in its TIOP and/or Restoration Plan during the preceding permit term, the facility may request that compliance during subsequent permit terms be based on its remaining in compliance with its TIOP and/or Restoration Plan, revised in accordance with applicable adaptive management requirements if the applicable performance standards are not being met.

Three sets of data are required to be submitted 180 days prior to expiration of a facility's existing permit by all facilities regardless of compliance alternative selected (see Sec. 122.21(r)(2)(3) and (5)). These are:

Source Water Physical Data: A narrative description and scaled drawings showing the physical configuration of all source waterbodies used by the facility, including areal dimensions, depths, salinity and temperature regimes, and other documentation that supports your determination of the waterbody type where each cooling water intake structure is located; identification and characterization of the source waterbody's hydrological and geomorphological features, as well as the methods used to conduct any physical studies to determine the intake's area of influence and the results of such studies; and locational maps.

Cooling Water Intake Structure Data: A narrative description of the configuration of each of its facility's cooling water intake structures and where it is located in the waterbody and in the water column; latitude and longitude in degrees, minutes, and seconds for each of its cooling water intake structures; a narrative description of the operation of each of its cooling water intake

structures, including design intake flows, daily hours of operation, number of days of the year in operation, and seasonal changes, if applicable; a flow distribution and water balance diagram that includes all sources of water to the facility, recirculating flows, and discharges; and engineering drawings of the cooling water intake structure.

Cooling Water System Data: A narrative description of the operation of each cooling water system, its relationship to the cooling water intake structures, proportion of the design intake flow that is used in the system, the number of days of the year the system is in operation, and seasonal changes in the operation of the system, if applicable; and engineering calculations and supporting data to support the narrative description.

In addition to the specified data facilities are require to submit, some facilities are also required to conduct a Comprehensive Demonstration Study. Specific requirements for the Comprehensive Demonstration Study vary based on the compliance alternative selected. Exhibit II summarizes the Comprehensive Demonstration Study requirements for each compliance alternative. Specific details of each Comprehensive Demonstration Study component are provided in section IX of this preamble.

Exhibit V-2.--Summary of Comprehensive Demonstration Study Requirements for C

Compliance alternative (Sec. 125.94(b))	Comprehensive demonstrati 125.
1--Demonstrate facility has reduced flow commensurate with closed-cycle recirculating system.	None.
1--Demonstrate facility has reduced design intake velocity to < = 0.5 ft/s.	No requirements relative to reduction. If subject to standard, the facility mus in the applicable componen
2--Demonstrate that existing design and construction technologies, operational measures, and/or restoration measures meet the performance standards.	Demonstration Study, based selected for entrainment r Proposal for Information Co Source Waterbody Flow Infor Impingement Mortality and/o Characterization Study (as Technology and Compliance A --Design and Construction T --Technology Installation a Restoration Plan (if approp Verification Monitoring Pla
3--Demonstrate that facility has selected design and construction technologies, operational measures, and/or restoration measures that will, in combination with any existing design and construction technologies, operational measures, and/or restoration measures, meet the performance standards.	Proposal for Information Co Source Waterbody Flow Infor Impingement Mortality and/o Characterization Study (as Technology and Compliance A --Design and Construction T --Technology Installation a Restoration Plan (if approp Verification Monitoring Pla
4--Demonstrate that facility has installed and properly operates and maintains an approved technology.	Technology Installation and Verification Monitoring Pla

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5--Demonstrate that a site-specific determination of	Proposal for Information Co

BTA is appropriate.

Source Waterbody Flow Infor
Impingement Mortality and/o
Characterization Study (as
Technology Installation and
Restoration Plan (if approp
Information to Support Site
BTA including:
--Comprehensive Cost Evalua
and cost-benefit test);
--Valuation of Monetized Be
(cost-benefit test only);
--Site-Specific Technology
cost-benefit test);
Verification Monitoring Pla

The requirements in today's final rule are implemented through NPDES permits issued under section 402 of the CWA. Permit applications submitted after the effective date of the rule must fulfill rule requirements. However, facilities whose existing permit expires before [insert four years after date of publication in the FR], may request a schedule for submission of application materials that is as expeditious as practicable but does not exceed [insert three years and 180 days after date of publication in the FR], to provide sufficient time to perform the required information collection requirements. Phase II existing facilities must comply with this final rule when they become

Finally, today's rule preserves each State's right to adopt or enforce more stringent requirements (see Sec. 125.90(d)). It also provides that if a State demonstrates to the Administrator that it has adopted alternative regulatory requirements in its NPDES program that will result in environmental performance within a watershed that is comparable to the reductions of impingement mortality and entrainment

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\42\ Note that these numbers are unweighted. [As with many surveys, EPA was able to obtain data from most, but not all of the facilities potentially subject to this rule. To estimate the characteristics for those facilities that were not surveyed, EPA assigned a statistically derived sample weight to those facilities for which data were collected.] On a sample-weighted basis, the number of Phase II facilities increased from 551 to 554. The number of Phase II facilities modeled by the Integrated Planning Model (IPM) increased from 531 to 535.

The reason for the change is that the Agency revised the estimated design intake flows for facilities that responded to the short-technical questionnaire EPA used to collect information for this rule. The Agency has now adopted a more robust set of annual flow data (using all the years of data collected for the final rule, rather than only flows for 1998 as reported at proposal). This change altered the calculated design intake flows for the facilities that provided responses to the short-technical questionnaire that EPA used to collect data. Facilities that provided responses to the detailed questionnaire were unaffected, as the Agency collected maximum design intake flows directly through the detailed questionnaire.

2. Technology Costs

Since publishing the NODA, EPA used new information to revise the capital and operation and maintenance (O&M) costs for several compliance technologies, including those used as the primary basis for the final rule. Overall, the cost updates resulted in the following changes: total capital costs decreased by 5 percent and total operation and maintenance costs decrease by 3 percent. These comparisons are based on the raw costs, adjusted to year-2002 dollars, which have not been discounted or annualized.\43\ The revised costing assumptions are discussed in detail in section VI.3.

\43\ Based on additional research conducted after NODA publication and prior to issuance of the final rule, EPA changed the projected compliance response for some facilities. These changes, together with the increase in the number of in-scope Phase II facilities, contributed to the change in total compliance costs.

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3. Permitting and Monitoring Costs

Since proposal, EPA made several corrections and revisions to its burden and cost estimates for implementing the information collection requirements of today's rule, based on comments received and additional analysis. The following corrections and revisions were made since proposal:

EPA corrected the hourly rates for the statistician and biological technician labor categories, which were inadvertently transposed at proposal.

EPA increased the burdens associated with impingement and entrainment monitoring for the Impingement Mortality and Entrainment Characterization Study.

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EPA revised the pilot study costs to assume that only a subset of facilities which are projected to install new technologies

will perform pilot studies, and to be proportional to the projected capital costs for installing these new technologies in order to comply with the rule. EPA also developed an alternative national cost estimate using slightly different assumptions with regard to pilot study costs (see section XI).

EPA adjusted the facility-level costs to account for facilities that were projected to demonstrate compliance through the installation of a wedge-wire screen in a freshwater river under the compliance alternative in 125.94(a)(4).

4. Net Installation Downtime for Non-recirculating Cooling Tower Compliance Technologies

In developing the proposal for this rule, the Agency estimated that technologies other than recirculating cooling towers would not require installation downtime for construction. However, the Agency amended this outlook for the NODA and published revised estimates of net construction downtimes for complying facilities installing a subset of technologies analyzed and developed as candidates for best technology available (BTA). Based on comments received on the NODA, the Agency has conducted further research into the construction downtimes that it used in the NODA for certain technologies. For the final regulation analysis, the Agency has adopted minor revisions to the construction downtimes for certain technologies, with the general effect being an increase in the net construction downtimes for a few technologies that the Agency views as candidates for reducing entrainment. (Net downtime was estimated by subtracting 4 weeks from total downtime, based on an assumption that facilities will schedule construction downtime during a 4 week period of normal downtime unrelated to the rule, for example, for routine maintenance.) As such, the Agency projects that a significant number of facilities expected to comply with the entrainment reduction requirements of the rule will have increased downtime costs compared to the NODA and the proposal analyses. The final costs of this rule reflect these changes, which are further discussed in Section X and the Technical Development Document.

B. Regulatory Approach, Calculation Baseline, and Measuring Compliance

1. Regulatory Approach

EPA has largely adopted the proposed rule with some restructuring and one significant change: an additional compliance alternative, the approved technology option (Sec. 125.94(a)(4)) which was discussed in detail in the NODA (68 FR 13539). The restructuring of the rule language now makes the reduction of flow commensurate with a closed-cycle recirculating system a separate compliance alternative, such that the rule now includes five compliance alternatives. In addition, EPA has clarified that facilities may comply with the rule requirement in section 125.94 by successfully implementing the construction, operational, maintenance, monitoring, and adaptive management requirements in a Technology Installation and Operation Plan developed in accordance with Sec. 125.95(b)(4)(ii) and/or a Restoration Plan developed in accordance with Sec. 125.95(b)(5). These plans must be

designed and adaptively managed to meet the applicable performance standards in Sec. 125.94(b) and (c). The following discussion describes the regulatory approach of the final rule, as developed through the proposed rule and the NODA.

EPA proposed requirements for the location, design, construction, and capacity of cooling water intakes based on the waterbody type and the volume of water withdrawn by a facility (67 FR 17122). EPA grouped waterbodies into five categories, as in the Phase I regulation--freshwater rivers and streams, lakes and reservoirs, Great Lakes, estuaries and tidal rivers, and oceans. In general, the more sensitive

or biologically productive the waterbody, the more stringent were the requirements proposed. The proposed requirements also varied based on the percentage of the source waterbody withdrawn and the capacity utilization rate.

Under the proposed rule, a facility could choose one of three compliance options: (1) Demonstrate that the facility currently meets the specified performance standards, (2) select and implement design and construction technologies, operational measures, or restoration measures that will, in combination with any existing design and construction technologies, operational measures, or restoration measures, meet the specified performance standards, and/or (3) demonstrate that the facility qualifies for a site-specific determination of best technology available, because its costs of compliance are significantly greater than those considered by EPA during the development of the proposed rule or the facility's costs of compliance would be significantly greater than the benefits of compliance with the proposed performance standards at the facility. A facility could also use restoration measures in addition to or in lieu of design and construction technologies and/or operational measures to achieve compliance under any of the compliance options.

In the NODA, EPA sought comment on a proposed fourth compliance option (68 FR 13522, 1359-41). In response to comments expressing concern that the proposed Comprehensive Demonstration Study requirements (at Sec. 125.95(b)) would impose a significant burden on permit applicants, EPA examined an additional, more streamlined compliance option under which a facility could implement certain specified technologies that have been predetermined by EPA or the permitting authority to be highly likely to meet applicable performance standards, in exchange for not having to perform most of the elements of the proposed Comprehensive Demonstration Study.

Two variations were offered in the NODA: (1) EPA would evaluate the effectiveness of specific technologies in achieving an 80 to 95 percent reduction in impingement mortality and a 60 to 90 percent reduction in entrainment and then specify applicability criteria to ensure that the technology would meet the performance standards at facilities satisfying the criteria, or (2) EPA would establish the criteria and a process for States to pre-approve intake structure control technologies as likely to meet the performance standards. For facilities located on freshwater rivers and streams and meeting specified criteria, wedgewire screens would be expected to meet the proposed performance standards. EPA also recognized that these two variations are not mutually exclusive and either or both could be adopted in the final rule.

To a large extent, EPA is adopting the regulatory framework put forth in the proposed rule and supplemented by the NODA. To the three compliance alternatives originally proposed, EPA has added an approved technology alternative discussed in the NODA and included reduction of flow commensurate with closed-cycle cooling as a distinct alternative.

2. Calculation Baseline

Also, in response to comments that the proposed definition for the calculation baseline was overly vague,

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EPA published in the NODA a series of additional considerations regarding the calculation baseline and a new definition of it taking these considerations into account (68 FR 13522, 13580-81). The specifications are as follows and the new definition is in today's

final rule at Sec. 125.83

would result in higher baseline impingement mortality and entrainment than the surface. EPA believes it is appropriate to allow credit in reducing impingement mortality from screen configurations that employ angling of the screen face and currents to guide organisms away from the structure before they are impinged.

Baseline cooling water intake structure opening is located at or near the surface of the source waterbody. EPA believes it is appropriate to allow credit in reducing impingement mortality or entrainment due to placement of the opening in the water column.

Baseline cooling water intake structure has a traveling screen with the standard 3/8 inch mesh size commonly used to keep condensers free from debris. This allows a more consistent estimation of the organisms that are considered ``entrainable'' vs. ``impingeable'' by specifying a standard mesh size that can be related to the size of the organism that may potentially come in contact with the cooling water intake structure.

Baseline practices, procedures, and structural configurations are those that the facility would maintain in the absence of any structural or operational controls implemented in whole or in part for the purpose of reducing impingement mortality and entrainment. This recognizes and provides credit for any structural or operational controls, including flow or velocity reductions, a facility had adopted that reduce impingement mortality or entrainment.

EPA also requested comment on allowing an ``as built'' approach under which facilities could choose to use the existing level of impingement mortality and entrainment as the calculation baseline if they did not wish to take credit for the previously adopted measures. This could significantly simplify the monitoring and calculations necessary to determine the baseline.

In the NODA, EPA also discussed an approach to compliance under which facilities would have an ``optimization period'' during which they would not be required to meet performance standards but, rather, would install, operate and maintain the selected control technologies to minimize impingement mortality and entrainment. EPA suggested several possible durations for this optimization period, and also requested comment on not specifying the duration, but instead leaving it up to the Director. 68 FR 13586 (March 19, 2003).

For the final rule, EPA adopted the NODA definition of calculation baseline with some modifications. More specifically, EPA clarified the calculation baseline to include consideration of intake depth other than at or near the surface in determining the baseline. EPA also adopted the ``as built'' approach for the calculation baseline, which allows facilities to use current levels of impingement mortality and entrainment as the calculation baseline if the facility is configured similarly to the criteria set up for the calculation baseline.

Finally, EPA clarified how compliance with the requirements in Sec. 125.94 should be determined. In particular, the final rule provides that compliance during the first permit term (and subsequent permit terms if specified conditions are met) may be determined based on compliance with the construction, operational, maintenance,

NODA, determining compliance, while obviously dependent on the compliance alternative selected, would, in general, require the development of waterbody characterization data, including key criteria (species, parameters, etc.) to be measured and monitored; a determination of baseline environmental impacts; implementation of cooling water intake technologies (assuming the facility does not already meet applicable performance standards and pursues this alternative); monitoring the selected criteria; and an evaluation of compliance with the applicable numeric impingement mortality and/or entrainment permit standard. The industry stakeholders were concerned that using the performance standard to set enforceable performance requirements would require facilities to collect and analyze greater amounts of data than EPA projected to be able to account for the variability inherent in biological and efficacy data needed to support compliance determinations in spite of overall good technology performance. These stakeholders stated that setting enforceable performance standards would lead to greater administrative burdens and delays when determining numeric standards and monitoring requirements to determine compliance. They were also concerned that establishing numeric standards would stifle innovation because of fears that a technology would not perform as anticipated. These stakeholders suggested that the performance standards in the rule serve as a consistent basis for setting permit conditions and for identifying technologies; installing, operating, and maintaining the chosen technology; performing compliance monitoring; and refining or adjusting operation, maintenance, or other factors in light of initial monitoring.

Today's rule allows facilities to develop and implement a Technology Installation and Operation Plan that would, when used, serve as the primary mechanism upon which compliance with the performance standard requirements of this rule is determined. EPA has established this compliance mechanism because it will ensure that Phase II existing facilities will continually be required to achieve a level of performance that constitutes, for them, best technology available for minimizing adverse environmental impact. For facilities that choose to comply with applicable requirements in whole or in part through the use of restoration measures, the Restoration Plan would serve a similar function. The Restoration Plan is discussed in detail in section IX.

An existing facility that chooses to use a Technology Installation and Operation Plan must (1) select design and construction technologies, operational measures, and/or restoration measures that will meet the performance standards, and (2) prepare a Technology Installation and Operation Plan documenting what, how and when it will install, operate, maintain, monitor, assess, and adaptively manage the design and construction technologies and operational measures to meet the performance standards, including operational parameters and

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inspection schedules, etc. Each facility using a Technology Installation Operation Plan must specify key parameters regarding monitoring (e.g., parameters to be monitored, location, and frequency), optimization activities and schedules for undertaking them, ways of assessing efficacy (including adaptive management plan for revising design and construction technologies or operational measures) that ensure that such technologies and measures are effectively implemented, and revised as needed to meet performance standards. This plan must be reviewed and approved by the Director and evaluated for sufficiency and/or revised at each permit term to ensure that the facility is moving expeditiously toward attainment of the applicable performance

standards. Once approved, each Phase II existing facility must implement the plan according to its terms. Compliance with the final rule's performance standards during the permit term will be assessed based on the terms of the plan. If a facility does not comply with the plan, the Director has discretion to implement the performance standards or requirements through specifying numeric impingement mortality and entrainment requirements or technology prescription (for the site-specific alternative) in the permit. In addition, a facility that is unable to meet the applicable performance standards using the Technology Installation and Operation Plan approach may request in a subsequent permit that the Director make a site-specific determination of best technology available in accordance with Sec. 125.94(a)(5).

Under these provisions, compliance is determined in terms of whether the facility is implementing, in accordance with the Technology Installation and Operation Plan schedule, the technologies, measures and practices determined by the Director to be the best technologies available for minimizing adverse environmental impact for that facility. The Section 316(b) requirements for the facility are expressed non-numerically, which is analogous to the use of best management practices under other provisions of the CWA. See, e.g., sections 402(a) and 402(p). While EPA has been able to calculate ranges for national performance standards based on model technologies, EPA has insufficient data to determine--as it routinely can do in the context of effluent limitations guidelines and standards--that use of those model technologies will consistently result in achievement of those standards.

The record persuades EPA that there is uncertainty associated with the application and long-term efficacy of these technologies at all facilities under the multitude of different site-specific factors and conditions under which these technologies might have to perform. In addition, even at a single site, there is substantial year-to-year variability in species abundance and composition, as well as other natural and anthropogenic factors, that may affect the performance of a particular technology installed at the facility and it is unclear how this would affect the efficacy of the technology. The Technology Installation and Operation Plan provisions are intended to account for this. For example, meeting numerical reduction standards may not be possible at some sites either because hydrological conditions are not conducive to technological effectiveness, or due to species sensitivity. A Technology Installation and Operation Plan allows a facility, working with the Director, to identify, install, and adaptively manage technologies suited to its particular site conditions. In addition, measuring impingement mortality and entrainment reduction is difficult and would require a substantial amount of multi-year biological data and analysis is burdensome for the facility to develop, is often well beyond the type of information EPA can expect State Directors to be able to develop when monitoring compliance. A Technology Installation and Operation Plan simplifies enforcement: if a facility fails to meet the schedules and other terms of its plan, it is violating its section 316(b) requirements; there is no need to engage in extensive debate about the meaning of complex biological data. This does not mean that biological monitoring and assessment of success in meeting applicable performance standards is not important. If fact, it is critical to the compliance approach adopted in the rule in that it informs facilities and permit authorities when adaptive management, including revisions to the Technology Installation and Operation Plan, are needed to meet the performance standards.

The Technology Installation and Operation Plan provisions also reflect that there is uncertainty about how long it would take a

facility to adaptively manage the technology and determine the appropriate operating conditions for the technology to meet the applicable performance requirements. Data and comments available to EPA suggest that it is common for existing facilities to adjust technologies over time in order to achieve optimum performance and, therefore, an adaptive management approach as specified under a plan is appropriate. See documentation at DCN 1-3019-BE, 4-1830, and 6-5001. EPA understands that adaptive management is going to be necessary for a number of facilities because there are relatively few rigorous evaluations of efficacy under different site and operating conditions. The available studies may also be limited in the numbers and types of species that they have evaluated and they may not show the long term demonstrated effectiveness (and/or consistency of effectiveness) of the technology with the added uncertainties associated with the variability of natural biological systems. By requiring facilities to employ adaptive management principles, EPA assures that the facility will be implementing, on an ongoing basis, the best array of technologies available to them.

As noted above, the Technology Installation and Operation Plan provisions also simplify implementation because they identify the specific compliance requirements needed to meet the performance standard ranges and reduce some of the burden associated with measuring and enforcing compliance with these ranges for both existing facilities and Directors. Directors and facilities may find use of a Technology Installation and Operation Plan preferable because it is less feasible to develop and accurately evaluate biological monitoring data over a relatively short period, as would be required by measuring compliance against a numeric performance standard. Rather, the plan provisions allow implementation to be adaptive, and allow for data development and assessment to proceed in a manner that is appropriate for the facility, technology, and waterbody characteristics.

EPA has the legal authority to express section 316(b) requirements in terms of design criteria, in addition to or in place of enforceable numeric performance standards. EPA employed a design criterion approach in the Phase I rule, when EPA was able to identify a single nationally available and economically practicable technology for the category of new facilities as a whole, in that case closed-cycle recirculating cooling technology. In this rule, EPA was not able to identify a uniform set of technologies that would be available and economically practicable for all existing facilities, but EPA was able to articulate

a uniform nationally applicable principle in the form of the performance standards in Sec. 125.94(b), by

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which such technologies could be identified by the Director and implemented through the use of a Technology Installation and Operation Plan designed to achieve them. While the technology solution was different in Phase I and Phase II, the legal principle is the same. In addition, EPA has the legal authority to identify section 316(b) requirements as an evolving set of technologies, rather than a single technology array fixed in time. Section 316(b) requires that any technology selected under that section must be the best available to the facility. This term encompasses consideration of effectiveness, costs, non-water quality environmental impacts, feasibility issues and a host of other considerations relevant to existing facilities. See section 304(b)(2)(B). The record indicates that for some facilities, the question of what are available technologies and, among those, what is the best technology, may change over time. A Technology Installation and Operation Plan is intended to assure that at all times a facility

is implementing a technology--or a technology plan--that reflects the best of all technologies consistent with uniform guiding principles in the form of performance standards available to them in light of their site-specific circumstances.

Finally, EPA notes that the way in which performance standards guide technology selection and implementation varies slightly among the five compliance options. For facilities complying with Sec. 125.94(a)(1), the technologies identified are so effective that EPA is confident that any facility employing them will meet the performance standards, so a Technology Installation and Operation Plan and performance monitoring are not required. Because these technologies are not available to all Phase II existing facilities, however, EPA has provided alternative compliance options. For facilities complying in accordance with Sec. 125.94(a)(2), (3), or (4), compliance is generally achieved by implementation of a Technology Installation and Operation Plan designed to meet applicable performance standards. Finally, for facilities that comply in accordance with Sec. 125.94(a)(5) for whom even compliance in accordance with Sec. 125.94(a)(2), (3), or (4) is not available because of significantly higher costs, compliance is achieved by implementation of a Technology Installation and Operation Plan that achieves an efficacy as close as practicable to the applicable performance standards.

4. Site-Specific Requirements

a. Costs Significantly Greater Than Costs Considered by the Administrator

In today's final rule, a facility that demonstrates to the Director that the costs of compliance with the performance standards and/or restoration requirements would be significantly greater than the costs considered by the Administrator for a similar facility, will be given a site-specific determination of best technology available for minimizing adverse environmental impact. The standards of the rule have not changed since proposal, with the exception of one clarification: in the final rule, the alternative site-specific requirements established by the Director must achieve an efficacy that is as close as practicable to the performance standards and/or restoration requirements specified in Sec. 125.94(b) and (c). This was not specified in the proposed rule language. In addition, today's final rule also explains how a facility should calculate costs considered by the Administrator for a similar facility, for comparison with the costs of compliance for the facility. EPA details these steps in Sec. 125.94(a)(5)(i)(A)-(F).

In the proposed rule, submittal requirements for facilities

In the final rule, EPA has specified how a facility must ``calculate costs considered by the Administrator'' for comparison with the facility's estimate of the costs of compliance with the final rule,

Elimination of the requirement to submit a Valuation of Monetized Benefits of Reducing Impingement and Entrainment, and

Addition of the requirement to demonstrate that the costs significantly exceed the costs considered by the Administrator for a similar facility, under the Cost Evaluation Study.

b. Costs Significantly Greater Than Benefits

In today's final rule, a facility that demonstrates to the Director that the costs of compliance with the performance standards and/or restoration requirements would be significantly greater than the benefits will be given a site-specific determination of best technology available for minimizing adverse environmental impact. The standards of the rule have not changed since proposal, with the exception of one clarification: in the final rule, the alternative site-specific requirements established by the Director must achieve an efficacy that is as close as practicable to the performance standards and/or restoration requirements specified in Sec. 125.94(b) and (c). This was

In the final rule, as in the proposal, a facility requesting a site-specific determination based on a cost-benefit comparison must submit three studies: the Cost Evaluation Study, the Benefits Valuation Study (referred to in proposal as Valuation of Monetized Benefits of Reducing Impingement and Entrainment), and the Site-Specific Technology Plan. The final rule has both added and clarified requirements for the first two components relative to the proposal, but has provided no substantive changes in the requirements for the Site-Specific Technology Plan.

Under the Comprehensive Cost Evaluation Study detailed at proposal, a facility must submit detailed engineering cost estimates to document the costs of implementing the technologies and/or operational measures in the facility's Design and Construction Plan. In the final rule, the facility must provide, in addition to the engineering cost estimates, a demonstration that the costs significantly exceed the benefits of complying with the applicable performance standards.

Additional clarifications are found in the Benefits Valuation Study. In the proposed rule, a facility was required to submit (1) a description of the

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methodology used to estimate the benefits' value, (2) the basis for assumptions and quantitative estimates, and (3) an uncertainty analysis. In the final rule, EPA has retained the three submittal requirements. Under the first component, EPA has specified the categories of potential valuation estimates in the final rule, namely commercial, recreational and ecological benefits. EPA has added that a facility should include non-use benefits if applicable. To the second component, EPA has added that the basis may include a determination of entrainment survival if the Director approved such a study.

``as close as practicable'' to performance standards and/ or restoration requirements,

Facilities will need to specifically demonstrate that costs are significantly greater than the benefits of compliance, and

Facilities will have additional requirements under the Benefits Valuation Study.

VII. Basis for the Final Regulation

A. Why Is EPA Establishing a Multiple Compliance Alternative Approach for Determining Best Technology Available for Minimizing Adverse Environmental Impact?

Today's final rule authorizes a Phase II existing facility to choose one of five alternatives for establishing the best technology available for minimizing adverse environmental impacts at the facility. A facility may (1) demonstrate that it has reduced or will reduce its cooling water intake flow commensurate with a closed-cycle, recirculating system, and or that it has reduced, or will reduce, the maximum through-screen design intake velocity to 0.5 ft/s or less; (2) demonstrate that its existing design and construction technologies, operational measures, and/or restoration measures meet the applicable performance standards and restoration requirements; (3) demonstrate that it has selected design and construction technologies, operational measures, and/or restoration measures that will, in combination with any existing design and construction technologies, operational measures, and/or restoration measures, meet the applicable performance standards and restoration requirements; (4) demonstrate that it will install or has installed and properly operates and maintains an approved design and construction technology; or (5) demonstrate that it has selected, installed, and is properly operating and maintaining, or will install and properly operate and maintain, design and construction technologies, operational measures, and/or restoration measures that the Director has determined to be the best technology available for the facility based on application of a specified cost-to-cost test or a cost-to-benefit test. The basis for each of the five compliance alternatives is explained in section VII.C. of this preamble.

The rule establishes performance standards for the reduction of impingement mortality and entrainment. EPA established these performance standards in part based on a variety of technologies, but the rule does not mandate the use of any specific technology. These performance standards vary by waterbody type (i.e., freshwater river/ stream, estuary/tidal river, ocean, Great Lake, or lake/reservoir) and the capacity utilization rate of the facility. They may be met in whole or in part using restoration measures after demonstrating, among other things, that the facility has evaluated the use of design and construction technologies and operational measures at the site. The basis for the performance standards is explained in section VII.B. of this preamble and the basis for the restoration requirements is explained at section VII.F. of this preamble. For a more detailed description of the rule, see sections V and IX of this preamble. These requirements reflect the best technology available for minimizing adverse environmental impact from cooling water intake structures.

EPA adopted this regulatory scheme because it provides a high degree of flexibility for existing facilities to select the most effective and efficient approach and technologies for minimizing adverse environmental impact associated with their cooling water intake

different combinations of technologies can be used and optimized to achieve the performance standards.

B. Why and How Did EPA Establish the Performance Standards at These Levels?

1. Overview of Performance Standards

The final rule establishes two types of performance standards, one that addresses impingement mortality and one that addresses entrainment. EPA used impingement mortality and entrainment as a metric for performance because these are primary and distinct types of harmful impacts associated with the use of cooling water intake structures (see also section IV). Both the impingement mortality and the entrainment performance standards apply to facilities demonstrating compliance under alternatives two, three, and four, described above (Sec. 125.94(a)(2), (3), and (4)). In addition, the Director's site-specific alternative requirements must be as close as practicable to the applicable performance standards under Sec. 125.94. Performance standards for entrainment do not apply to facilities with low utilization capacity, those with a design intake flow of five percent or less of the mean annual flow of a freshwater river or stream, and those that withdraw cooling water from a lake (other than one of the Great Lakes) or reservoir because such facilities have a low propensity for causing significant entrainment impacts due to limited facility operation, low intake flow, or general waterbody characteristics. The impingement mortality performance standard requires a Phase II existing facility that complies under Sec. 125.94(a)(2), (3), and (4) to reduce impingement mortality of all life stages of fish and shellfish by 80 to 95 percent from the calculation baseline.

Both an entrainment performance standard and an impingement mortality standard apply to facilities with a capacity utilization rate of 15 percent or greater and that withdraw cooling water from a tidal river, estuary, ocean, one of the Great Lakes, as well as facilities that use cooling water from a freshwater river or stream and the design intake flow of the cooling water intake structure is greater than five percent of the mean annual flow because EPA believes that these facilities cause more significant entrainment impacts. The entrainment standard, where applicable, requires a Phase II facility to reduce entrainment of all life stages of fish and shellfish by 60 to 90 percent from the calculation baseline.

2. Basis for Performance Standards

Overall, the performance standards that reflect best technology available under today's final rule are not based on a single technology but, rather, are

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based on consideration of a range of technologies that EPA has determined to be commercially available for the industries affected as a whole and have acceptable non-water quality environmental impacts, except for some potential regional energy (reliability) impacts that will be minimized to the extent possible through flexible compliance options. Because the requirements implementing section 316(b) are applied in a variety of settings and to Phase II existing facilities of different types and sizes, no single technology is most effective at all existing facilities, and a range of available technologies has been used to derive the performance standards.

EPA developed the performance standards for impingement mortality reduction based on an analysis of the efficacy of the following technologies: (1) Design and construction technologies such as fine and

wide-mesh wedgewire screens, as well as aquatic filter barrier systems, that can reduce mortality from impingement by up to 99 percent or greater compared with conventional once-through systems; (2) barrier nets that may achieve reductions of 80 to 90 percent; and (3) modified screens and fish return systems, fish diversion systems, and fine mesh traveling screens and fish return systems that have achieved reductions in impingement mortality ranging from 60 to 90 percent as compared to conventional once-through systems.

Available performance data for entrainment reduction are not as comprehensive as impingement data. However, aquatic filter barrier

flow of the cooling water intake structure, the increase in total design intake flow must not disrupt the natural thermal stratification or turnover pattern of the source water except in cases where the disruption does not adversely affect the management of fisheries Sec. 125.94(b)(3)(iii)). The natural thermal stratification or turnover pattern of a lake is a key characteristic that is potentially affected by the intake flow (which can alter temperature and/or mixing of cold and warm water layers) and location of cooling water intake structures within such waterbodies. Cooling water intake structures withdrawing from the Great Lakes are required to reduce fish and shellfish impingement mortality by 80 to 95 percent and to reduce entrainment by 60 to 90 percent. As described in the Phase I proposed rule (65 FR 49086) and NODA (66 FR 28858), EPA believes that the Great Lakes are a unique system that should be protected to a greater extent than other lakes and reservoirs. Similar to oceans, large lakes such as the Great Lakes can possess estuarine-like environments in the lower reaches of tributary streams. For example, within the U.S., a total of 1,370 distinct coastal wetlands fringe the Great Lakes and the channels that connect the lakes. (2-016A Herdendorf, C.E. Great Lakes estuaries. Estuaries, 13(4): 493-503. 1990, pg. 493). The Agency is therefore specifying entrainment controls as well as impingement mortality controls for the Great Lakes. EPA has not applied the entrainment performance standard to lakes other than the Great Lakes because, in general, these waterbodies contain aquatic organisms that tend to be less impacted by entrainment than organisms in estuaries or fresh water rivers or streams.

The performance standards for facilities with cooling water intake structures located in a tidal river or estuary and with a capacity utilization rate of 15 percent or greater are to reduce impingement mortality by 80 to 95 percent and entrainment by 60 to 90 percent for fish and shellfish. As discussed previously, EPA believes estuaries and tidal rivers are more susceptible than other waterbodies to adverse impacts from impingement and entrainment.

The performance standards for facilities with cooling water intake structures located in an ocean are to reduce impingement mortality by 80 to 95 percent and entrainment by 60 to 90 percent for fish and shellfish. EPA is establishing requirements for facilities withdrawing from oceans that are similar to those for tidal rivers and estuaries because the coastal zone of oceans (from which coastal cooling water intake structures withdraw water)

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are highly productive areas for fish and shellfish. (See the Phase I

a capacity utilization rate of less than 15 percent are subject to the performance standard for impingement mortality only. EPA is not requiring, in today's rule, that these facilities control entrainment. EPA has several reasons for this. First, EPA has determined that entrainment control technology is not economically practicable in view of the reduced operating levels of these facilities. These facilities also tend to operate most often in mid-winter or late summer, which are times of peak energy demand but periods of generally low abundance of entrainable life stages of fish and shellfish. Finally, the total volume of water withdrawn by these facilities is significantly lower than for facilities operating at or near peak capacity, and as noted above, entrainment at a site is generally proportional to flow, absent entrainment controls. Consequently, EPA determined that it was neither necessary nor cost-effective for these facilities to reduce entrainment where the total volume of water withdrawn and the number of organisms that would be protected from entrainment is likely to be small. EPA is also allowing facilities with multiple, distinct cooling water intakes that are exclusively dedicated to different generating units to determine capacity utilization and applicable performance standards separately for each intake for the same reasons.

As in the Phase I rule, EPA is setting performance standards for minimizing adverse environmental impact based on a relatively easy to measure and certain metric--reduction of impingement mortality and entrainment. Although adverse environmental impact associated with cooling water intake structures can extend beyond impingement and entrainment, EPA has chosen this approach because impingement and entrainment are primary, harmful environmental effects that can be reduced through the use of specific technologies. In addition, where other impacts at the population, community, and ecosystem levels exist, these will also be reduced by reducing impingement and mortality. Using impingement mortality and entrainment as a metric provides certainty about performance standards and streamlines, and thus speeds, the issuance of permits.

EPA is expressing the performance standard in the form of ranges rather than a single performance benchmark because of the uncertainty inherent in predicting the efficacy of any one of these technologies, or a combination of these technologies, across the spectrum of facilities subject to today's rule. The lower end of the range is being established as the percent reduction that EPA, based on the available efficacy data, expects all facilities could eventually achieve if they were to implement and optimize available design and construction technologies and operational measures on which the performance standards are based. (See Chapter 4, ``Efficacy of Cooling Water Intake Structure Technologies,'' of the Phase II Existing Facility Technical Development Document, EPA-821-R-04-007, February 2004. Also, see EPA's 316(b) technology efficacy database, DCN 6-5000.) The lower end of the range also reflects, in part, higher mortality rates at sites where there may be more fragile species that may not have a high survival rate after coming in contact with fish protection technologies at the cooling water intake structure (e.g., fine mesh screens). The higher end of the range is a percent reduction that available data show many facilities can and have achieved with the available technologies upon which the performance standards are based.

In specifying a range, EPA anticipates that facilities will select the most cost-effective technologies or operational measures to achieve the performance level (within the stated range) based on conditions found at their site, and that Directors will review the facility's application to ensure that appropriate alternatives were considered. Proper selection, operation, and maintenance of these technologies would serve to increase potential efficiencies of the technologies. EPA

also expects that some facilities may be able to meet these performance requirements by selecting and implementing a suite (i.e., more than one) of technologies and operational measures and/or, as discussed in this section, by undertaking restoration measures.

Several additional factors support EPA's expectation that the impingement mortality and entrainment reduction reflected in the performance standards can eventually be achieved by all facilities using the design and construction technologies and measures on which the standards were based. First, a significant portion of the available performance data reviewed is from the 1970s and 1980s (when section 316(b) was initially implemented) and does not reflect recent developments, innovations (e.g., aquatic filter barrier systems, sound barriers), or experience using these technologies. These data,

today's improved understanding of both how the various control technologies work and the various factors that reflect what constitutes and how to measure healthy aquatic conditions. Second, these conventional barrier and return system technologies have not been optimized on a widespread level to date, as would be encouraged by this rule. Available information indicates that facilities that use these cooling water intake structure technologies often achieve better results from the technologies through adjusting which technologies are applied and how they are used. Such optimization, which also benefits

modified to be based on a location of the opening of the cooling water intake structure at a depth other than at or near the surface if it can demonstrate to the Director that the other depth would correspond to a higher baseline level of impingement mortality and/or entrainment. EPA decided to use this definition because it represents the most correct

for design and construction technologies, operational measures, and/or restoration measures that they have already implemented to minimize adverse environmental impact, while providing a clear and relatively simple definition. Based on comments received on the Phase II NODA, this calculation baseline definition includes additional criteria that EPA has added to provide clarity to the analysis. (Proposed changes to the calculation baseline were discussed in the Phase II NODA, see 68 FR 13580). In many cases, existing technologies at the site show some

of closed-cycle recirculating systems, EPA has determined that this technology is not economically practicable for many existing Phase II facilities. EPA is nonetheless aware that some existing facilities have installed this highly effective technology and has thus provided a streamlined alternative for such facilities.

\44\ Reducing the cooling water intake structure's capacity is one of the most effective means of reducing entrainment (and impingement). For the traditional steam electric utility industry, facilities located in freshwater areas that have closed-cycle recirculating cooling water systems can, depending on the quality of the make-up water, reduce water use by 96 to 98 percent from the amount they would use if they had once-through cooling water systems. Steam electric generating facilities that have closed-cycle, recirculating cooling systems using salt water can reduce water usage by 70 to 96 percent when make-up and blowdown flows are minimized. The lower range of water usage would be expected where State water quality standards limit chloride to a maximum increase of 10 percent over background and therefore require a 1.1 cycle of concentration. The higher range should be attainable where cycles of concentration up to 2.0 are used for the design.

Additionally, EPA established a compliance alternative that allows facilities to reduce intake velocity to meet the impingement mortality performance standards. As EPA discussed in the proposed rule at 67 FR 17151 and Phase I final rule at 66 FR 65274, intake velocity is one of the key factors that can affect the impingement of fish and other aquatic biota, since in the immediate area of the intake it exerts a direct physical force against which fish and other organisms must act to avoid impingement and entrainment. As discussed in that notice, EPA compiled data from three swim speed studies (University of Washington study, Turnpenny, and EPRI) and these data indicated that a 0.5 ft/s velocity would protect at least 96 percent of the tested fish. As further discussed, EPA also identified federal documents (Boreman, DCN 1-5003-PR; Bell (1990); and National Marine Fisheries Service (NMFS), (1997)), an early swim speed and endurance study performed by Sonnichsen et al. (1973), and fish screen velocity criteria that are consistent with this approach.

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2. Meeting Performance Standards Through the Use of Design and Construction Technologies, Operational Measures, and/or Restoration Measures

Under the second and third compliance alternatives (Sec. 125.94(a)(2) and (3)), a facility may either demonstrate to the Director that the facility's existing design and construction technologies, operational measures, and/or restoration measures already meet the minimum performance standards specified under Sec. 125.94(b) and (c), or that it has selected design and construction technologies, operational measures, and/or restoration measures or some combination thereof that will meet these performance standards.

Available data indicate that, when considered as a suite of technologies, barrier and fish handling technologies are available on a national basis for use by Phase II existing facilities. These technologies exist and are in use at various Phase II facilities and, thus, EPA considers them collectively technologically achievable. In addition, 50 percent of the potentially regulated facilities that do

not already have closed-cycle cooling systems have some other technology in place that reduces impingement or entrainment. In turn, a large subset of these facilities (33 percent) also have fish handling or return systems that reduce the mortality of impinged organisms. The fact that these technologies are collectively available means that one or more technologies within the suite is available to each Phase II facility.

EPA finds that the design and construction technologies necessary to meet the requirements are commercially available and economically practicable for existing facilities, because facilities can and have installed many of these technologies years after a facility began operation. Typically, additional design and construction technologies such as fine mesh screens, wedgewire screens, fish handling and return systems, and aquatic filter fabric barrier systems can be installed during a scheduled outage (operational shutdown). Referenced below are examples of facilities that installed these technologies after they initially started operating.

Lovett Generating Station. A 495 MW facility (gas-fired steam), Lovett is located in Tomkins Cove, New York, along the Hudson River. The facility first began operations in 1949 and has three generating units with once-through cooling systems. In 1994, Lovett began the testing of an aquatic filter barrier system to reduce entrainment, with a permanent system being installed the following year. Improvements and additions were made to the system in 1997, 1998, and 1999, with some adjustments being accepted as improvements of this vendor's technology for all subsequent installations at other locations.

Big Bend Power Station. Situated on Tampa Bay, Big Bend is a 1998 MW (coal-fired steam) facility with four generating units. The facility first began operations in 1970 and added generating units in 1973, 1976, and 1985. Big Bend supplies cooling water to its once-through cooling water systems via two intake structures. When the facility added Unit 4 in 1985, regulators required the facility to install additional intake technologies. A fish handling and return system, as well as a fine-mesh traveling screen (used only during months with potentially high entrainment rates), were installed on the intake structure serving both the new Unit 4 and the existing Unit 3.

Salem Generating Station. A 2381 MW facility (nuclear), Salem is located on the Delaware River in Lower Alloways Creek Township, New Jersey. The facility has two generating units, both of which use once-through cooling and began operations in 1977. In 1995, the facility installed modified Ristroph screens and a low-pressure spray wash with a fish return system. The facility also redesigned the fish return troughs to reduce fish trauma.

Chalk Point Generating Station. Located on the Patuxent River in Prince George's County, Maryland, Chalk Point has a capacity of 2647 MW (oil-fired steam). The facility has four generating units and uses a combination of once-through and closed-cycle, recirculating cooling systems (two once-through systems serving two generating units and one recirculating system with a tower serving the other two generating units). In 1982, the facility installed a barrier net, followed by

approving one technology at this time: submerged cylindrical wedgewire screen technology to treat the total cooling water intake flow. There are five conditions that must be met in order to use this technology to comply with the rule: (1) The cooling water intake structure is located in a freshwater river or stream; (2) the cooling water intake structure is situated such that sufficient ambient counter currents exist to promote cleaning of the screen face; (3) the through screen design intake velocity is 0.5 ft/s or less; (4) the slot size is appropriate for the size of eggs, larvae, and juveniles of any fish and shellfish to be protected at the site; and (5) the entire main condenser cooling water flow is directed through the technology (small flows totaling less than two MGD for auxiliary plant cooling uses are excluded). Directors are explicitly authorized in Sec. 125.99 to pre-approve other technologies for use at facilities with other specified characteristics within their respective jurisdiction after providing the public with a notice and an opportunity to comment on the request for approval of the technology. The Director's authority to pre-approve other technologies is not limited to technologies for use by facilities located on freshwater rivers and streams.

EPA has adopted this compliance alternative in response to comments that suggested that EPA provide an additional, more streamlined compliance option under which a facility could implement certain specified technologies that are deemed highly protective in exchange for reducing the scope of the Comprehensive Demonstration Study. (See 68 FR 13522, 13539; March 19, 2003). EPA evaluated the effectiveness of specific technologies using the impingement mortality and entrainment reduction performance standards as assessment criteria. The technology selected for the approved technology option has a demonstrated ability to reduce impingement mortality by 80 to 95 percent for fish and shellfish and, if required, reduce entrainment by 60 to 90 percent for any stages of fish and shellfish at facilities that meet the conditions specified in section 125.99(a). Thus, the technology has a demonstrated ability to meet the most stringent performance standards that would apply to any facility situated on a freshwater river or stream. (See DCN 1-3075, 1-5069, 1-5070, 3-0002, and 4-4002B. Also see, DCN 6-5000 and Chapter 3 of the Technical Development Document.) Because cylindrical wedgewire screens are believed to be effective when deployed under the

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specified conditions and properly maintained, facilities that select this compliance option are provided substantially streamlined requirements for completing the Comprehensive Demonstration Study. However, facilities selecting this option are still required to prepare a Technology Installation and Operation Plan to monitor the effectiveness of the technology at their site in meeting the performance standards.

4. Site-Specific Determination of Best Technology Available To Minimize Adverse Environmental Impact

A facility may comply with the rule by seeking a site-specific demonstration of the best technology available to minimize adverse environmental impact by demonstrating, to the Director's satisfaction, that its cost of complying with the applicable performance standards would be significantly greater than the costs considered by EPA for a

like facility when establishing such performance standards, or that its costs would be significantly greater than the benefits of complying with such performance standards at the facility. (See sections 125.94(a)(5)(i) and (ii)). If a facility satisfies one of the two cost

specific alternative requirements based on design and construction technologies, operational measures, and/or restoration measures that achieve an efficacy that is, in the judgment of the Director, as close as practicable to the applicable performance standards without resulting in costs that are significantly greater than either the costs considered by the Administrator in establishing the applicable performance standards, or the benefits at the facility.

In establishing the performance standards in 125.94(b) and the compliance alternatives in sections 125.94(a)(1)-(4), EPA considered several factors, including efficacy, availability, ease of implementation, indirect effects, the costs that EPA expects all existing facilities to incur (national costs) and the benefits if all existing facilities meet the performance standards (national benefits). This provision for alternative requirements is included in the rule to give facilities flexibility to demonstrate that the best technology available to minimize adverse environmental impact at their particular sites may be less stringent

existing facilities have less flexibility than new facilities in selecting the location of their intakes and technologies for minimizing adverse environmental impact and, therefore, it may be difficult for some facilities to avoid costs much higher than those EPA considered when establishing the performance standards in the rule. For all of these reasons, EPA believes that the cost-cost site-specific compliance alternative is necessary to ensure that the rule is economically practicable for existing Phase II facilities. In order to ensure that this alternative provides only the minimum relaxation of performance standards that is needed to make the rule economically practicable, Sec. 125.94(a)(5)(i) requires that the site-specific requirements achieve an efficacy that is as close as practicable to the applicable performance standards without resulting in costs that are significantly greater than those considered by the Administrator for a like facility when establishing the performance standards.

b. Basis of the Cost-Benefit Test

EPA decided to use a comparison of a facility's costs to the benefits of meeting the performance standards at the facility (a ``cost-benefit test'') as another basis for obtaining a site-specific determination of BTA to minimize adverse environmental impact. Section 316(b) authorizes consideration of the environmental benefit to be gained by requiring that the location, design, construction, and capacity of cooling water intake structures reflect the best economically practicable technology available for the purpose of minimizing adverse environmental impact. Accordingly, in determining that the technologies on which EPA based the compliance alternatives and performance standards are the best technologies available for existing facilities to minimize adverse environmental impact, EPA considered the national cost of those technologies in comparison to the national benefits--i.e., the reduction in impingement and entrainment that EPA estimated would occur nationally if all existing facilities selected one of the compliance options in sections 125.94(a)(1)-(4). While EPA believes that there is considerable value in promulgating national performance standards under section 316(b) based on what EPA determines, on a national basis, to be the best technology available to minimize adverse environmental impacts, EPA also recognizes that, at

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times, determining what is necessary to minimize adverse environmental impacts can necessitate a site-specific inquiry. EPA's comparison of national costs to national benefits may not be applicable to a specific site due to variations in (1) the performance of intake technologies and (2) characteristics of the waterbody in which the intake(s) are sited, including the resident aquatic biota. For example, there may be some facilities where the absolute numbers of fish and shellfish impinged and entrained is so minimal that the cost to achieve the required percentage reductions would be significantly greater than the benefits of achieving the required reductions at that particular site. More specifically, because of the location of the intake, the characteristics of a particular waterbody, or the behavioral patterns of the fish or shellfish in that particular waterbody, there may be little or no impingement mortality or entrainment occurring at the site (see Neal Generating Complex facility example provided in section IV of this preamble). For such a facility, the cost of reducing an already small amount of impingement mortality and entrainment by 80 to 95 percent and 60 to 90 percent, respectively, may be significantly greater than the benefits. In short, it may not be cost-effective and, therefore may be economically impracticable for a facility to achieve percentage reductions when attempting to save a small number of fish or

shellfish. Thus, in a waterbody that is already degraded, very few aquatic organisms may be subject to impingement or entrainment, and the costs of retrofitting an existing cooling water intake structure may be significantly greater than the benefits of doing so. By requiring best technology available to minimize adverse environmental impact, section 316(b) invites a consideration of both technology and of environmental conditions, including the potential for adverse impacts, in the receiving waterbody. EPA believes it is a reasonable interpretation of the statute to allow the Director to consider the results of meeting the performance standards in terms of reducing environmental impacts (i.e., the benefits) in cases where the costs of installing the technology are significantly greater than the reduction in environmental impacts would warrant. As with the cost-cost site-specific provision, EPA also wants to ensure that any relaxation of the performance standards be the minimum necessary to ensure that the costs are not significantly greater than the benefits. Section 125.94(a)(5)(i) thus provides that alternative site-specific requirements must achieve an efficacy that is as close as practicable to the applicable performance standards without resulting in costs that are significantly greater than the benefits of meeting the performance standards at the facility.

