

PERMIT RATIONALE: APPLICATION FOR WASTEWATER MANAGEMENT PERMIT

**PERMITTEE: CITY AND COUNTY OF HONOLULU
DEPARTMENT OF ENVIRONMENTAL SERVICES**

AND

SYNAGRO - WWT, INC.

FACILITY/SITE: SAND ISLAND WASTEWATER TREATMENT PLANT

FACILITY/SITE ADDRESS

1350 Sand Island Parkway
Honolulu, Hawaii 96819

PERMITTEE MAILING ADDRESS

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PERMIT STATUS

The Permittee submitted an Individual NPDES Permit application dated April 29, 2011 for coverage of a treatment works that generates wastewater sludge that is directly land applied.

The Director of Health (Director) proposes to issue a permit to treat and dispose of wastewater and to treat and dispose of wastewater sludge that is land applied. The Director has included in the proposed draft permit those terms and conditions which the Director determined are necessary to carry out the provisions of the Hawaii Revised Statutes, (HRS), Chapter 342D, and Chapter 11-62, Hawaii Administrative Rules (HAR).

SCOPE OF THE ACTIVITY AND LOCATION OF THE PROJECT

The proposed project is located at the Sand Island Wastewater Treatment Plant. The scope of the proposed project is to operate the Sand Island Wastewater Treatment Plant including an In-Vessel Bioconversion Facility that treats wastewater sludge and converts the wastewater sludge into pellets that can be land applied as a soil amendment.

DESCRIPTION OF THE PROJECT

The Sand Island Wastewater Treatment Plant treats and disposes of wastewater collected from the greater Honolulu Area. The wastewater effluent will be regulated under a National Pollution Discharge Elimination System (NPDES) Permit. Conditions regarding effluent quality will not be covered under this permit.

The wastewater sludge will be processed to generate pellets that can be used as a soil amendment. Raw wastewater enters the Sand Island Wastewater Treatment Plant where it is screened and degrittied. The wastewater flows into primary clarifiers where the solids are separated from the liquids. The sludge then flows from the clarifiers into sludge thickening tanks before being pumped into egg shaped anaerobic digesters for treatment. The sludge is further processed in a dryer facility, where the sludge is dewatered, mixed with dried pellets, dried in a rotary drum dryer to a temperature not less than 80 degrees Celsius and have a total solids content greater than 90% total solids.

WASTEWATER SLUDGE CRITERIA

The EPA has promulgated regulations for the use and disposal of wastewater sludge in 40 Code of Federal Regulations Part 503. In addition, the Director has also promulgated administrative rules for wastewater systems in Chapter 11-62, HAR. The Director has considered the criteria established in both the federal and state regulations and has determined that the Facility and the land application of the sludge pellets will not endanger human health or the environment. Based on current information, the Director proposes to issue a permit.

PERMIT CONDITIONS

The Director has considered the permit conditions to wastewater, wastewater effluent, and wastewater sludge associated with the facility, established pursuant to the Federal Water Pollution Control Act, Federal Clean Water Act, and the HRS. The Director has determined that the operation of the facility and the land application of the sludge pellets will not endanger human health and the environment when the Permittee complies with the conditions of the permit. Therefore, based on current information, the Director proposes to issue a permit.

PROPOSED DETERMINATIONS

A. General Conditions

1. The Permittee shall comply with all Federal and State regulations, and any NPDES permits issued to the facility.
2. The Permittee shall comply with HAR, Chapter 11-62, Appendix A, Individual and General Permit Standard Conditions (enclosed).
3. The Permittee shall comply with all materials submitted in and with the retained copy of the permit application.
4. The Permittee shall retain a copy of this permit and permit application at the facility.
5. The Permittee shall ensure that all wastewater pumpers and haulers that discharge wastewater and wastewater sludge into the facility shall be registered with the State. Copies of the wastewater manifests shall be made available to the Director upon request.
6. The Permittee shall submit a copy of all requests for test analyses, chain of custody form and test analyses results, including all test results that do not meet the requirements with each report. The Permittee shall submit signed copies of all reports required by this permit to the Director.
7. The Permittee shall include the following certification statement and signature on each submittal in accordance with HAR, Chapter 11-55, Section 11-55-07(b):

"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 or imprisonment for knowing violations."

