

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105**

**AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

NPDES PERMIT NO. GU0020222

In compliance with the provisions of the Clean Water Act ("CWA") (Public Law 92-500, as amended, 33 U.S.C. 1251 et seq.), the following discharger is authorized to discharge from the identified facility at the outfall location(s) specified below, in accordance with the effluent limits, monitoring requirements, and other conditions set forth in this permit:

Discharger Name	Guam Waterworks Authority
Discharger Address	P.O. Box 3010 Agana, Guam 96910
Facility Name	Agat-Santa Rita Wastewater Treatment Plant
Facility Address	Route 2 Gaan Point Agat, Guam 96928
Facility Rating	Major

Outfall Number	General Type of Waste Discharged	Outfall Latitude	Outfall Longitude	Receiving Water
001	Secondary Treated Wastewater (non-disinfected)	13° 24' 48" N	144° 38' 30" E	Tipalao Bay

This permit was issued on:	
This permit shall become effective on:	
This permit shall expire at midnight on:	
In accordance with 40 CFR 122.21(d), the discharger shall submit a new application for a permit at least 180 days before the expiration date of this permit, unless permission for a date no later than the permit expiration date has been granted by the Director.	

Signed this _____ day of _____, 2008,

For the Regional Administrator

Alexis Strauss, Director
Water Division

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PART I - EFFLUENT LIMITATIONS

- A. During the period beginning on the effective date of this permit and ending on the expiration date of this permit, Agat-Santa Rita Wastewater Treatment Plant (hereinafter, the “permittee”) is authorized to discharge municipal wastewater from its facility from Discharge Outfall Number 001 to Tupalao Bay of the Philippine Sea, Guam. Such discharge shall be limited and monitored by the permittee as specified in Table 1. The permittee shall maintain compliance with all effluent limitations specified in Table 1 and requirements identified in this permit.
- B. Except as authorized in Table 1 of this permit, the discharge from Discharge Outfall Number 001 shall not cause the following conditions in the receiving water of Tupalao Bay:
1. The discharge shall be free from substances, conditions or combinations that cause visible floating materials, debris, oil, grease, scum, foam, and other floating material which degrades water quality or use. [GWQS 5103.A.1.a]
 2. The discharge shall be free from substances, conditions or combinations that produce visible turbidity, settle to form deposits or otherwise adversely affect aquatic life. [GWQS 5103.A.1.b]
 3. The discharge shall be free from substances, conditions or combinations that produce objectionable color, odor or taste, directly or by chemical or biological action. [GWQS 5103.A.1.c]
 4. The discharge shall be free from substances, conditions or combinations that injure or are toxic or harmful to humans, animals, plants or aquatic life. [GWQS 5103.A.1.d]
 5. The discharge shall be free from substances, conditions or combinations that injure or are toxic or harmful to humans, animals, plants or aquatic life. [GWQS 5103.A.1.e]
 6. The discharge shall not cause the pH to change more than 0.2 units from the naturally occurring variation, or in any case outside the range of 6.5 to 8.5 standard units. [GWQS 5103.C.2.iii]
 7. The discharge shall not cause orthophosphate concentration in the receiving waters to exceed 0.05 mg/L. [GWQS 5103.C.3.a]
 8. The discharge shall not cause nitrate-nitrogen concentration to exceed 0.2 mg/L. [GWQS 5103.C.3.b]
 9. The discharge shall not cause unionized ammonia concentration to exceed 0.02 mg/L. [GWQS Appendix A. Table IV]
 10. The discharge shall not cause the concentration of DO in the receiving water to be less than 75% of saturation. [GWQS 5103.C.4]
 11. The discharge shall not cause alterations of the marine environment that would alter the salinity of marine or estuarine waters and wetlands of Guam more than +10% of the ambient conditions, except when due to natural conditions. [GWQS 5103.C.5.a]
 12. The discharge shall not cause total non-filterable suspended matter any any point to be increased more than 10% from ambient at any time , and the total concentration should not exceed 20 mg/L, except when due to natural conditions. [GWQS 5103.C.6.b]
 13. The discharge shall not cause the turbidity in the receiving water to exceed 1.0 NTU over ambient conditions, except when due to natural causes. [GWQS 5103.C.7.b]
 14. The discharge of any radioactive wastes and contaminated radioactive materials from research facilities is strictly prohibited. [GWQS 5103.C.8]

15. The discharge shall not cause the temperature in the receiving water to deviate more than 1.0 degree Centigrade (1.8 of the degree Fahrenheit) from ambient conditions. [GWQS 5103.C.9]
16. The discharge shall not cause the concentration of oil or petroleum products in the receiving waters to cause: 1) a visible film, or sheen, or results in visible discoloration of the surface with a corresponding oil or petroleum product odor, or 2) damage to fish or invertebrates, or 3) an oil deposit on the shore or bottom. [GWQS 5103.C.10]
17. The discharge shall not cause concentrations of toxic substances in the receiving waters that produce detrimental physiological, acute or chronic responses in human, plant, animal or aquatic life. [GWQS 5103.C.11.a.i]
18. The discharge shall not cause concentrations of toxic substances in the receiving waters that produce contamination in harvestable aquatic life to the extent that it causes detrimental physiological, acute or chronic responses in humans or protected wildlife, when consumed. [GWQS 5103.C.11.a.ii]
19. The discharge shall not cause concentrations of toxic substances in the receiving waters that result in the survival of aquatic life subject to the discharge to be less than that for the same water body in areas unaffected by the discharge. [GWQS 5103.C.11.a.iii]
20. Whenever natural concentrations of any toxic substance shall occur and exceed the limits established in these standards, this greater concentration shall constitute the limit

PART II - MONITORING AND REPORTING REQUIREMENTS

A. Monitoring and Reporting

1. Sampling

- a. Samples and measurements taken as required in this permit shall be representative of the volume and nature of the monitored discharge.
- b. Influent samples shall be taken after the last addition to the collection system and prior to any in-plant return flows and the first treatment process, where representative samples of the influent can be obtained.
- c. Effluent samples shall be taken after any in-plant return flows and the last treatment process and prior to mixing with effluent from the Apra Harbor Wastewater Treatment Plant and the receiving waters, where representative samples of the effluent discharged to Tupalao Bay can be obtained.