D. How Has EPA Assessed Economic Practicability?

The legislative history of section 316(b) indicates that the term ``best technology available'' should be interpreted as ``best technology available commercial

E. What Were the Major Options Considered for the Final Rule and Why Did EPA Reject Them?

EPA considered a number of options for determining the best technology available to minimize adverse environmental impact at Phase II existing facilities and assessed these options based on overall efficacy, availability, economic practicability, including economic impact and the relationship of costs with benefits, and non-water quality environmental impacts, including energy impacts. Under the options EPA considered, facilities would be allowed to implement restoration measures to meet the performance standards. Similarly, any

options considered also would allow facilities to request alternative, less stringent, requirements if the Director had determined that data specific to the facility indicated that compliance with the relevant requirement would result in compliance costs significantly greater than those EPA considered in establishing the applicable requirement, or compliance costs significantly greater than the benefits of complying with the applicable performance standards. The alternative requirements would be no less stringent than justified by the significantly greater cost or the significant adverse impacts on local air quality or local energy markets. EPA also considered several site-specific approaches to establishing best technology available. These include the site-specific sample rule discussed at 67 FR 17159, an alternative based on EPA's 1977 Draft Guidance, and alternatives suggested by the Utility Water Act Group (UWAG) and Public Service Electric and Gas Company (PSEG), respectively (see 67 FR 17162). EPA's reasons for not adopting these site specific alternatives are discussed in section VII.E.5 of this preamble. The five major technology options EPA considered but did not select for the final rule are discussed in greater detail in the next section. Finally, the costs and benefits presented below are those developed at proposal because these estimates are most useful for purposes of comparison. Subsequent analyses, such as those presented in the NODA, have resulted in higher cost estimates in general, but did not alter the relative ranking of these options as EPA made determinations regarding the final rule. Rather, these analyses indicated that the costs for options that would have required more extensive retrofitting efforts than the final rule are even higher relative to the costs of the final

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rule than they were estimated to be at proposal.

1. Intake Capacity Commensurate With Closed-Cycle, Recirculating Cooling System for All Facilities

EPA considered a regulatory option that would have required Phase II existing facilities with a design intake flow 50 MGD or more to reduce the total design intake flow to a level, at a minimum, commensurate with that which can be attained by a closed-cycle recirculating cooling system using minimized make-up and blowdown

EPA did not select a regulatory scheme based on the use of closed-cycle, recirculating cooling systems at existing facilities based on its generally high costs (due to conversions), the fact that other technologies approach the performance of this option, concerns for energy impacts due to retrofitting existing facilities, and other considerations. Although closed-cycle, recirculating cooling water systems serve as the basis for requirements applied to Phase I new facilities, for Phase II existing facilities, a national requirement to retrofit existing systems is not the most cost-effective approach and at many existing facilities, retrofits may be impossible or not economically practicable. EPA estimates that the total capital costs for individual high-flow plants (i.e., greater than 2 billion gallons per day) to convert to wet towers generally ranged from $130 to $200 million, with annual operating costs in the range of $4 to $20 million

estimated that capital and installation costs for cooling towers under the Phase I rule would range from approximately $170,000 to $12.6 million per plant (annualized), depending on flow. At proposal, EPA estimated that the total social cost of compliance for this option for Phase II existing facilities would be approximately $3.5 billion per year.

It is significant to note, however, that EPA's estimates did not fully incorporate costs associated with acquiring land needed for cooling towers and, therefore, these estimates may not fully reflect the costs of the option. For example, based on a survey conducted by one industry commenter, EPA learned that 31 out of 56 plants surveyed said that they would need to acquire additional property to accommodate cooling towers, if required by today's rule. EPA recognizes that this could be a significant cost. EPA also recognizes that there may be impediments, irrespective of costs, to acquiring land for cooling towers. Land upon which to construct cooling towers may be difficult or impossible to obtain, especially in urban areas; some facilities might even turn to displacement of wetlands as a solution. The Agency did not include these potential costs in its analysis for the NODA or proposal. In contrast to new facilities, which can take into account the Phase I requirements when choosing where to situate their structures (including cooling towers), existing facilities have far less flexibility and incur far greater costs. EPA believes that this is a special problem for existing facilities that is relevant to determining whether, as a national categorical matter, closed-cycle cooling is the best technology available for existing facilities for minimizing adverse environmental impacts associated with cooling water intake structures

electricity consumed by the State of Vermont, the energy penalty associated with converting to cooling towers was estimated to be 5.3 percent. Expressed differently, DOE estimated that nationally, on average 20 additional 400-MW plants might have to be built to replace the generating capacity lost by replacing once-through cooling systems with wet cooling towers if such towers were required by all Phase II facilities.

This energy penalty leads to other negative consequences. Because this deficit is predicted to occur during the summer months (when energy demand is highest), the net effect would be more consumption of fossil fuel, which in turn increases the emission of sulfur dioxide, NOX, particulate matter, mercury and carbon dioxide.
Increasing fuel consumption at existing coal power plants yields the largest increase in air emissions because existing systems are less efficient at producing power (and therefore burn more coal) and because they generally have less air pollution control equipment in place. EPA believes that it is reasonable to consider these non-water quality environmental impacts and the additional costs associated with controlling these increased emissions in making today's decision. EPA further believes that it is authorized to do so because of the links between Sec. 316(b) and sections 301 and 306, which require EPA to consider both the energy impacts and the air pollution impacts of technologies when identifying technologies in the effluent guidelines context. See CWA section 304(b)(2)(B) (cross-referenced in Sec. 301); CWA section 306(b)(1)(B) (new source performance standards).

Some commenters also assert that EPA underestimated the down time that the facility would experience as it converts to cooling towers. This, again, is not an impact that would be experienced by new facilities. EPA agrees that such down time can be significant. Indeed, one of the four retrofit case studies EPA developed indicated a down time of 10 months, and EPA believes it is reasonable to infer that many other facilities would experience the same loss.

EPA also agrees with the commenters who assert that the empirical data base of four retrofit cases to which EPA compared cooling tower retrofit costs and engineering characteristics is not representative of the broader population of facilities and could be too narrow a set from which to develop national costs that would be applicable to a wide range

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of facilities. Of the four retrofits EPA studied, two were in a single state (South Carolina), none were located along a coast, and only one

generated more than 500 MW of electricity. EPA also recognizes that all of these conversions were performed before 1992. While it is true that the vast majority of the new, greenfield utility and non-utility combined cycle plants built in the past 20 years have wet cooling towers, EPA believes that it is significant that so few existing facilities retrofitted to the technology during the same period. The rarity of this technology as a retrofit further indicates that it is not economically practicable for the vast majority of existing facilities.

EPA also considered several additional points made by commenters in rejecting this option. Some commenters asserted that certain facilities with closed-cycle, recirculating cooling systems often need to address the impacts of cooling tower plumes, and subsequent fog and icing in metropolitan areas, and noise abatement. Commenters also asserted that the costs of retrofitting and operating such systems at facilities which do not now have them is disproportionate to the potential benefits derived, particularly given the similarity in the level of

protection provided under this option (all facilities required to reduce flow commensurate with a closed-cycle, recirculating system) and the final rule. Finally, they stated that the need for flexibility in a rule pertaining to existing facilities is critical to allow facility owners a range of options to meet the fish protection requirements. EPA does not agree that in all cases the costs of retrofitting a closed-cycle cooling water system is disproportionate to the benefits derived. Nevertheless, EPA recognizes that these concerns have merit for many facilities and that the validity and extent of such concerns often must be assessed on a case-by-case basis.

Each of these factors has a cost and an economic impact that EPA believes is appropriate to consider when evaluating whether cooling towers are the best technology available for existing facilities for minimizing adverse environmental impacts associated with cooling water intake structures. The capital costs estimated by EPA at proposal are already very high; when costs reflecting reasonable changes to EPA's assumptions are added to them, the total capital cost investment and associated economic impact is simply too high at this time for EPA to be able to justify selecting cooling towers as a required technology for all existing Phase II facilities.

EPA further compared the efficacy of closed-cycle, recirculating cooling systems with that estimated for design and construction technologies. Although not identical, the ranges of impingement and entrainment reduction are similar under both options, such that the reductions estimated for the design and construction technologies, particularly when optimized, approach those estimated for closed-cycle, recirculating cooling systems. Therefore, the use of design and construction technologies as the basis for this rule is supported since they can approach closed-cycle, recirculating systems at less cost with fewer implementation problems. EPA considered this similarity in efficacy, along with the economic practicability and availability of each type of technology, in determining that a closed-cycle, recirculating cooling system is not the required technology for all Phase II existing facilities.

2. Intake Capacity Commensurate With Closed-Cycle, Recirculating Cooling Systems Based on Waterbody Type

EPA also considered an alternate technology-based option in which closed-cycle, recirculating cooling systems would have been required for all facilities on certain waterbody types. Under this option, EPA would have grouped waterbodies into the same five categories as in today's rule: (1) Freshwater rivers or streams, (2) lakes or reservoirs, (3) Great Lakes, (4) tidal rivers or estuaries; and (5) oceans. Because oceans, estuaries and tidal rivers contain essential habitat and nursery areas for the vast majority of commercial and recreational important species of shell and finfish, including many species that are subject to intensive fishing pressures, these waterbody types would have required more stringent controls based on the performance of closed-cycle, recirculating cooling systems. EPA discussed the susceptibility of these waters in a Notice of Data Availability (NODA) for the Phase I rule (66 FR 28853, May 25, 2001) and invited comment on documents that may support its judgment that these waters are particularly susceptible to adverse impacts from cooling water intake structures. In addition, the NODA presented information regarding the low susceptibility of non-tidal freshwater rivers and streams to impacts from entrainment from cooling water intake structures.

Under this alternative option, facilities that operate at less than 15 percent capacity utilization would, as in today's final rule, only be required to have impingement control technology. Facilities that have a closed-cycle, recirculating cooling system would have required

additional design and construction technologies to increase the survival rate of impinged biota or to further reduce the amount of entrained biota if the intake structure was located within an ocean, tidal river, or estuary where there are fishery resources of concern to permitting authorities or fishery managers.

Facilities with cooling water intake structures located in a freshwater (including rivers and streams, the Great Lakes and other lakes) would have had the same requirements as under today's final rule. If a facility for which closed-cycle recirculating technology was required chose to comply with alternative requirements, then the facility would have had to demonstrate that alternative technologies would reduce impingement and entrainment to levels comparable to those that would be achieved with a closed-loop recirculating system (90% reduction). If such a facility chose to supplement its alternative technologies with restoration measures, it would have had to demonstrate the same or substantially similar level of protection. (For additional discussion see the Phase I final rule 66 FR 65256, at 65315 columns 1 and 2.)

At proposal, EPA estimated that there would be 109 \46\ facilities located on oceans, estuaries, or tidal rivers that do not have a closed-cycle, recirculating cooling system and would need to reduce intake flow to a level commensurate with that which can be attained by a closed-cycle, recirculating cooling system or upgrade design and construction technology (e.g., screens) in order to meet performance standards for reducing impingement mortality and entrainment.

\46\ Sample-weighted.

Although EPA estimated the costs of this option to be less expensive at the national level than an option based on closed-cycle, recirculating cooling systems everywhere, EPA did not select this option based on total social costs estimates of greater than $1 billion per year and its lack of cost-effectiveness, as well as on concerns regarding potential energy impacts. Facilities located on oceans, estuaries, and tidal rivers would incur high capital and operating and maintenance costs for conversions of their cooling water systems. Furthermore, since impacted facilities would be concentrated in coastal regions, EPA is concerned that there is

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the potential for short term energy impacts and supply disruptions in these areas if multiple facilities retrofit concurrently or over a relatively short time-frame, as would be required by these **regulations**.

3. Intake Capacity Commensurate With Closed-Cycle, Recirculating Cooling System Based on Waterbody Type and Proportion of Waterbody Flow

EPA also considered a variation on the above approach that would have required only facilities withdrawing very large amounts of water from an estuary, tidal river, or ocean to reduce their intake capacity to a level commensurate with that which can be attained by a closed-cycle, recirculating cooling system.

reduction standards based on the performance of wet cooling towers. If a facility on a tidal river or estuary had intake flow equal to or less than 1 percent of the source water tidal excursion, the facility would have only had to meet the same impingement and entrainment performance standards as in the final Phase II rule. These standards were developed based on the performance of technologies such as fine mesh screens and traveling screens with well-designed and operating fish return systems. The more stringent, closed-cycle, recirculating cooling system-based requirements would have also applied to a facility that has a cooling water intake structure located in an ocean with an intake flow greater than 500 MGD.

This option also would impose much higher costs on a subset of facilities than the final rule. Based on an analysis of data collected through the detailed industry questionnaire and the short technical questionnaire, at proposal, EPA estimated there were potentially 109 Phase II existing facilities located on estuaries, tidal rivers, or oceans which would incur capital costs under this option. Of these 109 facilities, EPA estimated that 51 would exceed the applicable flow threshold and be required to meet performance standards for reducing impingement mortality and entrainment based on a reduction in intake flow to a level commensurate with that which can be attained by a closed-cycle recirculating system. Of the 58 \47\ facilities estimated to fall below the applicable flow threshold, 10 facilities already meet these performance standards and would not require any additional controls, whereas 48 \48\ facilities would require entrainment or impingement controls, or both. Because this option would only require cooling tower-based performance standards for facilities located on tidal rivers, estuaries or oceans where they withdraw saline or brackish waters, EPA does not believe that this option would raise any significant water quantity issues.

\47\ Not sample-weighted.
\48\ Not sample-weighted.

At proposal, EPA estimated the total social cost of compliance for the waterbody/capacity-based option to be approximately $0.97 billion per year. EPA did not select this option because it was not determined to be the most cost-effective approach on a national basis. While the national costs of this option are slightly lower than those of requiring wet cooling towers-based performance standard for all facilities located on oceans, estuaries and tidal rivers, the cost for facilities to meet these standards are still substantial. Although EPA would provide an opportunity to seek alternative requirements to address locally significant air quality or energy impacts, EPA does not believe a framework such as this provides sufficient flexibility to ensure effective implementation and to minimize non-water quality (including energy) impacts. In addition, as noted above for the other cooling tower based options that EPA rejected, facilities can achieve almost the same level of impingement mortality and entrainment reductions using the technologies on which this final rule is based as they can using cooling towers, but at substantially lower cost.

4. Impingement Mortality and Entrainment Controls Everywhere

At proposal, EPA evaluated an option that required impingement mortality and entrainment controls for all facilities. This option did not allow for the development of best technology available on a site-specific basis. This alternative based requirements on the percent of source water withdrawn and, like today's final rule, also restricted disruption of the natural thermal stratification of lakes or

Phase II existing facilities located on freshwater rivers or streams, and lakes or reservoirs where EPA has determined in today's final rule that such controls are not necessary. Finally, under this alternative, restoration could be used, but only as a supplement to the use of design and construction technologies or operational measures.

This option established clear performance-based requirements that were based on the use of available technologies to reduce adverse

(the cost-cost and cost-benefit tests), and clear standards on which to base the alternative requirements that they achieve an efficacy as close as practicable to the national performance standards without exceeding the cost-test or benefits-test thresholds. EPA believes that structuring a site-specific compliance alternative in this way will significantly reduce the potential areas of disagreement between permit writer and applicant that are inherent in the other site-specific approaches that it rejected, while still providing facilities with appropriate flexibility. Through the multiple compliance alternatives specified in this rule, EPA has sought to balance the statutory requirements of section 316(b) and the need for reasonable limits on the administrative burden imposed on both applicants and permit writers against the need for existing facilities to have flexibility in implementing the requirements.

\49\ For example, a site-specific determination for Brayton Point, Rhode Island, has required resources for greater than two full time equivalents (FTEs) over three years for permitting and support staff, as well as approximately $400,000 in contractor costs to address technical issues and applicant experts. Similarly, development of a permit for Salem has required resources for greater than two full time equivalents (FTEs) over three years for permitting and support staff, as well as approximately $340,000 in contractor costs to address technical issues and applicant experts.

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6. Flow Reduction Commensurate With the Level Achieved by Dry Cooling Systems Based on Waterbody Type

EPA conducted a full analysis for the Phase I rule and concluded that dry cooling was not an economically practicable option for new facilities on a national basis. Dry cooling systems use either a natural or a mechanical air draft to transfer heat from condenser tubes to air. In conventional closed-cycle recirculating wet cooling towers, cooling water that has been used to cool the condensers is pumped to the top of a recirculating cooling tower; as the heated water falls, it cools through an evaporative process and warm, moist air rises out of the tower, often creating a vapor plume. Hybrid wet-dry cooling towers employ both a wet section and dry section and reduce or eliminate the visible plumes associated with wet cooling towers.

For the Phase I rule, EPA evaluated zero or nearly zero intake flow regulatory alternatives, based on the use of dry cooling systems. EPA determined that the annual compliance cost to industry for this option would be at least $490 million. EPA based the costs on 121 new facilities having to install dry cooling. For the Phase II proposal, EPA estimated that total social costs for dry cooling based on waterbody type were $2.1 billion per year (or roughly double the costs for wet towers). Thus, this option would be more expensive than dry cooling for new facilities. The cost for Phase II existing facilities to install dry cooling would be significantly higher than the cost for new facilities to do so due to the complexities of retrofitting both the dry cooling equipment and components of the cooling system. At proposal, EPA estimated that 550 Phase II existing facilities would be subject to Phase II regulation. The cost would be significantly higher because existing facilities have less flexibility, thus incurring higher compliance costs (capital and operating) than new facilities. For example, existing facilities might need to upgrade or modify existing turbines, condensers, and/or cooling water conduit systems, which typically imposes greater costs than use of the same technology at a new facility. In addition, retrofitting a dry cooling tower at an

existing facility would require shutdown periods during which the facility would lose both production and revenues, and decrease the thermal efficiency of an electric generating facility.

The disparity in costs and operating efficiency of dry cooling systems compared with wet cooling systems is considerable when viewed on a nationwide or regional basis. For example, under a uniform national requirement based on dry cooling, facilities in the southern regions of the United States would be at an unfair competitive disadvantage compared to those in cooler northern climates because dry cooling systems operate more efficiently in colder climates. Even under a regional subcategorization strategy for facilities in cool climatic regions of the United States, adoption of a minimum requirement based on dry cooling would likely impose unfair competitive restrictions for steam electric power generating facilities because of the elevated capital and operating costs associated with dry cooling. Adoption of requirements based on dry cooling for a subcategory of facilities under a particular capacity would pose similar competitive disadvantages for those facilities.

As explained in the preamble to the proposal, EPA does not consider performance standards based on dry cooling a reasonable option for a national requirement, nor for subcategorization under this rule, because the technology of dry cooling carries costs that would potentially cause significant closures for Phase II existing facilities. Dry cooling technology would also have a significant detrimental effect on electricity production by reducing the energy efficiency of steam turbines. Unlike a new facility that can use direct dry cooling, an existing facility that retrofits for dry cooling would most likely use indirect dry cooling which is much less efficient than direct dry cooling. In contrast to direct dry cooling, indirect dry cooling does not operate as an air-cooled condenser. In other words, the steam is not condensed within the structure of the dry cooling tower, but instead indirectly through a heat exchanger. Therefore, the indirect dry cooling system would need to overcome additional heat resistance in the shell of the condenser compared to the direct dry cooling system. Ultimately, the inefficiency (i.e., energy penalty) of indirect dry cooling systems will exceed those of direct dry cooling systems in all cases.

Although the dry cooling option is extremely effective at reducing impingement and entrainment, it is not economically practicable for existing facilities and would cause additional adverse environmental impacts and serious energy impacts. Although dry cooling technology uses extremely low-

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level or no cooling water intake, thereby reducing impingement and entrainment of organisms to extremely low levels, section 316(b) does not require that adverse environmental impact be completely eliminated, but that it be minimized using the best technology available. (DOE energy penalty study; DCN 4-2512). EPA does not believe that dry

suitable where adverse effects of cooling water intakes are severe and where screening systems are impractical, or where thermal discharge impacts pose serious environmental problems. Under Clean Water Act section 510, a State may choose to impose more stringent standards than required by Federal **regulations**. States may continue to use this authority to require facilities to use dry or wet cooling systems.

F. What Is the Role of Restoration and Trading Under Today's Final Rule?

1. What Is the Role of Restoration?

EPA is providing facilities with the option to use restoration for compliance alternatives Sec. 125.94(a)(2), (3), and (5) where the performance of the restoration measures (the production and increase of fish and shellfish in the facility's waterbody or watershed, including maintenance of community structure and function), is substantially similar to that which would have been achieved if the facility reduced impingement mortality and entrainment through the use of design and construction technologies and/or operational measures, to meet the applicable performance standards. (For a complete discussion of the legal analysis supporting restoration, see section VIII of this preamble.) The role of restoration under this rule is to provide additional flexibility to facilities in complying with the rule by eliminating or significantly offsetting the adverse environmental impact caused by the operation of a cooling water intake structure. Restoration measures that increase fish and shellfish in an impacted waterbody or watershed and result in performance substantially similar to that which would otherwise be achieved through reductions in impingement mortality and entrainment further the goal of minimizing adverse environmental impact while offering additional flexibility to both permitting authorities and facilities. Restoration measures may include such activities as removal of barriers to fish migration, reclamation of degraded aquatic organism habitat, or stocking of aquatic organisms. These are still technologies, within the meaning of that term as used in section 316(b) and as such are an appropriate means for meeting technology based performance standards. They are not analogous to water quality based effluent limitations on pollutant discharges because they are not designed to meet water quality standards or dependent on the condition of the receiving waterbody. Rather, they provide an additional means to meet the same performance standards that guide the selection of design and construction technologies and operational measures.

Restoration measures have been used at existing facilities as one of many tools to implement section 316(b) on a case-by-case, best professional judgment basis to compensate for the death and injury of fish and other aquatic organisms caused by the cooling water intake

structure. Under today's rule, a Phase II existing facility may utilize restoration either in lieu of or as a supplement to design and construction technologies and/or operational measures. For example, a facility may demonstrate to the Director that velocity controls are the most feasible technology choice for the facility but that, when used on their own, the velocity controls are insufficient to meet the applicable performance standards at Sec. 125.94(b). The facility may then, in conjunction with the use of velocity controls, implement restoration measures to increase the fish and shellfish productivity of the waterbody in order to meet the performance standards at Sec. 125.94(b). Another facility might demonstrate to the Director that restoration measures alone achieve the greatest compliance with the

125.94(a)(5) and use restoration measures to meet the alternate requirements.

Facilities that propose to use restoration measures must demonstrate to the Director that they evaluated the use of design and construction technologies and operational measures and determined that the use of restoration measures is appropriate because meeting the applicable performance standards or requirements through the use of other technologies is less feasible, less cost-effective, or less environmentally desirable than meeting the standards in whole or in part through the use of restoration measures. Facilities must also demonstrate that the restoration measures they plan to implement, alone, or in combination with design and construction technologies and/or operational measures, will produce ecological benefits (production of fish and shellfish) at a level that is substantially similar to the level that would be achieved through compliance with the applicable impingement mortality and/or entrainment performance standards under Sec. 125.94(b), or alternative site-specific requirements under Sec. 125.94(a)(5). In other words, restoration measures must replace the fish and shellfish lost to impingement mortality and entrainment, either as a substitute or as a supplement to reducing impingement mortality and entrainment through design and control technologies and/or operational measures. While the species makeup of the replacement fish and shellfish may not be exactly the same as that of the impingement mortality and entrainment losses, the Director must make a

determination that the net effect is to produce a level of fish and shellfish in the waterbody that is ``substantially similar'' to that which would result from meeting the performance standards through design and construction technologies and/or operational measures alone. The final rule requires that a facility use an adaptive management method for implementing restoration measures because the performance of restoration projects must be regularly monitored and potentially adjusted to ensure the projects achieve their objectives (see 67 FR 17146-17148 and 68 FR 13542).

The final rule also requires that restoration projects which replace the lost fish and shellfish with a different species mix (``out of kind'' restoration) be based on a watershed approach to restoration planning. The boundaries of a ``watershed'' should be guided by the cataloging unit of the ``Hydrologic Unit Map of the United States'' (USGS, 1980), although it may be appropriate to use another watershed or waterbody classification system developed at the state or local level if such a system compares favorably in level of detail. For example, in coastal systems that support migratory fish, a coastal

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waterbody that transects a number of watersheds may be the most appropriate unit for planning restoration.

2. What Is the Role of Trading in Today's Rule?

In Sec. 125.90(c), today's final rule provides that if a State demonstrates to the Administrator that it has adopted alternative regulatory requirements in its NPDES program that will result in environmental performance within a watershed that is comparable to the reductions of impingement mortality and entrainment that would otherwise be achieved under Sec. 125.94, the Administrator must approve such alternative requirements. A trading program could be a part of these alternative regulatory requirements.

At proposal, EPA sought comment on the potential role of trading in the context of the section 316(b) Phase II rulemaking and possible

compliance at reduced costs. The EPA Office of Water's Water Quality Trading Policy, published in January 2003 [DCN 6-5002], fully supports trading nutrients and sediment and adopts a case-by case approach to evaluating proposals to trade other pollutants.

Trading in the context of section 316(b) raises many complex issues, for example, how to establish appropriate units of trade and how to measure these units effectively given the dynamic nature of the populations of aquatic organisms subject to impingement mortality and entrainment. Should a State choose to propose a trading program under Sec. 125.90(c), EPA will evaluate the State's proposal on a case-by-case basis to ensure the program complies with the regulatory requirement--that it will result in environmental performance within a watershed that is comparable to the reductions of impingement mortality and entrainment that would otherwise be achieved under the requirements established at Sec. 125.94. Some commenters suggested that EPA adopt a trading program that would allow trading between aquatic organisms and pollutant discharges. EPA is concerned that such a program would introduce comparability and implementation challenges that would be difficult to overcome and therefore, EPA does not expect that such a program would work within the framework of today's final rule. In addition, EPA does not believe that it is possible at this time to quantify with adequate certainty the potential effects on ecosystem function, community structure, biodiversity, and genetic diversity of such trades, especially when threatened and/or endangered species are present. Based on the current state of the science in aquatic community ecology and ecological risk assessment, States wishing to develop trading programs within the context of 316(b) would be best off focusing on programs based on metrics of comparability between fish and shellfish gains and losses among trading facilities, rather than the much more complex metrics that would be necessary for comparability among fish and shellfish losses on the one hand, and pollutant reductions on the other.

VIII. Summary of Major Comments and Responses to the Proposed Rule and Notice of Data Availability (NODA)

A. Scope and Applicability

1. Phase II Existing Facility Definition

Numerous commenters supported limiting the scope of the Phase II rule to existing facilities that generate and transmit electric power, or generate and sell such power to another entity for transmission, but suggested that EPA has not sufficiently limited the rule to only these facilities. Commenters noted that the proposed definition of ``Phase II existing facility'' does not adequately exempt existing manufacturing facilities that may occasionally transfer power off-site during peak load events. Some commenters suggested that EPA clarify the Phase II rule to specify that it does not apply to facilities whose primary business is not power generation. Some suggested limiting applicability to specified SIC codes (e.g., provided that the rule only applies to facilities in SIC 4911). Examples of facilities identified by commenters that they believe should be excluded from Phase II include manufacturers that produce electricity by co-generation, power generating units that predominantly support a manufacturer, e.g., iron and steel, but also export some power, and facilities that generate power for internal use.

Commenters requested that EPA further clarify when repowering is subject to existing facility requirements. For example, some commenters viewed as inconsistent the fact that the addition of a generating unit at an existing single unit site could increase intake flows by 100% and

meet the existing facility definition, while a replacement facility that increases intake flows by a much lesser amount (e.g., 25%) would not meet the existing facility definition. These commenters suggested that EPA consider a facility as an existing facility unless changes to the facility result in new environmental impacts.

In Sec. 125.91(a)(3) of today's rule, an existing facility is subject to this rule if its primary activity is either to generate and transmit electric power, or to generate electric power that it sells to another entity for transmission. This provision was included in the rule in response to comments such as those described previously in this section. EPA believes that this criterion--the primary activity being the generation of electric power--sufficiently clarifies and limits the scope of this rule to existing facilities whose primary business is power generation. As discussed in Section II of this preamble, the final rule does not apply to existing manufacturing facilities, including manufacturing facilities that generate power for their own use and transmit any surplus power, or sell it for transmission, provided the primary activity of the facility is not electric power generation. For example, in the case of a facility that operates its own power generating units and such units predominantly support that facility's manufacturing operation, its primary activity remains manufacturing, even if the facility exports some power. Whether a facility's primary activity is to generate electric power will need to be determined on a case-by-case basis. Section II also makes clear that a manufacturing facility is not covered by this final rule just because it is co-located with another Phase II facility.

EPA considered specifying SIC or NAIC codes to clarify the scope of the rule beyond that proposed in Sec. 125.91(a)(3), but did not do so because it believes the changes in the final rule are sufficient to address many issues raised in comments and because of concerns that SIC and NAIC codes may change over time, which could unintentionally alter the scope of the rule.

With regard to repowering, section II of today's notice discusses the scope of the final rule and specifically discusses the repowering issue. Section II also addresses other Phase I versus Phase II classification issues.

2. Thresholds

Some commenters supported use of the 50 MGD design intake flow threshold and the 25 percent cooling water use criteria in Sec. 125.91(a)(2) and (4), respectively. Some suggested that facilities agreeing to limit their actual intake to less than 50 MGD should be excluded from the rule's requirements or be allowed to request an exemption. Other commenters maintained that permitted or actual flows should be used rather than design flows. Some commenters asked that EPA clarify that,

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when applicable, the lesser design value of an intake facility and conveyance structure versus the design volume of intake pumps should be used to determine the 50 MGD threshold for applicability. Alternatively, others asserted that EPA should provide guidance that a facility's design intake flow is not necessarily the flow associated with that of the intake pumps.

Several commenters stated that emergency cooling water and emergency service water intakes should be exempt from the 50 MGD design intake flow threshold. These commenters recommended that EPA distinguish between primary cooling water intakes and emergency service water intakes, for example, at nuclear facilities. They reasoned that emergency service water systems, which can have a large design capacity

(i.e., design capacity greater than 50 MGD), generally use an intake that normally operates a nominal amount of time to ensure that the system is in working order. Such back-up systems are required for safety, but under normal conditions do not increase the operational capacity of the facility. Thus, these commenters maintain that rarely used emergency service water should not count towards 50 MGD.

With regard to the criterion that a Phase II existing facility must use at least 25 percent of the water it withdraws exclusively for cooling, some commenters indicated that proposed Sec. 125.91(d), which describes how to measure whether 25 percent of water withdrawn is used for cooling, was ambiguous. Commenters asserted that EPA should not require monthly determinations of applicability of the Phase II rule. One commenter suggested that EPA should assess the 25 percent cooling water use on an annual basis calculated once during permit renewal, since such an approach would provide a high degree of certainty.

As discussed in the proposed rule (67 FR 17129-17130), EPA chose the design intake flow 50 MGD threshold to focus on the largest existing power generating facilities, which the Agency believes are those with the greatest potential to cause or contribute to adverse environmental impact. EPA estimates that the 50 MGD threshold would subject approximately 543 of 902 (60 percent) of existing power generating facilities to this rule and would address 90 percent of the total flow withdrawn by existing steam electric power generating facilities. The 25 percent threshold ensures that nearly all cooling water and the most significant facilities using cooling water intake structures are addressed by these requirements. EPA notes that Phase II existing facilities, which are limited to facilities whose primary activity is power generation, typically use far more than 25 percent of the water they withdraw for cooling. Yet, as in the new facility rule, cooling water that is used in a manufacturing process either before or after it is used for cooling would not count towards calculating the percentage of a facility's intake flow that is used for cooling purposes.

EPA has retained in the final rule the 50 MGD threshold based on design intake flow, rather than actual flow, for several reasons. Design intake flow is a fixed value based on the design of the facility's operating system and the capacity of the circulating and other water intake pumps employed at the facility. This approach provides clarity--the design intake flow does not change, except in those limited circumstances when a facility undergoes major modifications or expansion, whereas actual flows can vary significantly over sometimes short periods of time. EPA believes that an uncertain regulatory status is undesirable because it impedes both compliance by the permittee and regulatory oversight, as well as achievement of the overall environmental objectives. Further, using actual flow may result in the NPDES permit being more intrusive to facility operation than necessary since facility flow would be a permit condition and adjustments to flow would have to be permissible under such conditions and applicable NPDES procedures. It also would require additional monitoring to confirm a facility's status, which imposes additional costs and information collection burdens, and it would require additional compliance monitoring and inspection methods and evaluation

cooling water intake structures, EPA has determined that it is more appropriate for the final rule to focus on a facility's total designed volume of water withdrawn over a period of time, rather than to condition applicability of the rule on more specific parameters, such as intake capacity or pump design, which individually do not fully determine total design intake flow.

The final rule does not explicitly exclude emergency cooling water and emergency service water intakes from consideration in determining which facilities are in-scope. Although EPA does not have detailed data on emergency cooling water and emergency intakes, based on other available data EPA does not believe that including consideration of emergency intakes within this rule significantly alters the scope of the rule. EPA's survey of all existing electric utilities and non-utilities indicated that 84 percent of surveyed facilities have an average flow that equals or exceeds 50 MGD. These facilities would by necessity have a design intake flow that also equals or exceeds 50 MGD. Moreover, EPA assumes that this average flow data represent normal operating conditions and does not include emergency cooling water use. Consequently, EPA believes that relatively few facilities are potentially affected by this issue.

Finally, Sec. 125.91(a)(4), which describes how a facility must

has been changed in the final rule and provides that the percent of cooling water used be measured on an average annual basis. EPA believes this approach is more appropriate than making this determination on an average monthly basis, primarily because the annual average is an easier measurement to make. Furthermore, because all Phase II existing facilities generate power, most of the water will be used for cooling, rendering monthly evaluation of this value unnecessary. The final rule does not specify how often the facility must measure flow for this annual average. The facility is encouraged to consult the Permit Director to determine what level of data collection is needed.

B. Environmental Impact Associated With Cooling Water Intake Structures

highly subjective, and have no place in determining BTA, as once such impact levels are reached, recovery is often impossible. Regardless of the severity of adverse environmental impact, these commenters argued that section 316(b) requires minimization of adverse environmental impact. They maintained that cooling water intake structures contribute to fishery collapse and vast reductions in fish biomass and abundance that are measurable at the species level. These commenters suggested that actual national impacts due to cooling water intake structures are vastly underestimated due to poor data collection methodologies utilized when the majority of the studies were performed and because studies performed on impinged and entrained organisms overlooked the vast majority of affected species.

In today's final rule, EPA has elected not to define adverse environmental impact. EPA believes that it is reasonable to interpret adverse environmental impact as the loss of aquatic organisms due to impingement and entrainment. For a further discussion of this issue, see Section IV above.

With regard to the relationship between intake flow and adverse environmental impact, some commenters asserted that the relationship of impingement and entrainment to flow is such that catch rates increase non-linearly (exponentially) in relation to the volume of water withdrawn, with entrainment rates being more strongly correlated to flow than impingement. Environmental commenters advocated for flow reduction technologies, such as retrofitting closed-cycle cooling technologies, as the most direct means of reducing fish kills from power plant intakes; they assert that reducing intake by up to 98 to 99 percent would result in a similarly high reduction of impinged and entrained organisms. Other commenters insisted that there is no statistically significant relationship between catch rate and flow, and the mathematical models that evaluate this relationship are inaccurate.

EPA believes the record contains ample evidence to support the proposition that entrainment is related to flow (see DCN 2-013L-R15 and 2-013J) while impingement is related to a combination of flow, intake velocity and fish swim speed (see DCN 2-029). Larger withdrawals of water may result in commensurately greater levels of entrainment. Entrainment impacts of cooling water intake structures are closely linked to the amount of water passing through the intake structure because the eggs and larvae of some aquatic species are free-floating and may be drawn with the flow of cooling water into an intake structure. Swim speeds of affected species as well as intake velocity must be taken into account to predict rates of impingement in relation to flow in order to account for the ability of juvenile and adult lifestages of species to avoid impingement. Due to this relationship, EPA agrees that reducing intake by installing flow reduction technologies will result in a similarly high reduction of impinged and entrained organisms, but EPA believes that other technologies that do not necessarily reduce flow but that do reduce the number of aquatic organisms impinged and entrained will also minimize adverse environmental impact associated with cooling water intake structures. As such, today's rule provides for flexibility in meeting the performance standards.

C. Performance Standards

The performance standards promulgated today are expressed as reductions of impingement and entrainment measured against a calculation baseline. The purpose of a calculation baseline is to

1. Appropriate Standards

Many commenters discussed the appropriateness of the performance standards. While many commenters acknowledged that the performance range may be attained at some facilities (using certain technologies and in appropriate conditions), several commenters stated that the technical justification for the performance standards was insufficient and may be biased towards higher performing examples of each technology. Many commenters submitted that some technologies will perform at some sites, but that no technology will meet the standards at all sites. Another commenter supported the concept of the

performance standards, as long as sufficient flexibility was retained through the use of restoration measures and cost tests. Some commenters suggested allowing permit writers the flexibility to create site-specific performance standards.

EPA has selected performance standards to facilitate a more streamlined permitting process, and to provide consistent national standards. EPA has chosen to express the targets by reference to a percentage reduction in impingement and entrainment because, as discussed above, these losses can easily be traced to cooling water intake structures. Therefore, this is a convenient indicator of the efficacy of controls in reducing environmental impact. As discussed in more detail below, it is also a useful basis against which to consider the efficacy of restoration technologies, which focus on the replacement of fish and shellfish as an alternative means of minimizing adverse environmental impact of intake structures.

Additional documentation has been collected and reviewed by EPA to further support the percent reductions contained in the performance standards. EPA has added this information to the Technology Efficacy database (DCN 6-5000), which EPA has expanded to allow users to query and compare basic data on technology performance and applicability. EPA recognizes that some may disagree with basing the performance standards on the wide range of data available in the database. While many documents do show a level of success in reducing impingement mortality or entrainment, other studies have shown the deployed technology to be unsuccessful or at best inconclusive. EPA does not view the varying degrees of success with regards to a specific technology as indicative that the performance standards cannot be met, but rather as evidence that some technologies work in some applications but not in others.

It is for this reason that performance standards, rather than prescriptive technologies, were chosen. By opting for performance

standards would be very difficult, for a number of site-specific reasons. Several commenters noted that the performance standards are not sufficiently defined to make a full evaluation of their applicability. For example, EPA has not defined the performance standards as being measured using all species or selected species, or by counting individuals versus measuring biomass. Some commenters noted that each of the methods discussed by EPA could have merit at a given facility, and that flexibility would be needed to evaluate compliance at a variety of intake configurations. Another commenter further noted that it is inappropriate for EPA to state that the performance standards are achievable when the standards are undefined. One commenter suggested that EPA has not shown that the performance standards can be met at a reasonable cost. Other commenters stated that reductions may be achievable for only some species of life stages and that this approach may not account for natural fluctuations in population. These commenters claim that implementing a uniform, nationwide performance standard would be exceedingly complex and subject to site-specific factors that could significantly affect the performance of the control technology. Several commenters noted that, for these reasons, EPA should strongly consider a site-specific approach to implement 316(b), including a risk assessment-based approach as suggested by one commenter.

A number of commenters stated that the performance standards would be best implemented as a set of goals or as a best management practice. These commenters contended that in view of the wide variety of environmental conditions at facilities, including natural fluctuations in populations, compliance with a national performance standard will be difficult. They claimed that by using the standards as a goal instead of a condition in the permit, a facility can have greater certainty as to its compliance status. Similarly, several commenters suggested that the permit contain conditions requiring proper technology selection, installation, maintenance, and adjustments instead of requiring compliance with the performance standards.

Commenters were divided over the concept of a range for the performance standards. Some commenters supported the range, arguing that a facility can achieve some reduction within the range and still be compliant, and others were opposed, claiming that a range of performance promotes uncertainty in determining compliance. Some commenters also noted that, by giving a facility a range of performance, EPA is encouraging performance in the lower end of the range and therefore not meeting the definition of ``best technology available.''

Several commenters noted that consideration of entrainment mortality is important to correctly determine compliance. One commenter also noted that natural events will affect compliance, such as moribund fish being swept into an intake or heavy debris loads following a storm.

As in the Phase I rule, EPA is setting performance standards for minimizing adverse environmental impact based on a conceptually simple and certain metric-reduction of impingement mortality and entrainment. EPA recognizes however, that there are challenges associated with measuring such reduction due to fluctuations in waterbody conditions (species abundance, composition, etc.) over time. While it is relatively straightforward to measure impingement mortality and entrainment reductions relative to past levels, it is more difficult to determine reductions relative to what would have occurred in the absence of control technologies if waterbody conditions change after the technologies are installed. Data provided with the proposed rule (DCN 4-0003) indicate that there is substantial variability over time in the numbers and species mix of impinged and entrained organisms at

any given facility. While changes in operational practices and sampling methods account for some of this variability, the data indicate that there may be substantial natural variability in waterbody conditions as well. This natural variability and the changes to species composition over time may affect the ability of these technologies to perform consistently at a certain level. This is one reason why EPA has provided a compliance determination alternative under which facilities comply with the construction, operational, maintenance, monitoring, and adaptive management requirements of a Technology Installation and Operation Plan (or Restoration Plan) designed to meet the performance standards, rather than having to demonstrate quantitatively that they are consistently meeting them, which may be difficult in the face of natural variability. Under this approach, if monitoring data suggest that performance standards are not being met despite full compliance with the terms of the Technology Installation and Operations Plan or the Restoration Plan, the Plan will need to be adjusted to improve performance.

EPA has provided examples of facilities in different areas of the country sited on different waterbody types that are currently meeting or exceeding the performance standards promulgated today. The ability of these facilities to attain similar performance standards suggests that while site-specific factors can influence the performance of a given technology, it is the exceptional situation where no design or construction technology is capable of meeting the performance standards. EPA opted for performance ranges instead of specific compliance thresholds to allow both the permittee and the permitting authority a certain degree of flexibility in meeting the obligations under the final Phase II rule. EPA does not believe that performance ranges promote uncertainty. Instead, EPA has selected performance ranges out of the recognition that precise results may not be able to be replicated in different waterbody types in different areas of the country. EPA disagrees with the comment that it has not shown that the performance standards can be met at a reasonable cost. The cost and economic impact analysis for the final rule supports EPA's determination that the final rule, including the performance standards, are economically practicable at a national level. In addition, the final rule includes a site-specific compliance alternative to address any potential situation where meeting the performance standards, when evaluated on a facility-specific basis, would result in costs that are significantly greater than the costs

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considered by EPA, for a like facility in establishing the standards, or that are significantly greater than the benefits of compliance with the applicable performance standards at the facility. Thus, the final rule ensures that the costs of the rule are economically practicable to the extent required by section 316(b).

In developing the final rule, EPA identified and examined a broad range of cooling water intake structure technologies and determined, at a national level, that these technologies support the final performance standards. EPA notes that, although the performance standards address all life stages of fish and shellfish, the Director has significant discretion as to how the performance standards are applied in the permit. For example, the Director may determine that all species must be considered or that only representative species are to be considered. With regard to natural fluctuations in fish and shellfish populations, and the Technology Installation and Operation Plan compliance scheme discussed above addresses the concern that natural fluctuations could impact the level of impingement mortality and entrainment at a given

facility over time. Further, the Director is given considerable discretion to determine, based on the facility's Comprehensive Demonstration Study, the appropriate averaging period and precise metric for determining impingement mortality and entrainment reductions. Generally, averaging over longer time periods (i.e., a full five year permit term) can substantially reduce the impact of natural variability on the determination of whether the performance standards are being met.

3. Requirements by Waterbody Type

As stated in section C. 2, different performance standards would apply for facilities located upon different waterbody types. Comments were received both in support of and against basing performance standards in part on waterbody type. Some commenters did not support the withdrawal threshold of 5 percent of the mean annual flow for facilities on freshwater rivers, as the organisms at an intake may not be subject to entrainment or may not be evenly distributed. Some State commenters supported the withdrawal threshold for freshwater rivers, and another suggested correlating the intake flow requirements with the total flow of the waterbody to better protect smaller flow rivers. One State commenter generally opposed all of the proposed thresholds on freshwater rivers as being arbitrary and stated that the **regulations** would be more effective by considering the impacts to the population within the waterbody. For lakes and reservoirs, one commenter opposed the requirement to not disturb the thermal stratification of the waterbody, stating that the requirement has not been defined in sufficient detail, that EPA has presented no evidence that the disruption is always detrimental, or presented any discussion of technologies that might mitigate any thermal disturbances. Some commenters did not support additional controls on the Great Lakes, stating that the Lakes are not unique and do not require greater protection. Another State commenter suggested that additional requirements be implemented for any impaired waterbody.

EPA considers location to be an important factor in addressing adverse environmental impact and one expressly included in the language of section 316(b). When cooling water is withdrawn from sensitive biological areas, there is a heightened potential for adverse environmental impact, since these areas typically have higher concentrations of impingeable and entrainable aquatic organisms. Therefore, the final rule includes performance standards that vary, in part, by waterbody type. For example, estuaries and tidal rivers have a higher potential for adverse impact because they contain essential habitat and nursery areas for a majority of commercial and recreational species of fish and shellfish. Therefore, EPA believes that these areas warrant a higher level of control that includes both impingement and entrainment controls.

EPA also included performance standards for other waterbody types. Facilities withdrawing greater than 5% of the mean annual flow from freshwater rivers and streams will have additional requirements. As described in the Phase I proposed rule (65 FR 49060) and the Phase II NODA (66 FR 28853), the withdrawal threshold is based on the concept that absent any other controls, withdrawal of a unit volume of water from a waterbody will result in the entrainment of an equivalent unit of aquatic life (such as eggs and larval organisms) suspended in that volume of the water column. Thus, facilities withdrawing greater than 5% of the mean annual flow from freshwater rivers and streams may entrain equal proportions of aquatic organisms. Freshwater rivers and streams are somewhat less susceptible to entrainment than certain other categories of waterbodies and, therefore, the final rule limits the requirement for entrainment control in fresh waters to those facilities that withdraw the largest proportion of water from freshwater rivers or

streams. EPA has promulgated special requirements for facilities

The intent of the pre-approved technology compliance alternative is to provide a means to reduce the application and information collection requirements for facilities that are able to meet performance standards through a technology that is proven to meet performance standards for impingement mortality and entrainment in most cases. A facility that chooses to comply by meeting the conditions specified at Sec. 125.99(a), therefore, should be able to achieve the performance standards for both impingement mortality and entrainment. Facilities that propose an alternative technology for consideration as a pre-approved technology under Sec. 125.99(b) are encouraged by EPA to propose technologies to the Director for approval that are capable of meeting performance standards for both impingement mortality and entrainment with a high degree of confidence. However, a situation could arise where a pre-approved technology only meets performance standards for impingement mortality or entrainment. In such cases, facilities that choose to comply using an approved design and construction technology that only met a subset of applicable performance standards could either employ other (1) design and construction technologies, operational measures and/or restoration measures or (2) request a site-specific requirements for the remaining performance standards based on either the cost-cost or cost-benefit test.

Some commenters stated that EPA should specify the wedgewire screen slot opening size. EPA disagrees that it should specify a uniform screen slot opening size for all facilities that choose the approved design and construction technology alternative. The rule states in Sec. 125.99(a)(1)(iv) that the screen slot size must be appropriate for the size of eggs, larvae, and juveniles of all fish and shellfish to be protected from entrainment at the site. Because the species to be protected differ among locations, the slot sizes will need to be tailored to the sizes of the various assemblages of species at each site. EPA therefore has determined that the Director should determine the appropriate design criteria, such as wedgewire screen slot opening size, on a case-by-case basis. Since no impingement mortality and entrainment Characterization Study is required under this streamlined option, EPA expects that this determination would be based on available information regarding species and life-stage composition of organisms within the receiving waterbodies. Facilities may wish to assemble available data and propose a screen slot opening size for the Director's consideration.

EPA is requiring that the Director take public comment on such determinations prior to finalizing them.

In answer to comments that EPA should not require facilities choosing the approved design and construction compliance alternative to demonstrate through monitoring that they meet the applicable performance standards, EPA disagrees. EPA believes that verification monitoring is very important because, while the pre-approved technologies are designed to meet the performance standards in most cases, the actual efficacy of any technology will be affected by site-specific circumstances and conditions, as well as proper operation and maintenance of the technology. For this reason, EPA believes that it is necessary and appropriate for these facilities to prepare a Technology Installation and Operation Plan that describes how they will operate and maintain the technology and assess success in meeting the performance standards, as well as adaptive management steps they will take if the technology does not perform as expected. They must also propose a Verification Monitoring Plan to describe the monitoring they will perform to support their performance assessment. EPA notes that facilities that select the approved technology alternative have significantly reduced application and information collection requirements relative to facilities that comply under other alternatives.

One commenter stated that the approved design and construction technology alternative will not be sufficiently protective given the complexity of waterbodies. While EPA does not agree with this comment, EPA recognizes that the efficacy of a given technology will be affected by site-specific conditions, such as biological and chemical factors in the waterbody. Because the efficacy of the technology will be affected

by such site-specific conditions, EPA has required all facilities that choose to comply using the approved design and construction technology compliance alternative to submit a Technology Installation and Operation Plan and a Verification Monitoring Plan, and to determine if they are meeting the applicable performance standards through monitoring, and adjust their operations accordingly if they are not. EPA believes, based upon extensive research, that the majority of facilities with the appropriate site conditions, and that have installed and properly operated

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and maintained submerged cylindrical wedgewire screen technology, should be capable of meeting the performance standards set forth in Sec. 125.94(b). For facilities that fail to meet performance standards through the approved design and technology alternative, the Director may amend the facility's permit to require the use of additional design and construction technologies, operational measures, and/or restoration measures, in order to meet the performance standards, or if appropriate, issue a site-specific determination of BTA.