8. The Permittee shall notify the Director, in writing, of any changes to information on file with the DOH as soon as changes arise. A revised operations manual reflecting these changes shall be submitted for the Director's review and approval prior to implementation. Depending on the extent of the proposed changes, a modification to this permit may be required.

B. Special Conditions for the In-Vessel Bioconversion Facility

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1. All wastewater sludge generated by the Permittee shall meet the exceptional quality criteria specified in section 11-62-42(a). If the wastewater sludge does not meet this criteria:
 - a. The Permittee must inform the Director immediately that the wastewater sludge does not meet the exceptional quality criteria and must submit in writing why the facility did not meet the criteria and any corrective actions taken.
 - b. The wastewater sludge cannot be land applied and must be disposed of in a municipal solid waste landfill.
2. All wastewater sludge generated by the Permittee shall be reused or disposed of in accordance with the applicable portions of:
 - a. 40 CFR 503 and Chapter 11-62, HAR: For wastewater sludge that are land applied, placed in a surface disposal site, or incinerated.
 - b. 40 CFR 258 and Chapter 11-58.1, HAR: For all wastewater sludge that is disposed in municipal solid waste landfills.
 - c. 40 CFR 257 and Chapter 11-62, HAR: For all wastewater sludge use and disposal practices not covered in 40 CFR 258 or 503.
3. The Permittee is responsible for assuring that all wastewater sludge produced at the facility are used or disposed of in accordance with 40 CFR 257, 258, and 503, and Chapters 11-58.1 and 11-62, HAR, whether the Permittee reuses or disposes of the wastewater sludge directly or transfers the wastewater sludge to another entity for further treatment, reuse, or disposal. The Permittee is responsible for informing the subsequent preparers, appliers, and disposers of the requirements which these entities must meet under 40 CFR 257, 258, and 503, and Chapter 11-58.1 and 11-62, HAR.
4. No wastewater sludge shall be allowed to enter wetlands or other waters of the United States.
5. Wastewater sludge treatment, storage, reuse, or disposal shall not contaminate groundwater.
6. Wastewater sludge treatment, storage, reuse, or disposal shall be performed in a manner as to minimize nuisances such as objectionable odors or flies.

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7. If the wastewater sludge is transported for off-site treatment, reuse, or disposal, the Permittee shall use only haulers registered in the State. In addition, the Permittee shall assure that haulers take all necessary measures to keep the wastewater sludge contained.
8. If the wastewater sludge is stored for over two years from the time it was generated, the Permittee must ensure compliance with all requirements for surface disposal in 40 CFR 503 Subpart C and section 11-62-45, HAR.
9. Wastewater sludge containing PCBs equal to or greater than 50 mg/kg of total solids (100% dry weight basis) shall be disposed of in accordance with 40 CFR 761.
10. Any wastewater sludge treatment, storage, or disposal site shall have adequate facilities which divert surface runoff from adjacent areas, protect site boundaries from erosion, and prevent any conditions that would cause drainage to escape from the site. Adequate protection is defined as protection from at least a 100-year storm and from the highest tidal stage that may occur.
11. Monitoring shall be conducted as follows:
 - a. Wastewater sludge that is land applied shall be tested for the following pollutants using, "Test Methods for Evaluating Solid Waste Physical/Chemical Methods", EPA Publication SW-846.
 - i. The frequency of testing shall be done on a monthly basis.
 - ii. Sampling procedures shall follow the protocol submitted to the Director dated October 20, 2005.
 - iii. Pollutant concentration shall not exceed the ceiling limits specified in Chapter 11-62, Table IV, HAR and are listed below. The wastewater sludge pellets exceeding the ceiling limits cannot be distributed nor can it be retested for distribution.

Pollutant	Ceiling Limit (mg/kg, dry weight basis)
Arsenic	20
Cadmium	15
Chromium	200
Copper	1500
Lead	300
Mercury	10
Molybdenum	*25
Nickel	100
Selenium	25
Zinc	2000

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* The ceiling limit for molybdenum is 25 mg/kg based on HAR variance granted by Docket No. 07-VWW-26.