Table 1 - Effluent Limitations and Monitoring, Monitoring Frequency, and Sample Type for Each Pollutant or Parameter for Discharge Outfall No. 001 for the Agat-Santa Rita Wastewater Treatment Plant Facility

Parameter	Units ¹	Effluent Limitations					Monitoring Requirements	
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	Monitoring Frequency	Sample Type
Flow Rate	MGD	0.75	--	-- ²	--	--	Continuous	Metered
Biochemical Oxygen Demand (5-day)	mg/L	30	45	--	--	--	Weekly	24 hr Composite
	lb/day	188	282	--	--	--		
	Both the influent and the effluent shall be monitored. The arithmetic mean of the BOD values, by concentration, for effluent samples collected over a calendar month shall not exceed 15 percent of the arithmetic mean, by concentration, for influent samples collected at approximately the same times during the same period.							
pH	std. units	--	--	--	6.5	8.5	Weekly	Discrete
Total Suspended Solids	mg/L	30	45	--	--	--	Weekly	24 hr Composite
	lb/day	188	282	--	--	--		
	Both the influent and the effluent shall be monitored. The arithmetic mean of the TSS values, by concentration, for effluent samples collected over a calendar month shall not exceed 15 percent of the arithmetic mean, by concentration, for influent samples collected at approximately the same times during the same period.							
Enterococci ³	CFU/100mL	35	--	104	--	--	Weekly	Discrete
Fecal coliform ⁴	CFU/100mL	200	400	--	--	--	Weekly	Discrete
Total Chlorine Residual ⁵	µg/L	7.5	--	12.3	--	--	Weekly	Discrete
	lb/day	0.04	--	0.08	--	--		

Table 1 Continued - Effluent Limitations and Monitoring, Monitoring Frequency, and Sample Type for Each Pollutant or Parameter for Discharge Outfall No. 001 for the Agat-Santa Rita Wastewater Treatment Plant Facility

Parameter	Units ¹	Effluent Limitations					Monitoring Requirements	
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	Monitoring Frequency	Sample Type
Copper	µg/L	2.2	--	4.8	--	--	Monthly	24 hr Composite
	lb/day	0.014	--	0.030	--	--		
Nickel	µg/L	8.2	--	13	--	--	Monthly	24 hr Composite
	lb/day	0.051	--	0.081	--	--		
Zinc	µg/L	45.8	--	95.0	--	--	Monthly	24 hr Composite
	lb/day	0.29	--	0.59	--	--		
Aluminum	µg/L	120	--	200	--	--	Monthly	24 hr Composite
	lb/day	0.75	--	1.25	--	--		
Heavy Metals ⁶	mg/L or µg/L	--	--	Monitoring Only	--	--	1x per permit term	24 hr Composite
Pesticides ⁷	mg/L or µg/L	--	--	Monitoring Only	--	--	1x per permit term	24 hr Composite
4,4-DDE	mg/L or µg/L	--	--	Monitoring Only	--	--	Quarterly	24 hr Composite
4,4-DDD	mg/L or µg/L	--	--	Monitoring Only	--	--	Quarterly	24 hr Composite
Chlordane	µg/L	0.182	--	0.320	--	--	Monthly	24 hr Composite
	lb/day	1.14 x 10 ⁻³	--	2.00 x 10 ⁻³	--	--		24 hr Composite

Table 1 Continued - Effluent Limitations and Monitoring, Monitoring Frequency, and Sample Type for Each Pollutant or Parameter for Discharge Outfall No. 001 for the Agat-Santa Rita Wastewater Treatment Plant Facility

Parameter	Units ¹	Effluent Limitations					Monitoring Requirements	
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	Monitoring Frequency	Sample Type
Dieldrin	mg/L or µg/L	--	--	Monitoring Only	--	--	Quarterly	24 hr Composite
Oil and Grease	mg/L	10	--	15	--	--	Monthly	Grab
	lb/day	63	--	94	--	--		
Whole Effluent Toxicity	TU _C	69.0	--	138.0	--	--	Quarterly	24 hr Composite
Ammonia	mg/L	--	--	Monitoring Only	--	--	Monthly	24 hr Composite

¹ Mass limits based on a design flow of 0.75 MGD

² Not applicable

³ Enterococcus effluent limitation units are set as 30-day geometric mean, in lieu of average monthly, and instantaneous maximum, in lieu of maximum daily. This allows consistency with the Microbiological Requirements under the Guam Water Quality Standards.

⁴ Fecal coliform effluent limitation and effluent monitoring requirement is effective upon implementation of a disinfection system

⁵ Total Residual Chlorine effluent limitation and effluent monitoring requirement is effective upon implementation of a disinfection system using chlorination; the permittee is required to notify EPA and GEPA at least 30 day prior to operation of a disinfection system

⁶ Heavy metals mean: As, Cd, Cr³⁺, Cr⁶⁺, Cu, Hg, Pb, Ni, Ag, and Zn; both total recoverable and dissolved metal concentrations shall be reported; monitoring of heavy metals is part of the Priority Toxic Pollutants Scan required to be conducted on the fourth year of the permit term

⁷ For a listing of all pesticides (organochlorines, organophosphates, carbamates, herbicides, fungicides, defoliant, and botanicals) see EPA Water Quality Criteria Blue Book; monitoring of pesticides is part of the Priority Toxic Pollutants Scan required to be conducted on the fourth year of the permit term

2. Influent Monitoring and Reporting

The permittee shall conduct influent monitoring to evaluate compliance with the draft permit conditions. The permittee shall perform all monitoring, sampling and analyses in accordance with the methods described in the most recent edition of 40 CFR 136, unless otherwise specified in the draft permit. All monitoring data shall be reported on monthly DMR forms and submitted quarterly to EPA and GEPA, as specified in the draft permit.