5. Capacity Utilization Threshold

In the proposed rule, EPA introduced reduced requirements for facilities that are typically not operating year-round and would therefore bear a proportionately higher cost to comply with the rule. EPA proposed that facilities that operate less than 15% of the time (also known as peaking facilities) would only be subject to impingement reductions, regardless of the waterbody type upon which the facility is located.

Generally, commenters supported the concept of reduced requirements for peaking facilities. However, commenters stated that EPA must further refine the definition of peaking facilities and in many cases suggested that EPA adopt the United States Department of Energy's

definition of capacity utilization. Aspects of EPA's definition on which commenters requested clarification included how to measure the capacity rate (per intake, per facility, per generating unit, etc.), the time frame for determining historic utilization rates, and the definition of ``available'' with respect to how to calculate the capacity utilization rate. One commenter further suggested that EPA allow an expanded definition (i.e., a higher capacity utilization rate) for facilities that typically operate in periods of low abundance of entrainable organisms. One commenter further requested that the reduced requirements for peaking facilities be extended to account for future operations at the plant as well. Another commenter expressed concern over the definition of the threshold, as the operational time for the facility could still coincide with periods of high abundances of organisms and therefore still result in significant entrainment. One commenter opposed the threshold, stating it could encourage facilities to reduce electricity production in order to have less stringent requirements and therefore impact energy production, prices, and energy supply nationwide.

State commenters generally supported the concept, but were divided as to the threshold utilization rate; some States preferred a lower threshold and one mentioned that it would prefer a higher threshold. One State did not support the reduced requirements for peaking

facilities, noting that the time frame in which the facility operates may be more important than the volume withdrawn. Another State suggested that restoration or mitigation also be required of peaking facilities.

EPA has identified peaking facilities in the final Phase II rule as those facilities that operate at an overall capacity of less than 15 percent. EPA believes that facilities operating below 15% should be subject to less stringent compliance requirements relative to a typical base load facility. The threshold of 15% is based on these facilities' reduced operating levels, low potential for entrainment impacts, and consideration of economic practicability (see, 67 FR 17141). To address commenter concerns, EPA has modified the capacity utilization definition to say that the capacity utilization rate applies only to that portion of the facility that generates electricity for transmission or sale using a thermal cycle employing the steam water system as the thermodynamic medium. The Agency has amended the definition of the capacity utilization rate threshold to remove the term ``available'' from the definition, as requested by comments.

Further, the Agency has allowed for calculation of the capacity utilization rate on an intake basis, when the intake is exclusively dedicated to a subset of the plant's generating units, and for determination of the capacity utilization rate based on a binding commitment of future operation below the threshold.

Peaking facilities are typically older, less efficient generating units. Because the cost of operation is higher, peaking facilities are generally employed when generating demand is greatest and economic conditions justify their use. Such usage is typically a fraction of the unit's overall generating capacity and represents significantly less cooling water used when compared to the design intake capacity. This would appear to obviate the need for entrainment controls for the facility.

Most peaking facilities are employed during the highest electrical demand period, typically mid-winter or mid-summer. It is generally accepted that while these seasons can sometimes be associated with a

facilities because the losses, while they occur, would have minimal adverse environmental impact.

D. Site-Specific Approach

Past implementation of section 316(b) often followed the draft guidance document published in 1977, which promoted a largely site-specific approach. In this rulemaking, EPA is establishing national performance standards for best technology available for minimizing adverse environmental impacts in connection with cooling water intake structures. Many comments were received regarding a site-specific approach to implementation.

1. Approach

Many commenters favored a site-specific approach in place of national performance standards. Many of the commenters cited a need for flexibility to comply with the **regulations**, and stated that only a site-specific approach can represent the best framework for addressing site-specific environmental impacts in a cost-effective manner. Commenters also favored an approach that resembles current practices for implementation of 316(b), in which site-specific determinations are made without reference to national performance standards.

Some commenters did not support the concept of a site-specific rule. One commenter stated that it does not fulfill a national standard and allows a more lenient application for some facilities. Another commenter added that a site-specific approach favors industry, as the resources of the regulators and interested public groups to respond to information-intensive site-specific determinations are limited. Some States also expressed concern over a site-specific approach, as it could be less stringent than the present approach, as well as more burdensome. Some other States expressed support for site-specific approaches.

In the final rule, EPA has established national performance requirements for the reduction of impingement mortality and entrainment that reflect best technology available to minimize adverse environmental impact for Phase II existing facilities, and has authorized five different compliance alternatives to achieve those standards, including a site-specific alternative. Thus, the Agency has

EPA acknowledges that some States' existing programs and determinations have been successful in reducing adverse environmental impacts to waters of the United States associated with cooling water intake structures. EPA disagrees, however, that all existing BTA determinations should remain valid. Some historical BTA decisions may be based on physical, chemical or biological conditions that are no longer relevant at the site, or reflect BTA technology that is outdated and would not meet the performance standards set forth in today's final rule. However, the final rule provides for EPA approval of alternative State program requirements where such State NPDES requirements will result in environmental performance within a watershed that is comparable to the reductions of impingement mortality and entrainment that would otherwise be achieved under Sec. 125.94. (see Sec. 125.90(c)). Thus, this rule provides a reasonable degree of flexibility for States to implement existing effective programs. In Sec. 125.94(e), States are also allowed to establish more stringent BTA requirements if necessary to comply with State, tribal, or other federal law.

E. Implementation

1. Calculation Baseline

Numerous commenters indicated that they were unclear as to how to calculate the baseline conditions for impingement mortality and entrainment. Some commenters suggested that the calculation baseline should reflect unrestricted operation at full design capacity year-round to avoid continually changing the baseline, since maintenance and operational schedules change over time. Another commenter added that the baseline definition must specify that data be based upon maximum operation of a given facility, to avoid allowing a facility to withdraw more water than it has been permitted for (based on an averaged flow). Other commenters claimed that the use of a calculation baseline was problematic due to the difficulties of extrapolation between localities and waterbody types. One commenter asserted that the calculation baseline should reflect current local environmental conditions, not historical or hypothetical future conditions and should specify the level of operation that would be maintained in the absence of operational controls implemented for reducing impingement and entrainment.

Many commenters supported an ``As Built'' alternative approach where a facility would calculate entrainment reduction based on historical measurements before installation of new technology or sampling immediately in front of the new technology and enumerating the organisms of a size that will pass through a standard \3/8\-inch screen. Several commenters agreed that the use of historical data would aid in estimating the calculation baseline while others cautioned against the use of historical data that may not be relevant to the current conditions. One commenter disagreed with EPA's statement that the baseline could be estimated by evaluating existing data from a nearby facility; the commenter asserted that site-specific factors

determine whether an organism will interact with a cooling water intake structure and/or survive the interaction. Overall, most commenters recommended that EPA allow the Director broad discretion and flexibility in evaluating the calculation baseline due to varying site conditions.

The calculation baseline provides a standard intake configuration by which facilities can determine relative reductions in impingement and entrainment. EPA acknowledges the numerous comments on the proposed definition and has refined the definition to provide more clarity in implementing this concept. For example, the definition in the proposed

rule incorporated a shoreline intake structure. In the final rule, the definition has been clarified to specify a \3/8\-inch mesh traveling screen at a shoreline intake structure. Based on available data that indicate this is a common intake structure configuration at Phase II existing facilities, EPA designated a \3/8\-inch screen as the standard mesh size against which reductions will be calculated. Similarly, the assumption of no impingement or entrainment controls in the definition in the proposed rule has been clarified to describe an intake where the baseline operations do not take into include any procedures or technologies to reduce impingement or entrainment. EPA recognizes that some facilities may have control technologies in place that already reduce impingement or entrainment; the final calculation baseline would allow credit for such reductions. Additionally, EPA further clarified the definition to include the potential data sources that may be used in defining the calculation baseline, such as historical data, data

section 2. b below. With regard to counting absolute numbers of organisms, EPA also requested comment on the option of counting undifferentiated organisms (i.e., counting without specifying taxonomic identification).

After attempting to select optimal approaches for both the scope

standards, EPA has determined site-specific factors such as biological assemblage at the site, intake location, and waterbody type must be factored into decisions regarding how to evaluate attainment. EPA has therefore decided that, in its Verification Monitoring Plan (125.95(b)(7)), the facility must propose, among other things, the parameters to be monitored for determining attainment. The Director will be best suited to review and approve proposed parameters for each facility on a case-by-case basis.

a. Scope of Evaluation: All-Species Consideration vs. Representative Species

Several commenters supported the use of a representative species evaluation, as opposed to the all-species evaluation, as the most practical approach in many cases. Another commenter stated that even with the representative species approach, factors other than simply numeric reduction in impingement mortality and entrainment must be considered when determining attainment. On the other hand, one commenter stated that an ``all species'' approach could make compliance demonstrations simpler and somewhat less expensive so long as the taxonomic identity of collected organisms is not required. The commenter noted that this would not be appropriate, however, in cases where taxonomic identification is needed, such as where eggs and larval stages are converted to age-1 equivalents.

As part of the representative species inquiry, EPA also requested comment on whether 10 to 15 species might be an appropriate number of representative species to protect all species and ecosystem functions at a facility. One commenter responded, stating that 15 was too large a number. This commenter suggested that a demonstration should focus on the four or five species and add to the list only if there was another species of special concern.

In response to the commenter who suggested that EPA should evaluate factors other than reduction in numbers of organisms impinged or entrained, EPA has selected several means by which to determine compliance with section 316(b) requirements. For facilities that choose to demonstrate compliance with the performance standards, the metric that will be used to evaluate compliance with the performance standards is the facility's reduction of impingement mortality and entrainment through the installation of design and control technologies and/or

considered in determining the appropriate compliance option for a facility, such as waterbody type, intake location, percentage withdrawal of mean annual flow of rivers or streams, capacity to upset thermal stratification in lakes, a facility's calculation baseline, and the appropriateness of existing or proposed protective technologies or measures.

EPA agrees that a single approach may not be optimal in all cases. The Agency has therefore not prescribed the methods (including a metric) for assessing success in meeting performance standards in today's final rule. Rather, the Director must determine whether a clearly defined all-species approach or representative species approach is appropriate on a case-by case basis, based upon the information and proposed methods presented by the facility. The Director may choose to require evaluation of all species or of certain representative species.

In response to comments regarding EPA's suggested number of representative species, the facility will propose the number of species to monitor, as well as decisions regarding species and life stages to monitor, for review and approval by the Director as part of Verification Monitoring Plan (125.95(b)(7)), Technology Installation and Operation Plan (125.95(b)(4)(ii)), and, if applicable, the Restoration Plan required at 125.95(b)(5). As such, in cases where the representative species approach is applied, the Director may approve the number of representative species proposed by the facility, based upon the specifics of the waterbody from which the facility is withdrawing, the percentage volume of water withdrawn relative to the freshwater river or stream (as applicable), and other factors.

b. Metric: Absolute Counts vs. Biomass

EPA requested comment as to whether species impinged or entrained may be measured by counting the total number of individual fish and shellfish, or by weighing the total wet or dry biomass of the organisms. In response to the use of absolute counts of organisms or biomass (weight) for determining compliance, commenters offered a variety of views. Regarding the use of biomass as a metric, one commenter expressed that measuring either biomass or total undifferentiated numbers of species would be appropriate for cases where restoration was the chosen option, since restoration will never result in one-for-one species compensation. Several commenters pointed out a disadvantage of counting numbers of organisms: early life stages will dominate the numbers and thereby dominate the compliance

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determination, even though most of them would have suffered large natural mortality losses even without entrainment. To correct for this, a few commenters suggested identifying the organisms and converting them to an equivalent unit to ensure that each life stage is appropriately weighed. Specifically, one commenter suggested converting to equivalent juveniles, when measuring organisms by biomass, to correct for the fact that the count will be dominated by later larval stages even though the number of these organisms per unit weight will be small compared to eggs and larvae. This commenter continued that this approach would be useful for forage species, since biomass is an

EPA has decided to give the Director the authority to review and approve methods of determining compliance proposed by the facility as part of the Verification Monitoring Plan. (125.95(b)(7)), Technology Installation and Operation Plan (125.95(b)(4)(ii)), and, if applicable, the Restoration Plan required at 125.95(b)(5). Thus, the facility will propose, and the Director will review and approve, species and life stages of concern. The Director may choose to require evaluation of all species or of certain indicator species; or the Director may elect to verify attainment of performance standards using biomass as a metric. EPA believes that as each situation will be somewhat unique, it should be left to the facility to propose and the Director approve the appropriate unit, biomass or actual counts.

c. Other Means of Determining Attainment of Performance Standards

Several commenters also suggested that EPA should allow for the use of existing data for measuring attainment in lieu of requiring existing facilities to collect and develop new data. Commenters also suggested that if a facility currently implements the best technology available to minimize adverse environmental impact, it should be found in compliance even if the newly promulgated performance standards are not being met. Other commenters expressed that a facility should be considered in compliance even during occurrences of unavoidable episodic impingement and entrainment events. These commenters stated that in such unusual circumstances, the facility should be provided with an exemption from any regulatory actions.

EPA agrees with commenters that under certain circumstances, facilities' historical data may be sufficient to verify that they are meeting performance standards, as long as the historical data is reflective of current operation of the facility and of current biological conditions at the site. For example, under compliance alternative 2, a facility may use historical data to demonstrate that existing design and construction technologies, operational or restoration measures, meet the performance standards. EPA also believes that some historical data may be appropriate for determining the calculation baseline and for characterizing the nature of impingement and entrainment at the site, and therefore has given the Director the discretion to determine whether historical data are applicable to current conditions (see 125.95(b)(1)(ii), 125.95(b)(2)(i), and 125.95(b)(3)(iii)). In addition, a facility that proves, using existing data, that it has reduced its intake capacity commensurate with closed-cycle recirculating systems would be considered to be in compliance, and therefore would not be required to meet the performance standards for either impingement mortality or entrainment.

After the first permit term, facilities may submit a request for reduced information collection activities to their Director. Facilities that are able to demonstrate that conditions at their facility and in the waterbody from which their facility withdraws surface water are substantially unchanged since their previous permit application will qualify for reduced requirements (Sec. 125.95(a)(3)). In all these cases, historical data are used and required to measure success in meeting performance standards. However, facilities required to submit a Verification Monitoring Plan must still submit verification monitoring data for at least two years following implementation of technologies and/or operational measures.

Other commenters argued that a facility that is implementing permit conditions reflecting a historical determination of the best technology available should be considered in compliance with today's final rule even if the facility is not meeting performance standards. EPA disagrees that a historical determination of the best technology available is appropriate for complying with the requirements set forth by today's rule. Many historical determinations of the best technology

available are less protective of aquatic organisms and ecosystems than the standards set by today's rule, and would undermine the national performance standards that EPA has determined reflect the current best technology available for minimizing adverse environmental impact. Furthermore, biological, chemical and physical conditions at the facilities may have changed since the earlier determinations were made, and the best technology available determinations may no longer apply. Many of the historical best technology available determinations are twenty years old or older and may not correspond with current waterbody or operating conditions.

The question whether a facility should be considered in compliance even during occurrences of unavoidable episodic impingement and entrainment events is left to the Director. At the Director's discretion, facilities that are generally in compliance, but that experience an unusual peak of impingement mortality and/or entrainment, may be considered to still be in compliance on the basis of past good performance. Moreover, the inclusion of a compliance determination alternative based on a Technology Installation and Operations Plan in the final rule also addresses these episodic issues.

d. Monitoring

One commenter stated that monitoring frequencies should be established to address the inherent variability in the rates in impingement and entrainment over the seasons of the year. Monthly or biweekly monitoring is probably appropriate in many cases. The same commenter stated that standard statistical procedures could be followed to establish sample sizes needed to establish appropriate levels of precision in the estimates (e.g., 95% confidence intervals within 15-25% of the mean). In contrast, another commenter pointed out that weekly sampling would be necessary to determine compliance, as had been necessary for the Salem facility. Another commenter suggested that the most cost-effective way of conducting studies would be over the periods of peak abundance.

Some commenters stated that facilities should be allowed to cease monitoring following achievement of the performance standards. Some

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suggested that facilities meeting performance standards through a closed-cycle cooling system should be exempt from monitoring. Another commenter disagreed with the two-year monitoring requirement altogether.

EPA has determined that a uniform averaging period would not be appropriate; rather, the Director will be best suited to make all such determinations by evaluating these and other factors for each facility on a case-by-case basis. The Director will be able to make determinations regarding averaging periods based upon site-specific factors, such as biological assemblage at the site, annual and diel fluctuations in concentration and populations present, and the selected compliance alternative. EPA disagrees that a facility should cease monitoring once performance standards are achieved, as site-specific conditions at any facility are bound to change with time, affecting a facility's ability to achieve performance standards. EPA agrees that facilities meeting performance standards through flow reductions commensurate with closed-cycle cooling should be exempt from monitoring (see Sec. 125.94(a)(1)(i)). Finally, EPA believes that the two-year monitoring requirement is appropriate so that any site-specific variability in impingement and entrainment rates can be detected.

e. Timing

Some States favored flexibility in implementation including delaying the effective date for permits to be renewed soon after the

rule is finalized. Some commenters suggested that the requirements of the rule must be timed so that facilities are not forced into a period of noncompliance because of the time needed to determine, design, and install new intake technology.

One commenter expressed that implementation schedules are too strict. Along the same vein, another commenter suggested that EPA should build flexibility into the implementation schedule so that facilities are not forced into periods of noncompliance.

Commenters generally wanted to see flexibility in the averaging periods (time increments for determining success in meeting the percent reduction or production specified by the performance standards and restoration requirements in Sec. 125.94.) and a way to tailor the sampling schedules to the needs of the site. These commenters indicated that the monitoring should be frequent enough to provide useful information, but not so intensive as to make the program unnecessarily costly or time-consuming. Furthermore, several recommended that a compliance schedule be written into the permits, to allow facilities to install and test new equipment. Several commenters agreed that different facilities might require different amounts of time, as dictated by where they are in the cycle and what their circumstances are.

EPA has provided for time to comply with permitting requirements. A facility whose permit expires more than four years after the date of publication of this final rule must submit the required information 180 days before the expiration of their permit. A facility whose permit expires within four years of the date of publication of this final rule may request that the Permit Director establish a schedule for submission of the permit application. Such submission should be as expeditiously as practicable, but no later than three and one-half years from the date of publication of this final rule. It is expected that the time that facilities need to comply with permitting requirements will be variable, ranging from one year for those not needing to do an impingement mortality and entrainment study to over three years for those needing to collect more than one years worth of impingement and entrainment data.

EPA has also provided that facilities may opt to comply with the Technology Installation and Operations Plan compliance scheme that allows facilities who properly implement the Technology Installation and Operations Plan (or Restoration Plan, as applicable) to be considered in compliance with the requirements of Sec. 125.94. As indicated above, the final rule provides the Director the flexibility to establish an appropriate averaging period to meet the particular situation present in the waterbody within which the facility is located.

3. Entrainment Survival

EPA invited comment on whether to allow Phase II existing

incorporated entrainment survival into any of its conclusions regarding the appropriate performance standards, then the actual performance standard would most likely have been higher.

Many commenters argued that in many cases organisms survive entrainment and the zero percent survival assumption was too conservative. Some commenters suggested that EPA was biased in its approach to entrainment survival. For example, one commenter stated that EPA was biased as a result of relying heavily on old entrainment survival literature.

Based on its review of all entrainment survival studies available to the Agency, EPA believes that its assumption of zero percent survival in the benefits assessment is justified. The primary issue with regard to the studies EPA reviewed is whether the results can support a defensible estimate of survival substantially different from the value zero percent survival assumed by EPA. The review of the studies has shown that while organisms are alive in some of the discharge samples, the proportion of the organisms that are alive in the samples is highly variable and unpredictable on a national basis. In addition, some studies contain various sources of potential bias that may cause the estimated survival rates to be higher than the actual survival rates. For these reasons, EPA believes the current state of knowledge does not support reliable predictions of entrainment survival that would provide a defensible estimate for entrainment survival above zero at a national level. However, today's final rule does allow facilities to use the results of a well-constructed, sites-specific entrainment survival study, approved by the Director, in their benefits assessments when seeking site-specific entrainment requirements. The permitting authority must review and accept the study before the results may be incorporated into the benefits assessments. In cases where there is uncertainty in the survival rates, permitting authorities may want to specify that benefits be presented as a range that reflects this uncertainty.

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4. Comprehensive Demonstration Study (CDS)

a. Requirements and Burden

The majority of commenters expressed two concerns regarding the CDS: (1) it was too burdensome and costly, and the volume of information required was too overwhelming, and (2) several components required clarification. These commenters generally suggested that the costs of such a study were underestimated, and many indicated that the cost estimates for completing the CDS contained misleading or incorrect information. Commenters indicated that the information required for completing the CDS was similar to the data that would be needed for implementing a purely site-specific approach and was therefore overly burdensome. Commenters suggested that EPA require a more simplified demonstration study or waive the requirement for facilities that select one of the approved technologies. Some commenters suggested, in general, that costs could be greatly reduced by streamlining this process, for example, by exempting facilities from certain components based on (1) facilities that have proven that they are not harming the aquatic community, and (2) facilities for which there exists relevant historical data.

Several States anticipated that the majority of their facilities were likely to choose the site-specific compliance alternative, and indicated that a rule that requires cost/benefit analyses for many decisions would be difficult to administer and require significant resources to implement. They claimed that the site-specific performance standards compliance option would impose a substantial review burden

and would require specialized expertise. Some States questioned whether existing permitting staff resources over the first 5 years will be sufficient to review material and develop permit requirements.

Many commenters suggested that EPA could lower costs by streamlining the CDS, exempting facilities that are not causing adverse environmental impact or have historical data, and waiving the monitoring components for facilities that have installed approved technologies.

EPA believes that many efficiencies have been added to the rule since the proposal and the NODA to address concerns that the CDS is too burdensome and costly. First, EPA has provided five compliance alternatives to choose from, one of which allows a facility to install an approved design and construction technology with minimal CDS requirements. In addition, facilities with design intake flow commensurate with closed-cycle recirculating systems are exempt entirely from the CDS; facilities may only have to submit partial CDS information if they have reduced their design intake velocity to less than or equal to 0.5 feet per second and are only required to meet requirements as they relate to reductions in entrainment. In addition, requiring an early submission of the Proposal for Information Collection allows the Director to potentially minimize the amount of information required by the facility. Also, by allowing the use of historical data, EPA has minimized costs for many facilities. In the cases where new studies are required, EPA has given the permittee and the Director discretion to set conditions for the studies which will not be overly burdensome. Facilities may also reduce costs incurred through the information collection process in subsequent permit terms by submitting, one year prior to expiration of the existing permit, a

request for reduced permit application information based on conditions of their cooling water intake structure and waterbody remaining substantially unchanged since the previous permit issuance.

One commenter expressed concern that historical data should not be allowed in the development of the CDS, as it may not accurately reflect current conditions. EPA believes that some historical data may be appropriate for determining the calculation baseline and for characterizing the nature of impingement and entrainment at the site, and therefore has given the Director the discretion to determine whether historical data are applicable to current conditions. EPA expects to provide guidance to Directors to help them make determinations about historical data submitted by facilities. Historical data will not be used to determine attainment of performance standards; this will be verified through a monitoring program approved by the Director.

b. Timing of Submitting Information

Commenters submitted a variety of opinions about timing. Generally, most favored limiting the submittal of CDS components to a frequency equal to or greater than once every five years (one permitting cycle) to reduce burden. Another commenter argued that there is no reason to mandate timing, and that approval of the Director should not be necessary. Other commenters suggested that a time frame is necessary, and that the information should be submitted with the renewal application for a NPDES permit. Numerous commenters asserted that consultation activities should occur prior to development of the Comprehensive Demonstration Study; that schedules and requirements should be specified in the permit for various data collection, analysis, and application submission activities; implementation

success in meeting the performance standards. Several commenters suggested that given the nature of cooling water intake impacts and the proposed requirements, section 316(b) permit and BTA determinations should not be made every five years. Instead, they suggested that one-time determinations should suffice, or that facilities should be allowed to rely on previous section 316(b) demonstrations if conditions remain essentially unchanged. There was also some general confusion as to when the rule would actually become effective.

In response to the comment that EPA should not request submittal of CDS components more frequently than every five years or more, EPA has included a provision whereby a facility may be granted reduced CDS submittal requirements if it can prove that conditions at the facility and in the waterbody have not substantially changed. Facilities will be required to review whether conditions, such as biological, chemical or physical conditions, have substantially changed at each permit renewal cycle. If conditions have changed, facilities will be required to submit all of the relevant CDS components (those that would be affected by the changed conditions when they submit the application for permit renewal.

One commenter stated that the CDS should be a one-time submittal. EPA disagrees that all components of the CDS should only be researched and submitted a single time for the lifetime of the facility, regardless of potential changes in the plant and/or waterbody, because the natural and anthropogenic changes that occur in waterbodies over time may affect a facility's ability to meet performance standards using the current design and construction technologies, operational measures, and/or restoration measures in place.

In response to comments that timing was not clear in previous versions of the rule, EPA agrees, and has clarified timing issues in today's final rule. A

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facility whose permit expires more than four years after the date of publication of this final rule must submit the required information 180 days before the expiration of their permit. A facility whose permit expires within four years of the date of publication of this final rule may request that the Permit Director establish a schedule for submission of the permit application, but that such submission should be as expeditiously as practicable, but no later than three and one-half years from the date of publication of this final rule. It is expected that the time that facilities need to comply with permitting requirements will be variable, ranging from one year for those not needing to do an impingement mortality and entrainment study to over three years for those needing to collect more than one years worth of impingement and entrainment data.

Some commenters felt that decisions about the timing of the CDS submittal should be left to the Director. EPA agrees and has provided only that the proposal for information collection should be submitted prior to the start of information collection activities, but that the facility may initiate information collection prior to receiving comment from the Permit Director. All other components of the Comprehensive Demonstration Study must be submitted 180 days prior to permit expiration except as noted above for the first, permit term following promulgation of the rule.

5. State Programs

Many States requested that existing State section 316(b) programs be allowed to be used to meet the requirements of Phase II. One commenter asserted that the Phase II rule should not overturn past State section 316(b) decisions at existing facilities that were made on

a site-specific basis and that examined the impacts of the cooling water intake structure in relation to the specific biological community. Several commenters stated that EPA did not sufficiently recognize the work already done by the States in implementing section 316(b). Several commenters do not believe that a State should have to demonstrate that its program is ``functionally equivalent'' to today's rule (i.e., that its alternative regulatory requirements achieve environmental performance within a watershed that is comparable to the reductions of impingement mortality and entrainment that would otherwise be achieved under Sec. 125.94).

In response to comments about existing State section 316(b) programs, EPA believes that Sec. 125.90(c) in today's rule, by allowing alternative State programs, acknowledges the work already done by States. In response to the comment that a State should not have to prove that its program achieves environmental performance comparable to those that would be achieved under Sec. 125.94, EPA disagrees. While EPA is giving significant flexibility to permitting agencies at the State level to determine how and what each facility must protect and monitor, it believes it is important to set uniform national performance standards.

F. Restoration

In the proposed rule EPA requested comments on the use of restoration measures by facilities within scope of the rulemaking (67 FR 17146). EPA received diverse comments. Many commenters supported a role for restoration measures. Several commenters stated that allowing restoration provides additional flexibility to those who must comply with the section 316(b) requirements, and may provide a more cost-effective means of minimizing adverse environmental impact than operational measures or design and construction technologies. Other commenters stated that restoration is a well-accepted concept that should have a voluntary role in section 316(b) determinations and constitutes an appropriate means for reducing the potential for causing adverse environmental impact. Several commenters felt that restoration could provide significant benefits in addition to compensating for impingement and entrainment losses. A number of commenters requested flexibility in the implementation of restoration projects. Some commenters stated that restoration should not be limited to supplementing technology or operational measures, but should instead be allowed as a complete substitute for such measures. However, other commenters stated that restoration measures should only be used once every effort has been made to use technology to avoid impacts.

Commenters further stated that restoration should not be mandatory and that EPA lacks authority under section 316(b) to require it, but also asserted that it should have an important role in section 316(b) permitting decisions. Commenters also stated that restoration should not be considered the best technology available for minimizing adverse environmental impact because it is not a technology that addresses the location, design, construction, or capacity of a cooling water intake structure. However, one commenter argued that past restoration measures should be considered during a regulator's determination of whether or not adverse environmental impact is occurring from a cooling water intake structure.

Other commenters felt restoration should have a limited role or no role in the context of section 316(b). One commenter wrote that restoration measures, in the context of section 316(b), are generally unworkable and that the only measurable restoration method would be offsetting, in which an applicant stops use of an older intake facility that does more harm than the proposed one. One commenter stated that

restoration methods must reproduce the ecological value of lost organisms and that they have not seen restoration projects adequately successful in this manner in their region of the country. Many commenters pointed out uncertainties associated with compensating for those organisms impacted by a cooling water intake structure through restoration.

Some commenters suggested that, if restoration is allowed, there should be consultation with other State and Federal resource agencies to avoid inconsistent approaches and to provide useful information on the affected waterbody.

Several commenters remarked on EPA's proposal to include requirements for uncertainty analysis, adaptive management plans, and peer review in the final rule. Some commenters were in favor of the requirements and felt that they would enhance restoration measure certainty and performance. Some commenters were concerned that the requirements would be overly burdensome or would overly restrict the restoration measure options available to permit applicants.

EPA has retained restoration in the final rule and believes that the restoration requirements strike an appropriate balance between the need for flexibility and the need to ensure that restoration measures achieve ecological results that are comparable to other technologies on which the performance standards are based. Facilities that propose to use restoration measures, in whole or in part, must demonstrate to the Director that they have evaluated the use of design and construction technologies and/or operational measures and found them to be less feasible, less cost-effective, or less environmentally desirable than meeting the applicable performance standards in whole or in part through the use of restoration measures. The requirement to look at design and construction technologies and/or

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operational measures in order to ensure that facilities give due consideration to the technologies on which the performance standards are based.

Facilities must also demonstrate that the use of restoration measures achieves performance levels that are substantially similar to those that would be achieved under the applicable performance standards. To address concerns regarding the uncertainty of restoration measures, EPA has included, among other things, requirements for uncertainty analysis, adaptive management plans, monitoring, and peer review, if requested by the Director. Finally, EPA does not believe the requirements for restoration measures are overly burdensome or prescriptive as there is a need to ensure that these types of measures achieve the anticipated environmental benefit. Moreover, under the rule, facilities are provided at least three and one-half years to submit their restoration plan and complete the required studies.

G. Costs

1. Facility-Level Costs

Generally, commenters were split regarding the national costs of the rule. Industry commenters stated that the cost analysis presented in the proposal underestimated the compliance costs in several facets of the analysis, including capital costs of the technology, the site-specific contingencies associated with retrofitting, and facility down time. Several commenters stated that EPA underestimated the costs for the monitoring requirements for both the characterization study in the permit application and for verification monitoring. Other commenters generally stated the opposite, arguing that EPA overestimated the

compliance costs, especially for installing cooling towers. Some commenters stated that costs should not be a consideration in section 316(b) determinations.

The Agency significantly revised the approach to developing costs for the NODA. Those revisions incorporated some of the comments on the costing methodology for technologies that reduce impingement and entrainment. EPA's approach to estimating the costs of the requirements of the final rule reflect the NODA comments on the revised methodology, and additional analyses. EPA, however, did not revise its estimates for cooling towers subsequent to the NODA because it decided not to further pursue this regulatory option for the reasons outlined more specifically in Section VII. EPA believes that our costing of cooling

engineering firm experience in developing costs for Phase II facilities.

2. Market-Level Impacts

Numerous industry commenters stated that EPA significantly underestimated the impacts to generators, consumers, reliability, and energy supply. EPA disagrees with these commenters. EPA performed an analysis of facility- and market-level impacts (including impacts to generators, consumers, reliability, and energy supply) using the Integrated Planning Model (IPM[reg]), which has been widely used in air quality **regulations** and in other public policy arenas affecting the electric power generation industry.

One commenter stated that the IPM analysis does not account for the economic impacts of other regulatory programs. EPA disagrees with this assertion. The IPM base case accounts for costs associated with current federal and state air quality requirements, including future implementation of SO2 and NOX requirements of Title IV of the Clean Air Act and the NOX SIP call as implemented through a cap and trade program. Because of its relative newness, it does not account for costs associated with the Phase I facility **regulations**.

One commenter stated that EPA justified the rule by using a cost-to-revenue comparison and that this comparison neither measures profitability nor represents the most efficient economic solution for each facility. As discussed in Section VII. above, the economic practicability of the Phase II regulation is based on the electricity market model analyses using the IPM, not the cost-to-revenue ratio. The cost-to-revenue ratio is only one of several additional measures EPA used to assess the magnitude of compliance costs.

Some commenters stated that EPA did not properly take account of

be significantly affected. EPA disagrees with this statement. EPA's SBREFA analysis showed that this rule will not lead to a significant economic impact on a substantial number of small entities (See Section XIII.C below). While municipally owned facilities have a relatively

benefits estimates EPA included in the proposal, which primarily relied on a benefits transfer approach. Benefit transfer involves adapting research conducted for another purpose in the available literature to address the policy questions in hand. For more detail on the valuation methods used in the final rule analysis, see Chapter A9 of the Regional Analysis document (DCN 6-0003). For three of the nine case studies, this analysis was supplemented by original revealed preference studies. Revealed preference methods use observed behavior to infer users' value for environmental goods and services. Examples of revealed preference methods include travel cost, hedonic pricing, and random utility models (RUM). For more detail on the revealed preference methods used in the final rule analysis, see Chapters A9 and A11 of the Regional Analysis document (DCN 6-0003). Although most commenters agreed that properly executed benefits transfer is an appropriate method for valuing nonmarket goods, they pointed out that original revealed preference studies that provide site-specific recreational fishing benefit estimates provide a superior alternative to benefits transfer. In response to these comments, EPA developed original or used available region-specific recreational angler behavior models, which provide site-specific estimates of willingness-to-pay for improvements in recreational fishing opportunities, to estimate recreational fishing benefits from reduced impingement and entrainment for seven of the eight study regions. Chapter A11 of the Regional Analysis document provides detailed discussion of the methodology used in EPA's RUM analysis (DCN 6-0003). Due to data limitations, EPA used a benefit transfer approach to value recreation fishing benefits from reduced impingement and entrainment in the Inland region.

4. Non-Use Benefits

Numerous comments were received on EPA's proposed non-use benefit estimates. Most commenters agreed that non-use values are difficult to estimate and that EPA's estimates of non-use benefits using the 50% rule was inappropriate because it relies on outdated studies. Commenters, however, disagreed as to whether EPA had vastly overstated or underestimated non-use benefits in the proposed Phase II rule analysis.

Some commenters stated that EPA's approach to estimating non-use benefits of the proposed rule significantly overestimates total benefits and that ecological benefits of the section 316(b) regulation are negligible. Other commenters asserted that EPA's benefits estimates significantly undervalued the total ecological benefits (including use and non-use) of preventing fish kills. These commenters indicated that it would be impossible to claim that the value of the unharvested commercial and recreational and forage species lost to impingement and entrainment was equal to zero. Reasons some commenters gave for the underestimation of total benefits included the following: total losses were underestimated by using outdated monitoring data for periods when population levels (and therefore impingement and entrainment) were much lower than the present; cumulative impacts were not sufficiently considered; recreational and commercial values were underestimated; commercial invertebrate species were ignored; ecological value of forage species was not considered; non-use benefits were underestimated; and secondary economic impacts were not included. Overall these commenters argued that a net benefit underestimation could be corrected by (1) assuming that non-use values were two times the estimated value of recreation, commercial and forage values; and (2) assuming that unharvested fish had a value greater than zero.

In response to public comments regarding the analysis of non-use values in the proposed rule, EPA considered the results of several different approaches to quantifying non-use values. The Agency points out that none of the available methods for estimating either use or

non-use values of ecological resources is perfectly accurate; all have shortcomings.

EPA has determined that none of the methods it considered for assessing non-use benefits provided results that were appropriate to include in this final rule, and has thus decided to rely on a qualitative discussion of non-use benefits. The uncertainties and methodological issues raised in the approaches considered could not be resolved in time for inclusion in the rule. EPA continues to evaluate various approaches for evaluating non-use benefits of CWA rules.

5. Habitat Replacement Cost (HRC)

Some commenters argued that the HRC methods are not legitimate valuation methods because they concern costs, not benefits. However, other commenters argued that although HRC analysis is not a benefit's analysis in the strict economic sense it can provide a practical approach to capturing the full range of ecosystem services and, thus, is appropriate for evaluating the benefits of this rule. These commenters further pointed out that ``restoration cost is used as a measure of damages under CERCLA for Superfund sites, under the National Marine Sanctuaries Act, and under the oil spill provisions of the Clean Water Act. Use of restoration costs was explicitly upheld in the landmark Ohio vs. Interior court decision of 1989.''

EPA has removed the disputed results of the HRC analyses from its benefits estimates for the final rule. For the NODA, EPA revised the HRC analysis presented in the proposed rule (see 67 FR 17191). Instead of the costs of habitat replacement, EPA used estimated willingness-to-pay values for the resource improvements that would be achieved by the habitat replacement/restoration equivalents.

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[[pp. 41625-41674]] National Pollutant Discharge Elimination System--Final **Regulations** to Establish Requirements for Cooling Water Intake Structures at Phase II Existing Facilities

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During the comment period on the NODA, EPA received a number of comments on the revised habitat-based valuation method. Specifically, several commenters questioned the appropriateness of using willingness to pay values for habitat restoration as a ``proxy'' for either the total value or the non-use value of the fishery resources that would be preserved due to reduced impingement and entrainment. EPA explored this approach to estimating non-use values for three case study regions: the North Atlantic, Mid-Atlantic, and Great Lakes Regions. However, due to limitations and uncertainties regarding the application of this methodology, EPA elected not to include benefits based on this approach in the costs and benefits analysis of the final section 316(b) rule.

6. Benefits to Threatened and Endangered Species.

Similarly to the HRC approach, commenters strongly disagreed about the appropriateness of EPA using the societal revealed preference (SRP) method to value benefits from reducing impingement and entrainment of threatened and endangered species because these methods concern costs not benefits. The SRP method uses (1) evidence of actions taken to benefit a resource that were developed, approved, and implemented voluntarily by government and quasi-government agencies and (2) data on anticipated and actual expenditures required to complete the actions. EPA has removed the disputed results of the societal revealed preference analyses from its benefits estimates for the final rule because the uncertainties and methodological issues raised in the approaches considered could not be resolved in time for inclusion in the rule.

Some commenters argued that benefits transfer is the second best approach to estimating benefits from improved protection of threatened and endangered species if conducting an original stated preference study is not feasible. Specifically, the commenters recommended that EPA use benefits transfer for valuing improved protection of threatened and endangered species instead of the societal revealed preference method. In response to these comments, EPA has explored a benefits transfer approach to valuing improved protection of threatened and endangered species due to the final section 316(b) regulation. For detail, see Chapters A13 and B6 of the Regional Analysis document (DCN 6-0003). EPA, however, notes that benefits based on this method were not included in the benefit cost analysis of the final section 316(b) rule due to the uncertainties and limitations discussed in Section A13-6.1 of the Regional Study document (see DCN 6-0003).

7. Timing of Benefits

During the comment period on the proposed rule, EPA received a number of comments on the time at which benefits of the rule accrue to

technology is completed and enough years pass after that first year of reduced impingement and entrainment mortality such that every fish avoiding impingement and entrainment in that year can be harvested by commercial and recreational fishermen. In response to public comments on the proposed rule analysis, EPA revised recreational and commercial fishing benefits analysis to account for a one-year construction period required to install CWIS technology to reduce impingement and entrainment, and a time lag between impingement and entrainment cessation and the time when recreational and commercial fish species will be large enough to be harvested. In accounting for a delay in benefits, EPA used both a three percent and a seven percent discount rate as recommended by OMB requirements.

I. EPA Legal Authority

1. Authority To Set a National Standard for Cooling Water Intake Structures

Some commenters challenged EPA's authority to set a national standard for cooling water intake structures, arguing that CWA section 316(b) requires EPA to provide a site-specific assessment of ``best technology available to minimize adverse environmental impact.'' These commenters maintain that the language and legislative history of CWA section 316(b), the objectives of the CWA, and prior EPA practice of site-specific application of CWA section 316(b) preclude EPA from setting a national standard under this rule.

EPA is authorized under section 501(a) of the Clean Water Act ``to prescribe such **regulations** as are necessary to carry out [its] functions'' under the Clean Water Act. Moreover, EPA interprets CWA section 316(b) to authorize national requirements for cooling water intake structures. CWA section 316(b) applies to sources subject to CWA sections 301 and 306, which authorize EPA to promulgate national categorical effluent limitations guidelines and standards for direct dischargers of pollutants. The reference in CWA section 316(b) to these sections indicates that Congress expected that CWA section 316(b) requirements, like those of CWA sections 301 and 306, could be applied as a national, categorical standard. Cronin v. Browner, 898 F. Supp. 1052, 1060 (1995) (``EPA was also free to choose, as it did, to implement section 316(b) by issuing one overarching regulation that would apply to all categories of point source subject to sections 301 and 306 that utilize cooling water intake structures.''); see also Virginia Electric Power Co. v. Costle, 566 F. 2d 446 (1977).

2. Authority To Consider Cost in Establishing Performance Standards and Compliance Options

Some commenters objected to EPA's consideration of costs in the determination of BTA. These commenters note that CWA section 316(b) does not expressly mention compliance costs, in contrast to other technology-based provisions of the CWA, which explicitly direct EPA to consider such costs. If Congress had intended that EPA consider costs under section 316(b), they argue, it would have expressly directed the EPA to do so.

EPA believes that it legitimately considered costs in establishing ``best technology available'' under CWA section 316(b). Although CWA section 316(b) does not define the term ``available,'' it expressly refers to CWA sections 301 and 306, both of which require EPA to

application.'' 33 U.S.C. 1314(b)(1)(B). Similarly, CWA section 301(b)(2)(A) requires application of the ``best available technology economically achievable,'' which in turn requires consideration of ``the cost of achieving such effluent reduction.'' 33 U.S.C. 1314(b)(2)(B). Finally, CWA section 306(b)(1)(B), which governs the effluent discharge standards for new sources, expressly states that in establishing the ``best available demonstrated control technology'' the Administrator shall take into consideration ``the cost of achieving such effluent reduction'' 33 U.S.C. 1316(b)(1)(B). Although these standards

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are somewhat different, each mandates the consideration of costs in establishing the technology-based standard. Because CWA sections 301 and 306 are expressly cross-referenced in CWA section 316(b), EPA

authorizing consideration of the same factors considered under CWA sections 301 and 306, including cost. EPA's interpretation of section 316(b) as authorizing a consideration of costs was explicitly upheld in litigation on the Phase I new facilities rule. Riverkeeper v. EPA, slip op. at 28 (2nd Cir., Feb. 3, 2004).

EPA's interpretation is supported by the legislative history of CWA section 316(b): `` `best technology available' should be interpreted as best technology available at an economically practicable cost.'' See 118 Cong. Rec. 33,762 (1972), reprinted in 1 Legislative History of the Water Pollution Control Act Amendments of 1972, 93d Cong., 1st Sess. at 264 (Comm. Print 1973) (Statement of Representative Don H. Clausen). EPA's interpretation of CWA section 316(b) is also consistent with judicial interpretations of the section. See, e.g., Seacoast Anti-Pollution League v. Costle, 597 F.2d 306, 311 (1st Cir. 1979) (``The legislative history clearly makes cost an acceptable consideration in determining whether the intake design `reflect[s] the best technology available' ''); Hudson Riverkeeper Fund, Inc. v. Orange & Rockland Util., Inc. 835 F. Supp. 160, 165-66 (S.D.N.Y. 1993).

3. Authority To Allow Site-Specific Determination of BTA To Minimize AEI Based on a Cost-Cost Comparison

The final rule allows a facility to pursue a site-specific determination of ``best technology available to minimize adverse environmental impact'' where the facility can demonstrate that its

conditions can be highly relevant to the determination of BTA to minimize adverse environmental impact. In addition to specifying ``best technology available'' in relation to a national categorical performance standard, today's rule also authorizes a site-specific determination of BTA when conditions at the site lead to a more costly array of controls than EPA had expected would be necessary to achieve the applicable performance standards.

This site-specific compliance option is similar to the ``fundamentally different factors'' provision in CWA section 301(n), which authorizes alternative requirements for sources subject to national technology-based standards for effluent discharges, if the facility can establish that it is fundamentally different with respect to factors considered by EPA in promulgating the national standard. The fundamentally different factors provision was added to the CWA in 1987, but prior to the amendment, both the Second Circuit and the Supreme Court upheld EPA's rules containing provisions for alternative requirements as reasonable interpretations of the statute. NRDC v. EPA, 537 F.2d 642, 647 (2d Cir. 1976) (``the establishment of the variance clause is a valid exercise of the EPA's rulemaking authority pursuant to section 501(a) which authorizes the Administrator to promulgate **regulations** which are necessary and proper to implement the Act''); EPA v. National Crushed Stone Ass'n, 449 U.S. 64 (1980) (approving EPA's alternative requirements provision in a standard adopted pursuant to CWA section 301(b)(1), even though the statute did not expressly permit a variance.) EPA's alternative site-specific compliance option in this rule is similarly a reasonable interpretation of section 316(b) and a valid exercise of its rulemaking authority under CWA section 501.

Based on this interpretation, EPA and State permitting authorities have been implementing CWA section 316(b) on a case by case basis for over 25 years. Such a case-by-case determination of BTA has been recognized by courts as being consistent with the statute. See Hudson Riverkeeper Fund v. Orange and Rockland Util, 835 F. Supp. 160, 165 (S.D.N.Y. 1993) (``This leaves to the permit writer an opportunity to impose conditions on a case by case basis, consistent with the statute'').

Some commenters specifically challenged EPA's authority to consider costs in its site-specific assessment of best technology available. However, as discussed earlier, EPA reasonably interprets CWA section 316(b) to authorize it to consider costs of compliance in determining best technology ``available.'' Therefore, where EPA fails to consider a facility's unusual or disproportionate costs in setting the national requirements for ``best technology available,'' it reasonably authorizes permit authorities to set site-specific alternative limits to account for these costs. See Riverkeeper v. EPA, slip op. at 25 (2nd Cir. Feb. 3, 2004) (upholding site-specific alternative limits under the Phase I rule for new facilities where a particular facility faces disproportionate compliance costs.)

In addition, EPA notes that--contrary to some commenters' assertions--the rule does not in fact authorize permitting authorities to consider a facility's ``ability to pay'' in its site-specific assessment of BTA. It only allows consideration of whether the facility has unusual or disproportionate compliance costs relative to those

Compliance

Some commenters objected to the second site specific regulatory option--authorizing a site-specific determination of best technology available where the facility can demonstrate that its costs of compliance under Sec. 125.94(a)(2) through (4) would be significantly greater than the benefits of complying with the applicable performance requirements at the facility. These commenters argue that a cost-benefit decision making criterion is not authorized under the CWA. Many of these commenters assert

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that while it may be reasonable for EPA to exclude technologies if their costs are ``wholly disproportionate'' to the benefits to be achieved, EPA lacks the statutory authority to conduct a formal cost/benefit analysis to determine the best technology available on a site-specific basis.

EPA believes that the Clean Water Act authorizes a site-specific determination of the best technology available to minimize adverse environmental impact where the costs of compliance with the rule's performance standards are significantly greater than its benefits. This authority stems from the statutory language of CWA section 316(b). As discussed in Section III above, Section 316(b) requires that cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. The object of the ``best technology available'' is explicitly articulated by reference to the receiving water: to minimize adverse environmental impact in the waters from which cooling water is withdrawn. In contrast, under section 301 the goal of BAT is explicitly articulated by reference to a different purpose, to make reasonable further progress toward the national goal of eliminating the discharge of all pollutants (section 301(b)(2)(A)). Similarly, under section 304, the goal of BPT and BCT is explicitly articulated by reference to the degree of effluent reduction attainable. (section 304(b)(1)(A) and section 304(b)(4)(A)). EPA has previously considered the costs of technologies in relation to the benefits of minimizing adverse environmental impact in establishing 316(b) limits, which historically have been done on a case-by-case basis. See, e.g., In Re Public Service Co. of New Hampshire, 10 ERC 1257 (June 17, 1977); In Re Public Service Co. of New Hampshire, 1 EAD 455 (Aug. 4, 1978); Seacoast Anti-Pollution League v. Costle, 597 F. 2d 306 (1st Cir. 1979). Under CWA section 316(b), EPA may consider the benefits that the technology-based standard would produce in a particular waterbody, to ensure that it will ``minimize adverse environmental impact.'' EPA believes that the technology-based standards established in this final rule will, as a national matter, ``minimize adverse environmental impact.'' However, the degree of minimization contemplated by the national performance standards may not be justified by site-specific conditions. In other words, depending on the circumstances of the receiving water, it may be that application of less stringent controls than those that would otherwise be required by the performance standards will achieve the statutory requirement to ``minimize'' adverse environmental impact, when considered in light of economic practicability. An extreme example is a highly degraded ship channel with few fish and shellfish, but such situations can only be identified and addressed through a site-specific assessment.

For these reasons, EPA reasonably interprets the phrase ``minimize adverse environmental impact'' in section 316(b) to authorize a site-specific consideration of the benefits of the technology-based standard on the receiving water. EPA continues to believe that any impingement or entrainment would be an adverse environmental impact, but has

determined that 316(b) does not require minimization of adverse environmental impact beyond that which can be achieved at a cost that is economically practicable. EPA believes that the relationship between costs and benefits is one component of economic practicability for purposes of section 316(b), and as noted previously, the legislative history indicates that economic practicability may be considered in determining what is best technology available for purposes of 316(b). EPA believes that allowing a relaxation of the performance standards when costs significantly exceed benefits, but only to the extent justified by the significantly greater costs, is a reasonable way of ensuring that adverse environmental impact be minimized at an economically practicable cost. This does not mean that there is a need to make a finding of ``adverse environmental impact'' before performance standard based CWA section 316(b) requirements would apply. Rather, EPA is authorizing an exception to performance standard based requirements on a site-specific basis in limited circumstances: when the costs of complying with the national performance standards are significantly greater than the benefits of compliance at a particular site.