- b. Wastewater sludge that is land applied shall be tested monthly for organic-N, ammonium-N, and nitrate. The frequency of testing shall be done on a monthly basis.
- c. Wastewater sludge that is land applied shall demonstrate that the wastewater sludge meets Class A pathogen requirements of sections 11-62-43(a)(6) and 11-62-46(d)(2), HAR, and 40 CFR 503 appendix B, section B.2.
 - i. The facility shall test for fecal coliform or salmonella by taking one grab sample per month of operation. The fecal coliform density shall be less than 1000 MPN per gram of total solids (dry weight basis) or for each sample, the Salmonella sp. bacteria shall be less than three MPN per four grams of total solids (dry weight basis). If a sample exceeds the pathogen density of an organism, the wastewater sludge pellets cannot be retested for distribution using the same organism. The wastewater sludge pellets, however, can be tested to meet the pathogen density using the other organism.
 - ii. The wastewater sludge pellet temperature shall be measured once per shift and no less than twice in a 24 hour period from a sampling point on the outlet side of the rotary drum dryer. The pellet temperature shall be measured with either a bulb or infrared thermometer from this location and the value recorded. The temperature of the wastewater sludge pellets shall exceed 80 degrees Celsius.
 - iii. At the time the wastewater pellets are analyzed for pathogen densities, the pellets shall also be analyzed for percent total solids to show compliance with the Class A requirements.
 - iv. The pathogen density shall be met at the time the wastewater sludge is used, disposed, or prepared for sale or give away in a bag or other container. The wastewater sludge must therefore be monitored not more than sixty days before land application or being bagged for distribution unless otherwise specified.
- d. Wastewater sludge that is land applied shall meet the vector attraction reduction requirements of section 11-62-47, HAR. The percent solids of the wastewater sludge shall be equal to or greater than 75 percent based on the moisture content total solids prior to mixing with other materials for wastewater sludge that does not contain unstabilized solids and equal to or greater than 90 percent based on the moisture content total solids prior to mixing with other materials for

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wastewater sludge that contains unstabilized solids. At the time the wastewater pellets are analyzed for pathogens, the pellets shall also be analyzed for percent total solids to show compliance with the vector attraction reduction requirements.

12. The Permittee shall comply with the following notification requirements:
 - a. The Permittee shall notify the applicer(s) in writing of the nitrogen, phosphorus, and potassium content of the wastewater sludge, and of all the applicers' requirements in chapter 11-62, HAR, including the application rates in section 11-62-42(e).
 - b. If wastewater sludge is shipped to another State/Tribal Lands, the Permittee must send notice prior to the initial shipment of wastewater sludge to the permitting authorities in the receiving State/Tribal Land.
 - c. The Permittee shall submit an annual report to the Director by February 19 of each year for the period covering the previous calendar year. The report shall include:
 - i. A wastewater sludge balance in dry metric tons, including the amount of wastewater sludge generated that year, the amount accumulated from previous years, and the amount used, disposed or distributed that year.
 - ii. Results of all monitoring required by this permit.
 - iii. A completed Certification Form (Chapter 11-62, Form A).
 - iv. Names, mailing addresses, and street addresses of entities who received wastewater sludge for further treatment, storage, disposal in a municipal solid waste landfill, or for other use or disposal methods not covered above, and the volumes in dry metric tons delivered to each.
13. The Permittee shall not initially use or distribute any wastewater sludge without the written approval of the Director.
14. Records regarding the wastewater sludge processing such as end-product transactions including invoices, billings, and/or manifests, shall be maintained for a minimum of five (5) years. Records of all analytical testing data and temperature monitoring data shall also be maintained for a minimum of five (5) years. Copies shall be made available to the Director upon request.
15. The Permittee shall notify the Director, in writing, of any operational changes. A revised operations manual reflecting these changes shall be submitted for the Director's review and approval prior to implementation. Depending on the extent of the proposed changes, a modification to this permit may be required.