Influent samples shall be taken after the last addition to the collection system and prior to any in-plant return flows and the first treatment process, where representative samples of the influent can be obtained.

3. Effluent Monitoring and Reporting

The permittee shall conduct effluent monitoring to evaluate compliance with the draft permit conditions. The permittee shall perform all monitoring, sampling and analyses in accordance with the methods described in the most recent edition of 40 CFR 136, unless otherwise specified in the draft permit. All monitoring data shall be reported on monthly DMR forms and submitted quarterly to EPA and GEPA, as specified in the draft permit.

- a. Effluent monitoring and analyses must be conducted in accordance with EPA test procedures approved under Title 40, Code of Federal Regulations (CFR), Part 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act*, as amended. (For biosolids analytical methods, please see Part VI of this permit.) For effluent analyses, the permittee shall utilize a Method Detection Limit⁷ (MDL) or Minimum Level⁸ (ML) that is lower than the effluent limitations described in Table 1 of this permit. If all published MDLs or MLs are higher than the effluent limitations, the permittee shall utilize the test method procedure with the lowest MDL or ML. The permittee shall ensure that the laboratory utilizes a standard calibration where the lowest standard point is equal to or less than the ML. Priority pollutant analysis for metals shall measure “total recoverable metal,” except as provided under 40 CFR 122.45(c).
- b. For total chlorine residual, heavy metals, and pesticides effluent analyses, the permittee shall utilize an approved test procedure with a Method Detection Limit (MDL) that is lower than the salt water acute, chronic, and human health criteria concentrations listed in the Revised Guam Water Quality Standards (2001). If the MDL is higher than the criteria concentrations, then the permittee shall utilize the

⁷ The Method Detection Limit (MDL) is the minimum concentration of an analyte that can be detected with 99% confidence, as defined by a specific laboratory method in 40 CFR 136, Appendix B.

⁸ The Minimum Level (ML) is the concentration in a sample equivalent to the concentration of the lowest calibration standard analyzed in a specific analytical procedure, assuming that all of the method-specific sample weights, volumes, and processing steps have been followed. Where a promulgated ML is not available, an interim ML is calculated by multiplying the MDL by a factor of 3.18 and then rounding this calculated value to the nearest multiple of 1, 2, or 5×10^n , where n is zero or an integer. Alternatively, interim MLs for metals may be rounded to the nearest whole number.

approved test procedure with the lowest MDL. Effluent analyses for heavy metals shall measure “total recoverable metal”, except as provided under 40 CFR 122.45(c)(3).

4. Effluent Quality Reporting

- a. For samples collected each month of the quarterly reporting period, the permittee shall report on the monthly Discharge Monitoring Report ("DMR") the following for each pollutant or parameter:
 - i. The maximum value, if the result is greater than or equal to the ML; or
 - ii. NODI(Q)⁹, if result is greater than or equal to the laboratory’s MDL but less than the ML; or
 - iii. NODI(B)⁹, if result is less than the laboratory’s MDL.
- b. For pollutants with effluent limitations expressed in both concentration and mass, the permittee shall report monitoring results on the DMRs in both concentration and mass. To convert concentration to mass, the permittee shall use the following equation:

$$\text{lbs pollutants per day} = \text{flow (MGD)} \times \text{concentration (mg/L)} \times 8.34 \text{ lbs/(MGD mg/L)}$$

- c. As an attachment to each DMR form submitted during the quarterly reporting period, the permittee shall report for all pollutants or parameters with monitoring requirements specified in Table 1 of this permit the following:
 - i. The analytical method number or title, preparation and analytical test procedure utilized by the laboratory, published MDL or ML, the laboratory’s MDL;
 - ii. The standard deviation from the laboratory’s MDL study;
 - iii. The number of replicate analyses (*n*) used to compute the laboratory’s MDL; and
 - iv. The lowest calibration standard.
- d. In addition to information requirements specified under 40 CFR 122.41(j)(3), records of monitoring information shall include: the laboratory which performed the analyses and any comment, case narrative, or summary of results produced by the laboratory. The records should identify and discuss quality assurance (QA) and quality control (QC) analyses performed concurrently during sample analyses and whether project and 40 CFR 136 requirements were met. The summary of results must include information on initial and continuing calibration, surrogate analyses, blanks, duplicates, laboratory control samples, matrix spike and matrix spike duplicate results, and sample receipt condition, holding time, and preservation.

⁹ “NODI” means no discharge/no data; the “Q” designation means not quantifiable; the ‘B’ designation means below the detection level.

- e. All monitoring results shall be submitted in such a format as to allow direct comparison with effluent limitations and requirements in this permit. Monitoring results must be reported on a monthly DMR form. Monthly DMR forms shall be submitted quarterly on the 15th of the month following the previous quarterly reporting period. For example, the three DMR forms for the reporting period January through March shall be submitted by the 15th of April.
- f. Report for Average Monthly Discharge Limitation (or if no limitation applies but samples are collected during the monthly reporting period):
 - i. As directed for Maximum Daily Discharge Limitation, if only one sample is collected during the monthly reporting period, as specified under Part II.A.3.a, or
 - ii. The average value of all analytical results where 0 (zero) is substituted for values less than the laboratory's NDL and the laboratory's MDL is substituted for values greater than or equal to the laboratory's MDL but less than the ML if more than one sample is collected during the monthly reporting period.
- g. Duplicate signed copies of these, and all other reports required herein, shall be submitted to the Regional Administrator of EPA and the Director of GEPA at the following addresses:

Regional Administrator
EPA - Region IX
Pacific Islands Office, CED-6
75 Hawthorne Street
San Francisco, California 94105

Administrator
Guam EPA
P.O. Box 22439 GMF
Barrigada, GU 96921

5. Quality Assurance

- a. The permittee shall develop a QA Manual for the field collection and laboratory analysis of samples. The purpose of the QA Manual is to assist in planning for the collection and analysis of samples and explaining data anomalies if they occur. The QA Manual shall be prepared and implemented **within 90 days from the effective date of this permit**. **At a minimum**, the QA Manual shall include the following:
 - i. Identification of project management and a description of the roles and responsibilities of the participants; purpose of sample collection; matrix to be sampled; the analytes or compounds being measured; applicable technical, regulatory, or program-specific action criteria; personnel qualification requirements for collecting samples;
 - ii. Description of sample collection procedures; equipment used; the type and number of samples to be collected including QA/QC samples; preservatives and holding times for the samples (see 40 CFR 136.3); and chain of custody procedures;
 - iii. Identification of the laboratory used to analyze the samples; provisions for any proficiency demonstration that will be required by the laboratory before or after contract award such as passing a performance evaluation sample;

analytical method to be used; MDL and ML to be reported; required QC results to be reported (e.g., matrix spike recoveries, duplicate relative percent differences, blank contamination, laboratory control sample recoveries, surrogate spike recoveries, etc.) and acceptance criteria; and corrective actions to be taken in response to problems identified during QC checks; and

- iv. Discussion of how the permittee will perform data review and reporting results to EPA and GEPA and how the permittee will resolve data quality issues and identify limits on the use of data.
- b. Throughout all field collection and laboratory analyses of samples, the permittee shall use the QA/QC procedures documented in their QA Manual. If samples are tested by a contract laboratory, the permittee shall ensure that the laboratory has a QA Manual on file. A copy of the permittee's QA Manual shall be retained on the permittee's premises and available for review by EPA or GEPA upon request. The permittee shall review its QA Manual annually and revise it, as appropriate.

B. Whole Effluent Toxicity Monitoring and Reporting

1. Chronic Whole Effluent Toxicity Monitoring

a. Definition of Toxicity

Chronic Toxicity measures a sub-lethal effect (e.g., reduced growth) to test organisms exposed to an effluent compared to that of control organisms. The no observed effect concentration (NOEC) is the highest effluent concentration to which organisms are exposed in a chronic test that causes no observable adverse effect on the test organisms (e.g., the highest concentration of toxicant to which the values for the observed responses are not statistically significantly different from the controls). Test results shall be reported in TU_C , where $TU_C = 100/NOEC$.

b. Monitoring Frequency for Chronic Toxicity

- i. The permittee shall conduct quarterly toxicity tests on 24-hour composite effluent samples¹⁰.
- ii. Chronic toxicity test samples shall be collected for each point of discharge at the designated NPDES sampling station for the effluent (i.e., downstream from the last treatment process and any in-plant return flows where a representative effluent sample can be obtained). During each year of the permit term, a split of one toxicity test sample shall be analyzed for all other monitored parameters at the minimum frequency of analysis specified by the effluent monitoring program.

c. Estuarine/Marine Species and Test Methods for Chronic Toxicity

¹⁰ The permittee shall attempt to ensure a total holding time from collection of the last portion of the composite sample until arrival at the laboratory of not more than 36 hours. Should longer than a 36-hour holding time be anticipated, the permittee shall petition USEPA Region IX for an extension of the holding time. The extended holding time shall not exceed 72 hours.

Species and short-term test methods for estimating the chronic toxicity of NPDES effluents are found in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136; 1995) and *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA/821/R-02/014; 2002). The permittee shall conduct chronic toxicity tests with the sea urchin, *Strongylocentrotus purpuratus* (fertilization test method 1008.0)

d. Monitoring Triggers for Chronic Toxicity

To evaluate compliance with the narrative GWQS for toxicity, the draft permit establishes monitoring requirements for chronic toxicity. The draft permit also establishes numeric chronic limits, or toxicity limits to assess chronic toxicity of the effluent. Exceeding the numeric limit initiates a requirement for the permittee to perform accelerated chronic toxicity monitoring and to initiate a Toxicity Reduction Evaluation/Toxicity Identification Evaluation (TRE/TIE) if a pattern of effluent toxicity is demonstrated. For this discharge, a mixing zone or dilution allowance of 82:1 is authorized for chronic toxicity. WET test results shall be reported in TU_c , where $TU_c = 100/NOEC$ (No Observed Effect Concentration, is the highest concentration of toxicant to which organisms are exposed that causes no observable adverse effects on the test organisms). For this discharge, the chronic WET permit limits are any one test result greater than 69 TU_c (during the monthly reporting period), or any one or more test results with a calculated median value greater than 138 TU_c (during the monthly reporting period).

e. Quality Assurance for Chronic Toxicity

- i. Quality assurance measures, instructions, and other recommendations and requirements are found in the chronic test methods manual previously referenced.
- ii. To assess chronic toxicity, the permittee shall perform tests on a series of at least five effluent dilutions and a control. The dilution series shall be based on chronic instream waste concentrations (IWC), i.e., the percentage of effluent at the edge of the mixing zone over a specified averaging period. **At a minimum**, the dilution series shall include the following:
 - maximum daily trigger IWC of 1.4% effluent ($100 \div 69 TU_c$);
 - median monthly trigger IWC of 0.72% effluent ($100 \div 138 TU_c$);
 - one dilution below the IWC of 0.72% effluent, and
 - two dilutions above the IWC of 1.4% effluent.
- iii. If organisms are not cultured in-house, concurrent testing with a reference toxicant shall be conducted. Where organisms are cultured in-house, monthly reference toxicant testing is sufficient. Reference toxicant tests and effluent toxicity tests shall be conducted using the same test conditions (e.g., same test duration, etc.).