5. Authority To Allow Restoration To Comply With the Rule Requirements

The final rule authorizes the use of restoration measures that produce and result in increases of fish and shellfish in a facility's watershed in place of, or as a supplement to, installing design and control technologies and/or operational measures that reduce impingement mortality and entrainment. Restoration measures can include a wide range of activities including measures to enhance fish habitat and reduce stresses on aquatic life; creation of new habitats to serve as spawning or nursery areas, and creation of a fish hatchery and/or restocking of fish being impinged and entrained with fish that perform a substantially similar function in the aquatic community.

While the Phase I rule also authorized use of restoration measures, today's rule includes additional regulatory controls on the use of restoration measures to ensure that they are used appropriately to comply with the applicable performance requirements or site specific alternative requirements. For example, restoration measures are authorized only after a facility demonstrates to the permitting authority that it has evaluated other design and construction technologies and operational measures and determined that they are less feasible, less cost-effective, or less environmentally desirable than meeting the performance standards or alternative site-specific requirements in whole or in part through the use of restoration measures. The facility must also demonstrate that the proposed restoration measures will produce ecological benefits (i.e., the production of fish and shellfish for the facility's waterbody or watershed, including maintenance of community structure and function) at a level that is substantially similar to the level a facility would achieve through compliance with the applicable performance standards or alternative site-specific requirements. Further, the permitting authority must review and approve the restoration plan to determine whether the proposed restoration measures will meet the applicable performance standards or site specific alternative requirements. Consequently, the restoration provisions of today's rule are designed to minimize adverse environmental impact to a degree that is comparable to the other technologies on which the rule is based.

The use of restoration to meet the requirements of section 316(b) is consistent with the goals of the Clean Water Act: measures that restore fish and shellfish to compensate for those that are impinged and entrained further the objective of the Clean Water Act ``to restore, maintain, and protect the biological integrity of the nation's waters.'' 33 U.S.C. 1251(a) (emphasis added). It is also consistent

with EPA's and States' past practices in implementing section 316(b) in individual permit decisions. For at least twenty years, EPA and States have authorized existing facilities to comply with section 316(b) requirements, at least in part, through the use of restoration measures. For example, the Chalk Point Generating Station, located on the Patuxent River in Prince George's

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County, Maryland constructed a fish rearing facility in partial compliance of its 316(b) obligations (DCN-1-5023-PR).

Although the United States Court of Appeals for the Second Circuit recently remanded the portion of EPA's Phase I new facility rule that authorized restoration measures to meet that rule's requirements, EPA believes that portion of the decision should not apply to this Phase II rulemaking. Indeed, the Second Circuit explicitly stated that ``[i]n no way [does it] mean to predetermine the factors and standard applicable to Phase II and III of the rulemaking.'' Riverkeeper v. EPA, slip op. at 12, note 13 (2nd Cir. Feb. 3, 2004). This is probably because there are important differences between new and existing facilities that

warrant interpreting section 316(b) more broadly to give existing facilities additional flexibility to comply with section 316(b). As noted above, restoration measures have been used to comply with section 316(b) limits at existing facilities for several years because of the more limited availability of other technologies for existing facilities. Costs to retrofit an existing facility to install a ``hard'' technology can be much higher than costs to install one at the time a facility is constructed, and those costs can vary considerably from site to site. Thus, the range of technologies that are ``available'' to existing facilities to meet the performance standards is narrower than the range of technologies available to new facilities.

In recognition of the vast differences between existing and new facilities, Congress established separate sections in the Clean Water Act for establishing discharge limitations on existing and new facilities. Effluent limitations guidelines for existing facilities are established under sections 301 and 304, whereas new source performance standards are established under section 306. Those sections set out two distinct sets of factors for developing effluent limitations guidelines for existing facilities and new source performance standards for new facilities. Notably, there are only two factors explicitly stated in section 306 for the Administrator to consider in establishing new source performance standards--cost and non-water quality impacts, whereas for existing facilities Congress calls upon EPA to consider a much broader range of factors in section 304(b)(2)(b):

the age of equipment and facilities involved, the process employed

consider all relevant factors.

For several other reasons, EPA believes the Second Circuit decision is not binding on this Phase II rule. First, section 316(b) requires the design of a cooling water intake structure to reflect the best technology available to ``minimize adverse environmental impact.'' The phrase ``minimize adverse environmental impact'' is not defined in section 316(b). For the Phase II rule, EPA interprets this phrase to allow facilities to minimize adverse environmental impact by reducing impingement and entrainment, or to minimize adverse environmental impact by compensating for those impacts after the fact. Section 316(b) does not explicitly state when the adverse environmental impact of cooling water structures must be minimized--that is whether they must be prevented from occurring in the first place or compensated for after the fact or where the minimization most occurs--at the point of intake or at some other location in the same watershed. Therefore, under Chevron, EPA is authorized to define ``minimize'' to authorize restoration at existing facilities to minimize the effects of adverse environmental impact.

In another context under the Clean Water Act, EPA has interpreted authority to ``minimize adverse effects'' as including authority to require environmental restoration. Section 404 of the CWA authorizes the Army Corps of Engineers to issue permits for discharges of dredged or fill material into waters of the United States. EPA was granted authority to establish **regulations** containing environmental guidelines to be met by the Corps in issuing section 404 permits. See CWA section 404(b)(1). Current **regulations**, in place since 1980, prohibit a discharge unless, among other requirements, all practicable steps are taken to avoid, minimize and mitigate for the environmental effects of a discharge. See 40 CFR 230.10. Of particular relevance here, the **regulations** require that steps be taken to ``minimize potential adverse effects of the discharge on the aquatic ecosystem'' 40 CFR 230.10(d). EPA has specifically defined minimization steps to include environmental restoration. See 40 CFR 230.75(d) (``Habitat development and restoration techniques can be used to minimize adverse impacts and to compensate for destroyed habitat'').

Moreover, at the time of the Phase I litigation, EPA had not interpreted the term ``reflect'' in section 316(b), and therefore, the Second Circuit did not consider its meaning in determining whether restoration could be used as a design technology to meet the Phase I rule requirements. Section 316(b) requires that ``the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.'' (emphasis supplied). The term ``reflect'' is significant in two respects. First, it indicates that the design, location, construction and capacity of the cooling water intake structure itself must be based on the best technology available for such structures. This authorizes EPA to identify technologies that can be incorporated into the physical structure of the intake equipment. It also indicates that the choice of what actually is the best physical configuration of a particular cooling water intake structure can take into account, i.e., reflect, other technologies--and their effects--that are not incorporated into the structure itself. For example, barrier nets are not incorporated into the physical design of the cooling water intake structure, but their use--and effectiveness--influences the physical design of the cooling water intake structure. Another relevant example is the technology known as ``closed-cycle'' cooling. Although this

cycle cooling are considered ``design'' technologies. Similarly, properly designed restoration measures can be best technologies available that can influence the design of the physical cooling water intake structure. To put it another way, for purposes of minimizing adverse environmental impact, requirements for cooling water intake structures reflect a variety of best technologies available, which EPA

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construes to include restoration measures. A dry cooling system is another example of a technology that although physically independent of the cooling water intake structure is nonetheless considered an acceptable method to minimize adverse environmental impacts. In fact, since a dry cooling system uses air as a cooling medium, it uses little or no water, dispensing altogether with the need for a cooling water intake structure.

EPA has discretion to characterize restoration measures as technologies for purposes of section 316(b). Section 316(b) does not define either the phrase ``cooling water intake structure'' or the term ``technology'' and, therefore, leaves their interpretation to EPA. EPA has defined the phrase cooling water intake structure in today's rule to mean the total physical structure and any associated waterways used to withdraw cooling water from waters of the United States. This definition embraces elements both internal and external to the intake equipment. EPA did not define the term technology in today's rule, but looked for guidance to section 304(b), which the Second Circuit has recognized can help illuminate section 316(b). Section 301(b)(2) best available technology limitations are based on factors set forth in section 304(b). Section 304(b), while not using the term technology, discusses the ``application of the best control measures and practices achievable including treatment techniques, process and procedure innovations, operating methods, and other alternatives.'' This is a broad, non-exclusive list. Indeed, BAT effluent limitations guidelines under this authority have been based on a vast array of treatment techniques, operation practices (including chemical substitution), and management practices. See 40 CFR Part 420 (effluent guidelines for concentrated animal feeding operations); 40 CFR Part 430, Subparts B & E (effluent guideline for pulp and paper industry); See also 62 FR 18504 (April 15, 1998).

Employing this broad concept of technology, in today's rule EPA has determined that the design of cooling water intake structures may reflect technologies relating to the restoration of fish and shellfish in the waters from which cooling water is withdrawn. Restoration is not included in the definition of ``design and construction technology'' in today's rule so as to distinguish restoration from ``hard'' technologies for purposes of the rule. Under the regulatory scheme of the final rule, restoration is treated differently than other technologies for several purposes, all of which are to help ensure that restoration projects achieve substantially similar performance as design and construction technologies and/or operational measures. When these restoration technologies are used they must produce ecological benefits (the production of fish and shellfish for a facility's waterbody or watershed, including maintenance of community structure and function) at a level that is substantially similar to the level the facility would achieve by using other design and construction technologies and/or operational measures to achieve the applicable performance standards or alternative site-specific performance requirements in Sec. 125.94. In other words, the operation of the cooling water intake structure together with these restoration technologies will achieve the overall performance objective of the

statute: to minimize the adverse environmental impact of withdrawing

cooling water. For facilities using this authority, their hardware decisions for the cooling water intake structure thus take into account--or reflect--the impacts of restoration technology.

EPA acknowledges that in 1982, when Congress was considering substantial amendments to the Clean Water Act, EPA testified in support of a proposed amendment to CWA section 316(b) that would have expressly authorized the use of restoration measures as a compliance option, suggesting that EPA may have interpreted section 316(b) at that time as not authorizing restoration measures to minimize the adverse environmental impact of cooling water intake structures. In EPA's view, the Second Circuit gave undue weight to that testimony, particularly because it was provided before the Supreme Court's decision in Chevron U.S.A. v. Natural Resources Defense Council, 467 U.S. 837 (1984), which

gave administrative agencies latitude to fill in the gaps created by ambiguities in statutes the agencies have been charged by Congress to implement. For at least twenty years, EPA and States have authorized existing facilities to comply with section 316(b) requirements, at least in part, through the use of restoration measures. Additionally, since 1982 EPA has gathered substantially more data to inform its judgment regarding cooling water intake structures, the environmental impact resulting from them, and various technologies available to reduce impingement and entrainment. Finally, EPA notes that, in contrast to water quality based effluent limitations that are included in NPDES permits to meet water quality standards, the required

performance of restoration measures under this final rule is not tied to conditions in the water body. Rather it is tied directly to the performance standards, just as is the performance of the other technologies that facilities may use to meet the standards. While the design and operation of restoration measures will necessarily be linked to conditions in the waterbody (as is also the case for ``hard'' technologies) the performance standards that restoration measures must meet are not.

6. Authority To Apply CWA Section 316(b) Requirements to Existing Facilities

Some commenters argued that CWA Sec. 316(b) does not apply to existing facilities, but rather authorizes only a one-time, pre-construction review of cooling water intake structure location, design, construction and capacity.

EPA disagrees with this assertion. CWA section 316(b) applies to ``any standard established pursuant to section 1311 [CWA section 301] or section 1316 [CWA section 306].'' CWA section 301 establishes the statutory authority for EPA to promulgate technology-based standards for effluent discharges from existing sources. Therefore, CWA section 316(b) requirements can, and indeed must, apply to existing facilities. Given that section 316(b) requirements apply to existing facilities,

structure'' itself. Others asserted that the term ``capacity,'' as used in CWA section 316(b), refers to the size of the cooling water intake structure, not the volume of flow through the intake. They therefore questioned EPA's authority to regulate flow volume by requiring the use of closed-cycle cooling systems.

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The rule does not in fact require the use of closed-cycle cooling systems. Rather, the rule provides facilities with five different compliance options, only one of which is based on closed-cycle cooling technology. Moreover, EPA is authorized to set performance standards based on closed-cycle cooling technology, as it did in the Phase I rule, which was upheld in Riverkeeper v. EPA, slip op. (2nd Cir. Feb. 3, 2004). See also Section III.

8. Authority To Determine That Technologies Short of Closed-cycle Cooling Constitute ``Best Technology Available To Minimize Adverse Environmental Impact''

Many commenters asserted that closed-cycle cooling is the ``best technology available to minimize adverse environmental impact'' and

water intake capacity to a level commensurate with closed-cycle cooling. According to these commenters, this rule violates CWA section 316(b) by adopting performance standards less protective than ``best technology available.''

EPA reasonably rejected closed-cycle cooling systems as ``best technology available'' based on consideration of relevant factors, including the costs of closed-cycle cooling, the energy impacts, the relative effectiveness of closed-cycle cooling in minimizing impingement and entrainment in variable waterbodies, and the availability of other design and control technologies that can be effective in significantly reducing environmental impacts. As the court

Several commenters suggest that this rule authorizes an impermissible regulatory taking. Specifically, they argue that the rule requires facilities to limit their intake flows, thus impairing their property rights to the water and entitling them to compensation under the Fifth Amendment to the U.S. Constitution.

EPA notes, however, that the rule does not in fact require a facility to limit its intake flows. Rather, it provides a facility with a variety of compliance options, only one of which is based on flow limitations. While a facility could choose to comply with the section 316(b) requirements by reducing its intake flow to a level commensurate

with a closed-cycle cooling system (the first compliance option), it could also select one of the other compliance options that does not require flow restrictions. EPA therefore believes that this rule does not authorize a compensable ``taking'' of property within the meaning

measures and/or restoration measures that the Director has determined

to be the best technology available to minimize adverse environmental impact for the facility.

The application, monitoring, record keeping, and reporting requirements for

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each of the compliance alternatives are detailed in the following sections.

A. When Does the Final Rule Become Effective?

This rule becomes effective sixty (60) days after the date of publication in the Federal Register. After the effective date of the regulation, existing facilities will need to comply when an NPDES permit containing requirements consistent with Subpart J is issued to the facility (see Sec. 125.92). Under current NPDES program **regulations**, this will occur when an existing NPDES permit is reissued or, when an existing permit is modified or revoked and reissued. Under today's rule, a facility that is required to comply with this rule within the first four years after the publication date of this rule may request that the Director approve an extended schedule for submitting its Comprehensive Demonstration Study. This schedule must be as expeditious as practicable and not extend beyond three years and 180 days after the publication date of the final rule. The Comprehensive Demonstration Study, once submitted, forms the basis for the Director's determination of specific requirements consistent with Subpart J to be included in the permit. EPA has included this provision to afford facilities time to collect information and perform studies, including pilot studies where necessary, needed to support the development of the Comprehensive Demonstration Study.

time for the Director's review and approval. The timing provided in this section is for illustrative purposes only and represents a schedule that the average facility may need to follow to meet the deadlines established in today's rule. Some facilities may require more, or less time to perform the studies and prepare the application requirements. All facilities, except those that choose to comply with the rule by reducing intake capacity to a level commensurate with a closed-cycle recirculating system in accordance with Sec. 125.94(a)(1)(i), or by adopting a pre-approved technology in accordance with Sec. 125.94(a)(4) must submit a Proposal for Information Collection for review and comment by the Director (Sec. 125.95(b)(1)).

reducing intake velocity to 0.5 ft/s or less in accordance with Sec. 125.95(a)(1)(ii) will only need to submit a Comprehensive Demonstration Study, including a Proposal for Information Collection, for entrainment reduction requirements, if applicable. The Proposal for Information Collection requirements are detailed later in this section. Figure 1 presents an example of a possible timeframe a facility may follow in preparing and submitting application components.

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Following submission of the Proposal for Information Collection, the Director will review and provide comments on the proposal. During this time, the facility may proceed with planning, assessment, and data collection

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activities in fulfillment of Comprehensive Demonstration Study requirements. The Director is encouraged to provide comments expeditiously (i.e., within 60 days) so the permit applicant can make responsive modifications to its information gathering activities.

It is assumed that most facilities would need approximately one year to complete the studies outlined in the Proposal for Information Collection. These must be completed at least 180 days prior to the end of the current permit term, by which time the remainder of required

The Director must review and approve the information you provide in your permit application, confirm whether your facility should be regulated as an existing facility under these final regulations or under Phase III **regulations** for existing facilities that will be developed in the future, or as a new facility under **regulations** that were published on December 19, 2001 (66 FR 65256), and confirm the compliance alternative selected (compliance alternatives 1, 2, 3, 4, or 5). Following review and approval of your permit application, the Director will develop a draft permit for public notice and comment. The comment period will allow the facility and other interested parties to review the draft permit conditions and provide comments to the Director. The Director will consider all public comments received on the draft permit and develop a final permit based upon the application studies submitted and other information submitted during the comment period, as appropriate. The Director will incorporate the relevant requirements for the facility's cooling water intake structure(s) into the final permit.

Today's final rule modifies **regulations** at 40 CFR 122.21(r) to require Phase II existing facilities to prepare and submit some of the same information required for new facilities. Phase II existing facilities are required to submit two general categories of information when they apply for a reissued NPDES permit: (1) Physical data to characterize the source waterbody in the vicinity where the cooling water intake structures are located (40 CFR 122.21(r)(2)), and (2) data to characterize the design and operation of the cooling water intake structures (40 CFR 122.21(r)(3)). Unlike new facilities, however, Phase II existing facilities are not required to submit the Source Water Baseline Biological Characterization Data required under 40 CFR 122.21(r)(4). Today's final rule adds a new requirement at 40 CFR 122.21(r)(5) to require a facility to submit information describing the design and operating characteristics of its cooling water system(s) and how it/they relate to the cooling water intake structure(s) at the facility.

In addition, today's final rule requires all Phase II existing facilities to submit the information required under Sec. 125.95 consistent with the compliance alternative selected. In general, the final application requirements in Sec. 125.95 require most Phase II existing facility applicants to submit some or all of the components of a Comprehensive Demonstration Study (Sec. 125.95(b), see also Exhibit II in section V). As noted in section V, facilities that do not need to conduct a Comprehensive Demonstration Study are those that (1) reduce their flow commensurate with a closed cycle, recirculating cooling system, (2) install a rule-specified or Director-approved technology in accordance with Sec. 125.99 (except that these facilities must still submit a Technology Installation and Operation Plan and Verification Monitoring Plan), or (3) reduce intake velocity to 0.5 ft/s or less (except that these facilities must still submit a Comprehensive Demonstration Study for entrainment requirements, if applicable).

Each component of the Comprehensive Demonstration Study and its applicability is described later in this section. In addition, the

appropriateness of the design and construction technologies, operational measures, and/or restoration measures proposed by the applicant.

The applicant is required to submit the following specific data: (1) A narrative description and scaled drawings showing the physical configuration of all source waterbodies used by the facility, including areal dimensions, depths, salinity and temperature regimes, and other documentation that supports the facility's determination of the waterbody type where each cooling water intake structure is located; (2) an identification and characterization of the source waterbody's hydrological and geomorphological features, as well as the methods used to conduct any physical studies to determine the intake's area of influence within the waterbody and the results of such studies; and (3) locational maps.

2. Cooling Water Intake Structure Data (40 CFR 122.21(r)(3))

Under the final requirements at 40 CFR 122.21(r)(1)(ii), Phase II existing facilities are required to submit the data specified at 40 CFR 122.21(r)(3) to characterize the cooling water intake structure which should assist in the evaluation of its potential for impingement and entrainment of aquatic organisms. Information on the design of the intake structure and its location in the water column, in conjunction with biological information, will allow the permit writer to evaluate which species, or life stages of a species, are potentially subject to impingement and entrainment. A diagram of the facility's water balance should be used to identify the proportion of intake water used for cooling, make-up, and process water. The water balance diagram also provides a picture of the total flow in and out of the facility,

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allowing the permit writer to evaluate the suitability of proposed design and construction technologies and/or operational measures.

The applicant is required to submit the following specific data: (1) A narrative description of the configuration of each of its cooling water intake structures and where they are located in the waterbody and in the water column; (2) latitude and longitude in degrees, minutes, and seconds for each of its cooling water intake structures; (3) a narrative description of the operation of each of the cooling water intake structures, including design intake flows, daily hours of operation, number of days of the year in operation, and seasonal operation schedules, if applicable; (4) a flow distribution and water balance diagram that includes all sources of water to the facility, recirculating flows, and discharges; and (5) engineering drawings of the cooling water intake structure(s).

3. Cooling Water System Data (40 CFR 122.21(r)(5))

Under the final requirements at 40 CFR 122.22(r)(1)(ii), Phase II

existing facilities are required to submit the cooling water system data specified at 40 CFR 122.21(r)(5) to characterize the operation of cooling water systems and their relationship to the cooling water intake structure(s) at the facility. Also required is a narrative description of the proportion of design intake flow that is used in the system, the number of days of the year that the cooling water system is in operation, and any seasonal changes in the operation of the system, if applicable. The facility must also submit design and engineering calculations prepared by a qualified expert, such as a professional engineer, and supporting data to support the narrative description. This information is expected to be used by the applicant and the Director in determining the appropriate standards that can be applied to the Phase II facility.

4. Comprehensive Demonstration Study (Sec. 125.95(b))

Final requirements at Sec. 125.95(b) require all existing facilities, except those deemed to have met the performance standards by reducing intake capacity to a level commensurate with the use of a closed-cycle, recirculating cooling water system, or by reducing intake velocity to 0.5 ft/s or less (impingement mortality standards only), or facilities that select an approved technology in accordance with Sec. 125.94(a)(4), to perform and submit to the Director all applicable components of a Comprehensive Demonstration Study, including data and detailed analyses to demonstrate that they will meet applicable requirements in Sec. 125.94(b). As noted in section V, Comprehensive Demonstration Study requirements vary depending on the compliance alternative selected.

The Comprehensive Demonstration Study has seven components:

Proposal for Information Collection;

Source Waterbody Flow Information;

Impingement Mortality and/or Entrainment Characterization Study;

Technology and Compliance Assessment Information;

Restoration Plan;

Information to Support Site-specific Determination of Best Technology Available for Minimizing Adverse Environmental Impact; and

Verification Monitoring Plan.

All Phase II existing facilities, except those mentioned above, are required to submit at a minimum the following: a Proposal for Information Collection (Sec. 125.95(b)(1)); Source Waterbody Flow Information (Sec. 125.95(b)(2)); an Impingement Mortality and/or Entrainment Characterization Study (Sec. 125.95(b)(3)); and a Verification Monitoring Plan (Sec. 125.95(b)(7)). Note that facilities selecting restoration measures provide a monitoring plan as part of their Restoration Plan, in accordance with Sec. 125.95(b)(5)(v), rather than a Verification Monitoring Plan in accordance with Sec. 125.95(b)(7). The requirements in these two provisions are similar, but tailored specifically to the monitoring needs of restoration projects, and design and construction technologies and operational measures, respectively. Phase II existing facilities that have reduced their intake velocity to less than or equal to 0.5 ft/s but are still required to reduce entrainment (if the standard applies), must submit only those components of the Impingement Mortality and/or Entrainment Characterization Study pertaining to entrainment, in addition to the other required components of the Comprehensive Demonstration Study. Facilities that are required to meet only the impingement mortality

standards in Sec. 125.94(b) or site-specific requirements developed pursuant to Sec. 125.94(a)(5) are required to submit the Restoration Plan (Sec. 125.95(b)(5)). This Plan serves an analogous function for restoration measures to that served by the Technology and Compliance Assessment Information for design and construction technologies and operational measures, in that it shows the design of the measures, explains how the facility will construct, maintain, monitor, and adaptively manage the measures to meet applicable performance standards and/or site specific requirements, and serves as a basis for determining compliance.

Only those Phase II existing facilities who request a site-specific determination of the best technology available are required to submit Information to Support Site-specific Determination of Best Technology Available for Minimizing Adverse Environmental Impact (Sec. 125.95(b)(6)). Facilities that select the compliance alternative at Sec. 125.94(a)(4) (Approved Technology), are required to submit only two items: the Technology Installation and Operation Plan (Sec. 125.95(b)(4)(ii)) and the Verification Monitoring Plan (Sec. 125.95(b)(7)).

a. Proposal for Information Collection

As a facility, you are required to submit to the Director for review and comment, a proposal stating what information will be collected to support the Comprehensive Demonstration Study (see Sec. 125.95(b)(1)). This proposal must provide the following:

A description of the proposed and/or implemented technology(ies) and/or restoration measures to be evaluated in the study (Sec. 125.95(b)(1)(i));

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A list and description of any historical studies characterizing impingement and entrainment and/or the physical and biological conditions in the vicinity of the cooling water intake

information on how you plan to conduct a Benefits Valuation Study, or gather additional data to support development of a Restoration Plan). EPA recognizes that in some cases collection and analysis of information will be an iterative process and plans for information collection may change as new data needs are identified. For example, a facility may not be able to design a Benefits Valuation Study and determine what additional data are needed (e.g., quantified information on non-use benefits) until it has first collected and analyzed the data for its Impingement Mortality and/or Entrainment Characterization Study. While the Proposal for Information Collection is only required to be submitted once, EPA encourages permit applicants to consult with the Director as appropriate after the proposal has been submitted, in order to ensure that the Director has complete and appropriate information to develop permit conditions once the permit is submitted.

As stated previously, the proposal for information collection must be submitted prior to the start of information collection activities and should allow sufficient time for review and comment by the Director, although facilities are permitted to begin data collection activities before receiving the Director's comments. Directors are encouraged to provide their comments expeditiously (i.e., within 60 days) to allow facilities time to make responsive modifications in their information collection plans. Adequate time for data collection efforts identified in the proposal for information collection prior to the due date for the permit application should also be scheduled.

b. Source Waterbody Flow Information

Under the requirements at Sec. 125.95(b)(2)(i), Phase II existing facilities (except those that comply with the rule under Sec. 125.94(a)(1)(i) with cooling water intake structures that withdraw cooling water from freshwater rivers or streams are required to provide the documentation showing the mean annual flow of the waterbody and any supporting documentation and engineering calculations that allow a determination of whether they are withdrawing less than or greater than five (5) percent of the annual mean flow. This will provide information needed to determine whether the entrainment performance standards of Sec. 125.94(b)(2) apply to the facility. Two potential sources of the documentation are publicly available flow data from a nearby U.S. Geological Survey (USGS) gauging station or actual instream flow monitoring data collected by the facility. Representative historical data (from a period of time up to 10 years, if available) must be used to make this determination.

Under Sec. 125.95(b)(2)(ii), Phase II existing facilities with cooling water intake structures that withdraw cooling water from a lake (other than one of the Great Lakes) or reservoir and that propose to increase the facility's design intake flow are required to submit a narrative description of the thermal stratification of the waterbody and any supporting documentation and engineering calculations showing that the increased total design intake flow meets the requirement to not disrupt the natural thermal stratification or turnover pattern (where present) of the source water in a way that adversely impacts fisheries, including the results of any consultations with Federal, State, or Tribal fish or wildlife management agencies. Typically, this natural thermal stratification will be defined by the thermocline, which may be affected to a certain extent by the withdrawal of cooler water and the discharge of heated water into the system. If increased total design intake flow is proposed, and disruption of the natural thermal stratification is a positive or neutral impact, the facility should include this information with the data submitted in this section.

c. Impingement Mortality and/or Entrainment Characterization Study (Sec. 125.95(b)(3))

The final **regulations** require that you submit the results of an Impingement Mortality and/or Entrainment Characterization Study in accordance with Sec. 125.95(b)(3). If your facility has reduced its design, through-screen intake velocity to less than or equal to 0.5 ft/s, you are not required to submit the impingement mortality component of this study (Sec. 125.94(a)(1)(ii)). Facilities whose capacity utilization rate is less than 15 percent, facilities that withdraw cooling water only from a lake or reservoir other than one of the Great Lakes, and those facilities that withdraw less than 5 percent of the mean annual flow of a freshwater river or stream would only be required to submit the impingement mortality component of this study because no performance standards for entrainment apply. This Impingement Mortality and Entrainment characterization must include the following: (1) Taxonomic identifications of all life stages of fish, shellfish, and any species protected under Federal, State, or Tribal Law (including threatened or endangered species) that are in the vicinity of the cooling water intake structure(s) and are susceptible to impingement and entrainment; (2) a characterization of all life stages of fish, shellfish, and any species protected under Federal, State, or Tribal Law (including threatened or endangered species) identified in the taxonomic identification noted above, including a description of the abundance and temporal and spatial characteristics in the vicinity of the cooling water intake structure(s), based on sufficient data to

mortality and entrainment (e.g., related to climate and weather differences, spawning, feeding and water column migration); and (3)

and/or operational measures (either existing or new), you must submit both parts. Note that facilities seeking a site-specific determination of BTA in accordance with Sec. 125.94(a)(5), must submit a Site-Specific Technology Plan in accordance with Sec. 125.95(b)(6)(iii) rather than a Design and Construction Technology Plan. The two plans contain similar requirements, but are tailored to the compliance alternative selected. Facilities seeking a site-specific determination of the best technology available must submit a Technology Installation and Operation Plan along with their Site-Specific Technology Plan.

The Design and Construction Technology Plan must explain the technologies or operational measures selected by a facility to meet the requirements in Sec. 125.94(a)(2) and (3). The Agency recognizes that selection of the specific technology or group of technologies for your site will depend on individual facility and waterbody conditions. Examples of appropriate technologies may include, but are not limited to, wedgewire screens, fine mesh screens, fish handling and return systems, barrier nets, aquatic filter barrier systems, and enlargement of the cooling water intake structure to reduce velocity. Examples of operational measures include, but are not limited to, seasonal shutdowns or reductions in flow, and continuous or more frequent rotation of travelling screens. Information required as part of your Design and Construction Technology Plan includes the following: (1) capacity utilization rate for your facility (or for individual intake structures where appropriate) and supporting data, including average annual net generation of the facility in megawatt hours (MWh) as measured over a five-year period (if available) of representative operating conditions and the total net capacity of the facility in megawatts (MW) and calculations (Sec. 125.95(b)(4)(i)); (2) a narrative description of the design and operation of all design and construction technologies and/or operational measures that you have or will put into place to meet the performance standards for reduction of impingement mortality of those species most susceptible to impingement, and information that demonstrates the efficacy of those technologies and/or operational measures for those species; (3) a description of the design and operation of all design and construction technologies or operational measures that you have or will put into place, to meet the performance standards for reduction of entrainment for those species most susceptible to entrainment, if applicable to your facility, and information that demonstrates the efficacy of those technologies and/or operational measures for those species; (4) calculations of the reduction in impingement mortality and/or entrainment of all life stages of fish and shellfish that would be achieved by the technologies and/or operational measures you have selected based on the Impingement Mortality and/or Entrainment Characterization Study in Sec. 125.95(b)(3); and (5) design and engineering calculations, drawings, and estimates to support the narrative descriptions required in the Design and Construction Technology Plan prepared by a qualified expert such as a professional engineer.

If your facility has multiple intake structures and each is dedicated exclusively to the cooling water needs of one of more generating units, you may calculate the capacity utilization rate separately for each structure, for purposes of determining whether entrainment reduction performance standards are applicable. Note that

you would still be required to consider the total design intake flow at all structures combined in determining whether your design intake flow exceeds 5 percent of the mean annual flow of a freshwater river or stream. If your capacity utilization rate, for either a single intake structure or the facility as a whole, is 15 percent or greater based on the historical 5 year annual average, but you make a binding commitment

percent for the duration of the permit, you may base your capacity utilization rate determination on that commitment.

In determining compliance with any requirements to reduce impingement mortality or entrainment, you must assess the total reduction in impingement mortality and entrainment against the calculation baseline developed under the Impingement Mortality and Entrainment Characterization Study (Sec. 125.95(b)(3)). The calculation baseline is defined at Sec. 125.93 as an estimate of impingement mortality and entrainment that would occur at your site assuming (1) The cooling water intake system has been designed as a once-through system; (2) the opening of the cooling water intake structure is located at, and the face of the standard \3/8\-inch mesh traveling screen is oriented parallel to, the shoreline near the surface of the source waterbody; and (3) the baseline practices, procedures, and structural configuration are those that the facility would maintain in the absence of any structural or operational controls, including flow or velocity reductions, implemented in whole or in part for the purposes of reducing impingement mortality and entrainment. You may also choose to use your facility's current level of impingement mortality and entrainment as the calculation baseline. EPA has previously referred to this as the ``as-built approach.''

Reductions in impingement mortality and entrainment

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from the calculation baseline as a result of any design and construction technologies and/or operational measures already implemented at your facility should be added to the reductions expected

to be achieved by any additional design and construction technologies and operational measures that will be implemented in order to meet the applicable performance standards (Sec. 125.95(b)(4)(i)(C)). In this case, the calculation baseline could be estimated by evaluating existing data from a facility nearby without impingement and/or entrainment control technology (if relevant) or by evaluating the abundance of organisms in the source waterbody in the vicinity of the intake structure that may be susceptible to impingement and/or entrainment. Additionally, if a portion of the total design intake flow is water withdrawn for a closed-cycle, recirculating cooling system (but flow is not sufficiently reduced to satisfy the compliance option in Sec. 125.94(a)(1)(i)), such facilities may use the reduction in impingement mortality and entrainment that is attributed to the reduction in flow in meeting the performance standards in Sec. 125.94(b). The calculation baseline may be estimated using: historical impingement mortality and entrainment data from your facility or from another facility with comparable design, operational, and environmental conditions; current biological data collected in the waterbody in the vicinity of your cooling water intake structure; or current impingement mortality and entrainment data collected at your facility. A facility may request that the calculation baseline be modified to be based on a location of the opening of the cooling water intake structure at a depth other than at or near the surface if they can demonstrate to the Director that the other depth would correspond to a higher baseline level of impingement mortality and/or entrainment.

The Technology Installation and Operation Plan is required for all facilities that choose the compliance alternative in Sec.

maintenance of any new design and construction technologies; (2) a list of the operational parameters that will be monitored, including the location and the frequency at which you will monitor them; (3) a list of activities you will undertake to ensure to the degree practicable the efficacy of the installed design and construction technologies and operational measures, and the schedule for implementing them; (4) a schedule and methodology for assessing the efficacy of any installed design and construction technologies and operational measures in achieving applicable performance standards, including an adaptive management plan for revising design and construction technologies and/or operational technologies if your assessment indicates that applicable performance standards are not being met; and (5) for facilities that select a pre-approved technology in accordance with Sec. 125.94(a)(4), documentation that appropriate site conditions (as specified by EPA or the Director in accordance with Sec. 125.99) exist at your facility. In developing the schedule for installation and maintenance of any new design and construction technologies in item 1, you should schedule any downtime to coincide with otherwise necessary downtime (e.g., for repair, overhaul, or routine maintenance of the generating units) to the extent practicable. Where additional downtime is required, you may coordinate scheduling of this downtime with the North American Electric Reliability Council and/or other generators in your area to ensure that impacts to energy reliability and supply are minimized. The Director should approve any reasonable scheduling provision included for this purpose. Those facilities that propose to use restoration measures must submit the Restoration Plan required at Sec. 125.95(b)(5).

Today's final rule requires the Director to evaluate, using

of several technologies that may be employed, in combination with others, to minimize adverse environmental impact. The consideration of restoration measures is relevant to the section 316(b) determination of the requisite design of cooling water intake structures because restoration measures help minimize the adverse environmental impact attributable to such structures. Facilities may use restoration measures that produce and/or result in levels of fish and shellfish in the facility's waterbody or watershed that are substantially similar to those that would result through compliance with the applicable performance standards or alternative site-specific requirements. In order to employ restoration measures, the facility must demonstrate to the Director that it has evaluated the use of design and construction technologies and/or operational measures and determined that the use of restoration measures is appropriate because meeting the applicable performance standards or site-specific requirements through the use of design and construction technologies and/or operational measures alone is less feasible, less cost-effective or less environmentally desireable than meeting the standards in whole or in part through the use of restoration measures. Facilities must

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also demonstrate to the Director that the restoration measures, alone or in combination with any feasible design and construction technologies and/or restoration measures, will produce ecological benefits and maintain fish and shellfish in the waterbody, including community structure and function, at a substantially similar level to that which would be achieved by meeting the applicable performance

standards at Sec. 125.94(b) or the site-specific requirements developed pursuant to Sec. 125.94(a)(5). The Director must approve any use of restoration measures.

To help all parties review the proposed or existing restoration measures and to help ensure adequate performance of those measures, Sec. 125.95(b)(5) requires facilities proposing to use restoration measures to submit a Restoration Plan with their applications to the Director for review and approval. In the submittal, the facility must address species identified, in consultation with Federal, State, and Tribal fish and wildlife management agencies with responsibility for fisheries and wildlife potentially affected by its the facility's cooling water intake structures, as species of concern. The level of complexity of the Restoration Plan likely will be commensurate with the restoration measures considered or proposed.

First, the facility must demonstrate that it has evaluated the use of design and construction technologies and/or operational measures and explain how it determined that the use of restoration measures would be more feasible, cost-effective, or environmentally desirable than meeting the applicable performance standards or site-specific requirements wholly through the use of design and construction technologies, and/or operational measures.

Second, the facility must submit a narrative description of the design and operation of all restoration measures the facility has in place or has selected and proposes to implement to produce fish and shellfish. If the ecological benefits from an existing restoration project are required to compensate for some environmental impact other

than the impact from impingement and entrainment by the cooling water intake structure (e.g., a wetland created to satisfy section 404 of the Clean Water Act requirements), those ecological benefits should not be

Third, the facility must submit a quantification of the ecological benefits of the existing and/or proposed restoration measures. The facility must estimate the reduction in fish and shellfish impingement mortality and entrainment that would be necessary to comply with applicable performance standards or site-specific requirements, using information from the Impingement Mortality and Entrainment Characterization Study and any other available and appropriate information. The facility must then calculate the production of fish and shellfish from existing and proposed restoration measures. The quantification must also include a discussion of the nature and magnitude of uncertainty associated with the performance of the restoration measures and a discussion of the time frame within which ecological benefits are expected to accrue from the restoration project.

Fourth, the facility must provide design calculations, drawings, and estimates documenting that the proposed restoration measures, in combination with design and construction technologies and/or operational measures, or alone, will meet the requirements for production of fish and shellfish. Production of fish and shellfish as a result of relevant restoration measures already implemented at the facility should be added to the production expected to be achieved by the additional restoration measures. If the restoration measures address the same fish and shellfish species identified in the Impingement Mortality and Entrainment Characterization Study (in-kind restoration), the facility must demonstrate that the restoration measures will produce a level of these fish and shellfish substantially similar to that which would result from meeting applicable performance standards or site-specific requirements. In this case, the calculations should include a site-specific evaluation of the suitability of the restoration measures based on the species that are found at the site. If the restoration measures address fish and shellfish species different from those identified in the Impingement Mortality and Entrainment Characterization Study (out-of-kind restoration), the facility must demonstrate that the restoration measures produce ecological benefits substantially similar to or greater than those that would be realized through in-kind restoration. Such a demonstration should be based on a watershed approach to restoration planning and consider applicable multi-agency watershed restoration plans, site-specific peer-reviewed ecological studies, and/or consultation with appropriate Federal, State, and Tribal natural resource agencies. While both in-kind and out-of-kind restoration require a quantification of the levels of fish and shellfish the restoration measures are expected to produce, out-of-kind restoration may include a qualitative demonstration that these ecological benefits are substantially similar to or greater than those that would be realized through in-kind restoration, because different species are being produced that may not be directly comparable to those identified in the Impingement Mortality and/or Entrainment Characterization Study.

Fifth, the facility must submit a plan utilizing an adaptive management method for implementing, maintaining, and demonstrating the efficacy of the restoration measures it has selected and for determining the extent to which restoration measures, or the restoration measures in combination with design and construction technologies and operational measures, have met the applicable performance standards or site-specific requirements. Adaptive management is a process in which a facility chooses an approach for meeting a project goal, monitors the effectiveness of that approach, and then, based on monitoring and any other available information, makes any adjustments necessary to ensure continued progress toward the project's goal. This cycle is repeated as necessary until the goal is

met.

The adaptive management plan must include (1) A monitoring plan that includes a list of the restoration parameters that the facility will monitor, the frequency at which they will be monitored, and the success criteria for each parameter; (2) a list of activities the facility will undertake to ensure the efficacy of the restoration measures, a description of the linkages between these activities and the items described in the monitoring plan, and an implementation schedule for the activities; and (3) a process for revising the restoration plan as new information, including monitoring data, becomes available, and if the applicable performance standards or site-specific requirements are not being met.

Sixth, the facility must submit a summary of any past or ongoing consultation with Federal, State, and Tribal fish and wildlife management agencies on its use of restoration measures, including any written comments received as a result of such consultations.

Seventh, if requested by the Director, the facility must conduct a peer review

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of items to be submitted as part of the Restoration Plan. Written comments from peer reviewers must be submitted to the Director and made available to the public as part of the permit application. Peer reviewers must be selected in consultation with the Director who may consult with EPA, Federal, State and Tribal fish and wildlife management agencies with responsibility for fish and wildlife potentially affected by the facility's cooling water intake structure(s). Peer reviewers must have appropriate qualifications (e.g., in the fields of geology, engineering and/or biology) depending upon the materials to be reviewed.

Finally, the facility must include in the Plan a description of information to be included in a status report to the Director every two years. The final **regulations** at Sec. 125.98(b)(1)(ii) require that this information be reviewed by the Director to determine whether the proposed restoration measures, in conjunction with (or in lieu of) design and construction technologies and/or operational measures, will meet the applicable performance standards or site-specific requirements, or, if the restoration is out-of-kind, will produce ecological benefits (fish and shellfish) including maintenance or protection of [illegible]

waterbody or watershed.

f. Compliance Using a Pre-approved Technology (Sec. 125.94(a)(4))

If you choose to comply with the fourth compliance alternative, you must submit documentation to the Director that your facility meets the appropriate site conditions and you have installed and will properly

for compliance using the cylindrical wedgewire screen technology, your facility must meet the following conditions: (1) Your cooling water intake structure is located in a freshwater river or stream; (2) your cooling water intake structure is situated such that sufficient ambient counter-currents exist to promote cleaning of the screen face; (3) your maximum through-screen design intake velocity is 0.5 ft/s or less; (4) the slot size is appropriate for the size of eggs, larvae, and juveniles of all fish and shellfish to be protected at the site; and (5) your entire main condenser cooling water flow is directed through the technology. Note that small flows totalling less than 2 MGD for auxiliary plant cooling do not necessarily have to be included. Facilities should demonstrate that they meet these criteria in the Technology Installation and Operation Plan.

In addition, any interested person may submit a request that a technology be approved for use in accordance with the compliance alternative in Sec. 125.94(a)(4). If the Director approves, the technology may be used by all facilities that have similar site conditions under the Director's jurisdiction. To do this, the interested person must submit the following as required by Sec.

design criteria for the technology and site characteristics and conditions that each facility must have in order to ensure that the technology can consistently meet the appropriate impingement mortality and entrainment performance standards in Sec. 125.94(b); and (3) information and data sufficient to demonstrate that all facilities under the jurisdiction of the Director can meet the applicable impingement mortality and entrainment performance standards in Sec. 125.94(b) if the applicable design criteria and site characteristics and conditions are present at the facility.

EPA has adopted this compliance alternative in response to comments

annual status report to the Director.

The facility and the Director will use the results of verification monitoring to assess the facility's success in meeting the performance standards for impingement mortality and entrainment reduction or alternate site-specific requirements and to guide adaptive management in accordance with the requirements in the facility's Technology Installation and Operation Plan. Restoration monitoring is discussed separately under Sec. 125.95(b)(5)(v). Verification monitoring is required to begin once the technologies and/or operational measures are implemented and continue for a sufficient period of time (but at least two years) to assess success in reducing impingement mortality and entrainment.

C. How Will the Director Determine the Appropriate Cooling Water Intake Structure Requirements?

Initially, the Director must determine whether the facility is covered by this rule. If the answer to all the following

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questions is yes, the facility will be required to comply with the requirements of this final rule (Sec. 125.91).

Is the facility a point source?

Does the facility use or propose to use a cooling water intake structure(s) with a total design intake flow of 50 million gallons per day (MGD) or more to withdraw cooling water from waters of the United States?

As its primary activity, does the facility both generate and transmit electric power or generate electric power but sell it to another entity for transmission?

Is at least 25 percent of the water withdrawn used solely for cooling purposes?

a manufacturing facility, only that portion of the cooling water intake flow that is used by the Phase II facility to generate electricity for sale to another entity will be considered for purposes of determining the 50 MGD and 25 percent criteria.

evaluated seem appropriate for the site and if the data gathering activities (including the sampling plan) seem adequate to support the development of the other components of the Comprehensive Demonstration Study, including impingement mortality and entrainment estimates. The Director will also review any existing data submitted. The Director must review and provide comment on the Proposal for Information Collection; however, a facility may proceed with planning, assessment, and data collection activities in fulfillment of Comprehensive Demonstration Study requirements prior to receiving comments from the Director. The Director is encouraged to provide comments expeditiously (i.e., within 60 days) so the facility can make responsive modifications to its information collection plans.

If a facility submits a request in accordance with Sec. 125.95(a)(3) to reduce information about its cooling water intake structures and the source waterbody required to be submitted in its permit application (other than for the first permit term after promulgation of this rule, for which complete information is required), the Director must approve the request within 60 days if conditions at

the facility's previous application.

The Director must also review all information submitted under Sec. 122.21(r)(2), (3), and (5) and Sec. 125.95, as appropriate, to determine appropriate permit conditions based on the requirements in this subpart. At each permit renewal, or more frequently as appropriate, the Director must assess success in meeting applicable performance standards, restoration requirements, and/or alternate site-specific requirements.

At each permit renewal, the Director must review the application

materials and monitoring data to determine whether additional requirements should be included in the permit to meet the applicable performance standards. Additional requirements may include, but are not limited to, additional design and construction technologies, operational measures, and/or restoration measures, improved operation and maintenance of existing technologies and measures, and/or increased

of a thermocline. Anthropogenic factors may include source water inflows, other water withdrawals, managed water uses, wastewater discharges, and flow/level management practices (e.g., some reservoirs release water from deeper bottom layers). The Director must coordinate with appropriate Federal, State, or Tribal fish and wildlife agencies to determine if any disruption of the natural thermal stratification resulting from the increased withdrawal of cooling water does not adversely affect the management of fisheries.

To develop appropriate requirements for the cooling water intake structure(s), the Director must do the following:

(i) Review and approve the Design and Construction Technology Plan required in Sec. 125.95(b)(4) to evaluate the suitability and feasibility of the design and construction technology and/or operational measures proposed to meet the performance standards of Sec. 125.94(b), or site-specific requirements developed pursuant to Sec. 125.94(a)(5);

(ii) If the facility proposes restoration measures in accordance with Sec. 125.94(c), review and approve the Restoration Plan required under Sec. 125.95(b)(5) to determine whether the proposed measures, alone or in

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combination with design and construction technologies and/or operational measures, will meet the requirements under Sec. 125.94(c);

(iii) In each reissued permit, include a condition in the permit requiring the facility to reduce impingement mortality and entrainment (or to increase fish and shellfish production, if applicable) commensurate with the efficacy at the facility of the installed design and construction technologies, operational measures, and/or restoration measures;

(iv) If the facility implements design and construction technologies and/or operational measures and requests that compliance with the requirements of Sec. 125.94 be measured for the first permit (or subsequent permit terms, if applicable) employing the Technology Installation and Operation Plan in accordance with Sec. 125.95(b)(4)(ii), the Director must review and approve the plan and require the facility to meet the terms of the plan including any revisions to the plan that may be necessary if applicable performance standards or site-specific requirements are not being met. If the facility implements restorations measures and requests that compliance with the requirements in Sec. 125.94 be measured for the first permit term (or subsequent permit terms, if applicable) employing a Restoration Plan in accordance with Sec. 125.95(b)(5), the Director must review and approve the plan and require the facility to meet the terms of the plan including any revision to the plan that may be necessary if applicable performance standards or site-specific requirements are not being met. In determining whether to approve a Technology Installation and Operation Plan or Restoration Plan, the Director must evaluate whether the design and construction technologies, operational measures, and/or restoration measures the facility has installed, or proposes to install, can reasonably be expected to meet the applicable performance standards in Sec. 125.94(b), restoration requirements in Sec. 125.94(c)(2), and/or alternative site-specific requirements established pursuant to Sec. 125.94(a)(5), and whether the Technology Installation and Operation Plan and/or Restoration Plan complies with the applicable requirements of Sec. 125.95(b). In reviewing the Technology Installation and Operation Plan, the Director must approve any reasonable scheduling provisions that are designed to ensure that impacts to energy

reliability and supply are minimized, in accordance with Sec. 125.95(b)(4)(ii)(A). If the facility does not request that compliance with the requirements in Sec. 125.94 be measured employing a Technology Installation and Operation Plan and/or Restoration Plan, or the facility has not been in compliance with the terms of its current Technology Installation and Operation Plan and/or Restoration Plan during the preceding permit term, the Director must require the facility to comply with the applicable performance standards in Sec. 125.94(b), restoration requirement in Sec. 125.94(c)(2), and/or alternative site-specific requirements developed pursuant to Sec

125.94(a)(5). In considering a permit application, the Director must review the performance of the design and construction technologies

operational measures, and/or restoration measures implemented and require additional or different design and construction technologies, operational measures, and/or restoration measures, and/or improved operation and maintenance of existing technologies and measures, if needed to meet the applicable performance standards, restoration requirements, and/or alternative site-specific requirements.