- iv. If either the reference toxicant or effluent toxicity tests do not meet all test acceptability criteria in the test methods manual, the permittee must re-sample and re-test within 14 days.
- v. Reference toxicant tests shall be conducted using the same test conditions as effluent toxicity tests (i.e., same test duration, etc.).
- vi. Control and dilution water should be lab water, as described in the test methods manual. If the dilution water used is different from the culture water, a second control using culture water shall also be tested.
- vii. When effluent monitoring frequencies for whole effluent toxicity and priority pollutants are concurrent, the permittee shall perform chemical analyses for priority pollutants on a split sample collected for whole effluent toxicity testing.

2. Reporting of Toxicity Monitoring Results for Chronic Toxicity

- a. A full laboratory report for all toxicity testing shall be submitted as an attachment to the DMR for the month in which the toxicity test was conducted and shall also include: the toxicity test results reported in Pass or Fail, NOEC and TU_c , and EC_{25} in accordance to the test methods manual chapter on report preparation and test review; the dates and times of sample collection and initiation of each toxicity test; all results for effluent parameters monitored concurrently with the toxicity test(s); and progress reports on TRE/TIE investigations. If the initial investigation TRE workplan is used to determine that additional accelerated toxicity testing is unnecessary, these results shall be submitted with the DMR for the month in which investigations conducted under the TRE workplan occurred.
- b. The permittee shall notify the permitting authority in writing within 14 days of exceedance of a chronic toxicity monitoring trigger. This notification shall describe actions the permittee has taken or will take to investigate, identify, and correct the causes of toxicity; the status of actions required by this permit; and schedule for actions not yet completed; or reason(s) that no action has been taken.

C. Priority Toxic Pollutants Scan

1. In accordance with federal regulations, the permittee shall conduct a Priority Toxics Pollutants scan during the fourth year of the five-year permit term to ensure that the discharge does not contain toxic pollutants in concentrations that may cause a violation of water quality standards. The permittee shall perform all effluent sampling and analyses for the priority pollutants scan in accordance with the methods described in the most recent edition of 40 CFR 136, unless otherwise specified in this draft permit by EPA. 40 CFR 131.36 provides a complete list of Priority Toxic Pollutants.

D. Twenty-four Hour Reporting of Noncompliance

1. In accordance with 40 CFR 122.41(1)(6), the permittee shall report any noncompliance which may endanger human health or the environment. An example of noncompliance is an exceedance of a monthly median effluent limitation. Any

information shall be provided orally, within 24 hours from the time the permittee becomes aware of the circumstances, to EPA and GEPA.

The permittee shall notify EPA and GEPA at the following telephone numbers:

Pacific Islands Office, CED-6	Administrator
EPA - Region IX	Guam EPA
(415) 972-3769	(671) 475-1658

A written submission also shall be provided within five 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 noncompliance has not been corrected, the anticipated time the noncompliance is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

PART III – MODIFICATION or REVOCATION AND REISSUANCE PROVISIONS

- A. In accordance with 40 CFR 122.62, 122.63 and 124.5, this permit may be modified by EPA to include effluent limits, monitoring, or other conditions to implement new regulations, including EPA-approved water quality standards; or to address new information indicating the presence of effluent toxicity or the reasonable potential for the discharge to cause or contribute to exceedances of water quality standards.
- B. In accordance with 40 CFR Parts 122.62, 122.63 and 124.5, this permit may be modified to include effluent limitations or permit conditions to address chronic toxicity in the effluent or receiving waterbody, as a result of the discharge; or implement new, revised, or newly interpreted water quality standards applicable to chronic toxicity.
- C. In accordance with 40 CFR 122.62, 122.63 and 124.5, the draft permit may be modified to include effluent limitations or permit conditions when other new information is provided to EPA; such as, but not limited to, an approved mixing zone for specified pollutants by Guam EPA.
- D. In accordance with 40 CFR 122.62(a)(2) and/or 122.63(b), this permit may be modified, or revoked and reissued based on the results of Endangered Species Act section 7 consultation with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service.

PART IV - STANDARD CONDITIONS

- A. The permittee shall comply with all Standard Conditions included in an attachment to this permit.

PART V - SPECIAL CONDITIONS

A. Development and Implementation of Best Management Practices

1. Pollution Prevention Program

- a. The permittee is required to develop and implement appropriate pollution prevention measures or Best Management Practices (“BMPs”) designed to control site runoff, spillage or leaks, sludge or waste disposal, and drainage from

collection system, storage/supply, and treatment/operational/process areas that may contribute pollutants to surface waters within 90 days from the effective date of this permit (section 304(e) of the CWA and 40 CFR 122.44(k)). BMPs shall include but are not limited to those necessary to control total suspended solids and oil and grease. Through the implementation of BMPs described in a BMP Plan, the permittee shall prevent or minimize generating and discharging of wastes and pollutants from the facility to waters of the United States. The BMP plan shall be located at the facility and be made available upon request by EPA and/or GEPA.

2. Toxic Pollutant Minimization Program

- a. The permit contains provisions to monitor for heavy metals, hardness, and pesticides once every permit cycle. The permittee shall review the analytical results from the fourth year of coverage under the final permit and compare these results to their respective, applicable acute aquatic, chronic aquatic, and human health water quality standards. If analytical results are obtained equal to or greater than the most stringent water quality standard, the permittee shall develop and implement a toxic pollutant minimization program no later than the end of the second year of coverage under the final permit. The permittee shall make every effort to identify the sources of these pollutants within the facility and develop a program to minimize their entry into the facility’s wastewater and subsequent discharge to the receiving water. The goal of the toxic pollutant minimization program shall be for the discharge to meet Guam water quality standards as soon as practicable.