Restoration Plan must be determined in accordance with Sec. 125.98(b)(1)(iv).

(2) Monitoring Conditions. The Director must require the facility to perform monitoring in accordance with the Technology Installation and Operation Plan in Sec. 125.95(b)(4)(ii), the Restoration Plan required by Sec. 125.95(b)(5), if applicable, and the Verification Monitoring Plan required by Sec. 125.95(b)(7). In determining any additional applicable monitoring requirements in accordance with Sec. 125.96, the Director must consider the monitoring facility's Verification Monitoring, Technology Installation and Operation, and/or Restoration Plans, as appropriate. The Director may modify the monitoring program based on changes in physical or biological conditions in the vicinity of the cooling water intake structure.

(3) Record Keeping and Reporting. At a minimum, the permit must require the facility to report and keep records specified in Sec. 125.97.

(4) Pre-Approved Design and Construction Technologies. Section 125.94(a)(4) offers facilities the choice of adopting a protective, pre-approved design and construction technology, and preparing a significantly streamlined Comprehensive Demonstration Study. Section 125.99 lists one pre-approved

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technology (wedgewire screens) and provides an opportunity for the Director to pre-approve other technologies.

For a facility that chooses to demonstrate that they have installed and properly operate and maintain a design and construction technology

consider the need for biological monitoring data, including impingement and entrainment sampling data sufficient to assess the presence, abundance, life stages (including eggs, larvae, juveniles, and adults), and mortality of aquatic organisms (fish and shellfish or other organisms required to be monitored by the Director) impinged or entrained during operation of the cooling water intake structure. This type of data may be used to develop permit conditions to implement the requirements of this rule. The Director should ensure, where appropriate, that any required monitoring will allow for the detection of any annual, seasonal, and diel variations in the species and numbers of individuals that are impinged or entrained.

The Director may modify the monitoring program based on changes in physical or biological conditions in the vicinity of the cooling water intake structure. The Director may also require monitoring of operational parameters for facilities that employ a Technology Installation and Operation Plan or Restoration Plan to comply with the requirements of Sec. 125.94. The Director must specify what monitoring or other data is to be included in a status report every two years.

E. How Will Compliance Be Determined?

This final rule will be implemented by the Director placing conditions consistent with the requirements of this part in NPDES permits. A facility may demonstrate compliance by meeting the performance standards in Sec. 125.94(b) applicable to the facility. The application information, including components of the Comprehensive Demonstration Study, as appropriate, should demonstrate that the facility is already meeting the performance standards, or that it will install and properly operate and maintain design and construction technologies, operational measures, and/or restoration measures to meet the performance standards, or that a site-specific determination of best technology available is necessary. To support this demonstration, the facility should submit the following information to the Director:

Data submitted with the NPDES permit application to show that the facility meets location, design, construction, and capacity requirements consistent with the compliance alternative selected;

Data to demonstrate that the facility is meeting the performance standards consistent with the compliance alternative selected;

Compliance monitoring data and records as prescribed by the Director.

The specifics of how success in meeting the performance standards shall be measured (i.e, the number of species, whether critical species or all species) and the method of measurement (e.g., total biomass, total counts, etc.) must be determined by the Director based on review of the proposed methodology submitted by the facility in its Technology Installation and Operation Plan and/or Restoration Plan, and any other methods the Director considers appropriate.

Alternatively, the facility may request that compliance be determined based on whether it has complied with the construction, operational, maintenance, monitoring, and adaptive management requirements of its Technology Installation and Operation Plan (for design and construction technologies and/or operational measures) or Restoration Plan (for restoration measures). In this case, the facility must still assess success in meeting applicable performance standards or restoration requirements but this assessment serves to guide the adaptive management process rather than as a basis for determining

Technology Installation and Operation Plan and/or Restoration Plan during the preceding permit term. Under this compliance determination alternative, the Technology Installation and Operation Plan or Restoration Plan must specify construction, operational, maintenance, monitoring, and adaptive management requirements that can reasonably be expected to achieve success in meeting the applicable performance standards, restoration requirements and/or site-specific requirements. These construction, operational, maintenance, monitoring, and adaptive management requirements must also be approved by the Director, who will also specify what monitoring data and other information must be included in the facility's biannual status report.

The required elements of the Technology Installation and Operation Plan include (1) a schedule for installation and maintenance of any new technologies; (2) operational parameters to be monitored; (3) activities to ensure the efficacy of technologies and measures; (4) a schedule and methodology for assessing the efficacy of installed technologies and measures in meeting the performance standards; (5) an adaptive management plan; and (6) for facilities using a pre-approved compliance technology, documentation that they meet the conditions for its use. The Restoration Plan requires corresponding information as appropriate for restoration measures.

EPA believes that it is important for facilities to consider and document each of the components of the Technology

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Installation and Operation Plan, regardless of which compliance determination approach is used. However, the level of detail appropriate for some of the components may be different for the two different approaches. For facilities that comply by demonstrating success in meeting performance standards, particularly in cases where they are already meeting the standards and no significant changes in technologies or operations are needed, brief summaries may be sufficient for most components, though they will still need detailed documentation of their schedule and methodology for assessing efficacy of installed technologies and measures for meeting the standards. Conversely, for facilities where compliance is determined based on whether they have complied with the construction, operation, maintenance, monitoring, and adaptive management approaches required in the Technology Installation and Operation Plan or Restoration Plan, a fairly detailed specification of these requirements will be appropriate. The Director should ensure that the level of detail in the Technology Installation and Operation Plan or Restoration Plan is sufficient to support whichever compliance determination approach is selected.

Section 125.97 requires existing facilities to keep records and report monitoring data and other information specified by the Director in a bi-annual status report although Directors may require more frequent reports. Facilities must also keep records of all data used to complete the permit application and show compliance with the requirements of Sec. 125.94, any supplemental information developed under Sec. 125.95, and any compliance monitoring data submitted under Sec. 125.96, for a period of at least three (3) years from date of permit issuance. The Director may require that these records be kept for a longer period.

F. What Are the Respective Federal, State, and Tribal Roles?

Today's final **regulations** amend 40 CFR 123.25(a)(36) to add a requirement that authorized State and Tribal programs have sufficient

legal authority to implement today's requirements (40 CFR part 125, subpart I). Therefore, today's final rule affects authorized State and

approved section 402 permitting program must be revised to be consistent with new program requirements within one year from the date of promulgation, unless the NPDES-authorized State or Tribe must amend or enact a statute to make the required revisions. If a State or Tribe

the applicant implementing applicable section 316(b) requirements pursuant to this rule including whether compliance with the requirements of Sec. 125.94 will be determined based on success in meeting applicable performance standards or based on complying with a Technology Installation and Operation Plan or Restoration Plan; and,

Ensuring compliance with permit conditions based on section 316(b) requirements.

EPA will implement these requirements where States or Tribes are not authorized to implement the NPDES program. EPA also will implement these requirements where States or Tribes are authorized to implement the NPDES program but do not have sufficient authority to implement these requirements.

G. Are Permits for Existing Facilities Subject to Requirements Under Other Federal Statutes?

EPA's NPDES permitting **regulations** at 40 CFR 122.49 contain a list of Federal laws that might apply to Federally issued NPDES permits. These include the Wild and Scenic Rivers Act, 16 U.S.C. 1273 et seq.; the National Historic Preservation Act of 1966, 16 U.S.C. 470 et seq.; the Endangered Species Act, 16 U.S.C. 1531 et seq.; the Coastal Zone Management Act, 16 U.S.C. 1451 et seq.; and the National Environmental Policy Act, 42 U.S.C. 4321 et seq. See 40 CFR 122.49 for a brief description of each of these laws. In addition, the provisions of the Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. 1801 et seq., relating to essential fish habitat might be relevant. Nothing in this final rulemaking authorizes activities that are not in compliance

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with these or other applicable Federal laws (e.g., Marine Mammal Protection Act, 16 U.S.C. 1361 et seq., and Migratory Bird Treaty Act, 16 U.S.C. 703 et seq.).

H. Alternative Site-Specific Requirements

Under Sec. 125.94(a)(5), an existing facility may demonstrate to

and maintaining, or will install and properly operate and maintain,

125.94(a)(2) through (4) of the rule would be significantly greater than the benefits of complying with the applicable performance standards at that facility. In such cases, the Director must make a site-specific determination of best technology available for minimizing adverse environmental impact. The Director must establish site-specific alternative requirements based on new and/or existing design and construction technologies, operational measures, and/or restoration measures that achieve an efficacy that, in the judgment of the Director, is as close as practicable to the applicable performance standards in Sec. 125.94(b) of the rule.

1. Facility's Costs Significantly Greater Than Costs Considered by EPA

If the Director determines that data specific to your facility indicate that the costs of compliance under Sec. 125.94(a)(2) through (4) would be significantly greater than the costs considered by the Administrator for a facility like yours in establishing the applicable performance standards in Sec. 125.94(b) you may request a site-specific determination of best technology available for minimizing adverse environmental impacts. A facility requesting this determination must submit a Comprehensive Cost Evaluation Study (Sec. 125.94(b)(6)(i)) and a Site Specific Technology Plan (Sec. 125.94(b)(6)(iii)). The Comprehensive Cost Evaluation Study must include engineering cost estimates in sufficient detail to document the costs of implementing design and construction technologies, operational measures, and/or restoration measures at the facility that would be needed to meet the applicable performance standards of Sec. 125.94(b); a demonstration that the documented costs significantly exceed the costs considered by EPA for a facility like yours in establishing the applicable performance standards; and engineering cost estimates in sufficient detail to document the costs of implementing alternative design and construction technologies, operational measures, and/or restoration measures in the facility's Site-Specific Technology Plan developed in accordance with Sec. 125.95(b)(6)(iii).

To make the demonstration that compliance costs are significantly greater than those considered by EPA, the facility must first determine its actual compliance costs. To do this, the facility first should determine the costs for any new design and construction technologies, operational measures, and/or restoration measures that would be needed to comply with the requirements of Sec. 125.94(a)(2) through (4), which may include the following cost categories: The installed capital cost of the technologies or measures, the net operation and maintenance (O&M) costs for the technologies or measures (that is, the O&M costs for the final suite of technologies and measures once all new technologies and measures have been installed less the O&M costs of any existing technologies and measures), the net revenue losses (lost revenues minus saved variable costs) associated with net construction downtime (actual construction downtime minus that portion which would have been needed anyway for repair, overhaul or maintenance) and any pilot study costs associated with on-site verification and/or optimization of the technologies or measures. Costs should be annualized using a 7 percent discount rate, with an amortization period of 10 years for capital costs and 30 years for pilot study costs and construction downtime net revenue losses. Annualized costs should be converted to 2002 dollars ($2002), using the engineering news record construction cost index (see Engineering News-Record. New York: McGraw Hill. Annual average value is 6538 for year 2002). Costs for permitting and post-construction monitoring should not be included in this estimate, as these are not included in the EPA-estimated costs against which they will be compared, as described below. Because existing facilities already incur monitoring and permitting costs, and these are largely independent of the specific performance standards adopted and

technologies selected to meet them, EPA believes it is both simpler and more appropriate to conduct the cost comparison required in this provision using direct compliance costs (capital, net O&M, net construction downtime, and pilot study) only. Adding permitting and monitoring costs to both sides of the comparison would complicate the methodology without substantially changing the results.

To calculate the costs that the Administrator considered for a like facility in establishing the applicable performance standards, the facility must follow the steps laid out below, based on the information in the table provided in Appendix A: Costs considered by EPA in Establishing Performance Standards. A sample of the table is provided below (see sample table). Note that those facilities that claimed the flow data that they submitted to EPA, and which EPA used to calculate compliance costs, as confidential business information (CBI), are not listed in the table provided in Appendix A, unless the total calculated compliance costs were zero. If these facilities wish to request a site-specific determination of best technology available based on significantly greater compliance costs, they will need to waive their claim of confidentiality prior to submitting the Comprehensive Cost Evaluation Study so that EPA can make the necessary data available to the facility, Director, and public.

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Sample Table.--Costs Considere

Facility ID	Intake ID	EPA assumed design intake flow, gpm (Xepa)	Capital cost
Column 1	Column 2.....	Column 3	Column 4
Fac 1 ID		.....	..... .
Fac 2 ID		.....	..... .
Fac 3 ID \5\.....	Intake 1.....	.....	..... .
Fac 3 ID \5\.....	Intake 2.....	.....	..... .
Etc.		.....	..... .

\1\ The design flow adjustment slope (m) represents the slope that corresponds to th
\2\ Discount rate = 7%
\3\ Amortization period for capital costs = 10 years
\4\ Amortization period for downtime and pilot study costs = 30 years
\5\ Depending on the data provided, some facilities with multiple intakes were coste each intake separately using the steps below and sum. Note that some cost componen since it is difficult to determine how they would be assigned to each intake separ

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The data in Appendix A is keyed to both a facility name and survey ID number. Facilities should be able to determine their ID number from the survey they submitted to EPA during the rule development process.

Step 1: Determine which technology EPA modeled as the most

appropriate compliance technology for your facility (Sec. 125.94(a)(5)(i)(A)). To do this, use the code in column 12 of Appendix A to look up the modeled technology in Table 9-1 below.

Table 9-1.--Technology Codes and Descriptions

Technology codes	Technology description
1	Addition of fish handling and return system to an existing traveling screen system.
2	Addition of fine-mesh screens to an existing traveling screen system.
3	Addition of a new, larger intake with fine-mesh and fish handling and return system in front of an existing intake system.
4	Addition of passive fine-mesh screen system (cylindrical wedgewire) near shoreline with mesh width of 1.75 mm.
5	Addition of a fish net barrier system.
6	Addition of an aquatic filter barrier system.
7	Relocation of an existing intake to a submerged offshore location with passive fine-mesh screen inlet with mesh width of 1.75 mm.
8	Addition of a velocity cap inlet to an existing offshore intake.
9	Addition of passive fine-mesh screen to an existing offshore intake with mesh width of 1.75 mm.
10	[Module 10 not used].
11	Addition of dual-entry, single-exit traveling screens (with fine-mesh) to a shoreline intake system.
12	Addition of passive fine-mesh screen system (cylindrical wedgewire) near shoreline with mesh width of 0.76 mm.
13	Addition of passive fine-mesh screen to an existing offshore intake with mesh width of 0.76 mm.
14	Relocation of an existing intake to a submerged offshore location with passive fine-mesh screen inlet with mesh width of 0.76 mm.

Step 2: Using EPA's costing equations, calculate the annualized capital and net operation and maintenance costs for a facility with your design flow using this technology (Sec. 125.94(a)(5)(i)(B)). To do this, you should use the following formula, which is derived from the results of EPA's costing equations for a facility like yours using the selected technology:
[GRAPHIC] [TIFF OMITTED] TR09JY04.001

Where:

yf = annualized capital and net O&M costs using actual facility design intake flow,

xf = actual facility design intake flow (in gallons per minute),
xepa = EPA assumed facility design intake flow (in gallons per minute) (column 3),
yepa = Annualized capital and net O&M costs using EPA design intake flow (column 7),and
m = design flow adjustment slope (column 13).

Rather than providing the detailed costing equations that EPA used to calculate annualized capital and net O&M costs for facilities to use each of the 14 modeled technologies, EPA has provided the simplified formula above, which collapses the results of those equations for the particular facility and technology into a single result (yepa) and then allows the facility to adjust this result to reflect its actual design intake flow, using a technology specific slope for a facility like yours that is derived from the costing equations. This allows facilities to perform the flow adjustment required by Sec. 125.94(a)(5)(i)(B) in a straightforward and transparent manner. Facilities, Directors, or members of the public who wish to review the detailed costing equations should consult the Technical Development Document, Chapter 3.

EPA has provided some additional information in Appendix A, beyond that which is needed to perform the calculations in Sec. 125.95(a)(5)(ii), to facilitate comparison of the results obtained using formula 1 to the detailed costing equations in the TDD, for those who wish to do so. EPA does not expect facilities or permit writers to do this, and has in fact provided the simplified formula to preclude the need for doing so, but is providing the additional information to increase transparency. Thus, for informational purposes, the total capital cost (not annualized), baseline O&M cost, and post construction O&M cost from which the annualized capital and net O&M costs using EPA design intake flow (yepa in column 7) are derived are listed separately in columns 4 through 6. To calculate yepa, EPA annualized the total capital cost using a 7 percent discount rate and 10 year amortization period, and added the result to the difference between the post construction O&M costs and the baseline O&M costs.

Note that some entries in Appendix A have NA indicated for the EPA assumed design intake flow in column 2. These are facilities for which EPA projected that they would already meet otherwise applicable performance standards based on existing technologies and measures. EPA projected zero compliance costs for these facilities, irrespective of design intake flow, so no flow adjustment is needed. These facilities should use $0 as their value for the costs considered by EPA for a like facility in establishing the applicable performance standards. EPA recognizes that these facilities will still incur permitting and monitoring costs, but these are not included in the cost comparison for the reasons stated above.

Step 3: Determine the annualized net revenue loss associated with net construction downtime that EPA modeled for the facility to install the technology (Sec. 125.94(a)(5)(i)(C)) and the annualized pilot study costs that EPA modeled for the facility to test and optimize the technology (Sec. 125.94(a)(5)(i)(D)). The sum of these two figures is listed in column 10. For informational purposes, the total (not annualized) net revenue losses from construction downtime, and total (not annualized) pilot study costs are listed separately in columns 8 and 9. These two figures were annualized using a 7 percent discount rate and 30 year amortization period and the results added together to get the annualized facility downtime and pilot study costs in column 10.

Step 4: Add the annualized capital and O&M costs using actual

facility design intake flow (yf from step 2), and the annualized facility downtime and pilot study costs (column 10 from step 3) to get the preliminary costs considered by EPA for a facility like yours (Sec. 125.94(a)(5)(i)(E)).

Step 5: Determine which performance standards in Sec. 125.94(b)(1) and (2) (i.e., impingement mortality only, or impingement mortality and entrainment) are applicable to your facility, and compare these to the performance standards on which EPA's cost estimates are based, listed in column 11 (Sec. 125.94(a)(5)(i)(F)). If the applicable performance standards and those on which EPA's cost estimates are based are the same, then the preliminary costs considered by EPA for a facility like yours are the final costs considered by EPA for a facility like yours. If only the impingement mortality performance standards are applicable to your facility, but EPA based its cost estimates on

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impingement mortality and entrainment performance standards, then you should divide the preliminary costs by a factor of 2.148 to get the final costs. If impingement mortality and entrainment performance standards are applicable to your facility, but EPA based its cost estimates on impingement mortality performance standards only, then you should multiply the preliminary costs by 2.148 to get the final costs. In calculating compliance costs, EPA projected what performance standards would be applicable to the facility based on available data. However, because of both variability and uncertainty in the underlying parameters that determine which performance standards apply (e.g., capacity utilization rate, mean annual flow), it is possible that in some cases the performance standards that EPA projected are not correct. The adjustment factor of 2.148 was determined by taking the ratio of median compliance costs for facilities to meet impingement mortality and entrainment performance standards over median compliance costs for facilities to meet impingement mortality performance standards only. While using this adjustment factor will not necessarily yield the exact compliance costs that EPA would have calculated had it had current information, EPA believes the results are accurate enough for determining whether a facility's actual compliance costs are ``significantly greater than'' the costs considered by EPA for a like facility in establishing the applicable performance standards. EPA believes it is preferable to provide a simple and transparent methodology for making this adjustment that yields reasonably accurate results, rather than a much more complex methodology that would be difficult to use and understand (for the facility, Director, and public), even if the more complex methodology would yield slightly more accurate results.

The Site-Specific Technology Plan is developed based on the results of the Comprehensive Cost Evaluation Study and must contain the following information:

A narrative description of the design and operation of all existing and proposed design and construction technologies, operational measures, and/or restoration measures that you have selected in accordance with Sec. 125.94(a)(5);

An engineering estimate of the efficacy of the proposed and/or implemented design and construction technologies or operational measures, and/or restoration measures. This estimate must include a site-specific evaluation of the suitability of the technologies or operational measures for reducing impingement mortality and/or entrainment (as applicable) of all life stages of fish and shellfish based on representative studies (e.g., studies that have been conducted at cooling water intake structures located in the same waterbody type

specific technology prototype or pilot studies. If restoration measures will be used, you must provide a Restoration Plan that includes the elements described in Sec. 125.95 (b)(5);

A demonstration that the proposed and/or implemented design and construction technologies, operational measures, and/or restoration measures achieve an efficacy that is as close as practicable to the applicable performance standards of Sec. 125.94(b) without resulting in costs significantly greater than either the costs considered by the Administrator for a facility like yours in establishing the applicable performance standards, or as appropriate, the benefits of complying with the applicable performance standards at your facility; and,

Design and engineering calculations, drawings, and estimates prepared by a qualified professional to support the elements of the Plan.

2. Facility's Costs Significantly Greater Than the Benefits of Complying With Performance Standards

A facility demonstrating that its costs are significantly greater than the benefits of complying with performance standards must perform and submit a Comprehensive Cost Evaluation Study, a Benefits Valuation Study, and a Site-Specific Technology Plan.

The Comprehensive Cost Evaluation Study is discussed in the previous section. It requires the same information for a cost-benefit site-specific determination as for a cost-cost site-specific determination, except that the demonstration in Sec. 125.95(b)(6)(i)(B) must show that the facility's actual compliance costs significantly exceed the benefits of meeting the applicable performance standards at the facility.

The Benefits Valuation Study requires that a facility use a comprehensive methodology to fully value the impacts of impingement mortality and entrainment at its site and the benefits of complying with the applicable performance standards. In addition to the valuation estimates, the benefit study must include the following:

A description of the methodology(ies) used to value commercial, recreational, and ecological benefits (including any non-use benefits, if applicable);

Documentation of the basis for any assumptions and quantitative estimates. If you plan to use an entrainment survival rate other than zero, you must submit a determination of entrainment survival at your facility based on a study approved by the Director;

An analysis of the effects of significant sources of uncertainty on the results of the study;

If requested by the Director, a peer review of the items you submit in the Benefits Valuation Study. You must choose the peer reviewers in consultation with the Director who may consult with EPA and Federal, State, and Tribal fish and wildlife management agencies with responsibility for fish and wildlife potentially affected by your cooling water intake structure. Peer reviewers must have appropriate

mortality as well as the expected change from rule compliance. The benefits assessment should include a qualitative and/or quantitative description of the benefits that would be produced by compliance with the applicable performance standards at the facility site and, to the extent feasible, monetized (dollar) estimates of all significant benefits categories using well established and generally accepted valuation methodologies. The first benefit category to consider is use benefits, which includes such benefits as those to commercial and recreational fishermen. Well-established revealed preference and market proxy methods exist for valuing use benefits, and these should be used in all cases where the impingement and entrainment mortality study identifies substantial impacts to harvested or other relevant species.

The second benefit category to consider is non-use benefits. Non-use benefits may arise from reduced impacts to ecological resources that the public considers important, such as threatened and endangered species. Non-use benefits can generally only be monetized through the use of stated

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preference methods. When determining whether to monetize non-use benefits, permittees and permit writers should consider the magnitude and character of the ecological impacts implied by the results of the impingement and entrainment mortality study and any other relevant information.

In cases where an impingement mortality and entrainment characterization study identifies substantial harm to a threatened or endangered species, to the sustainability of populations of important species of fish, shellfish or wildlife, or to the maintenance of community structure and function in a facility's waterbody or watershed, non-use benefits should be monetized.\50\

\50\ In cases where harm cannot be clearly explained to the public, monetization is not feasible because stated preference methods are not reliable when the environmental improvement being valued cannot be characterized in a meaningful way for survey respondents.

In cases where an impingement mortality and entrainment characterization study does not identify substantial harm to a threatened or endangered species, to the sustainability of populations of important species of fish, shellfish or wildlife, or to the maintenance of community structure and function in a facility's waterbody or watershed, monetization is not necessary.

Permittees should consult with their permitting authority regarding their plans for assessing ecological and non-use benefits, including whether they plan to conduct a stated preference study and if so, the basic design of the study, including such items as target population, sampling strategy, approximate sample size, general survey design, and other relevant information. When conducting quantitative benefits assessments, permittees should carefully review and follow accepted best practices for such studies. A discussion of best practices

regarding valuation can be found in EPA's Guidelines for Preparing Economic Analyses (EPA 2000, EPA 240-R-00-003, September 2000) and OMB Circular A-4: Regulatory Analysis (September 17, 2003, http://www.whitehouse.gov/omb/inforeg/circular_a4.pdf). In their benefits

assessment, the permittee should present the results, as well as

clearly describe the methods used, the assumptions made, and the associated uncertainties.

It is recommended that the permittee and Director seek peer review of the major biological and economic aspects of the final benefits assessment. The goal of the peer review process is to ensure that scientific and technical work products receive appropriate levels of critical scrutiny from independent scientific and technical experts as part of the overall decision-making process. In designing and implementing peer reviews, permittees and permit writers can look to EPA's Science Policy Council Handbook--Peer Review (EPA 100-B-98-00, January 1998, http://www.epa.gov) for guidance.

The Site-Specific Technology Plan is described in the previous section. It requires the same information for a cost-benefit site-specific determination as for a cost-cost site-specific determination, except that the demonstration in Sec. 125.95(b)(6)(iii)(C) must show

an efficacy that is as close as practicable to the applicable

performance standards without resulting in costs significantly greater than the benefits of complying with the applicable performance standards at your facility.

X. Engineering Cost Analysis

A. Technology Cost Modules

In the Notice of Data Availability (NODA) (68 FR 13522, March 19, 2003), the Agency presented an approach for developing compliance costs that included a broad range of compliance technologies for calculating compliance costs as opposed to the approach used for the proposal, which was based on a limited set of technologies. In response to comments, EPA revised the costing modules that were presented in the NODA and used to develop the engineering costs for the final rule. Modifications made include adding a new set of costing modules to

intake;

Addition of passive fine-mesh screen to an existing offshore intake with mesh width of 1.75 mm;

Addition of passive fine-mesh screen to an existing offshore intake with mesh width of 0.76 mm;

Addition or modification of a shoreline-based traveling screen for an offshore intake system; and

Addition of dual-entry, single-exit traveling screens (with fine-mesh) to a shoreline intake system.

Further explanation and derivation of each of these costing modules and their application for the purposes of assessing costs is discussed in the Technical Development Document. For explanation of how the Agency applied these technology cost modules to determine compliance costs, see section X.B below.

B. Model Facility Cost Development

In order to implement the technology costing modules discussed in section X.A, the Agency used the same basic approach which was described in the NODA for the estimation of costs at the model facility level. This approach focuses as much as possible on site-specific characteristics for which the Agency obtained data through the section 316(b) questionnaires. In addition, EPA used available geographic information, including detailed topographic mapping and overhead satellite imagery, to better utilize site-specific characteristics of each model facility's intake(s) to determine the appropriate costing modules for that facility. The Agency also utilized facility-specific information collected for the regional benefits studies to further inform the selection of compliance technology at model facilities. The Technical Development Document provides the background and a more detailed explanation of the

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Agency's approach to model facility level costing, which has not changed dramatically from that published in the NODA (68 FR 13522).

EPA's approach to model facility-level costing may be described as follows. In order to project upgrades to technologies as a result of compliance with today's final rule, the Agency utilized as much information as was available about the characteristics of the facilities expected to be within the scope of the rule. By incorporating as many site-specific features as possible into the design and implementation of its costing approach, the Agency has been able to capture a representative range of compliance costs at what it deems ``model facilities.'' However, it is infeasible for the Agency to visit and study in detail all of the engineering aspects of each facility complying with this rule (over 400 facilities could incur technology-related compliance costs as a result of this rule). Therefore, although the Agency has developed costs that represent EPA's best effort to develop a site-specific engineering assessment for a particular facility, this assessment does not address any site-specific characteristics that only long-term study of each facility would reveal. Hence, the Agency refers to its approach as a ``model'' facility approach.

In selecting technology modules for each model facility, EPA, to a degree departed from its traditional least cost approach. The least cost approach, traditionally utilized for estimating compliance technology choices, relies on the principle that the complying plant will choose to install the least cost technology that meets the minimum standard. While the Agency is confident that the suite of available

technologies can achieve the performance standards on Sec. 125.94(b) generally, EPA lacks sufficient data to determine the precise performance of each technology on a site-specific basis for over 400 different applications. The Agency thus selected, based on criteria

published in the NODA, one of a set of best performing technologies (rather than the least costly technology) that was suitable for each model facility (or intake), in order to ensure that the technology on which costs were based would in fact achieve compliance at that model site. The criteria for selecting the best performing technology for a model facility (or intake) utilized questionnaire data as the primary tool in the assessment. For those facilities utilizing recirculating cooling systems in-place, the Agency assigned no compliance actions as they met the standards at baseline. The Agency then determined those intakes (facilities) that met compliance requirements with technologies in-place. These facilities received no capital or annual operating and maintenance compliance upgrade costs (although they may receive administrative or monitoring costs). The Agency categorized facilities according to waterbody type from which they withdraw cooling water. The Agency then sorted the intakes (facilities) within each waterbody type based on their configuration as reported in the questionnaires. Generally, the categories of intakes within one waterbody type are as follows: canal/channel, bay/embayment/cove, shoreline, and offshore. Once the intake (facility) is classified to this level the Agency examines the type of technology in-place and compares that against the compliance requirements of the particular intake (facility). For the case of entrainment requirements, the intake technologies (outside of recirculating cooling) that qualify to meet the requirements at baseline are fine mesh screen systems, and combinations of far-offshore inlets with passive intakes or fish handling/return systems. A small subset of intakes has entrainment qualifying technologies in-place at baseline (for the purposes of this costing effort). Therefore, in the case of entrainment requirements, most facilities with the requirement would receive technology upgrades. The methodology for choosing these entrainment technologies is explained further on in this discussion. For the case of impingement requirements, there are a variety of intake technologies that qualify (for the purposes of this costing effort) to meet the requirements at baseline. The intake types meeting impingement requirements at baseline include the following: barrier net (the only fish diversion system which qualifies), passive intakes (of a variety of types), and fish handling and return systems. A significant number of intakes (facilities) have impingement technology in-place that meets the qualifications for this costing effort. Therefore, some intakes (facilities) require no technology upgrades when only impingement

Agency also utilizes commercially available satellite images and maps where available. The use of the satellite images and maps aided the Agency in determining the potential for the construction of expanded intakes in-front of existing intakes and the potential for an intake modification to protrude into the waterbody (such as a near-shore t-screen) due to the degree of navigational traffic in the near vicinity of the intake and whether a protrusion might be tolerated, the possibility of installing a barrier net system, obvious signs of strong currents, the relative distance of a potentially relocated intake inlet, the possibility for fish return installations of moderate length, etc. The Agency was able to collect satellite images for most intakes (facilities) for which it required the resource. However, in some cases (especially those in the rural, mid-western U.S.), only maps were available. Hence, for the case of a significant number facilities located near small freshwater rivers/streams and lakes/reservoirs, the Agency utilized only the questionnaire data and the overhead maps available.

Once the Agency gathered the intake (facility) specific information to this degree, the applicable list of technologies for each intake was small (and in some cases only one technology would apply). Therefore, the Agency examined any other sources of information, such as those obtained for the regional benefits studies, to further narrow down the best technology to meet the requirements of the rule for each model intake (facility). Often, the decision was between just two or three potential technologies. If there was no evidence in the Agency's possession to suggest that the least-cost technology would not function, then the Agency would select this technology. However, should evidence imply that the least cost technology not be able to function reliably or have a feasibility issue

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related to site deployment (for example, a barrier net across a navigable waterway or a fish handling and return system with an extremely long return trough), then the Agency departed from the ``least-cost'' decision process and assigned the ``best-performing'' technology. In cases where more than one technology still remained after ruling out a least-cost alternative due to evidence (which was a rare occurrence), then the Agency attempted to balance the application of the remaining technologies about a median, thereby assigning moderately high costs for some cases and moderately low costs in others. Therefore, for the case of national costs, the Agency's application of technology cost modules reflect a reasonable national average.

C. Facility Flow Modifications

In developing costs and benefits for the NODA, the Agency revised intake flow information for a small subset of inscope facilities in an effort to ensure the accuracy and quality of the data. In developing costs and benefits for the final rule, the Agency has further refined the intake flow information used.

Since the NODA, the Agency re-evaluated its original decision to use the reported 1998 (the most recent of three years collected) annual flows for Detailed Questionnaire (DQ) recipients for the calculation of benefits. This, in turn, had an impact on the development of estimated design intake flows for short-technical questionnaire (STQ) recipients. As presented in the NODA, the Agency estimated design intake flows for STQ facilities using a statistical methodology based on linear regression of DQ recipients' annual intake flows and DQ recipients'

design intake flows to assess the design intake flow information for facilities that responded to the short technical questionnaire. Because the Agency asked STQ respondents for only their actual annual intake flow for the 1998 reporting year only (or a typical operational year), it was necessary to calculate design intake flow information for the purpose of accurately assessing compliance costs. Therefore, for the NODA and proposal, the Agency calculated design intake flows for STQ facilities based on a model derived from only the 1998 DQ flow data. In retrospect, the Agency determined that a more robust approach would be to use all three years of annual DQ flows collected (1996--1998) and to take advantage of the statistical abilities afforded by the expanded data set (that is, to determine and exclude outliers). Hence, for this final rule, the Agency has estimated the costs and benefits of the rule using improved flow data over the NODA and proposal. For the case of STQ facilities, the Agency has utilized an improved data set for the calculation of design intake flows, and, in turn, the calculation of compliance costs.

XI. Economic Analysis

A. Final Rule Costs

EPA estimates that the final rule will have total annualized social (pre-tax) costs of $389 million ($2002). Of this total, $385 million are direct costs incurred by facilities and $4 million are implementation costs incurred by State and Federal government. On a post-tax basis, direct costs incurred by facilities subject to the final rule are expected to be $249 million, including one-time technology costs of complying with the rule, a one-time cost of installation downtime, annual operating and maintenance costs, and permitting costs (initial permit costs, annual monitoring costs, and permit reissuance costs).

These cost estimates include compliance costs for eight facilities that are projected to be base case closures.\51\ Excluding compliance costs for projected base case closure facilities would result in

annualized pre-tax facility compliance costs of approximately $376 million and annualized post-tax facility compliance costs of

approximately $244 million. The equivalent annualized post-tax facility compliance costs were $178 million at proposal and $265 million for the NODA preferred option. The cost difference between proposal and the NODA is due primarily to the expanded range of technology options considered for the NODA and the ``best performing technology''

sufficient data and resources to determine the precise performance of each technology on a site-specific basis for over 400 different applications. The Agency thus selected, for subset of sites where multiple technologies could be under consideration to meet the requirements, a best performing technology (rather than the least costly technology of the choices). The best performing technology concept, when necessary to apply, relied on assigning technologies about a median cost, with some choices above and below. Therefore, for each model facility (or intake), in order to ensure that the technology on which costs were based would in fact achieve compliance at that model site, the Agency could not rely on a one-size fits all, least-cost approach. The cost difference between the NODA and the final rule is primarily a result of decreases in capital and permitting cost estimates.

Capital and O&M costs changed between NODA and final primarily due to three factors. The Agency revised its application of certain technology cost modules (especially the dual-entry, single-exist traveling screen module) between NODA and final, in response to comments received. The Agency revised its costs for some passive screen technology costs utilizing finer mesh screens, in response to comments received. In addition, the Agency credited facilities with far offshore intakes plus certain impingement controls in-place (such as fish handling or passive inlet screens) as having met the requirements for entrainment reduction at baseline. This final change was also in

response to comments that recommended that the Agency correlate the benefits assessment more closely with the engineering cost estimates. The overall net result of these changes was to slightly decrease total capital and total O&M costs of the rule. However, on the basis of facilities expected to upgrade technologies to meet the rule requirements, the capital and O&M costs did increase slightly.

There are many uncertainties surrounding any forecast. The national annualized costs estimated for today's rule were necessarily developed using several major assumptions which are subject to uncertainty. The Agency attempted to develop a plausible range of costs focusing on four major cost assumptions surrounding the direct private cost of $385 million that may be incurred when facilities implement this rule. Uncertainty factors were analyzed for the cost assumptions affecting technology capital, technology O&M, downtime for connection outages, initial permitting, and pilot studies. This

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uncertainty analysis provided a range of costs for the national private (direct) annualized compliance costs of $377 to $437 million. This range was developed by examining the effect of capacity utilization assumptions on technology capital and O&M costs; the effects of annualization time frame for initial permitting and downtime connection outages; the effects of sampling frequency and data analysis on pilot study costs; and excluding costs for facilities that have partial recirculating systems. For more information on the Agency's analysis of this issue, see DCN 6-5045.

Cost assumption	Base case facility compliance cost estimate	Sensitivity estimate
Annualization time frame for initial permitting and downtime.	30 years.....	20 years.
Partial recirculation system	No.....	Yes.

credit.		
Capacity utilization rate used to estimate technology capital and O&M.	Based on 2008 IPM Forecast.	Based on historic utilization.
Pilot study costs.....	Moderate sampling frequency.	High sampling frequency.

B. Final Rule Impacts

1. Energy Market Model Analysis

At proposal and for the NODA, EPA used an electricity market model, the Integrated Planning Model (IPM[reg]), to identify potential economic and operational impacts of various regulatory options considered for the Phase II regulation.\52\ Electric reliability impact analyses could not be performed using the IPM model. EPA does recognize that due to down time or connection outages estimated to install several of the technologies, and the number of facilities that will need to come into compliance over the first few years after today's rule is promulgated, there may be short-term electric reliability issues unless care is taken within each region to coordinate outages with the North American Electric Reliability Council (NERC) and where possible with normal scheduled maintenance operations. Noting this, EPA has provided flexibility in today's rule so that facilities can develop workable construction schedules with their permit writers and coordinate with NERC to appropriately schedule down times (see Sec. 125.95(b)(4)(ii)). As noted in the NERC 2003 Long-term Reliability Assessment, the overall impact on reliability of any new environmental requirements will ``* * * depend on providing sufficient time to make the necessary modifications and the commercial availability of control technologies.'' \53\ EPA conducted impact analyses at the market level, by NERC region,\54\ and for facilities subject to the Phase II regulation. Analyzed characteristics include changes in electricity prices, capacity, generation, revenue, cost of generation, and income. These changes were identified by comparing two scenarios: (1) The base case scenario (in the absence of any section 316(b) Phase I and Phase II regulation) and (2) the post compliance scenario (after the implementation of the new section 316(b) Phase II **regulations**). At proposal, EPA used the results of these comparisons to assess the

impacts of the proposed rule and two of the five alternative compliance options considered by EPA: (1) The ``Intake Capacity Commensurate with Closed-Cycle, Recirculating Cooling System based on Waterbody Type/ Capacity'' option and (2) the ``Intake Capacity Commensurate with Closed-Cycle, Recirculating Cooling System for All Facilities'' option.

\54\ The IPM models the ten NERC regions that cover the continental U.S.: ECAR (East Central Area Reliability Coordination Agreement), ERCOT (Electric Reliability Council of Texas), FRCC (Florida Reliability Coordinating Council), MAAC (Mid-Atlantic Area Council), MAIN (Mid-America Interconnected Network, Inc.), MAPP (Mid-Continent Area Power Pool), NPCC (Northeast Power Coordination Council), SERC (Southeastern Electricity Reliability Council), SPP (Southwest Power Pool), and WSCC (Western Systems Coordinating Council). Electric generators in Alaska and Hawaii are not interconnected with these regions and are not modeled by the IPM.

Since publication of the NODA, EPA has conducted further IPM analyses. The following sections present a discussion of changes to the analysis since the NODA and the results of the re-analysis of the final rule.

a. Changes to the IPM analyses since the NODA. EPA did not change its IPM assumptions and modeling procedures for this final rule. EPA continued to use the 2000 version of the IPM model to perform the final rule analysis. In the 2003 current version of the IPM, the model has been updated to include, among other things, effects of the State Multi-Pollutant **regulations** and the New Source Review settlements on environmental compliance costs associated with the IPM base case. Further, the 2003 version of the IPM model includes updated costs for existing facilities such as life extension costs. However, a few general changes affect the results presented in the following subsection. These changes are outlined in section VI.A and include the following: An increase in the estimated number of in-scope Phase II facilities from 551 to 554; revisions of technology, operating and maintenance, and permitting/monitoring costs; and changes to the assumption of construction downtimes for compliance technologies other than recirculating cooling towers.

b. Revised results for the Final Rule. This section presents the revised impact analysis of the final rule. The impacts of compliance with the final rule are defined as the difference between the modeling results for the base case scenario and the modeling results for the post-compliance scenario. Two base case scenarios were used to analyze the impacts associated with the final rule. The first base case scenario was developed using EPA's electricity demand assumption. Under this assumption, demand for electricity is based on the Annual Energy Outlook (AEO) 2001 forecast adjusted to account for efficiency improvements not factored into AEO's projections of electricity sales. The second base case was developed using the unadjusted electricity demand from the AEO 2001. The results presented in this section use the first, EPA-adjusted base case.

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Results using the second base case are presented in the Appendix of Chapter B3 of the final EBA.

EPA analyzed impacts of the final rule using data from model run year 2010. Model run year 2010 was chosen to represent the effects of the final rule for a typical year in which all facilities are expected to be in compliance (for this analysis, EPA assumed that facilities come into compliance between 2005 and 2009; in reality, compliance is expected to begin in 2008).\55\ The analysis was conducted at two levels: the market level including all facilities (by NERC region) and the Phase II facility level (including analyses of the in-scope Phase II facilities as a group and of individual Phase II facilities). The results of these analyses are presented in the following subsections.

\55\ EPA also analyzed potential market-level impacts of the final rule for a year during which some Phase II facilities experience installation downtimes. This analysis used output from model run year 2008. See Chapter B3, section B3-4.3 of the final EBA for the results of this analysis.

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i. Market-level impacts of the Final Rule. The market-level analysis includes results for all generators located in each NERC region including facilities both in-scope and out-of-scope of the proposed Phase II rule. Exhibit XI-1 presents five measures used by EPA to assess market-level impacts associated with the final rule, by NERC region: (1) Incremental capacity closures, calculated as the difference between capacity closures under the final rule and capacity closures under the base case; (2) incremental capacity closures as a percentage of baseline capacity; (3) post-compliance changes in variable production costs per MWh, calculated as the sum of total fuel and variable O&M costs divided by total generation; (4) post-compliance changes in energy price, where energy prices are defined as the wholesale prices received by facilities for the sale of electric generation; and (5) post-compliance changes in pre-tax income, where pre-tax income is defined as total revenues minus the sum of fixed and variable O&M costs, fuel costs, and capital costs. Additional results are presented in Chapter B3: Electricity Market Model Analysis (section B3-4.1) of the Economic and Benefits Analysis (EBA) in support of the final rule (DCN 6-0002). Chapter B3 also presents a more detailed interpretation of the results of the market-level analysis.

Exhibit XI-1.--Market-Level Impacts of

NERC region	Baseline capacity (MW)	Incre Capacity
ECAR	118,529	.....
ERCOT	75,290	.....
FRCC	50,324	.....
MAAC	63,784	.....
MAIN	59,494	
MAPP	35,835	.....
NPCC	72,477	.....
SERC	194,485	.....
SPP	49,948	.....
WSCC	167,748	
Total	887,915	

Two of the ten NERC regions modeled, MAIN and WSCC, are estimated to experience economic closures of existing capacity as a result of the final rule. These closures represent negligible percentages of regional baseline capacity (0.2% in MAIN and less than 0.1% in WSCC) and of total U.S. baseline capacity (less than 0.1%). EPA estimates that four NERC regions will experience increases in variable production costs per MWh, although the largest increase will not exceed 0.4 percent. In addition, four NERC regions will experience an increase in energy

prices under the final rule. Of these, only ERCOT is estimated to experience an increase of more than 1.0 percent (5.8 percent). Pre-tax incomes are estimated to decrease in all but one region, but the majority of these changes will be less than 1.0 percent. ERCOT is estimated to experience the largest decrease in pre-tax income (-5.6 percent). Only one region, MAPP, will experience an increase in market-level pre-tax income (0.1 percent).

ii. Facility-level impacts of the Final Rule. The results from model run year 2010 were used to analyze impacts on Phase II facilities at two levels: (a) Potential changes in the economic and operational characteristics of the group of in-scope Phase II facilities as a whole and (b) potential changes to individual facilities within the group of Phase II facilities. Exhibit XI-2 presents five measures used by EPA to assess impacts to the group of Phase II facilities associated with the final rule, by NERC region: (1) Incremental capacity closures, calculated as the difference between capacity closures under the final rule and capacity closures under the base case; (2) incremental capacity closures as a percentage of baseline capacity; (3) post-compliance changes in variable production costs per MWh, calculated as the sum of total fuel and variable O&M costs divided by total generation; (4) post-compliance changes in electricity generation; and (5) post-compliance changes in pre-tax income, where pre-tax income is defined as total revenues minus the sum of fixed and variable O&M costs, fuel costs, and capital costs. Additional results are presented in section B3-4.2 of the final EBA. Chapter B3 also presents a more detailed interpretation of the results of the analysis of Phase II facilities as a group.

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Exhibit XI-2.--Impacts on Phase II Faciliti

NERC region	Baseline capacity (MW)	Incre Capacity
ECAR	82,313	
ERCOT	43,522	
FRCC	27,537	
MAAC	34,376	
MAIN	36,498	
MAPP	15,749	
NPCC	37,651	
SERC	107,450	
SPP	20,471	
WSCC	28,431	
Total	433,998	

Identical to the market-level results, EPA estimates that 152 MW, or less than 0.1%, of capacity at Phase II facilities will close as a result of the final rule. (If the AEO's higher demand forecast is utilized, it would result in a larger capacity of early closures of 493 MW or more than 0.1%. See EBA B3 appendix Table B3-A-3.) MAIN (94 MW) and WSCC (58 MW) are the only regions that are estimated to experience

incremental capacity closures. In both regions, these incremental closures represent less than 0.3% of baseline capacity at Phase II facilities. Variable production costs per MWh at Phase II facilities increase in two regions and decrease in six regions under the final rule. No region experiences an increase in Phase II facility production costs that exceeds 0.5 percent, while Phase II facilities in NPCC and WSCC see reductions of 1.7 percent and 0.9 percent, respectively. Phase II facilities in three NERC regions are estimated to experience decreases in generation in excess of 1.0 percent as a result of the final rule. The largest is estimated to be in WSCC, where Phase II facilities experience a 4.3 percent reduction in generation. Overall, EPA estimates that pre-tax income will decrease by 1.8 percent for the

concentrated in a few regions: WSCC and ERCOT each experience reductions in pre-tax income of 10.4 percent, which is driven by a reduction in revenues (not presented in this exhibit) rather than an increase in costs. NPCC and FRCC are estimated to experience a reduction of 4.3 and 4.0 percent, respectively.

Results for the group of Phase II facilities as a whole may mask shifts in economic performance among individual facilities subject to this rule. To assess potential distributional effects, EPA analyzed facility-specific changes between the base case and the post-compliance case in (1) capacity utilization, defined as generation divided by capacity times 8,760 hours, (2) electricity generation, (3) revenue, (4) variable production costs per MWh, defined as variable O&M cost plus fuel cost divided by generation, and (5) pre-tax income, defined as total revenues minus the sum of fixed and variable O&M costs, fuel costs, and capital costs.

Exhibit XI-3 presents the total number of Phase II facilities with estimated degrees of change due to the final rule. This exhibit excludes 17 in-scope facilities with estimated significant status changes in 2010: Ten facilities are base case closures, one facility is a full closure as a result of the final rule, and six facilities changed their repowering decision between the base case and the post-compliance case. These facilities are either not operating at all in either the base case or the post-compliance case, or they experience fundamental changes in the type of units they operate; therefore, the measures presented in Exhibit XI-3 would not be meaningful for these facilities. In addition, the change in variable production cost per MWh of generation could not be developed for 57 facilities with zero generation in either the base case or post-compliance scenario. For these facilities, the change in variable production cost per MWh is indicated as ``n/a.''

Exhibit XI-3.--Operational Changes at Phase II Facilities From the Final

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Reduction Increase

\b\ The change in capacity utilization is the difference between the capacity utiliz base case and post-compliance case. For all other measures, the change is expresse between the base case and post-compliance values.

EPA estimates that the majority of Phase II facilities will not experience changes in capacity utilization or generation due to compliance with the final rule. Of those facilities with changes in post-compliance capacity utilization and generation, most will experience decreases in these measures. Exhibit XI-3 also indicates that the majority of facilities with changes in variable production costs will experience increases. However, about 85

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percent of those increases are estimated to be 1.0 percent or less. Changes in revenues at a majority of Phase II facilities will also not exceed 1.0 percent. The largest effect of the final rule is estimated to be on facilities' pre-tax income: the model projects that over 80 percent of facilities will experience a reduction in pre-tax income, with about 40 percent of the overall total experiencing a reduction of 3.0 percent or greater.

2. Other Economic Analyses

EPA updated its other economic analyses conducted at proposal and for the NODA to determine the effect of changes made to the assumptions for the final rule on steam electric generating facilities. This section discusses changes made to EPA's methodology and assumptions and presents the updated results. For complete results of this analysis, refer to Chapter B2 of the final EBA. For complete results of the proposal and the NODA analyses, refer to the chapters in Part B of the EBA document in support of the proposed rule at http://www.epa.gov/waterscience/316b and DCN 5-3004 of the NODA docket.

It should be noted that the measures presented in this section are provided in addition to the economic impact measures based on the Integrated Planning Model (IPM[reg]) analyses (see section XI.B.1). The following measures are used to assess the magnitude of compliance costs; they are not used to predict closures or other types of economic impacts on facilities subject to Phase II regulation.

a. Cost-to-revenue measure.

i. Facility-level analysis. EPA examined the annualized post-tax compliance costs of the final rule as a percentage of baseline annual revenues, for each of the 554 facilities expected to be subject to Phase II of the section 316(b) regulation. This measure allows for a comparison of compliance costs incurred by each facility with its revenues in the absence of the Phase II regulation. The revenue estimates are facility-specific baseline projections from the IPM base case for 2008 (see section XI.B.1 for a discussion of EPA's analyses using the IPM).\56\

\56\ EPA used 2008 rather than 2010 baseline revenues for this analysis because 2008 is the first model run year specified in the IPM analyses. EPA used the first model run year because it more closely resembles the current operating conditions of in-scope facilities than later run years (over time, facilities may be increasingly affected by factors other than the Phase II regulation).