B. Receiving Water Monitoring Program

1. Receiving Water Monitoring Requirements

The permittee shall conduct the following receiving water monitoring program. All station locations (latitude and longitude) and depths must be verified during the first sampling survey; submit this data with the first receiving water monitoring report to USEPA Region 9 and GEPA. Data may be provided to the permittee by another entity.

- a. Shoreline Monitoring Station Locations

Station Name	Location
Tipalao Shore A (TS1)	On either side of the cove, near the shoreline
Tipalao Shore B (TS2)	Directly shoreward of the outfall diffuser
Tipalao Shore C (TS3; control station)	1,000,meters southeast of diffuser, near the shoreline

2. Submission of Reports

The permittee shall submit quarterly receiving water monitoring reports to USEPA Region 9 and GEPA by 28th of April, July, October, and January for each period covering the previous three calendar months. These reports shall include:

- i. A description of climatic and receiving water characteristics at the time of sampling (*e.g.*, weather observations, floating debris, discoloration, time of sampling, tide, etc.).

b. Shoreline Water Monitoring Requirements

Receiving Water Characteristic	Units	Monitoring Frequency	Sample Type
Visual Observations ¹¹	Visual	Monthly	Visual
Enterococci	CFU/100 mL	Monthly	Surface Grab
Nitrate-Nitrogen	mg-N/L	Monthly	Surface Grab
Ammonia Nitrogen	mg-N/L	Monthly	Surface Grab
Total Phosphorus	mg-P/L	Monthly	Surface Grab

¹¹ Visual Observations shall include: Floating material (oils, grease, scum, etc.), odor, and color.

c. Offshore Monitoring Station Locations

Station Name	Location
Tipalao Bay A (Tb1)	120 - 130 feet south of Discharge Serial No. 001
Tipalao Bay B (TB2)	120 -130 feet north of Discharge Serial No. 001
Tipalao Bay C (TS3; control station)	At least 1,000 meters southeast of Discharge Serial No. 001, or outside of Tipalao Bay

d. Offshore Water Monitoring

Receiving Water Characteristic	Units	Monitoring Frequency	Sample Type
Enterococci	CFU/100 mL	Monthly	Surface, mid-depth, bottom grab
Orthophosphate (PO ₄ -P)	mg/L	Quarterly	Surface, mid-depth, bottom grab
Nitrate-Nitrogen (NO ₃ -N)	mg/L	Quarterly	Surface, mid-depth, bottom grab
Ammonia	mg/L	Quarterly	Surface, mid-depth, bottom grab
Turbidity	NTU	Quarterly	Nephelometer
Suspended Solids	mg/L	Quarterly	Surface, mid-depth, bottom grab
Copper	mg/L	Monthly	Surface, mid-depth, bottom grab
Aluminum	mg/L	Monthly	Surface, mid-depth, bottom grab
Nickel	mg/L	Monthly	Surface, mid-depth, bottom grab
Zinc	mg/L	Monthly	Surface, mid-depth, bottom grab
Others (Mg, Pb, Ag, Fe, Hg, CN)	mg/L	Quarterly	Surface, mid-depth, bottom grab
Oil and Grease	Visual Observations	Monthly	Surface Grab
pH	Standard Units	Quarterly	CDP ¹²
Dissolved Oxygen	mg/L	Quarterly	CDP ¹²
Temperature	C	Quarterly	CDP ¹²

¹² Continuous depth profile (CDP) is a plot of depth versus water quality parameter. The maximum interval between points on the curve shall be 2 meters.

C. TRE Workplan and Accelerated Toxicity Testing for Chronic Toxicity

1. Initial Investigation TRE Workplan for Chronic Toxicity

- a. The permittee shall develop and implement, in the event effluent toxicity is triggered, an Initial Investigation Toxics Reduction Evaluation (“TRE”) Workplan. **Within 90 days of the effective date of this permit**, the permittee shall prepare and submit a copy of a TRE Workplan (1-2 pages) specific to chronic toxicity to EPA and GEPA for review. This plan shall include steps the permittee intends to follow if toxicity is measured above chronic toxicity monitoring triggers and should include, at minimum the following:
 - i. A description of the investigation and evaluation techniques that would be used to identify potential causes and sources of chronic toxicity, effluent variability, and treatment system efficiency;
 - ii. A description of methods for maximizing in-house treatment system efficiency, good housekeeping practices, and a list of all chemicals used in operations at the facility; and
 - iii. If a Toxicity Identification Evaluation (“TIE”) is necessary, an indication of who would conduct the TIE (i.e., an in-house expert or outside contractor).

2. Accelerated Toxicity Testing and TRE/TIE Process for Chronic Toxicity

- a. If a chronic WET permit limit or trigger is exceeded and the **source of toxicity is known** (e.g., a temporary plant upset), then the permittee shall conduct one additional toxicity test using the same species and test method. This test shall begin within 14 days of receipt of test results exceeding a chronic WET permit limit or trigger. If the additional toxicity test does not exceed a chronic WET permit limit or trigger, then the permittee may return to their regular testing frequency.
- b. If a chronic WET permit limit or trigger is exceeded and the **source of toxicity is not known**, then the permittee shall conduct six additional toxicity tests using the same species and test method, approximately every two weeks, over a 12 week period. This testing shall begin within 14 days of receipt of test results exceeding a chronic WET permit limit or trigger. If none of the additional toxicity tests exceed a chronic WET permit limit or trigger, then the permittee may return to their regular testing frequency.
- c. If one of the additional toxicity tests (as stated paragraphs 2a and 2b above) exceeds a chronic WET permit limit or trigger, then, within 14 days of receipt of this test result, the permittee shall initiate a TRE, based on the type of treatment facility, EPA guidance manual *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants* (EPA/ 833/B-99/002, 1999) or EPA guidance manual *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations* (EPA/600/2-88/070, 1989). In conjunction, the permittee shall develop and implement a Detailed TRE Workplan which shall include: further actions undertaken by the permittee to investigate, identify, and correct the

causes of toxicity; actions the permittee will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and a schedule for these actions.