Similar to the findings at proposal and for the NODA preferred

option, EPA estimates that a majority of the facilities subject to the final rule, 413 out of 554 (75 percent), will incur annualized costs of less than one percent of revenues. Of these, 314 facilities incur compliance costs of less than 0.5 percent of revenues. In addition, 94 facilities (17 percent) are estimated to incur costs of between one and three percent of revenues, and 39 facilities (7 percent) are estimated to incur costs of greater than three percent. Eight facilities are estimated to be base case closures.

ii. Firm-level analysis. The firms owning the facilities subject to Phase II regulation may experience greater impacts than individual in-scope facilities if they own more than one facility with compliance costs. EPA therefore also analyzed the cost-to-revenue ratios at the firm level. EPA identified the domestic parent entity of each in-scope facility and obtained their sales revenue from publicly available data sources (the Dun and Bradstreet database for parent firms of investor-owned utilities and nonutilities; and Form EIA-861 for all other parent entities). This analysis showed that 126 unique domestic parent entities own the facilities subject to Phase II regulation. EPA compared the aggregated annualized post-tax compliance costs for each

Coordination Agreement), ERCOT (Electric Reliability Council of Texas), FRCC (Florida Reliability Coordinating Council), HI (Hawaii), MAAC (Mid-Atlantic Area Council), MAIN (Mid-America Interconnected Network, Inc.), MAPP (Mid-Continent Area Power Pool), NPCC (Northeast Power Coordination Council), SERC (Southeastern Electricity Reliability Council), SPP (Southwest Power Pool), and WSCC (Western Systems Coordinating Council).

The results of this analysis show that the average annual cost of the final rule per residential household is expected to range from $0.50 in Alaska to $8.18 in Hawaii. The U.S. average is estimated to be $1.21 per household.

c. Electricity price analysis. EPA also considered potential effects of the final Phase II rule on electricity prices. EPA used three data inputs in this analysis: (1) Total pre-tax compliance cost incurred by facilities subject to Phase II regulation, (2) total electricity sales, based on the Annual Energy Outlook (AEO), and (3) prices by end use sector (residential, commercial, industrial, and transportation), also from the AEO. All three data elements were calculated by NERC region. For the proposal and NODA analyses, EPA used the AEO 2002; for the final rule, EPA updated the data with the AEO 2003.

The results of the final rule analysis show that the annualized costs of complying (in cents per KWh sales) range from 0.007 cents in the SPP region to 0.019 cents in the NPCC region. To determine potential effects of these

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compliance costs on electricity prices, EPA compared the per KWh compliance cost to baseline electricity prices by end use sector and for the average of the sectors (the detailed results are presented in Chapter B2 of the final EBA). This analysis projects that the greatest increase in electricity prices will be in the WSCC region (0.3 percent). The average increase in electricity prices is estimated to be 0.16 percent (for the proposed rule, this value was 0.11 percent; for the NODA preferred option, this value was 0.17 percent).

XII. Benefits Analysis

A. Introduction

This section presents EPA's estimates of the national environmental benefits of the final section 316(b) **regulations** for Phase II existing facilities. The assessed benefits occur due to the reduction in impingement and entrainment at cooling water intake structures affected by this rulemaking. Impingement and entrainment kills or injures large numbers of all life stages of aquatic organisms. By reducing the levels of impingement and entrainment, today's final rule will increase the number of fish, shellfish, and other aquatic life in local aquatic

limited subset of the species impinged and entrained.

To estimate the economic benefits of reducing impingement and entrainment at existing cooling water intake structures, all the beneficial outcomes need to be identified and, where possible, quantified and assigned appropriate monetary values. Estimating economic benefits is challenging because of the many steps necessary to link reductions in impingement and entrainment to changes in impacted fisheries and other aspects of relevant aquatic ecosystems, and then to link these ecosystem changes to the resulting changes in quantities and values for the associated environmental goods and services that ultimately are linked to human welfare. The methodologies used in the estimation of benefits of the final rule are largely built upon those used for estimating use benefits of the proposed rule (see 67 FR 17121) and the Notice of Data Availability (see 67 FR 38752). The Regional Analysis Document for the Proposed Section 316 (b) Phase II Existing Facilities Rule (see DCN 6-0003), hereafter known as the Regional Study or Regional Analysis, provides EPA's complete benefit assessment for the final rule.

National benefit estimates for this rule are derived from a series of regional studies across the country from a range of waterbody types. Section XII.B provides detail on the regional study design. Sections XII.C through XII.E of this preamble describe the methods EPA used to evaluate impingement and entrainment impacts at section 316(b) Phase II existing facilities and to derive an economic value associated with any such losses. Regional benefits are estimated using a set of statistical weights for each in-scope facility that were developed as part of the survey design. National benefit estimates are obtained by summing regional benefits.

B. Regional Study Design

In its analysis for the section 316(b) Phase II proposal, EPA relied on case studies of 19 facilities grouped by waterbody type (oceans, estuaries/tidal rivers, lakes/reservoirs, and rivers/streams) to estimate the potential economic benefits of reduced impingement and entrainment. For the proposal analysis, EPA extrapolated estimates of impingement and entrainment for each of the case study facilities to other facilities located on the same waterbody type, including those in different regions. However, a number of commenters expressed concern

or are located on a waterway with open fish passage to a Great Lake and within 30 miles of the lake. The Inland region includes the remaining facilities that withdraw water from freshwater lakes, rivers, and reservoirs.

Based on comments on the proposal about study gaps, EPA used available life history data to construct representative regional life histories for groups of similar species with a common life history type and groups used by NOAA Fisheries for landings data. Aggregation of species into groups facilitated evaluation of facility impingement and entrainment monitoring data. DCN 6-0003 provides a listing of the species in each life history group evaluated by EPA and tables of the life history data and data sources used for each group.

To obtain regional impingement and entrainment estimates, EPA extrapolated losses from selected facilities with impingement and entrainment data to all other facilities within the same region. Impingement and entrainment data were extrapolated on the basis of operational flow, in millions of gallons per day (MGD), where MGD is the average operational flow over the period 1996-1998 as reported by facilities in response to EPA's Section 316(b) Detailed Questionnaire and Short Technical Questionnaire. Operational flow at each facility was scaled using factors reflecting the relative effectiveness of currently in-place technologies for reducing impingement and entrainment. DCN 6-0003 provides details of the extrapolation procedure. The goal of the analysis was to provide regional and national estimates, so although there may be variability in the actual losses (and benefits) per MGD across particular individual facilities, EPA believes that this method of extrapolation is a reasonable basis for developing an estimate of regional- and national-level

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benefits for the purposes of this rulemaking.

C. The Physical Impacts of Impingement and Entrainment

EPA's benefits analysis is based on facility-provided biological monitoring data. Facility data consist of records of impinged and entrained organisms sampled at intake structures. However, factors such as sampling methods and equipment, the number of samples taken, the duration of the sampling period, and the unit of time and volume of intake flow used to express impingement and entrainment, and other aspects of facility sampling programs, are highly variable. The data available covered organisms of all ages and life stages from newly laid eggs to mature adults. Therefore, EPA converted sampling counts into standardized estimates of the annual numbers of fish impinged or entrained and then expressed these estimates in terms of metrics suitable for the environmental assessment and economic benefits analysis.

EPA notes that the facility studies evaluated may under or over estimate impingement and entrainment rates. For example, facility studies typically focus on only a subset of the fish species impacted by impingement and entrainment, resulting in an underestimate of the number of species and total losses. Studies often did not count early life stages of organisms that were hard to identify. In addition, most studies EPA found were conducted over 30 years ago, before activities under the Clean Water Act improved aquatic conditions. In those locations where water quality was degraded relative to current conditions, the numbers and diversity of fish may have been depressed during the monitoring period, resulting in low impingement and entrainment estimates. On the other hand, use of linear methods for

projecting losses to fish and shellfish in the waterbody may overstate or understate impacts. Nevertheless, EPA believes that the data from the facility studies were sufficient for developing an estimate of the relative magnitude of impingement and entrainment losses nation-wide.

Using standard fishery modeling techniques,\58\ EPA constructed models that combined facility-derived impingement and entrainment counts with relevant life history data to derive estimates of (1) age-one equivalent losses (the number of individuals of different ages impinged and entrained by facility intakes expressed as age-one equivalents), (2) foregone fishery yield (pounds of commercial harvest and numbers of recreational fish and shellfish that are not harvested due to impingement and entrainment), and (3) foregone biomass production (pounds of impinged and entrained forage species that are not commercial or recreational fishery targets but serve as valuable components of aquatic food webs, particularly as an important food supply to other aquatic species, including commercial and recreational

indirect losses of impinged and entrained species that are harvested. Indirect losses represent the yield of these harvested species that is lost due to losses of forage species. Details of the methods used for these analyses are provided in Chapter A5 of Part A of the Regional Analysis document. For all analyses, EPA used the impingement and entrainment estimates provided by the facility and assumed 100% entrainment mortality based on the analysis of entrainment survival studies presented in Chapter A7 of Part A of the Regional Analysis document.

\58\ Ricker, W.E. 1975. Computation and interpretation of biological statistics of fish populations. Fisheries Research Board of Canada, Bulletin 191; Hilborn, R. and C.J. Walters. 1992. Quantitative Fisheries Stock Assessment, Choice, Dynamics and Uncertainty. Chapman and Hall, London and New York.; Quinn, T.J., II. and R.B. Deriso. 1999. Quantitative Fish Dynamics. Oxford University Press, Oxford and New York; Dixon, D.A. 1999. Catalog of Assessment Methods for Evaluating the Effects of Power Plant Operations on Aquatic Communities. Final Report. Report number TR-112013.

a National totals are sample-weighted and include Hawaii. Hawaii benefits are calcul
per MGD in North Atlantic, Mid Atlantic, Gulf of Mexico, California and the total

Exhibit XII-2 presents EPA's estimates of annual combined impingement and entrainment reductions associated with the rule, by region.

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Exhibit XII-2.--Reductions In Annual Impingement and Entrainment,

Region	Age-one equivalents (millions)	f (
California	66.39	
North Atlantic	19.34	
Mid Atlantic	846.37	
South Atlantic	76.67	
Gulf of Mexico	89.55	
Great Lakes	159.52	
Inland	116.83	
Total for 554 facilities a	1,420.20	

a National totals are sample-weighted and include Hawaii. Hawaii losses are estimate
rates per MGD at mainland coastal facilities and the total intake flow of the Hawa

D. National Benefits of Rule

1. Overview

Economic benefits of today's rule can be broadly defined according to categories of goods and services provided by the species affected by impingement and entrainment at cooling water intake structures (CWIS). The first category includes benefits that pertain to the use (direct or indirect) of the affected fishery resources. The direct use benefits can be further categorized according to whether or not affected goods and services are traded in the market. The ``direct use'' benefits of the 316(b) regulation include both ``market'' commodities (e.g., commercial fisheries) and ``nonmarket'' goods (e.g., recreational angling). Indirect use benefits also can be linked to either market or nonmarket goods and services--for example, the manner in which reduced impingement- and entrainment-related losses of forage species leads through the aquatic ecosystem food web to enhance the biomass of species targeted for commercial (market) and recreational (nonmarket) uses. The second category includes benefits that are independent of any current or anticipated use of the resource; these are known as ``non-use'' or ``passive use'' values. Non-use benefits reflect human values associated with existence and bequest motives.

The economic value of benefits is estimated using a range of valuation methods, with the specific approach being dependent on the type of benefit category, data availability, and other suitable factors. Commercial fishery benefits are valued using market data. Recreational angling benefits are valued using a combination of primary and secondary research methods. For four of the seven study regions, EPA developed original Random Utility Models (RUM) of recreational angling behavior to estimate changes in recreational fishing values

resulting from improved fishing opportunities due to reductions in impingement and entrainment. For the remaining three study regions (Inland, North Atlantic, and South Atlantic), EPA used secondary nonmarket valuation data (e.g., benefits transfer of nonmarket valuation studies of the value of recreational angling). Because methodologies for estimating use values for recreational and commercial species are well developed, and some of these species have been extensively studied, these values are relatively straightforward to estimate. Sections XII.D.3 and XII.D.4 briefly summarize EPA's approaches to measuring direct use benefits. A detailed description of these approaches can be found in the 316(b) Regional Analysis document.

Estimating benefits from reduced impingement and entrainment of forage species is more challenging because these species are not targeted directly by commercial or recreational anglers and have no direct use values that can be observed in markets or inferred from revealed actions of anglers. To estimate indirect use benefits from reducing impingement and entrainment losses to forage species, EPA used a simple trophic transfer model that translates changes in impingement and entrainment losses of forage fish into changes in the harvest of commercial and recreational species that are subject to impingement and entrainment (i.e., not the whole food web). Agency benefits estimates are based on projected numbers of age 1 equivalent fish saved under the final rule.

Neither forage species nor the unlanded portion of recreational and commercial species have direct uses; therefore, they do not have direct use values. Their potential value to the public is derived from two alternative sources: their indirect use as both food and breeding population for those fish harvested; and, the willingness of individuals to pay for the protection of fish based on a sense of altruism, stewardship, bequest, or vicarious consumption (non-use

benefits). To estimate non-use benefits from reducing losses to forage species, and landed and unlanded commercial and recreational species, EPA explored benefits transfer from nonmarket valuation studies of non-use values of aquatic ecosystem improvements. EPA also explored the transfer of secondary nonmarket valuation data to value losses of threatened and endangered species. These efforts generated evidence that non-use values could occur as a result of this rule, but EPA was unable, by the time of publication of this final rule, to estimate reliable valuations for the resource changes associated with the

2. Timing of Benefits

Discounting refers to the economic conversion of future benefits and costs to their present values, accounting for the fact that individuals tend to value future outcomes less than comparable near-term outcomes. Discounting is important when benefits and costs occur in different years, and enables a comparison of benefits to costs across different time periods.

For today's rule, benefits are discounted to calculate benefits in a manner that makes the timing comparable to the annualized cost estimates. The benefits of today's rule are estimated as the typical benefits expected once the rule takes effect. The need to discount arises from two different delays in the realization of benefits.

First, facilities will not immediately achieve compliance. Facilities will face regulatory requirements once the rule takes effect, but it will take time to make the required changes. EPA has assumed, for the purpose of estimating benefits, that it will take one year from the date when installation costs are incurred by a facility until the required cooling water technology is operational. To account for this lag, all benefits are discounted by one year from the date when costs are incurred.

Second, an additional time lag will result between the time of technology implementation and resulting increased fishery yields. This lag stems from the fact that one or more years may pass between the time an organism is spared impingement and entrainment and the time of its ultimate harvest. For example, a larval fish spared from entrainment (in effect, at age 0) may be caught by a recreational angler at age 3, meaning that a 3-year time lag arises between the incurred technology cost and the realization of the estimated recreational benefit. Likewise, if a 1-year old fish is spared from impingement and is then harvested by a commercial waterman at age 2, there is a 1-year lag between the incurred cost and the subsequent commercial fishery benefit. To account for this growth period, EPA applied discounting by species groups in each regional study. EPA conducted this analysis using two alternative discount rates as recommended by OMB: 3% and 7%. The Agency notes that discounting was applied to recreational and commercial fishing benefits only. Non-use benefits are independent of fish age and size and, thus start as soon as impingement and entrainment ceases.

3. Recreational Fishing Valuation

a. Recreational fishery methods for marine regions. For the five coastal regions, EPA's analysis of recreational fishing benefits from reduced impingement and entrainment is based on region-specific random utility models (RUM) of recreational anglers' behavior, combined with benefit function transfer. EPA developed original RUM models for four of the five coastal regions: California, the Mid-Atlantic, the South Atlantic, and the Gulf of Mexico. For the North Atlantic region, EPA used a model developed by the National Marine Fisheries Service (NMFS) by Hicks et al. (Hicks, Steinback, Gautam, and Thunberg, 1999. Volume II: The Economic Value of New England and Mid-Atlantic Sportfishing in 1994--DCN 5-1271). Chapter A11 of the Regional Analysis document provides detailed discussion of the methodology used in EPA's RUM analysis.

The regional recreational fishing studies use information on recreational anglers' behavior to infer anglers' economic value for the quality of fishing in the case study areas. The models' main assumption is that anglers will get greater satisfaction, and thus greater economic value, from sites where the catch rate is higher due to reduced impingement and entrainment, all else being equal. This benefit may occur in two ways: first, an angler may get greater enjoyment from

greater value per trip; second, anglers may take more fishing trips when catch rates are higher, resulting in greater overall value for fishing in the region. EPA modeled an angler's decision to visit a site as a function of site-specific cost, fishing trip quality, and additional site attributes such as presence of boat launching facilities or fish stocking at the site.

The Agency used 5-year historical catch rates per hour of fishing as a measure of baseline fishing quality in the regional studies. Catch rate is one of the most important attributes of a fishing site from the angler's perspective. This attribute is also a policy variable of concern because catch rate is a function of fish abundance, which is affected by fish mortality caused by impingement and entrainment.

The Agency used the estimated model coefficients in conjunction with the estimated changes in impingement and entrainment in a given region to estimate per-day welfare gain to recreational anglers due to the final rule. For the North Atlantic region, EPA used model coefficients estimated by Hicks et al. (1999) (DCN 4-1603).

To estimate the total economic value to recreational anglers for changes in catch rates resulting from changes in impingement and entrainment in a given region, EPA multiplied the total number of fishing days for a given region by the estimated per-day welfare gain due to the regulation. Because of data limitations, EPA was unable to estimate participation models for all regions. For the California and Great Lakes regions, the welfare estimates presented in the following section are based on the estimates of baseline recreational fishing participation provided by NOAA Fisheries. Thus, welfare estimates for these two regions presented in today's rule do not account for changes in recreational fishing participation due to the improved quality of the fishing sites; however, these changes are likely to be small based on results for other regions.

For the North Atlantic, Mid-Atlantic, South-Atlantic, and Gulf regions, estimates are based on an average of baseline and predicted increased fishing days. For these regions, EPA also estimated a trip frequency model, which captures the effect of changes in catch rates on the number of fishing trips taken per recreational season.

b. Recreational Fishery methods for the Great Lakes region. For the Great Lakes region, EPA developed an original RUM model for the state of Michigan, and transferred benefits to other Great Lakes states. EPA's RUM model for the Great Lakes used data from the 2001 Michigan Recreational Anglers survey, and information on historical catch rates at Michigan fishing sites on Lakes Michigan, Huron, Superior, and Erie provided by the Michigan Department of Natural Resources (MDNR, 2002, DCN 4-1863). For the Great Lakes, EPA estimated a single RUM site choice model for boat, shore, and ice-fishing modes. To transfer values from the Michigan study to other Great Lakes states, EPA used harvest information from state-level anglers' creel surveys, and participation

estimates collected from ten studies, the Agency calculated measures of central tendency for the marginal value of catching one additional fish for each species group. For detail see Chapter H4, of the Regional Study Document, DCN 6-0003.

The mean marginal value per additional fish caught is $2.55 for panfish, $0.38 for perch, $6.54 for walleye/pike, $4.18 for bass, and $11.95 for anadromous gamefish. EPA combined these marginal values per fish with estimates of recreational fishing losses that would be prevented by the regulation to calculate the value of post regulation recreational fishing benefits.

d. Results. As noted earlier in this section, anglers will get greater satisfaction, and thus greater economic value, from sites where the catch rate is higher, all else being equal. Decreasing impingement and entrainment increases the number of fish available to be caught by recreational anglers, thus increasing angler welfare.

Exhibit XII-3 shows the benefits that would result from reducing impingement and entrainment losses by installing cooling water intake technology under the final regulation. These values were discounted at a 3 percent discount rate and a 7 percent discount rate to reflect the fact that fish must grow to a certain size before they will be caught by recreational anglers and to account for the one-year lag between the date when installation costs are incurred and technology implementation.

The greatest recreational fishing benefits from reducing impingement and entrainment losses occur in the Mid-Atlantic, South Atlantic, and Great Lakes regions. For more detailed information on the models and results for each region, see Chapter 4 in Parts B through H of the 316(b) Regional Analysis document.

Exhibit XII-3.--Post Regulation Recreational Fishing Benefits F

Region	Baseline recreational fishery losses (number of fish)	Red rec fish (numb
California	5,787,661	
North Atlantic	916,396	
Mid Atlantic	20,468,540	
South Atlantic	4,314,983	
Gulf of Mexico	3,854,850	
Great Lakes	4,743,384	
Inland	3,188,097	
Total for 554 facilities \a\	44,513,814	

\a\ National totals are sample-weighted and include Hawaii. Hawaii benefits are calc
Atlantic, Gulf of Mexico, California and the total intake flow in Hawaii.

The total for all regions, discounted at three percent, is $79.3 million; and the total for all regions, discounted at seven percent, is $70.0 million.

e. Limitations and uncertainties. Because of the uncertainties and assumptions of EPA's analysis, the estimates of benefits presented in this section may understate the benefits to recreational anglers. In estimating the benefits of improved recreational angling for the California and Great Lakes regions, the Agency assigned a monetary benefit only to the increases in consumer surplus for the baseline number of fishing days. This approach omits the portion of recreational fishing benefits that arise when improved conditions lead to higher

levels of participation. However, EPA's analysis of changes in recreational fishing participation due to the section 316(b) regulation for other coastal regions shows that the practical effect of this omission is likely to be very small with respect to the total recreational benefits assessment.

4. Commercial Fishing Valuation

Reductions in impingement and entrainment at cooling water intake structures are expected to benefit the commercial fishing industry. The effect is straightforward: reducing the number of fish killed will increase the number of fish available for harvest. Measuring the benefits of this effect is less straightforward. The next section summarizes the methods EPA used to estimate benefits to the commercial fishing sector. The following section presents the estimated commercial fishing benefits for each region.

a. Methods. EPA estimated commercial benefits by first estimating the value of total losses under current impingement and entrainment conditions (or the total benefits of eliminating all impingement and entrainment). Then, based on review of the empirical literature, EPA assumed that producer surplus is equal to 0% to 40% of baseline losses. Finally, EPA estimated benefits by applying the estimated percentage reduction in impingement and entrainment to the estimated producer surplus to obtain the estimated increase in producer surplus attributable to the rule. This methodology was applied in each region in the final analysis: the North Atlantic, Mid-Atlantic, South Atlantic, Gulf of Mexico, California, Great Lakes, and Inland. Additional detail on the methods EPA used for this analysis can be found in Chapter A10 ``Methods For Estimating Commercial Fishing Benefits'' in the Regional Analysis Document.

The process used to estimate regional losses and benefits to commercial fisheries is as follows:

1. Estimate losses to commercial harvest (in pounds of fish) attributable to impingement and entrainment under current conditions.

such that if 10% of the current commercially targeted stock were harvested, then 10% of the commercially targeted fish lost to impingement and entrainment would also have been harvested absent impingement and entrainment. The percentage of fish harvested is based on data on historical fishing mortality rates.

2. Estimate gross revenue of lost commercial catch. The approach EPA

to 40% of the gross revenue losses estimated in step 2 as a means of estimating the change in producer surplus. This is based on a review of empirical literature (restricted to only those studies that compared producer surplus to gross revenue) and is consistent with recommendations made in comments on the EPA analysis at proposal.

4. Estimate increase in surplus attributable to the Phase II **regulations**. Once the commercial surplus losses associated with impingement and entrainment under baseline conditions have been estimated according to the approaches outlined in steps 2 and 3, EPA estimates the percentage reduction in impingement and entrainment at a regional level.

b. Results. Exhibit XII-4 presents the estimated commercial fishing benefits attributable to today's rule for each region. The results reported include the total reduction in losses in pounds of fish, and the value of this reduction discounted at 0%, 3%, and 7%. Total commercial fishing benefits for the U.S., applying a 3% discount rate, are estimated to range from $0 to $3.5 million. Applying a 7% rate they range from $0 to $3.5 million.

Exhibit XII-4.--Annual Commercial F

Region \c\	Current (baseline) lost yield (million lbs)	Reduct yiel
California	11.5	
North Atlantic	0.6	
Mid Atlantic	48.7	
South Atlantic	9.6	
Gulf of Mexico	7.6	
Great Lakes	1.6	
Inland U.S	n/a	
Total for 554 facilities	82.8	

\a\ Benefits are upper bound benefits based on 40% of gross revenue. The lower bound
\b\ Discounted to account for lag in implementation and lag in time required for fis year from the date when installation costs are incurred to the date of installatio installation costs are incurred.
\c\ Regional totals are unweighted. National total estimates are weighted and includ

c. Limitations and uncertainties. Some of the major uncertainties and assumptions of EPA's commercial fishing analysis include:

Projected changes in harvest may be under-estimated because the cumulative impacts of impingement and entrainment over time are not considered.

The analysis only includes individuals that are directly killed by impingement and entrainment, not their progeny, though given the complexities of population dynamics, the significance of this omission is not clear.

Projected changes in harvest may be too high or too low because interactions with other stressors are not considered.

EPA used impingement and entrainment data provided by the facilities. While EPA used the most current data available, in some cases these data are 20 years old or older. Thus, they may not reflect current conditions.

EPA assumes a linear stock-to-harvest relationship (i.e., a 13% change in stock would have a 13% change in landings); this may be low or high, depending on the condition of the stocks. Region-specific

fisheries **regulations** also will affect the validity of the linear assumption.

EPA assumes that NOAA Fisheries landings data are accurate and complete. However, in some cases prices and/or quantities may be reported incorrectly.

EPA currently estimates that the increase in producer surplus as a result of the rule will be between 0% and 40% of the estimated change in gross revenues. The research used to develop this range is not region-specific; thus the true value may be higher for some regions and species.

5. Non-Use Benefits

As discussed by Freeman (1993), ``Non-use values, like use values, have their basis in the theory of individual preferences and the measurement of welfare changes. According to theory, use values and non-use values are additive,'' and ``* * * there is a real possibility that ignoring non-use values could result in serious misallocation of resources.'' This statement by Freeman aptly conveys the importance of non-use benefits outlined in EPA's own economic valuation guidance documents. A comprehensive estimate of total resource value should include both use and non-use values, so that the resulting appropriate total benefit value estimates may be compared to total social cost.

It is clear that reducing impingement and entrainment losses of fish and shellfish may result in both use and non-use benefits. Of the organisms which are anticipated to be protected by the section 316(b) Phase II rule, it is projected that approximately 1.8 percent will eventually be harvested by commercial and recreational fishers and

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therefore can be valued with direct use valuation techniques. The Agency's direct use valuation does not account for the benefits from the remaining 98.2% of the age 1 equivalent aquatic organisms estimated to be protected nationally under today's rule. A portion of the total benefits of these unharvested commercial, recreational, and forage species, can be derived indirectly from the estimated use values of the harvested animals. A percentage of these unlanded organisms become prey or serve as breeding stock in the production of those commercial and recreational species that will eventually be caught, therefore their indirect use value as biological input into the production process is represented in the estimated direct use values of the harvested fish.

EPA was unable to value the non-use benefits associated with this rule. In order to provide an estimate of the quantified (but not monetized) effects of the rule, Exhibit XII-5 summarizes information about total impingement and entrainment losses, and Exhibit XII-6 presents estimates of reductions in impingement and entrainment losses under the final rule.

Exhibit XII-5.--Distribution of Baseline I

Region\a\	Current I&E of All species (total)	Fora
California	312.9	
North Atlantic	65.7	
Mid Atlantic	1,733.1	
South Atlantic	342.5	

Gulf of Mexico	191.2
Great Lakes	319.1
Inland	369.0
Total for 554 facilities \a\	3,449.4

\a\ Regional totals are unweighted. National total estimates are weighted and includ

Exhibit XII-6.--Distribution of Reductions i

Region \a\	Reductions in I&E: All species (total)	Fora
California	66.4	
North Atlantic	19.3	
Mid Atlantic	846.4	
South Atlantic	76.7	
Gulf of Mexico	89.5	
Great Lakes	159.5	
Inland	116.8	
Total for 554 facilities	1,420.2	

\a\ Regional numbers are unweighted. National totals are sample-weighted and include

Lack of direct use values for the unharvested commercial, recreational and forage species means that EPA did not directly value a substantial percentage of the total age-one equivalent impingement and entrainment losses. Given that aquatic organisms without any direct uses account for the majority of cooling water intake structure losses and indirect valuation of these species may only represent a fraction of their total value, comprehensive monetization of the benefits of reduced impingement and entrainment losses is incomplete without developing a reliable estimate of non-use benefits. Although individuals do not use these resources directly, they may value changes in their status or quality. Both users (commercial and recreational fishermen) as well as non-users (those who do not use the resource) may have non-use values for these species. Non-use benefit valuation is challenging, but the existence and potential importance of non-use benefits is supported by EPA's Guidelines for Preparing Economic Analysis (EPA 240-R-00-003) and OMB Circular A-4, Regulatory Analysis, also available as Appendix D of Informing Regulatory Decisions: 2003 Report to Congress on The Costs and Benefits of Federal **Regulations** and Unfunded Mandates on State, Local and Tribal Entities, OMB, 2003, pp 118-165.

Market valuation approaches are used to estimate use benefits. The theory and practice of nonmarket valuation is well developed, and typically plays a pivotal role in benefit-cost analysis conducted by public and private agencies. Non-use values are often considered more difficult to estimate. The preferred technique for estimating non-use values is to conduct original stated preference surveys, but benefit transfer of values from existing stated preference studies can be considered when original studies are not feasible.

Stated preference methods rely on surveys, which ask people to state their willingness-to-pay for particular ecological improvements,

such as increased protection of aquatic species or habitats with particular attributes. The Agency was not able to perform an original stated preference study for this regulation, so benefit transfer was explored as an alternative means to estimate non-use benefits. Benefits transfer involves adapting the findings from research conducted for another

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purpose to address the policy questions in hand.

One of the specific benefit transfer techniques explored by EPA for estimation of non-use benefits in Phase II of the 316(b) rulemaking was meta regression analysis. Meta regressions are designed to statistically define the relationship between values and a set of resource, demographic and other characteristics compiled from original primary study sources. The resulting mathematical relationship allows the researcher to forecast estimates of non-use values specific to the resource changes projected to occur as a consequence of the final rule.

are presented in the 316(b) Regional Analysis document (DCN 6-0003).

6. National Monetized Benefits

Quantifying and monetizing reduction in impingement and entrainment losses due to today's final rule is extremely challenging, and the preceding sections discuss specific limitations and uncertainties associated with estimation of commercial and recreational benefits categories (presented in Exhibit XII-7), and non-use benefits. National benefit estimates are subject to uncertainties inherent in valuation approaches used for assessing the three benefits categories. The combined effect of these uncertainties is of unknown magnitude or direction (i.e., the estimates may over or under state the anticipated national-level benefits); however, EPA has no data to indicate that the results for each benefit category are atypical or unreasonable.

Exhibit XII-7 presents EPA's estimates of the total monetized benefits from impingement and entrainment reduction of the final regulation. Although EPA believes non-use benefits exist, the Agency was not able to monetize them. The estimated impingement and entrainment reduction monetized benefits post regulation are $83 million (2002$) per year, discounted at three percent, and $73 million, discounted at seven percent.

Exhibit XII-7.--Summary of Monetized Social Benefits
[Millions; 2002$]

Region a	Commercial fishing benefits	Recre fishing
Evaluated at a 3 percent discount rate		
California	$0.5	
North Atlantic	0.1	
Mid-Atlantic	1.7	
South Atlantic	0.2	
Gulf of Mexico	0.7	
Great Lakes	0.2	
Inland		
Total for 554 facilities	3.5	
Evaluated at a 7 percent discount rate		
California	0.4	
North Atlantic	0.0	
Mid-Atlantic	1.5	
South Atlantic	0.2	
Gulf of Mexico	0.6	
Great Lakes	0.2	

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Inland		
Total for 554 facilities	3.0	

a Regional benefit estimates are unweighted. National benefits are sample-weighted
b The monetized benefits of the final rule may be significantly under-estimated due

monetize the non-use values.

E. Other Considerations

This section presents two additional analyses that consider the benefits and costs of the final rule: (1) An analysis of the costs per age-one equivalent fish saved (equivalent to a cost-effectiveness analysis) and (2) a break-even analysis of the minimum non-use benefits required for total annual benefits to equal total annualized costs, on a per household basis. Each measure is presented by study region.

1. Cost Per Age-One Equivalent Fish Saved--Cost-Effectiveness Analysis

EPA also analyzed the cost per organism saved as a result of compliance with the final rule. This analysis estimates the cost-effectiveness of the rule, by study region. Organisms saved are measured as ``age-one equivalents.'' The costs used for the regional comparisons are the annualized pre-tax compliance costs incurred by facilities subject to the final rule, and the cost used for the national comparison is the total social cost of the final rule (including facility compliance costs and administrative costs).

Exhibit XII-8 shows that the estimated cost per age-one equivalent ranges from $0.07 in the Mid Atlantic region to $1.46 in the Inland region. At the national level, the estimated average cost is $0.27 per age-one equivalent saved.

Exhibit XII-8.--Cost per Age-One Equivalent Saved

Study region a	Annual social cost b (millions; 2002$)	Age equiv (mil
California	$31.7	
North Atlantic	13.3	
Mid Atlantic	62.6	
South Atlantic	9.0	
Gulf of Mexico	22.8	
Great Lakes	58.7	
Inland	170.4	
Total for 554 facilities	389.4	

a Regional benefit and cost estimates are unweighted; total national estimates are s Hawaii.

b The regional costs include only annual compliance costs incurred by facilities. Th total social cost of the final rule (facility compliance costs and administrative

2. Break-Even Analysis

Due to the uncertainties of providing estimates of the magnitude of non-use values associated with the final rule, this section provides an alternative approach of evaluating the potential relationship between benefits and costs. The approach used here applies a ``break-even'' analysis to identify what the unmonetized non-use values would have to be in order for the final rule to have benefits that are equal to costs.

The break-even approach uses EPA's estimated or monetized, commercial and recreational use benefits for the rule and subtracts them from the estimated annual compliance costs incurred by facilities subject to the final rule. The resulting ``net cost'' enables one to work backwards to estimate what the unmonetized non-use values would need to be (in terms of willingness-to-pay per household per year) in order for total annual benefits to equal annualized costs. Exhibit XII-

9 provides this assessment for the seven study regions. The exhibit shows benefits values using a 3 percent social discount rate. Use of a 7% discount rate would produce somewhat higher breakeven numbers. Section XII.D.5 presents undiscounted benefits and benefits discounted using a 7 percent discount rate.

Exhibit XII-9.--Implicit Non-Use Value--Break-Even Analys
[Million; 2002$]

Study region a	Use benefits b	Annual social cost c	Annual non-use benefits necessary to break even d,g	(
California.....	$3.0	$31.7	$28.7	
North Atlantic.....	1.4	13.3	11.9	
[[Page 41664]]				
Mid Atlantic.....	45.0	62.6	17.5	
South Atlantic.....	7.1	9.0	1.9	
Gulf of Mexico.....	6.9	22.8	15.9	
Great Lakes.....	14.1	58.7	44.6	
Inland.....	3.0	170.4	167.4	
Total for 554 facilities....	82.9	389.4	306.5	

a Regional benefit and cost estimates are unweighted; total national estimates are s Hawaii.
b Benefits are discounted using a 3 percent discount rate.
c The regional costs include only annual compliance costs incurred by facilities. Th total social cost of the final rule (facility compliance costs and administrative
d Annualized compliance costs minus annual use benefits.
e Millions of households, including anglers fishing in the region and households in Census 2000 (BLS): http://factfinder.census.gov.

f Dollars per household per year that, when added to use benefits, would yield a tot non-use) equal to the annualized costs.
g Non-use benefits may also include unmonetized use benefits, i.e., improvements in

As shown in Exhibit XII-9, for total annual benefits to equal total annualized costs, non-use values per household would have to be $0.50 in the South Atlantic region and $8.01 in the Inland region. At the national level, the annual willingness-to-pay per affected household would have to be $5.07 for total annual benefits to equal total annualized costs.

While this approach of backing out the ``break-even'' non-use value per household does not answer the question of what non-use values might actually be for the final rule, these results do frame the question for policy-making decisions. The break-even approach poses the question: ``Is the true per household willingness-to-pay for the non-use amenities (existence and bequest) associated with the final rule likely to be greater or less than the ``breakeven'' benefit levels displayed in Exhibit XII-9?'' Unfortunately, the existing body of empirical research is inadequate to answer this question on behalf of the nation as a whole, but EPA is providing the analysis to aid policy makers and the public in forming their own judgment.

XIII. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735, October 4, 1993), the Agency must determine whether a regulatory action is ``significant'' and therefore subject to OMB review and the requirements of the Executive Order. The Order defines a ``significant regulatory action'' as one that is likely to result in a rule that may:

1. Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or Tribal governments or communities;

2. Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

3. Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

4. Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, it has been determined that this rule is a ``significant regulatory action.'' As such, this action was submitted to OMB for review. Changes made in response to OMB suggestions or recommendations will be documented in the public record.

B. Paperwork Reduction Act

The Office of Management and Budget (OMB) has approved the information collection requirements contained in this rule under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. and has assigned OMB control number 2060.02, or DCN 6-0001. Compliance with the applicable information collection requirements imposed under this final rule (see Sec. Sec. 122.21(r), 125.95, 125.96, 125.97, 125.98, 125.99) is mandatory. Existing facilities are required to perform several data-gathering activities as part of the permit renewal application process. Today's final rule requires several distinct types of information collection as part of the NPDES renewal application. In general, the information will be used to identify which of the requirements in today's final rule apply to the existing facility, how the existing facility will meet those requirements, and whether the existing facility's cooling water intake structure reflects the best technology available for minimizing adverse environmental impact. Categories of data required by today's final rule follow.

Source waterbody data for determining appropriate requirements to apply to the facility, evaluating ambient conditions, and characterizing potential for impingement and entrainment of all life stages of fish and shellfish by the cooling water intake structure;

Intake structure and cooling water system data, consisting of intake structure design, cooling water system operational data and relationship of each intake to the cooling water system, and a facility water balance diagram, to determine appropriate requirements and characterize potential for impingement and entrainment of all life stages of fish and shellfish;

Information on design and construction technologies implemented to ensure compliance with applicable requirements set forth in today's final rule; and

Information on supplemental restoration measures proposed

for use with design and construction technologies or alone to minimize adverse environmental impact.

In addition to the information requirements of the permit renewal application, NPDES permits normally

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specify monitoring and reporting requirements to be met by the permitted entity. Existing facilities that fall within the scope of this final rule would be required to perform biological monitoring for at least two years, and as required by the Director, to demonstrate compliance. Additional ambient water quality monitoring may also be required of facilities depending on the specifications of their permits. The facility is expected to analyze the results from its monitoring efforts and provide these results in a bi-annual status report to the permitting authority. Finally, facilities are required to maintain records of all submitted documents, supporting materials, and monitoring results for at least three years. (Note that the Director may require more frequent reporting and that records be kept for a longer period to coincide with the life of the NPDES permit.)

All facilities carry out the activities necessary to fulfill the general information collection requirements. The estimated burden includes developing a water balance diagram that can be used to identify the proportion of intake water used for cooling, make-up, and process water. Facilities will also gather data (as required by the compliance alternative selected) to calculate the reduction in impingement mortality and entrainment of all life stages of fish and shellfish that would be achieved by the technologies and operational measures they select. The burden estimates include sampling, assessing the source waterbody, estimating the magnitude of impingement mortality and entrainment, and reporting results in a comprehensive demonstration study. For some facilities, the burden also includes conducting a pilot study to evaluate the suitability of the technologies and operational measures based on the species that are found at the site.

Some of the facilities (those choosing to use restoration measures to maintain fish and shellfish) will need to prepare a plan documenting the restoration measures they implement and how they demonstrate that the restoration measures are effective. Restoration is a voluntary alternative. Since facilities would most likely choose restoration only if other alternatives are more costly or infeasible, EPA has not assessed facility burden for this activity. However, burden estimates have been included for the Director's review of restoration activities.

Some facilities may choose to request a site-specific determination of best technology available because of costs significantly greater than those EPA considered in establishing the performance standards or because costs are significantly greater than the benefits of complying with the performance standards. These facilities must perform a comprehensive cost evaluation study and submit a site-specific technology plan characterizing the design and construction technologies, operational measures and/or restoration measures they have selected. In addition, facilities that request a site-specific

determination because of costs significantly greater than the benefits must also perform a valuation of the monetized benefits of reducing impingement mortality and entrainment and an assessment of non-monetized benefits. Site-specific determinations are voluntary. Since facilities would choose site-specific determinations only if other alternatives are more costly, EPA has not assessed a facility burden for these activities; however, EPA has incorporated burden into the activities that the Director will perform in reviewing site-specific information.

The total average annual burden of the information collection requirements associated with today's final rule is estimated at 1,700,392 hours. The annual average reporting and record keeping burden for the collection of information by facilities responding to the section 316(b) Phase II existing facility final rule is estimated to be 5,428 hours per respondent (i.e.,, an annual average of 1,595,786 hours of burden divided among an anticipated annual average of 294 facilities). The Director reporting and record keeping burden for the

average 2,615 hours per respondent (i.e., an annual average of 104,606 hours of burden divided among an anticipated 40 States on average per year).

Respondent activities are separated into those activities associated with the NPDES permit application and those activities associated with monitoring and reporting after the permit is issued

The reason for this is that the permit cycle is every five years, while Information Collection Requests (ICRs) must be renewed every three years. Therefore, the application activities occur only once per facility during an ICR approval period, and so they are considered one-time burden for the purpose of this ICR. By contrast, the monitoring and reporting activities that occur after issuance of the permit occur on an annual basis. The burden and costs are for the information collection, reporting, and recordkeeping requirements for the three-year period beginning with the effective date of today's rule. Additional information collection requirements will occur after this initial three-year period as existing facilities continue to be issued permit renewals and such requirements will be counted in a subsequent information collection request. EPA does not consider the specific data that would be collected under this final rule to be confidential business information. However, if a respondent does consider this information to be confidential, the respondent may request that such information be treated as confidential. All confidential data will be handled in accordance with 40 CFR 122.7, 40 CFR Part 2, and EPA's Security Manual Part III, Chapter 9, dated August 9, 1976.

Burden means the total time, effort, or financial resources

other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions. For the purposes of assessing the impacts of today's rule on

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small entities, small entity is defined as: (1) A small business according to RFA default definitions for small business (based on Small Business Administration (SBA) size standards); (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and

independently owned and operated and is not dominant in its field.

After considering the economic impacts of today's final rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. This final rule applies to existing power producing facilities that employ a cooling water intake structure and are design to withdraw 50 million gallons per day (MGD) or more from waters of the United States for cooling purposes. EPA expects this final rule to regulate 25 small entities that own electric generators. We estimate that 17 of the small entities are governmental jurisdictions (i.e., 16 municipalities and one political subdivision), two are private businesses (i.e., one nonutility and one investor-owned entity), and six are not-for-profit

Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant intergovernmental mandates, and informing, educating, and advising small governments on compliance with regulatory requirements.

EPA estimates the total annualized (post-tax) costs of compliance for facilities subject to the final rule to be $249.5 million (2002$), of which $216.3 million is incurred by the private sector (including investor-owned utilities, nonutilities, and rural electric

governments that operate in-scope facilities.\59\ Additionally, permitting authorities incur $4.1 million to administer the rule, including labor costs to write permits and to conduct compliance monitoring and enforcement activities. EPA estimates that the highest undiscounted post-tax cost incurred by the private sector in any one year is approximately $419.1 million in 2009. The highest undiscounted cost incurred by the government sector in any one year is approximately $43.5 million in 2008. Thus, EPA has determined that this rule contains a Federal mandate that may result in expenditures of $100 million or more for State, local, and Tribal governments, in the aggregate, or the private sector in any one year. Accordingly, EPA has prepared a written statement under Sec. 202 of the UMRA, which is summarized as follows. See Economic and Benefits Analysis, Chapter B5, UMRA Analysis, for detailed information.

\59\ In addition, 14 facilities owned by Tennessee Valley Authority (TVA), a Federal entity, incur $10.1 million in compliance costs. The costs incurred by the Federal government are not included in this section.

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1. Summary of Written Statement

a. Authorizing Legislation

This final rule is issued under the authority of sections 101, 301, 304, 306, 308, 316, 401, 402, 501, and 510 of the Clean Water Act (CWA), 33 U.S.C. 1251, 1311, 1314, 1316, 1318, 1326, 1341, 1342, 1361, and 1370. This rule partially fulfills the obligations of the U.S. Environmental Protection Agency (EPA) under a consent decree in Riverkeeper, Inc. et al. v. Whitman, United States District Court, Southern District of New York, No. 93 Civ. 0314. See section III of this preamble for detailed information on the legal authority of this regulation.

costs; therefore, the results must be interpreted with caution. For a more detailed comparison of the costs and benefits of the final rule, refer to section XII.E of this preamble.

EPA notes that States may be able to use existing sources of financial assistance to revise and implement the final rule. Section 106 of the Clean Water Act authorizes EPA to award grants to States, Tribes, intertribal consortia, and interstate agencies for administering programs for the prevention, reduction, and elimination of water pollution. These grants may be used for various activities to develop

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and carry out a water pollution control program, including permitting, monitoring, and enforcement. Thus, State and Tribal NPDES permit

section 106 grants.

c. Macro-Economic Effects

EPA estimates that this regulation will not have an effect on the national economy, including productivity, economic growth, employment and job creation, and international competitiveness of U.S. goods and services. Macroeconomic effects on the economy are generally not considered to be measurable unless the total economic impact of a rule reaches at least 0.25 percent to 0.5 percent of Gross Domestic Product (GDP). In 2002, U.S. GDP was $10.4 trillion (2002$), according to the U.S. Bureau of Labor Statistics. Thus, in order to be considered measurable, the final rule would have to generate costs of at least $26 billion to $52 billion. Since EPA estimates the final rule will generate total annual pre-tax costs of only $389.2 million, the Agency does not believe that the final rule will have an effect on the national economy.

d. Summary of State, Local, and Tribal Government Input

EPA consulted with State governments and representatives of local governments in developing the regulation. The outreach activities are discussed in section III of this preamble.

e. Least Burdensome Option

EPA considered and analyzed several alternative regulatory options to determine the best technology available for minimizing adverse environmental impact. These regulatory options are discussed in the

demonstrate that existing flow or CWIS technologies fulfill section 316(b), identify design and control technologies, and/or use operational measures or restoration measures to fulfill the rule requirements. The final rule also ensures that any applicable requirements are economically practicable through the inclusion of the site-specific compliance alternative at Sec. 125.94(a)(5). EPA further notes that the compliance alternative specified in Sec. 125.94(a)(4) and 125.99(a) and (b) was included in part to provide additional flexibility to Phase II existing facilities as well as to reduce the burden of determining, implementing, and administering section 316(b) requirements among all relevant parties. Finally, the Agency believes that the rule extends additional flexibility to States by providing that where a State has adopted alternative regulatory requirements that achieve environmental performance comparable to that required under the rule, the Administrator will approve such alternative requirements.

2. Impact on Small Governments

EPA has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments. EPA estimates that 17 of the 62 government-owned facilities subject to the final rule are owned by small governments (i.e., governments with a population of less than 50,000). The total annualized post-tax compliance cost for all small government-owned facilities incurring costs under the final rule is $5.4 million, or approximately $316,000 per facility. The highest annualized compliance costs for a small government-owned facility is $1.3 million. These costs are lower than the corresponding costs for large governments and private entities. EPA therefore concludes that these costs do not significantly or uniquely affect small governments, and that today's rule is not subject to the requirement of section 203 of UMRA.

E. Executive Order 13132: Federalism

Executive Order 13132, entitled ``Federalism'' (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure ``meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' ``Policies that have federalism implications'' is defined in the Executive Order to include **regulations** that have ``substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.''

This final rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. Rather, this rule would result in minimal administrative costs on States that have an authorized NPDES program; would result in minimal costs to States and local government entities that own facilities subject to the regulation; it maintains the existing relationship between the national government and the States in the administration of the NPDES program; and it preserves the existing distribution of power and responsibilities among various levels of government. Thus, Executive Order 13132 does not apply to this rule.

The national cooling water intake structure requirements will be implemented through permits issued under the NPDES program. Forty-five States and the Virgin Islands are currently authorized pursuant to section 402(b) of the CWA to implement the NPDES program. In States not authorized to implement the NPDES program, EPA issues NPDES permits. Under the CWA, States are not required to become authorized to

administer the NPDES program. Rather, such authorization (and potential funding to support administration) is available to States if they operate their programs in a manner consistent with section 402(b) and applicable **regulations**. Generally, these provisions require that State NPDES programs include requirements that are as stringent as Federal program requirements. States retain the ability to implement requirements that are broader in scope or more stringent than Federal requirements. (See section 510 of the CWA). EPA expects an average annual burden of 104,606 hours with total average annual cost of $4.8 million

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for States to collectively administer this rule during the first three years after promulgation.

EPA has identified 62 Phase II existing facilities that are owned by State or local government entities. The estimated average annual compliance cost incurred by these facilities is $372,000 per facility.

Today's rule would not have substantial direct effects on either authorized or nonauthorized States or on local governments because it would not change how EPA and the States and local governments interact or their respective authority or responsibilities for implementing the NPDES program. Today's rule establishes national requirements for Phase II existing facilities with cooling water intake structures. NPDES-authorized States that currently do not comply with the final **regulations** based on today's rule will need to amend their **regulations** or statutes to ensure that their NPDES programs are consistent with Federal section 316(b) requirements. See 40 CFR 123.62(e).