- d. The permittee may initiate a Toxicity Identification Evaluation ("TIE") as part of a TRE to identify the causes of chronic toxicity using the same species and test method and EPA test method guidance manuals: *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I* (EPA/600/6-91/005F, 1992); *Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/080, 1993a); and *Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/081, 1993b).

PART VI - SLUDGE/BIOSOLIDS LIMITATIONS AND MONITORING REQUIREMENTS

"Biosolids" means non-hazardous sewage sludge, as defined in 40 CFR 503.9. Sewage sludge that is hazardous, as defined in 40 CFR 261, must be disposed of in accordance with the Resource Conservation and Recovery Act.

A. General Requirements

1. All biosolids generated by the permittee shall be used or disposed of in compliance with the applicable portions of:
 - (a) 40 CFR 503 - for biosolids that are land applied, placed in a surface disposal site (dedicated land disposal site, monofill, or sludge-only parcel at a municipal landfill), or incinerated;
 - (b) 40 CFR 258 - for biosolids disposed of in a municipal solid waste landfill (with other material);
 - (c) 40 CFR 257 - for all biosolids use and disposal practices not covered under 40 CFR 258 or 503.

40 CFR 503, Subpart B (land application) sets requirements for biosolids that are applied for the purpose of enhancing plant growth or for land reclamation. 40 CFR 503, Subpart C (surface disposal) sets requirements for biosolids that are placed on the land for the purpose of disposal.

The permittee is responsible for assuring that all biosolids produced at its facility are used or disposed of in accordance with these rules, whether the permittee uses or disposes of the biosolids itself, or transfers the biosolids to another party for further treatment, use, or disposal. The permittee is responsible for informing subsequent preparers, applicators, and disposers of the requirements that they must meet under these rules.

2. Duty to mitigate: The permittee shall take all reasonable steps to prevent or minimize any biosolids use or disposal which has a likelihood of adversely affecting human health or the environment.
3. No biosolids shall be allowed to enter wetlands or other waters of the United States.

4. Biosolids treatment, storage, use, or disposal shall not contaminate groundwater.
5. Biosolids treatment, storage, use, or disposal shall not create a nuisance such as objectionable odors or flies.
6. The permittee shall assure that haulers transporting biosolids off site for treatment, storage, use, or disposal take all necessary measures to keep the biosolids contained. All haulers must have spill clean-up procedures. Trucks hauling biosolids that are not classified as Class A, as defined at 40 CFR 503.32(a), shall be cleaned as necessary after loading and after unloading so as to have no biosolids on the exterior of the truck body or wheels. Trucks hauling biosolids that are not Class A shall be tarped. Trucks hauling biosolids that are not Class A may not be used for hauling food or feed crops after unloading the biosolids, unless the permittee submits, for EPA approval, a hauling description of how trucks will be thoroughly cleaned prior to adding food or feed.
7. If biosolids are stored over two years from the time they are generated, then the permittee must ensure compliance with all surface disposal requirements under 40 CFR 503, Subpart C, or must submit a written notification to EPA and GEPA with the information under 40 CFR 503.20(b) demonstrating the need for longer temporary storage. During temporary storage (of any length of time) for biosolids that are not Class A, whether on the facility site or off-site, adequate procedures must be taken to restrict public access and access by domestic animals.
8. Any biosolids treatment, disposal, or storage site shall have facilities adequate to: divert surface runoff from adjacent areas, protect the site boundaries from erosion, and prevent any conditions that would cause drainage from the materials at the site to escape from the site. Adequate protection is defined as protection from at least a 100-year storm event and from the highest tidal stage that may occur.
9. There shall be adequate screening at the treatment plant headworks and/or at the biosolids treatment units to ensure that all pieces of metal, plastic, glass, and other inert objects with a diameter greater than 3/8" are removed. This requirement only applies if disposal of biosolids are fractionated.

B. Inspection and Entry

The EPA, GEPA, or an authorized representative thereof, upon presentation of credentials, shall be allowed by the permittee, directly or through contractual arrangements with their biosolids management contractors, to:

1. Enter upon all premises where biosolids produced by the permittee are treated, stored, used, or disposed of, either by the permittee or another party to whom the permittee transfers the biosolids for treatment, storage, use, or disposal;
2. Have access to and copy any records that must be kept under the conditions of this permit or 40 CFR 503, by the permittee or another party to whom the permittee transfers the biosolids for further treatment, storage, use, or disposal; and
3. Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations used in biosolids treatment, storage, use, or disposal by the

permittee or another party to whom the permittee transfers the biosolids for treatment, use, or disposal.

C. Monitoring

1. Biosolids shall be monitored for the following constituents, at the frequency specified in paragraph C.2: arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, organic nitrogen, ammonia-nitrogen, and total solids. This monitoring shall be conducted using the methods in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (EPA publication SW-846), as required in 40 CFR 503.8(b)(4). All results must be reported on a 100% dry weight basis. Records of all analyses must state on each page of the laboratory report whether the results are expressed in “100% dry weight” or “as is.”
2. The constituents in paragraph C.1 shall be monitored at the following frequency, based on the volume of sewage solids generated per year:

Volume Generated (dry metric tons per year)	Monitoring Frequency *
>0 - <290	Once per year (Oct)
290 - <1,500	Four times per year (Jan/Apr/Jul/Oct)
1,500 - <15,000	Six times per year (Jan/Mar/May/Jul/Sep/Nov)
>15,000	Twelve times per year

* If biosolids are removed for use or disposal on a routine basis, then monitoring should be scheduled at regular intervals throughout the year. If biosolids are stored for an extended period of time prior to use or disposal, then monitoring may occur either at regular intervals, or prior to use or disposal corresponding to tonnage accumulated during the period of storage.