For purposes of this rule, the relationship and distribution of power and responsibilities between the Federal government and the States and local governments are established under the CWA (e.g., sections 402(b) and 510), and nothing in this rule alters this established relationship and distribution of power and responsibilities. Thus, the requirements of section 6 of the Executive Order do not apply to this rule.

Although Executive Order 13132 does not apply to this rule, EPA did consult with representatives of State and local governments in developing this rule. EPA also met with the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) and, with the assistance of ASIWPCA, conducted a conference call in which representatives from 17 States or interstate organizations participated. A summary of consultation activities is provided in section III of this preamble. In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA also specifically solicited comments on the proposed rule from State and local officials. A summary of the concerns raised during that consultation and subsequent public comment periods and EPA's response to those concerns is provided in section VIII of this preamble and in the response to comment document in the record.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Executive Order 13175, entitled ``Consultation and Coordination

regulations that have ``substantial direct effects on one or more Indian tribes, on the relationship between the Federal government and the Indian tribes, or the distribution of power and responsibilities between Federal government and Indian tribes.''

This rule does not have Tribal implications. It will not have substantial direct effects on Tribal governments, on the relationship between the Federal government and the Indian Tribes, or the distribution of power and responsibilities between the Federal government and Indian Tribes as specified in Executive Order 13175. The national cooling water intake structure requirements will be implemented through permits issued under the NPDES program. No Tribal governments are currently authorized pursuant to section 402(b) of the CWA to implement the NPDES program. In addition, EPA's analyses show that no facility subject to this rule is owned by Tribal governments and thus this rule does not affect Tribes in any way in the foreseeable future. Thus, Executive Order 13175 does not apply to this rule.

Nevertheless, in the spirit of Executive Order 13175 and consistent with EPA policy to promote communications between EPA and Tribal governments, EPA solicited comment on the proposed rule from all stakeholders. EPA did not receive any comments from Tribal governments.

G. Executive Order 13045: Protection of Children From Environmental Health and Safety Risks

Executive Order 13045: ``Protection of Children from Environmental Health Risks and Safety Risks'' (62 FR 19885, April 23, 1997) applies to any rule that: (1) Is determined to be ``economically significant'' as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health

Significantly increase dependence on foreign supplies of energy; or

Have other similar adverse outcomes, particularly unintended ones.

EPA analyzed the final rule for each of these potential effects and found that this rule will not lead to any adverse outcomes. Based on the analyses, EPA concludes that this final rule will have minimal energy effects at a national and regional level. As a result, EPA did not prepare a Statement of Energy Effects. For more detail on the

preamble or the Economic and Benefits Analysis for the Final Section 316(b) Phase II Existing Facilities Rule.

I. National Technology Transfer and Advancement Act

As noted in the proposed rule, section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Pub. L. No. 104-113, section 12(d), (15 U.S.C. 272 note), directs EPA to use voluntary consensus standards in its regulatory activities unless to do so

in-scope facilities have poverty levels and racial compositions that are quite similar to the U.S. population as a whole. A relatively small subset of the facilities are located near populations with poverty rates (23 of 543, or 4.2%), or non-white populations (105 of 543, or 19.3%), or both (13 of 543, or 2.4%) that are significantly higher than national levels. Based on these results, EPA does not believe that this rule will have an exclusionary effect, deny persons the benefits of the NPDES program, or subject persons to discrimination because of their race, color, or national origin.

In fact, because EPA expects that this final rule would help to preserve the health of aquatic ecosystems located in reasonable

proximity to Phase II existing facilities, it believes that all populations, including minority and low-income populations, would benefit from improved environmental conditions as a result of this rule. Under current conditions, EPA estimates over 1.5 billion fish (expressed as age 1 equivalents) of recreational and commercial species are lost annually due to impingement and entrainment at the inscope Phase II existing facilities. Under the final rule, more than 0.5 billion individuals of these commercially and recreationally sought fish species (age 1 equivalents) will now survive to join the fishery each year. These additional fish will provide increased opportunities for subsistence anglers to increase their catch, thereby providing some benefit to low income households located near regulation-impacted waters.

K. Executive Order 13158: Marine Protected Areas

Executive Order 13158 (65 FR 34909, May 31, 2000) requires EPA to ``expeditiously propose new science-based **regulations**, as necessary, to ensure appropriate levels of protection for the marine environment.'' EPA may take action to enhance or expand protection of existing marine protected areas and to establish or recommend, as appropriate, new marine protected areas. The purpose of the Executive Order is to protect the significant natural and cultural resources within the marine environment, which means ``those areas of coastal and ocean waters, the Great Lakes and their connecting waters, and submerged lands thereunder, over which the United States exercises jurisdiction, consistent with international law.''

Today's final rule recognizes the biological sensitivity of tidal rivers, estuaries, oceans, and the Great Lakes and their susceptibility to adverse environmental impact from cooling water intake structures. This rule provides the most stringent requirements to minimize adverse environmental impact for cooling water intake structures located on these types of waterbodies, including potential reduction of intake flows to a level commensurate with that which can be attained by a closed-cycle recirculating cooling system for facilities that withdraw certain proportions of water from estuaries, tidal rivers, and oceans.

of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the Federal Register. A major rule can not take effect until 60 days after it is published in the Federal Register. This action is a ``major rule'' as defined by 5 U.S.C. 804(2). This will be effective September 7, 2004.

Dated: February 16, 2004.
Michael O. Leavitt,
Administrator.

Note: The following appendices A and B will not appear in the Code of Federal **Regulations**.

Appendix A

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Facility ID	Intake ID	EPA assumed design intake flow, gpm (Xepa) ($)	Capital cost ($)	Baseline O& annual cos ($)
Column 1	Column 2.....	Column 3	Column 4	Column
AUT0001.....	.....	401,881	322,884	699,86
AUT0002.....	.....	549,533	5,750,259	68,48
AUT0004.....	.....	239,107	528,427	30,72
AUT0011.....	.....	453,758	967,675	55,54
AUT0012.....	.....	2,018,917	48,835,329	360,81
AUT0014.....	.....	572,383	2,732,729	91,05
AUT0015.....	.....	1,296,872	510,784	.....
AUT0016.....	.....	301,127	41,613	.....
AUT0019.....	.....	848,784	11,094,343	271,04
AUT0020.....	.....	207,514	1,517,779	34,85
AUT0021.....	.....	267,138	1,187,727	65,39
AUT0024.....	.....	639,702	72,402	.....
AUT0027.....	.....	404,214	2,362,864	147,56
AUT0044.....	.....	457,869	183,653	.....
AUT0049.....	.....	820,866	6,080,054	196,36
AUT0051.....	.....	348,052	11,832,011	17,18
AUT0053.....	.....	147,762	454,296	27,34
AUT0057.....	.....	56,391	271,166	19,81
AUT0058.....	.....	624,376	8,582,766	68,23
AUT0064.....	.....	553,145	3,039,302	195,65
AUT0066.....	.....	65,571	2,006,184	80,53
AUT0078.....	.....	288,792	5,683,876	267,57
AUT0084.....	.....	2,100,000	2,976,122	3,003,55
AUT0085.....	.....	975,261	23,279,870	341,12
AUT0092.....	.....	2,786,349	929,777	.....

AUT0095.....	.....	67,369	55,826	120,77
AUT0106.....	.....	325,449	1,104,684	55,75
AUT0110.....	.....	551,114	6,445,617	70,14
AUT0120.....	.....	207,333	2,085,862	55,73
AUT0123.....	.....	62,226	106,975	7,02
AUT0127.....	.....	104,672	573,136	34,65
AUT0130.....	.....	929,723	8,127,384	402,02
AUT0131.....	.....	492,987	3,299,931	195,32
AUT0134.....	.....	99,252	3,334,593	8,17
AUT0137.....	.....	401,222	1,916,441	117,38
AUT0139.....	.....	369,074	117,095	.....
AUT0142.....	.....	407,669	9,461,494	66,79
AUT0143.....	.....	289,294	971,645	50,00
AUT0146.....	.....	213,207	1,618,126	88,50
AUT0148.....	.....	1,036,476	12,443,192	.....
AUT0149.....	.....	848,079	109,389	.....
AUT0151.....	.....	482,911	1,465,485	95,77
AUT0161.....	.....	555,680	1,600,167	101,25
AUT0168.....	.....	329,758	5,156,763	39,19
AUT0171.....	.....	1,189,016	14,989,478	120,51
AUT0174.....	.....	1,341,997	934,469	1,387,44
AUT0175.....	.....	258,008	2,505,868	134,65
AUT0176.....	.....	1,652,395	6,892,691	425,37
AUT0183.....	.....	118,504	196,689	7,30
AUT0185.....	.....	810,911	97,503	.....
AUT0187.....	.....	1,242,691	257,332	.....
AUT0190.....	.....	511,950	27,779,896	616,58
AUT0191.....	.....	692,335	19,255,865	184,16

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AUT0192.....	.....	359,686	959,625	71,96
AUT0193.....	.....	1,006,084	19,112,665	90,72
AUT0196.....	.....	230,120	374,975	.....
AUT0197.....	.....	407,061	4,773,876	248,54
AUT0202.....	.....	2,080,399	106,025,028	477,62
AUT0203.....	.....	1,083,174	4,847,332	232,70
AUT0205.....	.....	313,218	720,557	37,14
AUT0208.....	.....	220,683	3,140,556	27,18
AUT0222.....	.....	156,464	299,274	.....
AUT0227.....	.....	82,468	523,999	30,10
AUT0228.....	.....	147,594	837,743	41,02
AUT0229.....	.....	483,349	1,784,794	87,49
AUT0238.....	.....	376,148	757,400	51,85
AUT0242.....	.....	1,113,045	8,239,161	291,32
AUT0244.....	.....	49,980	426,844	22,86
AUT0245.....	.....	491,302	1,459,999	50,87
AUT0254.....	.....	145,838	353,928	22,33
AUT0255.....	.....	194,919	258,805	.....
AUT0261.....	.....	201,229	943,433	57,33
AUT0264.....	.....	840,000	21,384,690	1,502,21
AUT0266.....	.....	653,994	139,380	307,95
AUT0268.....	.....	712,677	2,998,753	114,17
AUT0273.....	.....	173,689	994,534	52,03
AUT0277.....	.....	88,831	1,192,106	45,77
AUT0278.....	.....	1,642,492	6,410,550	771,89
AUT0284.....	.....	728,495	3,743,165	208,37
AUT0292.....	.....	556,596	2,227,636	99,37
AUT0295.....	.....	359,098	3,584,905	53,36

AUT0297.....	.....	184,293	1,172,223	63,59
AUT0298.....	.....	897,819	100,769	.....
AUT0299.....	.....	864,873	9,012,107	150,70
AUT0302.....	.....	71,413	91,562	6,93
AUT0305.....	.....	762,197	42,822,242	146,01
AUT0308.....	.....	394,361	3,381,768	151,36
AUT0309.....	.....	789,860	81,433	.....
AUT0314.....	.....	1,039,315	2,438,597	134,75
AUT0319.....	.....	468,117	1,326,662	88,02
AUT0321.....	.....	669,493	2,092,630	88,91
AUT0331.....	.....	178,562	24,860	.....
AUT0333.....	.....	336,448	786,807	46,79
AUT0337.....	.....	1,110,944	131,046	.....
AUT0341.....	.....	405,256	2,429,275	115,24
AUT0345.....	.....	610,223	5,103,322	267,50
AUT0349.....	.....	2,429,925	8,146,829	424,69
AUT0351.....	.....	301,024	6,389,631	42,26
AUT0358.....	.....	210,439	2,170,195	117,83
AUT0361.....	.....	433,165	7,652,621	59,10
AUT0362.....	.....	312,830	1,566,464	51,82
AUT0364.....	.....	505,137	5,447,440	170,19
AUT0365.....	.....	140,093	445,526	29,33
AUT0368.....	.....	83,406	2,715,938	146,75
AUT0370.....	.....	322,374	1,816,861	79,91
AUT0379.....	.....	351,933	41,890	.....
AUT0381.....	.....	50,143	960,912	9,96
AUT0384.....	.....	146,511	66,229	91,02
AUT0385.....	.....	130,966	1,823,217	20,42
AUT0387.....	.....	576,057	5,283,933	122,32
AUT0398.....	.....	537,402	6,842,592	63,63
AUT0399.....	.....	140,486	232,496	.....
AUT0401.....	.....	613,529	578,957	.....
AUT0404.....	.....	291,400	4,124,975	44,64
AUT0408.....	.....	73,728	900,969	13,02
AUT0416.....	.....	143,562	41,835	96,65
AUT0423.....	.....	564,501	29,714,518	122,52
AUT0427.....	.....	148,668	291,697	.....
AUT0431.....	.....	143,775	356,208	20,91

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AUT0434.....	.....	400,472	763,363	40,35
AUT0435		183,306	483,907	27,16

AUT0446.....	.....	278,043	3,528,075	28,54
AUT0449.....	.....	487,640	1,738,410	110,26
AUT0472.....	.....	239,620	218,958	453,68
AUT0476		233,631	489,074	27,56

AUT0523.....	.....	608,373	7,741,521	.....

AUT0534.....	.....	70,565	230,241	17,17
AUT0535.....	.....	196,084	3,706,283	25,08
AUT0539.....	.....	1,056,137	13,978,398	183,68
AUT0541.....	.....	117,759	3,346,437	108,32
AUT0547.....	.....	780,279	9,747,498	118,28
AUT0551.....	.....	295,707	823,114	30,12
AUT0552.....	.....	1,226,625	133,029	.....
AUT0553.....	.....	71,128	230,549	10,37
AUT0554.....	.....	429,991	8,840,925	249,96
AUT0557.....	.....	37,500	20,033	.....
AUT0564.....	.....	1,129,749	14,903,816	170,40
AUT0567.....	.....	441,177	5,817,871	67,48
AUT0568.....	.....	584,525	2,308,321	342,70
AUT0570.....	.....	951,201	4,021,857	164,81
AUT0577.....	.....	741,931	10,647,710	113,33
AUT0583.....	.....	222,087	2,210,305	36,27
AUT0585.....	.....	128,015	1,561,382	49,93
AUT0588.....	.....	396,576	1,788,685	191,75
AUT0590.....	.....	147,803	315,803	22,59
AUT0599.....	.....	198,681	3,040,887	21,12
AUT0600.....	.....	711,801	1,717,012	80,59
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

AUT0603.....	.....	1,228,633	684,562	720,07
AUT0607.....	.....	635,364	9,044,216	111,81
AUT0611.....	.....	547,114	3,195,898	88,28
AUT0612.....	.....	186,464	6,614,075	.....
AUT0613.....	.....	493,923	4,341,494	155,35
AUT0617.....	.....	2,292,812	37,040,390	1,403,83
AUT0619.....	.....	159,600	62,547	98,45
AUT0620.....	.....	551,528	2,198,869	264,31
AUT0621.....	.....	391,137	2,018,600	70,65
AUT0623.....	.....	73,622	267,379	13,00
AUT0625.....	.....	562,255	2,841,330	104,16

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AUT0630.....	.....	569,211	16,086,712	94,88
AUT0631.....	.....	480,721	11,721,529	77,93
AUT0635		72,550	1,057,088	50,14

DUT0062.....	1.....		72,917	1,069,902	8,52
DUT0062.....	2.....		156,250	1,922,088	14,31
DUT0576.....	5&6.....		50,000	1,434,192	51,77
DUT0576.....	7.....		43,056	866,245	29,00
DUT0576.....	CT.....		2,083	202,358	.....
DUT1002.....	Screenhouse 1.....		685,833	166,652	322,57
DUT1002.....	Screenhouse 2.....		685,833	166,652	322,57
DUT1003.....	.....		38,500	703,237	15,91
DUT1006.....	Unit 1/2.....		173,611	1,286,341	54,15
DUT1006.....	Unit 3/4.....		20,833	281,263	12,91
DUT1007.....	.....		242,778	680,059	32,86
DUT1008.....	.....		60,000	1,016,367	26,93
DUT1011.....	.....		283,611	1,350,484	76,11
DUT1012.....	.....		173,611	522,205	29,57
DUT1014.....	.....		87,000	920,321	40,85
DUT1022.....	.....		2,200,000	8,268,801	291,80
DUT1023.....	CWS 535.....	478,444	28,961,166	360,609	2
DUT1023.....	DWS 536.....	520,000	39,708,776	97,288	3
DUT1029.....	CRS.....		638,000	14,391,478	63,70
DUT1029.....	CR Nuc.....		680,000	6,740,847	162,47
DUT1029.....	CRN.....		68,000	649,893	13,91
DUT1029.....	HCT.....		735,000	4,654,560	159,67
DUT1031.....	1.....		59,000	808,777	17,79
DUT1031.....	2.....		140,000	1,524,044	24,13
DUT1033.....	.....		240,000	1,076,251	43,29
DUT1034.....	.....		1,231,944	4,990,608	202,92
DUT1036.....	.....		444,000	753,297	41,56
DUT1038.....	.....		65,972	213,848	12,80
DUT1041.....	.....		188,958	433,167	27,97
DUT1043.....	.....		280,556	36,345	.....
DUT1044.....	.....		756,944	76,726	.....
DUT1047.....	.....		614,306	16,998,704	151,03
DUT1048.....	HI-1.....		256,944	1,766,372	113,53
DUT1048.....	HI-2.....		170,139	473,836	33,12
DUT1050.....	.....		2,104,167	407,068	.....
DUT1051.....	.....		374,000	1,027,013	55,46
DUT1057.....	.....		340,000	2,844,898	35,15
DUT1062.....	.....		670,139	67,658	.....
DUT1066.....	.....		1,712,000	32,777,974	260,69
DUT1067.....	1.....		63,611	.....	.....
DUT1067.....	2.....		31,667	.....	.....
DUT1067.....	3.....		69,653	23,159	.....
DUT1068.....	.....		91,528	360,536	56,35
DUT1072.....	.....		366,597	691,381	40,31
DUT1084.....	.....		264,583	835,764	54,49

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DUT1085.....	.....		297,000	2,410,696	159,60
DUT1086.....	Unit 1.....		57,292	667,197	29,04
DUT1086.....	Unit 2.....		57,292	667,197	29,04
DUT1088.....	4.....	49,280	865,324	11,129	
DUT1088.....	5.....	99,458	1,438,399	12,058	
DUT1093.....	.....		307,760	9,456,466	.....
DUT1097.....	.....		106,007	2,349,646	.....
DUT1098.....	.....		71,528	507,025	29,46
DUT1100.....	Units 1 & 2.....		188,000	.....	.....
DUT1100.....	Units 3 & 4.....		188,000	136,878	.....
DUT1103.....	Unit 1 Screenhouse.....		118,000	.....	.....

DUT1103.....	Unit 2 Screenhouse.....	250,000	47,060	.....
DUT1103.....	Hvdc Lake Intake.....	1,200	34,615	.....
DUT1103.....	Hvdc Separator Dike.....	1,200	34,615	.....
DUT1103.....	River Intake.....	7,800	75,587	5,73
DUT1109.....	.....	58,333	873,553	32,38
DUT1111.....	Unit 1&2.....	199,716	764,700	99,54
DUT1111.....	Unit 3.....	189,842	717,221	93,27
DUT1112.....	.....	193,750	501,403	28,51
DUT1113.....	System 27.....	1,125,000	6,518,329	281,01
DUT1113.....	System 67.....	44,028	181,599	.....
DUT1116.....	.....	355,556	2,886,459	69,80
DUT1118.....	.....	667,361	140,959	.....
DUT1122.....	.....	120,000	23,134	.....
DUT1123.....	6.....	111,806	4,071,741	15,53
DUT1123.....	7.....	256,250	5,809,773	.....
DUT1123.....	8.....	220,139	5,590,610	27,18
DUT1132.....	.....	1,896,000	3,995,072	197,55
DUT1133.....	.....	213,889	1,180,537	44,63
DUT1138.....	.....	77,083	264,532	12,47
DUT1140.....	Mc2-4.....	131,250	334,100	20,51
DUT1140.....	Mc5&6.....	383,958	1,450,787	82,44
DUT1145.....	.....	178,472	2,702,979	38,03
DUT1146.....	.....	181,944	325,271	276,18
DUT1152.....	.....	399,306	10,606,982	355,22
DUT1156.....	.....	496,000	16,234,946	67,03
DUT1157.....	6.....	110,000	1,262,753	47,82
DUT1157.....	7.....	5,833	305,286	13,43
DUT1165.....	1.....	480,000	9,356,403	220,44
DUT1165.....	2.....	489,233	.....	.....
DUT1169.....	.....	620,000	14,855,719	47,99
DUT1173.....	.....	37,986	312,285	18,52
DUT1179.....	.....	390,278	1,204,485	74,17
DUT1185.....	.....	225,000	3,496,693	21,56
DUT1186.....	Unit 4.....	62,000	577,654	26,37
DUT1186.....	Unit 5.....	62,000	577,654	26,37
DUT1187.....	Mt 2&3.....	147,014	.....	.....
DUT1187.....	Mt 6-8.....	500,000	78,370	.....
DUT1189.....	Unit 6 & 8.....	72,222	.....	.....
DUT1189.....	Unit 7.....	80,000	22,427	.....
DUT1198.....	.....	279,511	5,198,159	27,45
DUT1202.....	Power Plant.....	36,000	1,154,817	.....
DUT1202.....	Filtration Plant.....	30,000	987,137	.....

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[[pp. 41675-41693]] National Pollutant Discharge Elimination System--Final **Regulations** to Establish Requirements for Cooling Water Intake Structures at Phase II Existing Facilities

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DUT1206.....	1.....	85,972	53,440	56,70
DUT1206.....	2.....	85,000	59,054	56,15
DUT1206.....	3.....	120,972	87,045	76,53
DUT1209.....	Plant A.....	640,000	2,227,053	89,17
DUT1209.....	Plant B.....	515,972	10,503,729	51,20
DUT1211.....	.....	1,666,667	32,926,766	3,240,83
DUT1212.....	.....	687,500	2,000,922	85,02
DUT1214.....	.....	51,944	754,488	34,90
DUT1217.....	Unit 1.....	.....	.....	.....
DUT1217.....	Unit 6-8.....	104,861	848,612	.....
DUT1217.....	Unit 4.....	.....	.....	.....
DUT1219.....	.....	550,000	2,862,608	108,30
DUT1223.....	1.....	142,000	1,422,632	8,89
DUT1223.....	2.....	224,800	2,121,274	22,28
DUT1227.....	1 & 2.....	130,000	373,205	21,49
DUT1227.....	3.....	185,000	512,326	29,08
DUT1229.....	.....	73,000	30,638	82,61
DUT1238.....	A.....	676,000	386,447	531,80
DUT1238.....	B.....	334,000	344,428	525,71
DUT1248.....	.....	452,083	49,114	.....
DUT1249.....	.....	43,900	10,765	.....
DUT1250.....	.....	360,000	12,788,752	160,06
DUT1252.....	.....	112,000	157,353	10,98
DUT1258.....	Screen House No.1.....	287,083	6,665,603	171,24
DUT1258.....	Screen House No.2.....	422,708	9,009,434	248,57
DUT1258.....	Screen House No.3.....	243,056	4,842,849	108,02
DUT1259.....	.....	71,181	2,706,303	20,74
DUT1261.....	U12.....	79,000	49,889	119,64
DUT1261.....	U34.....	139,750	1,735,631	101,58
DUT1265.....	.....	70,000	495,281	35,98
DUT1268.....	.....	2,400,000	20,911,797	1,793,92
DUT1269.....	.....	456,000	3,012,280	107,76
DUT1270.....	.....	89,583	18,084	.....
DUT1271.....	.....	186,000	14,970,016	30,16
DUT1272.....	Mo1 & 2.....	713,889	1,238,695	76,91
DUT1272.....	Mo3.....	528,472	849,029	53,82
DUT1273.....	.....	444,444	2,752,775	164,71
DUT1274.....	.....	330,556	1,564,234	62,47
DUT1275.....	.....	1,992,500	6,739,793	.....
DUT1276.....	.....	62,500	412,277	23,75
DUT1278.....	.....	559,722	4,962,033	193,47

Facilities Rec

AUT0010.....	.....	n/a	.....	.....

AUT0013.....	.....	n/a	.....	.....
AUT0018.....	.....	n/a	.....	.....
AUT0022.....	.....	n/a	.....	.....
AUT0033.....	.....	n/a	.....	.....
AUT0036.....	.....	n/a	.....	.....
AUT0041.....	.....	n/a	.....	.....
AUT0047.....	.....	n/a	.....	.....
AUT0050.....	.....	n/a	.....	.....
AUT0054.....	.....	n/a	.....	.....
AUT0067.....	.....	n/a	.....	.....
AUT0068.....	.....	n/a	.....	.....
AUT0071.....	.....	n/a	.....	.....
AUT0072.....	.....	n/a	.....	.....
AUT0073.....	.....	n/a	.....	.....
AUT0077.....	.....	n/a	.....	.....
AUT0079.....	.....	n/a	.....	.....
AUT0080.....	.....	n/a	.....	.....
AUT0083.....	.....	n/a	.....	.....
AUT0087.....	.....	n/a	.....	.....
AUT0091.....	.....	n/a	.....	.....
AUT0093.....	.....	n/a	.....	.....

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AUT0097.....	.....	n/a	.....	.....
AUT0101.....	.....	n/a	.....	.....
AUT0104.....	.....	n/a	.....	.....
AUT0111.....	.....	n/a	.....	.....
AUT0114.....	.....	n/a	.....	.....
AUT0125.....	.....	n/a	.....	.....
AUT0126.....	.....	n/a	.....	.....
AUT0129.....	.....	n/a	.....	.....
AUT0152.....	.....	n/a	.....	.....
AUT0156.....	.....	n/a	.....	.....
AUT0157.....	.....	n/a	.....	.....
AUT0160.....	.....	n/a	.....	.....
AUT0163.....	.....	n/a	.....	.....

AUT0170.....	.....	n/a	.....	.....
AUT0173.....	.....	n/a	.....	.....
AUT0178.....	.....	n/a	.....	.....
AUT0181.....	.....	n/a	.....	.....
AUT0182.....	.....	n/a	.....	.....
AUT0199.....	.....	n/a	.....	.....
AUT0201.....	.....	n/a	.....	.....
AUT0215.....	.....	n/a	.....	.....
AUT0216.....	.....	n/a	.....	.....
AUT0221.....	.....	n/a	.....	.....
AUT0226.....	.....	n/a	.....	.....
AUT0230.....	.....	n/a	.....	.....
AUT0232.....	.....	n/a	.....	.....
AUT0235.....	.....	n/a	.....	.....
AUT0240.....	.....	n/a	.....	.....
AUT0241.....	.....	n/a	.....	.....
AUT0246.....	.....	n/a	.....	.....
AUT0248.....	.....	n/a	.....	.....
AUT0257.....	.....	n/a	.....	.....
AUT0260.....	.....	n/a	.....	.....
AUT0270.....	.....	n/a	.....	.....
AUT0275.....	.....	n/a	.....	.....

AUT0276.....	.....	n/a	.....	.....
AUT0285.....	.....	n/a	.....	.....
AUT0286.....	.....	n/a	.....	.....
AUT0287.....	.....	n/a	.....	.....
AUT0296.....	.....	n/a	.....	.....
AUT0300.....	.....	n/a	.....	.....
AUT0304.....	.....	n/a	.....	.....
AUT0307.....	.....	n/a	.....	.....
AUT0310.....	.....	n/a	.....	.....
AUT0315.....	.....	n/a	.....	.....
AUT0343.....	.....	n/a	.....	.....
AUT0344.....	.....	n/a	.....	.....
AUT0350.....	.....	n/a	.....	.....
AUT0355.....	.....	n/a	.....	.....
AUT0356.....	.....	n/a	.....	.....
AUT0359.....	.....	n/a	.....	.....
AUT0363.....	.....	n/a	.....	.....
AUT0373.....	.....	n/a	.....	.....

[[**Page** 41677]]

AUT0380.....	.....	n/a	.....	.....
AUT0388.....	.....	n/a	.....	.....
AUT0390.....	.....	n/a	.....	.....
AUT0394.....	.....	n/a	.....	.....
AUT0396.....	.....	n/a	.....	.....
AUT0397.....	.....	n/a	.....	.....
AUT0403.....	.....	n/a	.....	.....
AUT0405.....	.....	n/a	.....	.....
AUT0406.....	.....	n/a	.....	.....
AUT0411.....	.....	n/a	.....	.....
AUT0415.....	.....	n/a	.....	.....
AUT0419.....	.....	n/a	.....	.....
AUT0424.....	.....	n/a	.....	.....
AUT0433.....	.....	n/a	.....	.....
AUT0440.....	.....	n/a	.....	.....
AUT0443.....	.....	n/a	.....	.....
AUT0444.....	.....	n/a	.....	.....
AUT0453.....	.....	n/a	.....	.....
AUT0455.....	.....	n/a	.....	.....
AUT0459.....	.....	n/a	.....	.....
AUT0462.....	.....	n/a	.....	.....
AUT0463.....	.....	n/a	.....	.....
AUT0467.....	.....	n/a	.....	.....
AUT0473.....	.....	n/a	.....	.....
AUT0477.....	.....	n/a	.....	.....
AUT0478.....	.....	n/a	.....	.....
AUT0481.....	.....	n/a	.....	.....
AUT0482.....	.....	n/a	.....	.....
AUT0492.....	.....	n/a	.....	.....
AUT0500.....	.....	n/a	.....	.....
AUT0507.....	.....	n/a	.....	.....
AUT0512.....	.....	n/a	.....	.....
AUT0515.....	.....	n/a	.....	.....
AUT0521.....	.....	n/a	.....	.....
AUT0531.....	.....	n/a	.....	.....
AUT0536.....	.....	n/a	.....	.....
AUT0537.....	.....	n/a	.....	.....
AUT0538.....	.....	n/a	.....	.....

AUT0540.....	.....	n/a	.....	.....
AUT0544.....	.....	n/a	.....	.....
AUT0546.....	.....	n/a	.....	.....
AUT0555.....	.....	n/a	.....	.....
AUT0559.....	.....	n/a	.....	.....
AUT0561.....	.....	n/a	.....	.....
AUT0571.....	.....	n/a	.....	.....
AUT0573.....	.....	n/a	.....	.....
AUT0575.....	.....	n/a	.....	.....
AUT0580.....	.....	n/a	.....	.....
AUT0582.....	.....	n/a	.....	.....
AUT0595.....	.....	n/a	.....	.....
AUT0602.....	.....	n/a	.....	.....
AUT0604.....	.....	n/a	.....	.....
AUT0606.....	.....	n/a	.....	.....
AUT0608.....	.....	n/a	.....	.....
AUT0618.....	.....	n/a	.....	.....
AUT0636.....	.....	n/a	.....	.....
AUT0637.....	.....	n/a	.....	.....
AUT0755.....	.....	n/a	.....	.....
DNU2002.....	.....	n/a	.....	.....
DNU2005.....	.....	n/a	.....	.....
DNU2006.....	.....	n/a	.....	.....
DNU2015.....	.....	n/a	.....	.....
DNU2031.....	.....	n/a	.....	.....
DNU2047.....	.....	n/a	.....	.....
DUT1010.....	.....	n/a	.....	.....
DUT1013.....	.....	n/a	.....	.....

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DUT1021.....	.....	n/a	.....	.....
DUT1026.....	.....	n/a	.....	.....
DUT1027.....	.....	n/a	.....	.....
DUT1032.....	.....	n/a	.....	.....
DUT1039.....	.....	n/a	.....	.....
DUT1046.....	.....	n/a	.....	.....
DUT1049.....	.....	n/a	.....	.....
DUT1053.....	.....	n/a	.....	.....
DUT1056.....	.....	n/a	.....	.....
DUT1070.....	.....	n/a	.....	.....
DUT1071.....	.....	n/a	.....	.....
DUT1078.....	.....	n/a	.....	.....
DUT1081.....	.....	n/a	.....	.....
DUT1087.....	.....	n/a	.....	.....
DUT1092.....	.....	n/a	.....	.....
DUT1104.....	.....	n/a	.....	.....
DUT1105.....	.....	n/a	.....	.....
DUT1106.....	.....	n/a	.....	.....
DUT1117.....	.....	n/a	.....	.....
DUT1120.....	.....	n/a	.....	.....
DUT1129.....	.....	n/a	.....	.....
DUT1130.....	.....	n/a	.....	.....
DUT1142.....	.....	n/a	.....	.....
DUT1143.....	.....	n/a	.....	.....
DUT1148.....	.....	n/a	.....	.....
DUT1149.....	.....	n/a	.....	.....
DUT1153.....	.....	n/a	.....	.....
DUT1154.....	.....	n/a	.....	.....

DUT1155		n/a		
DUT1161		n/a		
DUT1167		n/a		
DUT1170		n/a		
DUT1172		n/a		
DUT1174		n/a		
DUT1175		n/a		
DUT1176		n/a		
DUT1177		n/a		
DUT1183		n/a		
DUT1188		n/a		
DUT1191		n/a		
DUT1192		n/a		
DUT1194		n/a		
DUT1199		n/a		
DUT1201		n/a		
DUT1213		n/a		
DUT1220		n/a		
DUT1222		n/a		
DUT1224		n/a		
DUT1225		n/a		
DUT1228		n/a		
DUT1233		n/a		
DUT1234		n/a		
DUT1235		n/a		

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DUT1239		n/a		
DUT1243		n/a		
DUT1254		n/a		
DUT1257		n/a		
DUT1262		n/a		

\1\ The design flow adjustment slope (m) represents the slope that corresponds to th
\2\ Discount rate = 7%
\3\ Amortization period for capital costs = 10 years
\4\ Amortization period for downtime and pilot study costs = 30 years
Note: Depending on the data provided, some facilities with multiple intakes were cos
each intake using the steps below and sum. Note that some costs (e.g., constructio

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Appendix B: Facility ID and Facility Name for All Facilities Not Claiming Survey Information CBI

Facility ID	Facility name
AUT0001	Cane Run
AUT0002	Chesapeake
AUT0004	Hennepin
AUT0010	Bowen
AUT0011	Shawville
AUT0012	Diablo Canyon Nuclear
AUT0013	Montville
AUT0014	Williams
AUT0015	Northport

AUT0016	Cholla
AUT0018	R M Heskett Station
AUT0019	Charles Poletti
AUT0020	B L England
AUT0021	B C Cobb
AUT0022	St Johns River Power
AUT0024	Bull Run
AUT0027	Lake Hubbard
AUT0033	Muscatine
AUT0036	Edgewater
AUT0041	Edwin I Hatch
AUT0044	Hunters Point
AUT0047	Michoud
AUT0049	Chalk Point
AUT0050	Wyandotte
AUT0051	Suwannee River
AUT0053	Nelson Dewey
AUT0054	Flint Creek
AUT0057	Thomas Fitzhugh
AUT0058	Mercer
AUT0064	Decordova
AUT0066	Fermi Nuclear
AUT0067	Henry D King
AUT0068	Scattergood
AUT0071	Oswego
AUT0072	Sioux
AUT0073	Lake Catherine
AUT0078	Missouri City
AUT0079	Eagle Mountain
AUT0080	Lone Star
AUT0083	Schiller
AUT0084	Salem Nuclear
AUT0085	Point Beach Nuclear
AUT0092	Linden
AUT0093	Perry Nuclear
AUT0095	Tyrone
AUT0097	Little Gypsy
AUT0101	Lakeside
AUT0106	Cheswick
AUT0110	C P Crane
AUT0111	Cape Fear
AUT0114	Kewaunee Nuclear
AUT0120	Norwalk Harbor
AUT0123	Warren
AUT0125	Beaver Valley Nuclear
AUT0127	Lake Road
AUT0129	Susquehanna Nuclear
AUT0130	Elmer W Stout
AUT0131	Hammond
AUT0134	Mount Tom
AUT0137	Mitchell
AUT0139	Albany
AUT0142	Lauderdale
AUT0143	Wood River
AUT0146	Meredosia
AUT0148	Tanners Creek
AUT0149	Thomas Hill
AUT0151	Decker Creek
AUT0152	Duck Creek
AUT0156	Waterford 1 & 2

AUT0157	Pulliam
AUT0160	L V Sutton
AUT0161	Valley
AUT0163	Belle River
AUT0168	E F Barrett
AUT0170	O W Sommers
AUT0171	New Madrid
AUT0173	Fort Calhoun Nuclear
AUT0174	Herbert a Wagner
AUT0175	R E Burger
AUT0176	Martin Lake
AUT0178	Mt Storm
AUT0181	Prairie Creek
AUT0182	Arsenal Hill
AUT0183	Schuylkill
AUT0185	Gallatin
AUT0187	North Anna Nuclear
AUT0190	Ginna
AUT0191	J H Campbell
AUT0192	R W Miller
AUT0193	Joliet 29
AUT0196	Southside
AUT0197	Austin-dt
AUT0201	Cope
AUT0202	Donald C Cook Nuclear
AUT0203	Riverside
AUT0205	Joliet 9
AUT0208	New Castle
AUT0215	Coleto Creek
AUT0216	Fort St Vrain
AUT0221	Polk
AUT0222	Marion
AUT0226	Sooner
AUT0227	Silver Lake
AUT0228	High Bridge
AUT0229	Dan E Karn
AUT0230	McWilliams
AUT0232	V H Braunig
AUT0235	Sam Rayburn
AUT0238	North Lake
AUT0240	Lee
AUT0241	J B Sims
AUT0242	Quad Cities Nuclear
AUT0244	Elk River
AUT0245	Avon Lake
AUT0246	Canaday
AUT0248	Sam Bertron
AUT0254	Chamois
AUT0255	Cooper
AUT0257	Gerald Gentleman
AUT0260	Marshall
AUT0261	Dale
AUT0264	Indian Point 3 Nucler
AUT0266	North Omaha
AUT0268	Cutler
AUT0270	Possum Point
AUT0273	Stanton
AUT0275	Seabrook Nuclear
AUT0276	River Rouge
AUT0277	Dubuque

AUT0278	Morgantown
AUT0284	Handley
AUT0285	Conners Creek
AUT0286	Welsh
AUT0287	Horseshoe Lake
AUT0292	Harris Nuclear
AUT0295	Jack Mcdonough
AUT0296	W H Zimmer
AUT0297	Quindaro
AUT0298	Harllee Branch
AUT0299	Chesterfield
AUT0300	Eckert Station
AUT0302	U.S. DOE SRS (D-area)
AUT0304	Lansing
AUT0305	Kahe
AUT0307	Rodemacher
AUT0308	W S Lee
AUT0309	Wilkes
AUT0310	A B Paterson
AUT0314	Philip Sporn
AUT0315	Sabine
AUT0319	Cliffside
AUT0321	J E Corette
AUT0331	Lake Creek
AUT0333	Hamilton
AUT0337	Johnsonville
AUT0341	Montrose
AUT0343	John E Amos
AUT0344	Weston
AUT0345	Summer Nuclear
AUT0349	McGuire Nuclear
AUT0350	Clinton Nuclear
AUT0351	Portland
AUT0355	Limerick Nuclear
AUT0356	Byron Nuclear
AUT0358	H T Pritchard
AUT0359	Hookers Point
AUT0361	Hawthorn
AUT0362	Teche
AUT0363	Wansley
AUT0364	Dresden Nuclear
AUT0365	Arkwright
AUT0368	Kaw
AUT0370	Deepwater
AUT0373	Valmont
AUT0379	Lake Pauline
AUT0380	Will County
AUT0381	Healy
AUT0384	Somerset
AUT0385	Hutsonville
AUT0387	Haynes
AUT0388	Lewis Creek
AUT0390	Fort Churchill
AUT0394	Nebraska City
AUT0396	Bremo Power Station
AUT0397	George Neal North
AUT0398	Iatan
AUT0399	Boomer Lake
AUT0401	Fort Myers
AUT0403	Nine Mile Point Nuclear

AUT0404..... Mitchell
AUT0405..... Fisk
AUT0406..... Merom
AUT0408..... Cameo
AUT0411..... Roseton
AUT0415..... Rochester 7
AUT0416..... Noblesville
AUT0419..... Brunswick Nuclear
AUT0423..... James A Fitzpatrick
AUT0424..... Davis-besse
AUT0427..... Blount Street
AUT0431..... San Angelo
AUT0433..... Mistersky
AUT0434..... Paradise
AUT0435..... Shiras
AUT0440..... Eaton
AUT0441..... Piqua
AUT0443..... Milton L Kapp
AUT0444..... Gibbons Creek
AUT0446..... Richard H. Gorsuch
AUT0449..... Big Brown
AUT0453..... Four Corners
AUT0455..... Seminole
AUT0459..... Vogtle Nuclear
AUT0462..... Warrick
AUT0463..... Rex Brown
AUT0467..... Vero Beach
AUT0472..... Miami Fort
AUT0473..... Palisades Nuclear

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AUT0476..... Trinidad
AUT0477..... Fair Station
AUT0478..... Dansby
AUT0481..... Powerlane
AUT0482..... Gen J M Gavin
AUT0483..... Shawnee
AUT0489..... Nearman Creek

AUT0490..... Buck
AUT0492..... Collins
AUT0493..... E S Joslin
AUT0496..... Indian River
AUT0499..... Bay Front
AUT0500..... Big Cajun 2
AUT0501..... Jack Watson
AUT0507..... Crawford
AUT0512..... J K Spruce
AUT0513..... Waterford 3 Nuclear
AUT0515..... Rockport
AUT0517..... Humboldt Bay
AUT0518..... James River
AUT0521..... Menasha
AUT0522..... Jefferies
AUT0523..... Walter C Beckjord
AUT0529..... Gould Street
AUT0531..... Braidwood Nuclear
AUT0534..... Crisp
AUT0535..... Urquhart

AUT0536	Rush Island
AUT0537	Dallman
AUT0538	Genoa
AUT0539	Edge Moor
AUT0540	J P Madgett
AUT0541	Indian Point Nuclear
AUT0544	Eddystone
AUT0546	Watts Bar Nuclear
AUT0547	Muskingum River
AUT0551	Allen S King
AUT0552	Kingston
AUT0553	Hunlock Pwr Station
AUT0554	Potomac River
AUT0555	Zuni
AUT0557	Sayreville
AUT0561	J T Deely
AUT0564	Kyger Creek
AUT0567	F B Culley
AUT0568	Northside
AUT0570	Peach Bottom Nuclear
AUT0571	Baxter Wilson
AUT0573	San Onofre Nuclear
AUT0575	Trenton Channel
AUT0577	Middletown
AUT0580	Sixth Street
AUT0582	E W Brown
AUT0583	Dave Johnston
AUT0585	Burlington
AUT0588	Monticello
AUT0590	C D McIntosh Jr
AUT0599	Kearny
AUT0600	Kincaid
AUT0601	Bridgeport Harbor
AUT0602	Mason Steam
AUT0603	Astoria
AUT0604	C R Huntley
AUT0606	Hmp&l Station 2
AUT0607	Moss Landing
AUT0608	Pilgrim Nuclear
AUT0611	New Boston
AUT0612	Huntington Beach
AUT0613	Morro Bay
AUT0617	Ravenswood
AUT0618	New Haven Harbor
AUT0619	William F Wyman
AUT0620	Dunkirk
AUT0621	Contra Costa
AUT0623	Kendall Square
AUT0625	Encina
AUT0630	Lovett
AUT0631	Salem Harbor
AUT0635	Aes Hickling
AUT0637	Ormond Beach
AUT0638	Mandalay
AUT0639	Pittsburg
DMU3244	University of Notre Dame Power Plant
DMU3310	University of Iowa--Main Power Plant
DNU2002	Brooklyn Navy Yard Cogeneration

	Partners, L.P.
DNU2011	Long Beach Generation
DNU2013	Maine Energy Recovery Company
DNU2014	Baltimore Resco
DNU2015	Southern Energy-Canal
DNU2017	Westchester Resco Co.
DNU2018	Grays Ferry Cogeneration Partnership
DNU2021	Morgantown
DNU2025	Sparrows Point Div Bethlehem Steel Corp
DNU2031	Ch Resources--Beaver Falls
DNU2032	Duke Energy South Bay
DNU2038	Saugus Resco
DNU2047	El Segundo Power
DUT0062	Leland Olds Station
DUT0576	Sam O. Purdom Generating Station
DUT1002	Monroe
DUT1003	Peru
DUT1006	Martins Creek
DUT1007	Presque Isle
DUT1008	Far Rockaway
DUT1011	Stryker Creek
DUT1012	Grand Tower
DUT1014	Dolphus M Grainger
DUT1021	Alma
DUT1022	Comanche Peak Nuclear
DUT1023	Oyster Creek Nuclear
DUT1026	Delaware
DUT1029	Crystal River
DUT1031	Merrimack
DUT1033	J C Weadock
DUT1034	South Oak Creek
DUT1036	Allen
DUT1038	North Texas
DUT1041	Elmer Smith
DUT1043	Ray Olinger
DUT1044	Tradinghouse
DUT1046	Labadie
DUT1047	Elrama
DUT1048	Holly Street
DUT1049	Joppa Steam
DUT1050	Browns Ferry Nuclear
DUT1051	Havana
DUT1056	Webster
DUT1057	Wateree
DUT1062	Fayette Power Prj
DUT1066	F J Gannon
DUT1067	Paint Creek
DUT1068	Harbor
DUT1070	Millstone
DUT1072	Graham
DUT1084	Fort Phantom
DUT1085	Petersburg
DUT1086	Valley
DUT1088	Seward
DUT1093	Bailly
DUT1097	Rock River
DUT1098	Blackhawk
DUT1100	Sewaren

DUT1103..... Milton R Young
DUT1109..... Riverside
DUT1111..... E D Edwards
DUT1112..... Lieberman
DUT1113..... Sequoyah Nuclear
DUT1116..... Waiau
DUT1117..... Columbia
DUT1118..... Cooper
DUT1122..... Edgewater
DUT1123..... Waukegan
DUT1132..... Cumberland
DUT1133..... J R Whiting
DUT1138..... Harbor
DUT1140..... Morgan Creek
DUT1142..... Victoria
DUT1143..... East River
DUT1145..... Honolulu
DUT1146..... Devon
DUT1148..... Council Bluffs
DUT1152..... Coffeen
DUT1153..... Mill Creek
DUT1154..... McClellan
DUT1155..... P H Robinson
DUT1156..... John Sevier
DUT1157..... Sterlington
DUT1161..... Robert E Ritchie
DUT1165..... Big Bend
DUT1167..... Ninemile Point
DUT1169..... Hudson
DUT1170..... Carl Bailey
DUT1172..... Barney M Davis
DUT1173..... Logansport
DUT1174..... Arkansas Nuclear One
DUT1175..... Fox Lake
DUT1179..... Pirkey
DUT1185..... Cromby
DUT1186..... Glenwood
DUT1187..... Mountain Creek
DUT1189..... Larsen Memorial
DUT1191..... Monroe
DUT1192..... Meramec
DUT1194..... Gerald Andrus
DUT1198..... O H Hutchings
DUT1202..... Manitowoc
DUT1206..... Indian River
DUT1209..... Widows Creek
DUT1211..... Surry Nuclear
DUT1212..... J M Stuart
DUT1213..... Riverside
DUT1214..... Charles R Lowman
DUT1217..... Deepwater
DUT1219..... Port Washington
DUT1223..... Nueces Bay
DUT1225..... Burlington
DUT1227..... Sibley
DUT1228..... Willow Glen
DUT1229..... Riverton
DUT1235..... Riverside
DUT1238..... Cedar Bayou
DUT1248..... Knox Lee

DUT1249..... Oak Creek
DUT1250..... Vermont Yankee Nuclear
DUT1252..... Muskogee
DUT1258..... St Clair
DUT1259..... James De Young
DUT1261..... Green River
DUT1265..... River Crest
DUT1268..... Calvert Cliffs Nuclear
DUT1269..... Dean H Mitchell
DUT1270..... Pueblo
DUT1271..... Michigan City
DUT1272..... Monticello
DUT1273..... Sim Gideon

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DUT1274..... P L Bartow
DUT1275..... Anclote
DUT1276..... Animas
DUT1278..... Newton

List of Subjects

40 CFR Part 9

Environmental protection, Administrative practice and procedure, Confidential business information, Hazardous substances, Reporting and recordkeeping requirements, Water pollution control

0
1. The authority citation for part 9 continues to read as follows:

Authority: 7 U.S.C. 135 et seq., 136-136y; 15 U.S.C. 2001, 2003, 2005, 2006, 2601-2671, 21 U.S.C. 331j, 346a, 348; 31 U.S.C. 9701; 33 U.S.C. 1251 et seq., 1311, 1313d, 1314, 1318, 1321, 1326, 1330, 1342, 1344, 1345 (d) and (e), 1361; E.O. 11735, 38 FR 21243, 3 CFR, 1971-1975 Comp. p. 973; 42 U.S.C. 241, 242b, 243, 246, 300f, 300g, 300g-1, 300g-2, 300g-3, 300g-4, 300g-5, 300g-6, 300j-1, 300j-2, 300j-3, 300j-4, 300j-9, 1857 et seq., 6901-6992k, 7401-7671q, 7542, 9601-9657, 11023, 11048.

0
2. In Sec. 9.1 the table is amended by revising the entry for ``122.21(r)'' and by adding entries in numerical order under the indicated heading to read as follows:

Sec. 9.1 OMB approvals under the Paperwork Reduction Act.

* * * * *

40 CFR citation	OMB Control No.
* * * * *	
EPA Administered Permit Programs: The National Pollutant Discharge Elimination System	
* * * * *	
122.21(r)	2040-0241, 2040-0257
* * * * *	
Criteria and Standards for the National Pollutant Discharge Elimination System	
* * * * *	
125.95	2040-0257
125.96	2040-0257
125.97	2040-0257
125.98	2040-0257
125.99	2040-0257
* * * * *	

PART 122--EPA ADMINISTERED PERMIT PROGRAMS: THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

0
1. The authority citation for part 122 continues to read as follows:

Authority: The Clean Water Act, 33 U.S.C. 1251 et seq.

0
2. Section 122.21 is amended by revising paragraph (r)(1) and by adding a new paragraph (r)(5) to read as follows:

Sec. 122.21 Application for a permit (applicable to State programs, see Sec. 123.25)

* * * * *

(r) Application requirements for facilities with cooling water intake structures--(1)(i) New facilities with new or modified cooling water intake structures. New facilities with cooling water intake structures as defined in part 125, subpart I, of this chapter must submit to the Director for review the information required under paragraphs (r)(2), (3), and (4) of this section and Sec. 125.86 of this chapter as part of their application. Requests for alternative requirements under Sec. 125.85 of this chapter must be submitted with your permit application.

(ii) Phase II existing facilities. Phase II existing facilities as defined in part 125, subpart J, of this chapter must submit to the Director for review the information required under paragraphs (r)(2), (3), and (5) of this section and all applicable provisions of Sec. 125.95 of this chapter as part of their application except for the Proposal for Information Collection which must be provided in accordance with Sec. 125.95(b)(1).

* * * * *

(5) Cooling water system data. Phase II existing facilities as defined in part 125, subpart J of this chapter must provide the following information for each cooling water intake structure they use:

(i) A narrative description of the operation of the cooling water system, its relationship to cooling water intake structures, the proportion of the design intake flow that is used in the system, the number of days of the year the cooling water system is in operation and seasonal changes in the operation of the system, if applicable; and

(ii) Design and engineering calculations prepared by a qualified professional and supporting data to support the description required by paragraph (r)(5)(i) of this section.

0
3. Section 122.44 is amended by revising paragraph (b)(3) to read as follows:

Sec. 122.44 Establishing limitations, standards, and other permit conditions (applicable to State NPDES programs, see Sec. 123.25).

* * * * *

(b) * * *

(3) Requirements applicable to cooling water intake structures under section 316(b) of the CWA, in accordance with part 125, subparts I and J, of this chapter.

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PART 123--STATE PROGRAM REQUIREMENTS

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Authority: Clean Water Act, 33 U.S.C. 1251 et seq.

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2. Section 123.25 is amended by revising paragraphs (a)(4) and (36) to read as follows:

Sec. 123.25 Requirements for permitting.

(a) * * *
(4) Sec. 122.21 (a)-(b), (c)(2), (e)-(k), (m)-(p), (q), and (r)--(Application for a permit);
* * * * *
(36) Subparts A, B, D, H, I, and J of part 125 of this chapter;
* * * * *

PART 124--PROCEDURES FOR DECISIONMAKING

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1. The authority citation for part 124 continues to read as follows:

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Authority: Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq.; Safe Drinking Water Act, 42 U.S.C. 300f et seq.; Clean Water Act, 33 U.S.C. 1251 et seq.; Clean Air Act, 42 U.S.C. 7401 et seq.

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2. Section 124.10 is amended by revising paragraph (d)(1)(ix) to read as follows:

Sec. 124.10 Public notice of permit actions and public comment period.

* * * * *
(d) * * *
(1) * * *
(ix) Requirements applicable to cooling water intake structures under section 316(b) of the CWA, in accordance with part 125, subparts I and J, of this chapter.
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PART 125--CRITERIA AND STANDARDS FOR THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

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1. The authority citation for part 125 continues to read as follows:

Authority: Clean Water Act, 33 U.S.C. 1251 et seq.; unless otherwise noted.

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2. Add subpart J to part 125 to read as follows:

Subpart J--Requirements Applicable to Cooling Water Intake Structures for Phase II Existing Facilities Under Section 316(b) of the Act

Sec.
125.90 What are the purpose and scope of this subpart?
125.91 What is a ``Phase II existing facility''?
125.92 [Reserved]
125.93 What special definitions apply to this subpart?
125.94 How will requirements reflecting best technology available for minimizing adverse environmental impact be established for my Phase II existing facility?
125.95 As an owner or operator of a Phase II existing facility, what must I collect and submit when I apply for my reissued NPDES permit?
125.96 As an owner or operator of a Phase II existing facility, what monitoring must I perform?
125.97 As an owner or operator of a Phase II existing facility, what records must I keep and what information must I report?
125.98 As the Director, what must I do to comply with the requirements of this subpart?
125.99 What are approved design and construction technologies?

Subpart J--Requirements Applicable to Cooling Water Intake Structures for Phase II Existing Facilities Under Section 316(b) of the Act

Sec. 125.90 What are the purpose and scope of this subpart?

(a) This subpart establishes requirements that apply to the location, design, construction, and capacity of cooling water intake structures at existing facilities that are subject to this subpart (i.e., Phase II existing facilities). The purpose of these requirements is to establish the best technology available for minimizing adverse environmental impact associated with the use of cooling water intake structures. These requirements are implemented through National Pollutant Discharge Elimination System (NPDES) permits issued under section 402 of the Clean Water Act (CWA).

(b) Existing facilities that are not subject to requirements under this or another subpart of this part must meet requirements under section 316(b) of the CWA determined by the Director on a case-by-case, best professional judgment (BPJ) basis.

(c) Alternative regulatory requirements. Notwithstanding any other provision of this subpart, if a State demonstrates to the Administrator that it has adopted alternative regulatory requirements in its NPDES program that will result in environmental performance within a watershed that is comparable to the reductions of impingement mortality and entrainment that would otherwise be achieved under Sec. 125.94, the Administrator must approve such alternative regulatory requirements.

(d) Nothing in this subpart shall be construed to preclude or deny the right of any State or political subdivision of a State or any interstate agency under section 510 of the CWA to adopt or enforce any requirement with respect to control or abatement of pollution that is not less stringent than those required by Federal law.

Sec. 125.91 What is a ``Phase II Existing Facility''?

(a) An existing facility, as defined in Sec. 125.93, is a Phase II existing facility subject to this subpart if it meets each of the following criteria:

(1) It is a point source.

(2) It uses or proposes to use cooling water intake structures with a total design intake flow of 50 million gallons per day (MGD) or more to withdraw cooling water from waters of the United States;

(3) As its primary activity, the facility both generates and transmits electric power, or generates electric power but sells it to another entity for transmission; and

(4) It uses at least 25 percent of water withdrawn exclusively for cooling purposes, measured on an average annual basis.

(b) In the case of a Phase II existing facility that is co-located with a manufacturing facility, only that portion of the combined cooling water intake flow that is used by the Phase II facility to generate electricity for sale to another entity will be considered for purposes of determining whether the 50 MGD and 25 percent criteria in paragraphs (a)(2) and (4) of this section have been exceeded.

(c) Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with one or more independent suppliers of cooling water if the supplier withdraws water from waters of the United States but is not itself a Phase II existing facility, except as provided in paragraph (d) of this section. This provision is intended to prevent circumvention of these requirements by creating arrangements to receive cooling water from an entity that is not itself a Phase II existing facility.

(d) Notwithstanding paragraph (c) of this section, obtaining cooling water from a public water system or using treated effluent as cooling water does not constitute use of a cooling water intake structure for purposes of this subpart.

Sec. 125.92 [Reserved]

Sec. 125.93 What special definitions apply to this subpart?

In addition to the definitions provided in Sec. 122.3 of this chapter, the following special definitions apply to this subpart:

Adaptive management method is a type of project management method where a facility chooses an approach to meeting the project goal, monitors the effectiveness of that approach, and then based on monitoring and any other relevant information, makes any adjustments necessary to ensure continued progress toward the project's goal. This cycle of activity is repeated as necessary to reach the project's goal.

Annual mean flow means the average of daily flows over a calendar year.

All life stages means eggs, larvae, juveniles, and adults.

Calculation baseline means an estimate of impingement mortality and entrainment that would occur at your site assuming that: the cooling water system has been designed as a once-

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through system; the opening of the cooling water intake structure is located at, and the face of the standard \3/8\-inch mesh traveling screen is oriented parallel to, the shoreline near the surface of the source waterbody; and the baseline practices, procedures, and structural configuration are those that your facility would maintain in the absence of any structural or operational controls, including flow or velocity reductions, implemented in whole or in part for the purposes of reducing impingement mortality and entrainment. You may also choose to use the current level of impingement mortality and

entrainment as the calculation baseline. The calculation baseline may be estimated using: historical impingement mortality and entrainment data from your facility or from another facility with comparable design, operational, and environmental conditions; current biological data collected in the waterbody in the vicinity of your cooling water intake structure; or current impingement mortality and entrainment data collected at your facility. You may request that the calculation baseline be modified to be based on a location of the opening of the cooling water intake structure at a depth other than at or near the surface if you can demonstrate to the Director that the other depth would correspond to a higher baseline level of impingement mortality and/or entrainment.

Capacity utilization rate means the ratio between the average annual net generation of power by the facility (in MWh) and the total net capability of the facility to generate power (in MW) multiplied by the number of hours during a year. In cases where a facility has more than one intake structure, and each intake structure provides cooling water exclusively to one or more generating units, the capacity utilization rate may be calculated separately for each intake structure, based on the capacity utilization of the units it services. Applicable requirements under this subpart would then be determined separately for each intake structure. The average annual net generation should be measured over a five year period (if available) of representative operating conditions, unless the facility makes a binding commitment to maintain capacity utilization below 15 percent for the life of the permit, in which case the rate may be based on this commitment. For purposes of this subpart, the capacity utilization rate applies to only that portion of the facility that generates electricity for transmission or sale using a thermal cycle employing the steam water system as the thermodynamic medium.

Closed-cycle recirculating system means a system designed, using minimized make-up and blowdown flows, to withdraw water from a natural or other water source to support contact and/or noncontact cooling uses within a facility. The water is usually sent to a cooling canal or channel, lake, pond, or tower to allow waste heat to be dissipated to the atmosphere and then is returned to the system. (Some facilities divert the waste heat to other process operations.) New source water (make-up water) is added to the system to replenish losses that have occurred due to blowdown, drift, and evaporation.

Cooling water means water used for contact or noncontact cooling, including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content. The intended use of the cooling water is to absorb waste heat rejected from the process or processes used, or from auxiliary operations on the facility's premises. Cooling water that is used in a manufacturing process either before or after it is used for cooling is considered process water for the purposes of calculating the percentage of a facility's intake flow that is used for cooling purposes in Sec. 125.91(a)(4).

Cooling water intake structure means the total physical structure and any associated constructed waterways used to withdraw cooling water from waters of the U.S. The cooling water intake structure extends from the point at which water is withdrawn from the surface water source up to, and including, the intake pumps.

Design and construction technology means any physical configuration of the cooling water intake structure, or a technology that is placed in the water body in front of the cooling water intake structure, to reduce impingement mortality and/or entrainment. Design and construction technologies include, but are not limited to, location of the intake structure, intake screen systems, passive intake systems, fish diversion and/or avoidance systems, and fish handling and return

systems. Restoration measures are not design and construction technologies for purposes of this definition.

Design intake flow means the value assigned (during the cooling water intake structure design) to the total volume of water withdrawn from a source waterbody over a specific time period.

Design intake velocity means the value assigned (during the design of a cooling water intake structure) to the average speed at which intake water passes through the open area of the intake screen (or other device) against which organisms might be impinged or through which they might be entrained.

Diel means daily and refers to variation in organism abundance and density over a 24-hour period due to the influence of water movement, physical or chemical changes, and changes in light intensity.

Entrainment means the incorporation of any life stages of fish and shellfish with intake water flow entering and passing through a cooling water intake structure and into a cooling water system.

Estuary means a semi-enclosed body of water that has a free connection with open seas and within which the seawater is measurably diluted with fresh water derived from land drainage. The salinity of an estuary exceeds 0.5 parts per thousand (by mass) but is typically less than 30 parts per thousand (by mass).

Existing facility means any facility that commenced construction as described in 40 CFR 122.29(b)(4) on or before January 17, 2002; and any modification of, or any addition of a unit at such a facility that does not meet the definition of a new facility at Sec. 125.83.

Freshwater river or stream means a lotic (free-flowing) system that does not receive significant inflows of water from oceans or bays due to tidal action. For the purposes of this rule, a flow-through reservoir with a retention time of 7 days or less will be considered a freshwater river or stream.

Impingement means the entrapment of any life stages of fish and shellfish on the outer part of an intake structure or against a screening device during periods of intake water withdrawal.

Lake or reservoir means any inland body of open water with some

include, but are not limited to: reductions in cooling water intake flow through the use of variable speed pumps and seasonal flow reductions or shutdowns; and more frequent rotation of traveling screens.

Phase II existing facility means any existing facility that meets the criteria specified in Sec. 125.91.

Source water means the waters of the U.S. from which the cooling

Supplier means an entity, other than the regulated facility, that owns and operates its own cooling water intake structure and directly withdraws water from waters of the United States. The supplier sells the cooling water to other facilities for their use, but may also use a portion of the water itself. An entity that provides potable water to

for purposes of this subpart.

Thermocline means the middle layer of a thermally stratified lake or a reservoir. In this layer, there is a rapid change in temperatures between the top and bottom of the layer.

will, in combination with any existing design and construction technologies, operational measures, and/or restoration measures, meet the performance standards specified in paragraph (b) of this section and/or the restoration requirements in paragraph (c) of this section;

(4) You may demonstrate to the Director that you have installed, or will install, and properly operate and maintain an approved design and construction technology in accordance with Sec. 125.99(a) or (b); or

(5) You may demonstrate to the Director that you have selected, installed, and are properly operating and maintaining, or will install and properly operate and maintain design and construction technologies, operational measures, and/or restoration measures that the Director has determined to be the best technology available to minimize adverse environmental impact for your facility in accordance with paragraphs (a)(5)(i) or (ii) of this section.

(i) If the Director determines that data specific to your facility demonstrate that the costs of compliance under alternatives in paragraphs (a)(2) through (4) of this section would be significantly greater than the costs considered by the Administrator for a facility like yours in establishing the applicable performance standards in paragraph (b) of this section, the Director must make a site-specific determination of the best technology available for minimizing adverse environmental impact. This determination must be based on reliable, scientifically valid cost and performance data submitted by you and any other information that the Director deems appropriate. The Director must establish site-specific alternative requirements based on new and/or existing design and construction technologies, operational measures, and/or restoration measures that achieve an efficacy that is, in the judgment of the Director, as close as practicable to the applicable performance standards in paragraph (b) of this section, without resulting in costs that are significantly greater than the costs considered by the Administrator for a facility like yours in establishing the applicable performance standards. The Director's site-specific determination may conclude that design and construction technologies, operational measures, and/or restoration measures in addition to those already in place are not justified because of the significantly greater costs. To calculate the costs considered by the Administrator for a facility like yours in establishing the applicable

performance standards you must:

(A) Determine which technology the Administrator modeled as the most appropriate compliance technology for your facility;

(B) Using the Administrator's costing equations, calculate the annualized capital and net operation and maintenance (O&M) costs for a facility with your design intake flow using this technology;

(C) Determine the annualized net revenue loss associated with net construction downtime that the Administrator modeled for your facility to install this technology;

(D) Determine the annualized pilot study costs that the Administrator modeled for your facility to test and optimize this technology;

(E) Sum the cost items in paragraphs (a)(5)(i)(B), (C), and (D) of this section; and

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(F) Determine if the performance standards that form the basis of

demonstrate that the costs of compliance under alternatives in paragraphs (a)(2) through (4) of this section would be significantly greater than the benefits of complying with the applicable performance standards at your facility, the Director must make a site-specific determination of best technology available for minimizing adverse environmental impact. This determination must be based on reliable, scientifically valid cost and performance data submitted by you and any other information the Director deems appropriate. The Director must establish site-specific alternative requirements based on new and/or existing design and construction technologies, operational measures, and/or restoration measures that achieve an efficacy that, in the judgment of the Director, is as close as practicable to the applicable performance standards in paragraph (b) of this section without resulting in costs that are significantly greater than the benefits at your facility. The Director's site-specific determination may conclude that design and construction technologies, operational measures, and/or restoration measures in addition to those already in place are not justified because the costs would be significantly greater than the benefits at your facility.

(b) National performance standards.--(1) Impingement mortality performance standards. If you choose compliance alternatives in paragraphs (a)(2), (a)(3), or (a)(4) of this section, you must reduce impingement mortality for all life stages of fish and shellfish by 80 to 95 percent from the calculation baseline.

(2) Entrainment performance standards. If you choose compliance alternatives in paragraphs (a)(1)(ii), (a)(2), (a)(3), or (a)(4) of this section, you must also reduce entrainment of all life stages of fish and shellfish by 60 to 90 percent from the calculation baseline if:

(i) Your facility has a capacity utilization rate of 15 percent or greater, and

(ii)(A) Your facility uses cooling water withdrawn from a tidal river, estuary, ocean, or one of the Great Lakes; or

(B) Your facility uses cooling water withdrawn from a freshwater river or stream and the design intake flow of your cooling water intake structures is greater than five percent of the mean annual flow.

(3) Additional performance standards for facilities withdrawing from a lake (other than one of the Great Lakes) or a reservoir. If your facility withdraws cooling water from a lake (other than one of the Great Lakes) or a reservoir and you propose to increase the design intake flow of cooling water intake structures it uses, your increased design intake flow must not disrupt the natural thermal stratification or turnover pattern (where present) of the source water, except in cases where the disruption does not adversely affect the management of fisheries. In determining whether any such disruption does not adversely affect the management of fisheries, you must consult with Federal, State, or Tribal fish and wildlife management agencies).

(4) Use of performance standards for site-specific determinations of best technology available. The performance standards in paragraphs (b)(1) through (3) of this section must also be used for determining eligibility for site-specific determinations of best technology available for minimizing adverse environmental impact and establishing

that produce and result in increases of fish and shellfish in your facility's watershed in place of or as a supplement to installing design and control technologies and/or adopting operational measures that reduce impingement mortality and entrainment. You must demonstrate to the Director that:

(1) You have evaluated the use of design and construction technologies and operational measures for your facility and determined that the use of restoration measures is appropriate because meeting the applicable performance standards or site-specific requirements through the use of design and construction technologies and/or operational measures alone is less feasible, less cost-effective, or less environmentally desirable than meeting the standards or requirements in whole or in part through the use of restoration measures; and

(2) The restoration measures you will implement, alone or in combination with design and construction technologies and/or operational measures, will produce ecological benefits (fish and shellfish), including maintenance or protection of community structure and function in your facility's waterbody or watershed, at a level that is substantially similar to the level you would achieve by meeting the applicable performance standards under paragraph (b) of this section, or that satisfies alternative site-specific requirements established pursuant to paragraph (a)(5) of this section.

(d)(1) Compliance using a technology installation and operation plan or restoration plan. If you choose one of the compliance alternatives in paragraphs (a)(2), (3), (4), or (5) of this section, you may request that compliance with the requirements of Sec. 125.94(b) during the first permit containing requirements consistent with this subpart be determined based on whether you have complied with the construction, operational, maintenance, monitoring, and adaptive management requirements of a Technology Installation and Operation Plan developed in accordance with Sec. 125.95(b)(4)(ii) (for any design and construction technologies and/or operational measures) and/or a Restoration Plan developed in accordance with Sec. 125.95(b)(5) (for any restoration measures). The Technology Installation and Operation Plan must be designed to meet applicable performance standards in paragraph (b) of this section or alternative site-specific requirements developed pursuant to paragraph (a)(5) of this section. The Restoration Plan must be designed to achieve compliance with the applicable requirements in paragraph (c) of this section.

(2) During subsequent permit terms, if you selected and installed design and construction technologies and/or operational measures and have been in compliance with the construction, operational, maintenance, monitoring, and adaptive management requirements of your Technology Installation and Operation Plan during the preceding permit term, you may request that compliance with the requirements of Sec. 125.94 during the following permit term be determined based on whether you remain in compliance with your Technology Installation and Operation Plan, revised in accordance with your adaptive management plan in Sec. 125.95(b)(4)(ii)(C) if applicable performance standards are not being

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met. Each request and approval of a Technology Installation and Operation Plan shall be limited to one permit term.

(3) During subsequent permit terms, if you selected and installed restoration measures and have been in compliance with the construction, operational, maintenance, monitoring, and adaptive management requirements in your Restoration Plan during the preceding permit term, you may request that compliance with the requirements of this section

during the following permit term be determined based on whether you remain in compliance with your Restoration Plan, revised in accordance with your adaptive management plan in Sec. 125.95(b)(5)(v) if applicable performance standards are not being met. Each request and approval of a Restoration Plan shall be limited to one permit term.

(e) More stringent standards. The Director may establish more stringent requirements as best technology available for minimizing adverse environmental impact if the Director determines that your compliance with the applicable requirements of this section would not meet the requirements of applicable State and Tribal law, or other Federal law.

(f) Nuclear facilities. If you demonstrate to the Director based on consultation with the Nuclear Regulatory Commission that compliance with this subpart would result in a conflict with a safety requirement established by the Commission, the Director must make a site-specific determination of best technology available for minimizing adverse environmental impact that would not result in a conflict with the Nuclear Regulatory Commission's safety requirement.

Sec. 125.95 As an owner or operator of a Phase II existing facility, what must I collect and submit when I apply for my reissued NPDES permit?

(a)(1) You must submit to the Director the Proposal for Information Collection required in paragraph (b)(1) of this section prior to the start of information collection activities;

(2) You must submit to the Director the information required in 40 CFR 122.21(r)(2), (r)(3) and (r)(5) and any applicable portions of the Comprehensive Demonstration Study (Study), except for the Proposal for Information Collection required by paragraph (b)(1) of this section; and

(i) You must submit your NPDES permit application in accordance with the time frames specified in 40 CFR 122.21(d)(2).

(ii) If your existing permit expires before [Insert date 4 years after date of publication in the FR], you may request that the Director establish a schedule for you to submit the information required by this section as expeditiously as practicable, but not later than [Insert date 3 years and 180 days after date of publication in the FR]. Between

have selected and installed, or will install, at your facility meet the applicable requirements of Sec. 125.94. All facilities except those that have met the applicable requirements in accordance with Sec. Sec. 125.94(a)(1)(i), 125.94(a)(1)(ii), and 125.94(a)(4) must submit all applicable portions of the Comprehensive Demonstration Study to the

that meet the requirements in Sec. 125.94(a)(1)(i) by reducing their flow commensurate with a closed-cycle, recirculating system are not required to submit a Comprehensive Demonstration Study. Facilities that meet the requirements in Sec. 125.94(a)(1)(ii) by reducing their design intake velocity to 0.5 ft/sec or less are required to submit a Study only for the entrainment requirements, if applicable. Facilities that meet the requirements in Sec. 125.94(a)(4) and have installed and

properly operate and maintain an approved design and construction technology (in accordance with Sec. 125.99) are required to submit only the Technology Installation and Operation Plan in paragraph (b)(4) of this section and the Verification Monitoring Plan in paragraph (b)(7) of this section. Facilities that are required to meet only impingement mortality performance standards in Sec. 125.94(b)(1) are required to submit only a Study for the impingement mortality reduction requirements. The Comprehensive Demonstration Study must include:

(1) Proposal For Information Collection. You must submit to the Director for review and comment a description of the information you will use to support your Study. The Proposal for Information must be submitted prior to the start of information collection activities, but you may initiate such activities prior to receiving comment from the Director. The proposal must include:

(i) A description of the proposed and/or implemented technologies, operational measures, and/or restoration measures to be evaluated in the Study;

(ii) A list and description of any historical studies characterizing impingement mortality and entrainment and/or the physical and biological conditions in the vicinity of the cooling water intake structures and their relevance to this proposed Study. If you

freshwater river or stream, you must provide the annual mean flow of the waterbody and any supporting documentation and engineering calculations to support your analysis of whether your design intake flow is greater than five percent of the mean annual flow of the river or stream for purposes of determining applicable performance standards under paragraph (b) of this section. Representative historical data (from a period of time up to 10 years, if available) must be used; and

(ii) If your cooling water intake structure is located in a lake (other than one of the Great Lakes) or a reservoir and you propose to increase its design intake flow, you must provide a description of the thermal stratification in the waterbody, and any supporting documentation and engineering calculations to show that the total design intake flow after the increase will not disrupt the natural thermal stratification and turnover pattern in a way that adversely impacts fisheries, including the results of any consultations with Federal, State, or Tribal fish and wildlife management agencies.

(3) Impingement Mortality and/or Entrainment Characterization Study. You must submit to the Director an Impingement Mortality and/or Entrainment Characterization Study whose purpose is to provide information to support the development of a calculation baseline for evaluating impingement mortality and entrainment and to characterize current impingement mortality and entrainment. The Impingement Mortality and/or Entrainment Characterization Study must include the following, in sufficient detail to support development of the other elements of the Comprehensive Demonstration Study:

(i) Taxonomic identifications of all life stages of fish, shellfish, and any species protected under Federal, State, or Tribal Law (including threatened or endangered species) that are in the vicinity of the cooling water intake structure(s) and are susceptible to impingement and entrainment;

(ii) A characterization of all life stages of fish, shellfish, and any species protected under Federal, State, or Tribal Law (including threatened or endangered species) identified pursuant to paragraph (b)(3)(i) of this section, including a description of the abundance and temporal and spatial characteristics in the vicinity of the cooling water intake structure(s), based on sufficient data to characterize annual, seasonal, and diel variations in impingement mortality and entrainment (e.g., related to climate and weather differences, spawning, feeding and water column migration). These may include historical data that are representative of the current operation of your facility and of biological conditions at the site;

(iii) Documentation of the current impingement mortality and entrainment of all life stages of fish, shellfish, and any species protected under Federal, State, or Tribal Law (including threatened or endangered species) identified pursuant to paragraph (b)(3)(i) of this section and an estimate of impingement mortality and entrainment to be used as the calculation baseline. The documentation may include historical data that are representative of the current operation of your facility and of biological conditions at the site. Impingement mortality and entrainment samples to support the calculations required in paragraphs (b)(4)(i)(C) and (b)(5)(iii) of this section must be collected during periods of representative operational flows for the cooling water intake structure and the flows associated with the samples must be documented;

(4) Technology and compliance assessment information--(i) Design and Construction Technology Plan. If you choose to use design and construction technologies and/or operational measures, in whole or in part to meet the requirements of Sec. 125.94(a)(2) or (3), you must submit a Design and Construction Technology Plan to the Director for review and approval. In the plan, you must provide the capacity

utilization rate for your facility (or for individual intake structures where applicable, in accordance with Sec. 125.93) and provide supporting data (including the average annual net generation of the facility (in MWh) measured over a five year period (if available) of representative operating conditions and the total net capacity of the facility (in MW)) and underlying calculations. The plan must explain the technologies and/or operational measures you have in place and/or have selected to meet the requirements in Sec. 125.94. (Examples of potentially appropriate technologies may include, but are not limited to, wedgewire screens, fine mesh screens, fish handling and return systems, barrier nets, aquatic filter barrier systems, vertical and/or lateral relocation of the cooling water intake structure, and enlargement of the cooling water intake structure opening to reduce velocity. Examples of potentially appropriate operational measures may include, but are not limited to, seasonal shutdowns, reductions in flow, and continuous or more frequent rotation of traveling screens.) The plan must contain the following information:

(A) A narrative description of the design and operation of all design and construction technologies and/or operational measures (existing and proposed), including fish handling and return systems, that you have in place or will use to meet the requirements to reduce impingement mortality of those species expected to be most susceptible to impingement, and information that demonstrates the efficacy of the technologies and/or operational measures for those species;

(B) A narrative description of the design and operation of all design and construction technologies and/or operational measures (existing and proposed) that you have in place or will use to meet the requirements to reduce entrainment of those species expected to be the most susceptible to entrainment, if applicable, and information that demonstrates the efficacy of the technologies and/or operational measures for those species;

(C) Calculations of the reduction in impingement mortality and entrainment of all life stages of fish and shellfish that would be achieved by the technologies and/or operational measures you have selected based on the Impingement Mortality and/or Entrainment Characterization Study in paragraph (b)(3) of this section. In determining compliance with any requirements to reduce impingement mortality or entrainment, you must assess the total reduction in impingement mortality and entrainment against the calculation baseline determined in accordance with paragraph (b)(3) of this section.

studies (i.e., studies that have been conducted at a similar facility's cooling water intake structures located in the same waterbody type with similar biological characteristics) and/or site-specific technology prototype or pilot studies; and

(D) Design and engineering calculations, drawings, and estimates prepared by a qualified professional to support the descriptions required by paragraphs (b)(4)(i)(A) and (B) of this section.

(ii) Technology Installation and Operation Plan. If you choose the compliance alternative in Sec. 125.94(a)(2), (3), (4), or (5) and use design and construction technologies and/or operational measures in whole or in part to comply with the applicable requirements of Sec. 125.94, you must submit the following information with your application for review and approval by the Director:

(A) A schedule for the installation and maintenance of any new design and construction technologies. Any downtime of generating units to accommodate installation and/or maintenance of these technologies should be scheduled to coincide with otherwise necessary downtime (e.g., for repair, overhaul, or routine maintenance of the generating units) to the extent practicable. Where additional downtime is required, you may coordinate scheduling of this downtime with the North American Electric Reliability Council and/or other generators in your area to ensure that impacts to reliability and supply are minimized;

(B) List of operational and other parameters to be monitored, and the location and frequency that you will monitor them;

(C) List of activities you will undertake to ensure to the degree practicable the efficacy of installed design and construction technologies and operational measures, and your schedule for implementing them;

(D) A schedule and methodology for assessing the efficacy of any installed design and construction technologies and operational measures in meeting applicable performance standards or site-specific requirements, including an adaptive management plan for revising design and construction technologies, operational measures, operation and maintenance requirements, and/or monitoring requirements if your assessment indicates that applicable performance standards or site-specific requirements are not being met; and

(E) If you choose the compliance alternative in Sec. 125.94(a)(4), documentation that the appropriate site conditions in Sec. 125.99(a) or (b) exist at your facility.

(5) Restoration Plan. If you propose to use restoration measures, in whole or in part, to meet the applicable requirements in Sec. 125.94, you must submit the following information with your application for review and approval by the Director. You must address species of concern identified in consultation with Federal, State, and Tribal fish and wildlife management agencies with responsibility for fisheries and wildlife potentially affected by your cooling water intake structure(s).

(i) A demonstration to the Director that you have evaluated the use of design and construction technologies and/or operational measures for your facility and an explanation of how you determined that restoration would be more feasible, cost-effective, or environmentally desirable;

(ii) A narrative description of the design and operation of all restoration measures (existing and proposed) that you have in place or will use to produce fish and shellfish;

(iii) Quantification of the ecological benefits of the proposed restoration measures. You must use information from the Impingement Mortality and/or Entrainment Characterization Study required in paragraph (b)(3) of this section, and any other available and appropriate information, to estimate the reduction in fish and shellfish impingement mortality and/or entrainment that would be

necessary for your facility to comply with Sec. 125.94(c)(2). You must then calculate the production of fish and shellfish that you will achieve with the restoration measures you will or have already installed. You must include a discussion of the nature and magnitude of uncertainty associated with the performance of these restoration measures. You must also include a discussion of the time frame within which these ecological benefits are expected to accrue;

(iv) Design calculations, drawings, and estimates to document that your proposed restoration measures in combination with design and construction technologies and/or operational measures, or alone, will meet the requirements of Sec. 125.94(c)(2). If the restoration measures address the same fish and shellfish species identified in the Impingement Mortality and/or Entrainment Characterization Study (in-kind restoration), you must demonstrate that the restoration measures will produce a level of these fish and shellfish substantially similar to that which would result from meeting applicable performance standards in Sec. 125.94(b), or that they will satisfy site-specific requirements established pursuant to Sec. 125.94(a)(5). If the restoration measures address fish and shellfish species different from those identified in the Impingement Mortality and/or Entrainment Characterization Study (out-of-kind restoration), you must demonstrate that the restoration measures produce ecological benefits substantially similar to or greater than those that would be realized through in-kind restoration. Such a demonstration should be based on a watershed approach to restoration planning and consider applicable multi-agency watershed restoration plans, site-specific peer-reviewed ecological studies, and/or consultation with appropriate Federal, State, and Tribal fish and wildlife management agencies.

(v) A plan utilizing an adaptive management method for implementing, maintaining, and demonstrating the efficacy of the restoration measures you have selected and for determining the extent to which the restoration measures, or the restoration measures in combination with design and construction technologies and operational measures, have met the applicable requirements of Sec. 125.94(c)(2). The plan must include:

(A) A monitoring plan that includes a list of the restoration parameters that will be monitored, the frequency at which you will monitor them, and success criteria for each parameter;

(B) A list of activities you will undertake to ensure the efficacy of the restoration measures, a description of the linkages between these activities and the items in paragraph (b)(5)(v)(A) of this section, and an implementation schedule; and

(C) A process for revising the Restoration Plan as new information, including monitoring data, becomes available, if the applicable requirements under Sec. 125.94(c)(2) are not being met.

(vi) A summary of any past or ongoing consultation with appropriate Federal, State, and Tribal fish and wildlife management agencies on your use of restoration measures including a copy of

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any written comments received as a result of such consultations;

(vii) If requested by the Director, a peer review of the items you submit for the Restoration Plan. You must choose the peer reviewers in consultation with the Director who may consult with EPA and Federal, State, and Tribal fish and wildlife management agencies with responsibility for fish and wildlife potentially affected by your cooling water intake structure(s). Peer reviewers must have appropriate qualifications (e.g., in the fields of geology, engineering, and/or biology, etc.) depending upon the materials to be reviewed; and

(viii) A description of the information to be included in a bi-annual status report to the Director.

(6) Information to support site-specific determination of best technology available for minimizing adverse environmental impact. If you have requested a site-specific determination of best technology available for minimizing adverse environmental impact pursuant to Sec. 125.94(a)(5)(i) because of costs significantly greater than those considered by the Administrator for a facility like yours in establishing the applicable performance standards of Sec. 125.94(b), you are required to provide to the Director the information specified in paragraphs (b)(6)(i) and (b)(6)(iii) of this section. If you have requested a site-specific determination of best technology available for minimizing adverse environmental impact pursuant to Sec. 125.94(a)(5)(ii) because of costs significantly greater than the benefits of meeting the applicable performance standards of Sec. 125.94(b) at your facility, you must provide the information specified in paragraphs (b)(6)(i), (b)(6)(ii), and (b)(6)(iii) of this section:

(i) Comprehensive Cost Evaluation Study. You must perform and submit the results of a Comprehensive Cost Evaluation Study, that includes:

(A) Engineering cost estimates in sufficient detail to document the costs of implementing design and construction technologies, operational measures, and/or restoration measures at your facility that would be needed to meet the applicable performance standards of Sec. 125.94(b);

(B) A demonstration that the costs documented in paragraph (b)(6)(i)(A) of this section significantly exceed either those considered by the Administrator for a facility like yours in establishing the applicable performance standards or the benefits of meeting the applicable performance standards at your facility; and

(C) Engineering cost estimates in sufficient detail to document the costs of implementing the design and construction technologies, operational measures, and/or restoration measures in your Site-Specific Technology Plan developed in accordance with paragraph (b)(6)(iii) of this section.

(ii) Benefits Valuation Study. If you are seeking a site-specific determination of best technology available for minimizing adverse environmental impact because of costs significantly greater than the benefits of meeting the applicable performance standards of Sec. 125.94(b) at your facility, you must use a comprehensive methodology to fully value the impacts of impingement mortality and entrainment at your site and the benefits achievable by meeting the applicable performance standards. In addition to the valuation estimates, the benefit study must include the following:

(A) A description of the methodology(ies) used to value commercial, recreational, and ecological benefits (including any non-use benefits, if applicable);

(B) Documentation of the basis for any assumptions and quantitative estimates. If you plan to use an entrainment survival rate other than zero, you must submit a determination of entrainment survival at your facility based on a study approved by the Director;

(C) An analysis of the effects of significant sources of uncertainty on the results of the study; and

(D) If requested by the Director, a peer review of the items you submit in the Benefits Valuation Study. You must choose the peer reviewers in consultation with the Director who may consult with EPA and Federal, State, and Tribal fish and wildlife management agencies with responsibility for fish and wildlife potentially affected by your cooling water intake structure. Peer reviewers must have appropriate qualifications depending upon the materials to be reviewed.

(E) A narrative description of any non-monetized benefits that

would be realized at your site if you were to meet the applicable

performance standards and a qualitative assessment of their magnitude and significance.

(iii) Site-Specific Technology Plan. Based on the results of the Comprehensive Cost Evaluation Study required by paragraph (b)(6)(i) of this section, and the Benefits Valuation Study required by paragraph (b)(6)(ii) of this section, if applicable, you must submit a Site-Specific Technology Plan to the Director for review and approval. The plan must contain the following information:

(A) A narrative description of the design and operation of all existing and proposed design and construction technologies, operational measures, and/or restoration measures that you have selected in accordance with Sec. 125.94(a)(5);

(B) An engineering estimate of the efficacy of the proposed and/or implemented design and construction technologies or operational measures, and/or restoration measures. This estimate must include a site-specific evaluation of the suitability of the technologies or operational measures for reducing impingement mortality and/or entrainment (as applicable) of all life stages of fish and shellfish based on representative studies (e.g., studies that have been conducted at cooling water intake structures located in the same waterbody type with similar biological characteristics) and, if applicable, site-specific technology prototype or pilot studies. If restoration measures will be used, you must provide a Restoration Plan that includes the elements described in paragraph (b)(5) of this section.

(C) A demonstration that the proposed and/or implemented design and construction technologies, operational measures, and/or restoration measures achieve an efficacy that is as close as practicable to the applicable performance standards of Sec. 125.94(b) without resulting in costs significantly greater than either the costs considered by the Administrator for a facility like yours in establishing the applicable performance standards, or as appropriate, the benefits of complying with the applicable performance standards at your facility;

(D) Design and engineering calculations, drawings, and estimates prepared by a qualified professional to support the elements of the Plan.

(7) Verification Monitoring Plan. If you comply using compliance alternatives in Sec. 125.94(a)(2), (3), (4), or (5) using design and construction technologies and/or operational measures, you must submit a plan to conduct, at a minimum, two years of monitoring to verify the full-scale performance of the proposed or already implemented technologies and/or operational measures. The verification study must begin once the design and construction technologies and/or operational measures are installed and continue for a period of time that is sufficient to demonstrate to the Director whether the facility is meeting the applicable performance standards in Sec. 125.94(b) or site-specific requirements

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developed pursuant to Sec. 125.94(a)(5). The plan must provide the following:

(i) Description of the frequency and duration of monitoring, the parameters to be monitored, and the basis for determining the parameters and the frequency and duration for monitoring. The parameters selected and duration and frequency of monitoring must be consistent with any methodology for assessing success in meeting applicable performance standards in your Technology Installation and

enter the cooling water intake structure would be identified and taken into account in assessing success in meeting the performance standards in Sec. 125.94(b).

(iii)A description of the information to be included in a bi-annual status report to the Director.

Sec. 125.96 As an owner or operator of a Phase II existing facility, what monitoring must I perform?

As an owner or operator of a Phase II existing facility, you must perform monitoring, as applicable, in accordance with the Technology Installation and Operation Plan required by Sec. 125.95(b)(4)(ii), the

Restoration Plan required by Sec. 125.95(b)(5), the Verification Monitoring Plan required by Sec. 125.95(b)(7), and any additional monitoring specified by the Director to demonstrate compliance with the applicable requirements of Sec. 125.94.

Sec. 125.97 As an owner or operator of a Phase II existing facility, what records must I keep and what information must I report?

As an owner or operator of a Phase II existing facility you are required to keep records and report information and data to the Director as follows:

(a) You must keep records of all the data used to complete the permit application and show compliance with the requirements of Sec. 125.94, any supplemental information developed under Sec. 125.95, and any compliance monitoring data submitted under Sec. 125.96, for a period of at least three (3) years from date of permit issuance. The Director may require that these records be kept for a longer period.

(b) You must submit a status report to the Director for review every two years that includes appropriate monitoring data and other information as specified by the Director in accordance with Sec. 125.98(b)(5).

Sec. 125.98 As the Director, what must I do to comply with the requirements of this subpart?

(a) Permit application. As the Director, you must review materials submitted by the applicant under 40 CFR 122.21(r) and Sec. 125.95 before each permit renewal or reissuance.

(1) You must review and comment on the Proposal for Information Collection submitted by the facility in accordance with Sec. 125.95(a)(1). You are encouraged to provide comments expeditiously so that the permit applicant can make responsive modifications to its information gathering activities. If a facility submits a request in accordance with Sec. 125.95(a)(2)(ii) for an alternate schedule for submitting the information required in Sec. 125.95, you must approve a schedule that is as expeditious as practicable, but does not extend beyond January 7, 2008. If a facility submits a request in accordance with Sec. 125.95(a)(3) to reduce the information about their cooling water intake structures and the source waterbody required to be submitted in their permit application (other than with the first permit

the requirements specified in Sec. 125.94 apply to the facility. In addition, you must review materials to determine compliance with the applicable requirements.

(3) At each permit renewal, you must review the application materials and monitoring data to determine whether new or revised requirements for design and construction technologies, operational measures, or restoration measures should be included in the permit to meet the applicable performance standards in Sec. 125.94(b) or alternative site-specific requirements established pursuant to Sec. 125.94(a)(5).

(b) Permitting requirements. Section 316(b) requirements are implemented for a facility through an NPDES permit. As the Director,

you must consider the information submitted by the Phase II existing facility in its permit application, and determine the appropriate requirements and conditions to include in the permit based on the compliance alternatives in Sec. 125.94(a). The following requirements must be included in each permit:

(1) Cooling water intake structure requirements. The permit conditions must include the requirements that implement the applicable provisions of Sec. 125.94. You must evaluate the performance of the design and construction technologies, operational measures, and/or restoration measures proposed and implemented by the facility and require additional or different design and construction technologies, operational measure, and/or restoration measures, and/or improved operation and maintenance of existing technologies and measures, if needed to meet the applicable performance standards, restoration requirements, or alternative site-specific requirements. In determining compliance with the performance standards for facilities proposing to increase withdrawals of cooling water from a lake (other than a Great Lake) or a reservoir in Sec. 125.94(b)(3), you must consider anthropogenic factors (those not considered ``natural'') unrelated to the Phase II existing facility's cooling water intake structures that can influence the occurrence and location of a thermocline. These include source water inflows, other water withdrawals, managed water uses, wastewater discharges, and flow/level management practices (e.g., some reservoirs release water from deeper bottom layers). As the Director, you must coordinate with appropriate Federal, State, or Tribal fish and wildlife management agencies to determine if any disruption of the natural thermal stratification resulting from the proposed increased withdrawal of cooling water does not adversely affect the management of fisheries. Specifically:

(i) You must review and approve the Design and Construction Technology Plan required in Sec. 125.95(b)(4) to evaluate the suitability and feasibility of the design and construction technology and/or operational measures proposed to meet the performance standards in Sec. 125.94(b) or site-specific requirements developed pursuant to Sec. 125.94(a)(5).

(ii) If the facility proposes restoration measures in accordance with Sec. 125.94(c), you must review and approve the Restoration Plan required under Sec. 125.95(b)(5) to determine whether the proposed measures, alone or in combination with design and construction technologies and/or operational measures, will meet the requirements under Sec. 125.94(c).

(iii) In each reissued permit, you must include a condition in the permit requiring the facility to reduce impingement mortality and

operational measures, and/or restoration measures.

(iv) If the facility implements design and construction technologies and/or operational measures and requests that compliance with the requirements in Sec. 125.94 be measured for the first permit term (or subsequent permit terms, if applicable) employing the Technology Installation and Operation Plan in accordance with Sec. 125.95(b)(4)(ii), you must review the Technology Installation and Operation Plan to ensure it meets the requirements of Sec. 125.95(b)(4)(ii). If the Technology Installation and Operation Plan meets the requirements of Sec. 125.95(b)(4)(ii), you must approve the Technology Installation and Operation Plan and require the facility to meet the terms of the plan including any revision to the plan that may be necessary if applicable performance standards or alternative site-specific requirements are not being met. If the facility implements restoration measures and requests that compliance with the requirements in Sec. 125.94 be measured for the first permit term (or subsequent permit terms, if applicable) employing a Restoration Plan in accordance with Sec. 125.95(b)(5), you must review the Restoration Plan to ensure it meets the requirements of Sec. 125.95(b)(5). If the Restoration Plan meets the requirements of Sec. 125.95(b)(5), you must approve the plan and require the facility to meet the terms of the plan including any revision to the plan that may be necessary if applicable performance standards or site-specific requirements are not being met. In determining whether to approve a Technology Installation and Operation Plan or Restoration Plan, you must evaluate whether the design and construction technologies, operational measures, and/or restoration measures the facility has installed, or proposes to install, can reasonably be expected to meet the applicable performance standards in Sec. 125.94(b), restoration requirements in Sec. 125.94(c)(2), and/or alternative site-specific requirements established pursuant to Sec. 125.94(a)(5), and whether the Technology Installation and Operation Plan and/or Restoration Plan complies with the applicable requirements of Sec. 125.95(b). In reviewing the Technology Installation and Operation Plan, you must approve any reasonable scheduling provisions that are designed to ensure that impacts to energy reliability and supply are minimized, in accordance with Sec. 125.95(b)(4)(ii)(A). If the facility does not request that compliance with the requirements in Sec. 125.94 be measured employing a Technology Installation and Operation Plan and/or Restoration Plan, or the facility has not been in compliance with the terms of its current Technology Installation and Operation Plan and/or Restoration Plan during the preceding permit term, you must require the facility to comply with the applicable performance standards in Sec. 125.94(b), restoration requirement in Sec. 125.94(c)(2), and/or alternative site-specific requirements developed pursuant to Sec. 125.94(a)(5). In considering a permit application, you must review the performance of the design and construction technologies, operational measures, and/or restoration measures implemented and require additional or different design and construction technologies, operational measures, and/or restoration measures, and/or improved operation and maintenance of existing technologies and measures, if needed to meet the applicable performance standards, restoration requirements, and/or alternative site-specific requirements.

(v) You must review and approve the proposed Verification Monitoring Plan submitted under Sec. 125.95(b)(7) (for design and construction technologies) and/or monitoring provisions of the Restoration Plan submitted under Sec. 125.95(b)(5)(v) and require that the monitoring continue for a sufficient period of time to demonstrate whether the design and construction technology, operational measures,

and/or restoration measures meet the applicable performance standards in Sec. 125.94(b), restoration requirements in 125.94(c)(2) and/or site-specific requirements established pursuant to Sec. 125.94(a)(5).

(vi) If a facility requests requirements based on a site-specific determination of best technology available for minimizing adverse environmental impact, you must review the application materials submitted under Sec. 125.95(b)(6) and any other information you may have, including quantitative and qualitative benefits, that would be relevant to a determination of whether alternative requirements are appropriate for the facility. If a facility submits a study to support entrainment survival at the facility, you must review and approve the results of that study. If you determine that alternative requirements are appropriate, you must make a site-specific determination of best technology available for minimizing adverse environmental impact in accordance with Sec. 125.94(a)(5). You, as the Director, may request revisions to the information submitted by the facility in accordance with Sec. 125.95(b)(6) if it does not provide an adequate basis for you to make this determination. Any alternative site-specific requirements established based on new and/or existing design and construction technologies, operational measures, and/or restoration

as practicable to the applicable performance standards of Sec. 125.94(b) without resulting in costs that are significantly greater than the costs considered by the Administrator for a like facility in establishing the applicable performance standards in Sec. 125.94(b), determined in accordance with Sec. 125.94(a)(5)(i)(A) through (F), or the benefits of complying with the applicable performance standards at the facility; and

and approve the information submitted in the Technology Installation and Operation Plan in Sec. 125.95(b)(4)(ii) and determine if it meets the criteria in Sec. 125.99.

(ii) If a person requests approval of a technology under Sec. 125.99(b), the Director must review and approve the information submitted and determine its suitability for widespread use at facilities with similar site conditions in its jurisdiction with minimal study. As the Director, you must evaluate the adequacy of the technology when installed in accordance with the required design criteria and site conditions to consistently meet the performance standards in Sec. 125.94. You, as the Director, may only approve a technology following public notice and consideration of comment regarding such approval.

(5) Bi-annual status report. You must specify monitoring data and other information to be included in a status report every two years. The other information may include operation and maintenance records, summaries of adaptive management activities, or any other information that is relevant to determining compliance with the terms of the facility's Technology Operation and Installation Plan and/or Restoration Plan.

Sec. 125.99 What are approved design and construction technologies?

(a) The following technologies constitute approved design and construction technologies for purposes of Sec. 125.94(a)(4):

(1) Submerged cylindrical wedge-wire screen technology, if you meet the following conditions:

(i) Your cooling water intake structure is located in a freshwater river or stream;

(ii) Your cooling water intake structure is situated such that sufficient ambient counter currents exist to promote cleaning of the screen face;

(iii) Your maximum through-screen design intake velocity is 0.5 ft/s or less;

(iv) The slot size is appropriate for the size of eggs, larvae, and juveniles of all fish and shellfish to be protected at the site; and

(v) Your entire main condenser cooling water flow is directed through the technology. Small flows totaling less than 2 MGD for auxiliary plant cooling uses are excluded from this provision.

(2) A technology that has been approved in accordance with the process described in paragraph (b) of this section.

(b) You or any other interested person may submit a request to the Director that a technology be approved in accordance with the compliance alternative in Sec. 125.94(a)(4) after providing the public with notice and an opportunity to comment on the request for approval of the technology. If the Director approves the technology, it may be used by all facilities with similar site conditions under the Director's jurisdiction. Requests for approval of a technology must be submitted to the Director and include the following information:

(1) A detailed description of the technology;

(2) A list of design criteria for the technology and site characteristics and conditions that each facility must have in order to ensure that the technology can consistently meet the appropriate impingement mortality and entrainment performance standards in Sec. 125.94(b); and

(3) Information and data sufficient to demonstrate that facilities under the jurisdiction of the Director can meet the applicable impingement mortality and entrainment performance standards in Sec.

125.94(b) if the applicable design criteria and site characteristics and conditions are present at the facility.

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