3. Class 1 facilities (facilities with pretreatment programs or other facilities designated as Class 1 by the Regional Administrator) and Federal facilities with >5 MGD influent flow shall sample biosolids twice per year for pollutants listed under CWA section 307(a), using best practicable detection limits.

D. Pathogen and Vector Control

1. Prior to land application, the permittee shall demonstrate that biosolids meet Class A or Class B pathogen reduction levels using one of the alternatives listed under 40 CFR 503.32.
2. Prior to disposal in a surface disposal site, the permittee shall demonstrate that the biosolids meet Class B pathogen reduction levels or shall ensure that the site is covered at the end of each operating day. If pathogen reduction is demonstrated using a Process to Significantly/Further Reduce Pathogens, then the permittee shall maintain daily records of the operating parameters used to achieve this reduction.

If pathogen reduction is demonstrated by testing for fecal coliform and/or other pathogens, then samples must be drawn at the frequency described in paragraph C.2, above. If Class B pathogen reduction levels are demonstrated using fecal coliform, then at least seven grab samples must be drawn during each sampling event and a geometric mean calculated from these seven samples.

The following sample holding times between sample collection and sample analysis shall not be exceeded: fecal coliform - 24 hours when cooled to 4 °C; Salmonella sp. - 24 hours when cooled to 4 °C; enteric viruses - 2 weeks when frozen; helminth ova - one month when cooled to 4 °C.

3. For biosolids that are land applied or placed in a surface disposal site, the permittee shall track and keep records of the operational parameters used to achieve the Vector Attraction Reduction requirements in 40 CFR 503.33(b).

E. Surface Disposal

If biosolids are placed in a surface disposal site (dedicated land disposal site or monofill), then a qualified groundwater scientist shall develop a groundwater monitoring program for the site, or shall certify that the placement of biosolids on the site will not contaminate an aquifer.

F. Landfill Disposal

Biosolids placed in a municipal landfill shall be tested by the Paint Filter Liquids Test (Method Number 9095 in SW-846) at the frequency indicated in paragraph C.2, above, or more often if necessary, to demonstrate that there are no free liquids.

G. Notification and Reporting

1. The permittee, either directly or through contractual arrangements with their biosolids management contractors, shall comply with the following notification requirements:
 - (a) Notification of noncompliance: The permittee shall notify EPA and GEPA of any noncompliance within 24 hours, if the noncompliance may seriously endanger health or the environment. For other instances of noncompliance, the permittee shall notify EPA and GEPA in writing, within five working days of becoming aware of the circumstances. The permittee shall require their biosolids management contractors to notify EPA and GEPA of any noncompliance within these same timeframes.
 - (b) Interstate notification: If biosolids are shipped to another State, Tribal Lands, or Territory, then the permittee shall send a 60-day prior notice of the shipment to permitting authorities in the receiving State, Tribal Lands, or Territory, and EPA Regional Office.
 - (c) Land Application

Prior to using any biosolids from this facility (other than composted biosolids) at a new or previously unreported site, the permittee shall notify EPA and GEPA. The notification shall include: a description and topographic map of the proposed site(s), names and addresses of the applier and site owner, and a list of any state or local permits which must be obtained. The plan shall include a description of the crops or vegetation to be grown, proposed loading rates, and determination of agronomic rates.

If any biosolids within a given monitoring period do not meet the pollutant limits for metals under 40 CFR 503.13, then the permittee (or its contractor) must pre-

notify EPA and determine the cumulative metals loading to date at that site, as required in 40 CFR 503.12.

The permittee shall notify the applier of 40 CFR 503 requirements that are applicable to the applier, including applier certification that management practices, site restrictions, and vector attraction reduction requirements have been met. The permittee shall require the applier to certify at the end of 38 months following the application of Class B biosolids, that the harvesting restrictions in effect for up to 38 months have been met.

(d) Surface Disposal

Prior to disposal at a new or previously unreported site, the permittee shall notify EPA and GEPA. The notice shall include: a description and topographic map of the proposed site, depth to groundwater, whether the site is lined or unlined, site operator, site owner, and any State or local permits. The notice shall describe procedures for ensuring restricted public access and grazing restrictions for three years following site closure. The notice shall include a groundwater monitoring plan, or a description of why groundwater monitoring is not required.

2. The permittee shall submit an annual biosolids report to the EPA Region 9 Biosolids Coordinator and GEPA by February 19 of each year for the period covering the previous calendar year. This report shall include:

- (a) The amount of biosolids generated that year and the amount of biosolids accumulated from previous years, in dry metric tons.
- (b) Results of all pollutant monitoring required in the Monitoring section, above, reported on a 100% dry weight basis.
- (c) Demonstrations and certifications of pathogen reduction methods and vector attraction reduction methods, as required in 40 CFR 503.17 and 503.27.
- (d) Names, mailing addresses, and street addresses of persons who received biosolids for storage, further treatment, or disposal in a municipal waste landfill, or for other use or disposal methods not covered above, and the volumes delivered to each.
- (e) For land application sites, the following information must be submitted by the permittee, unless the permittee requires its biosolids management contractors to report this information directly to the EPA Region 9 Biosolids Coordinator:

The locations of land application sites used that calendar year (with field names and numbers), size of each field applied to, applier, and site owner; the volumes applied to each field (in wet tons and dry metric tons), nitrogen applied, and calculated plant available nitrogen; the crop planted, date of planting, and date of harvesting; for biosolids exceeding 40 CFR 503.13 Table 3 pollutant concentrations, the locations of sites where applied and cumulative metals loading at that site to date; certifications of management practices in 40 CFR 503.14 and certifications of site restrictions in 40 CFR 503.32(b)(5).

- (f) For surface disposal sites: The locations of sites, site operator, site owner, and size of parcel on which disposed; the results of any required groundwater monitoring;

certifications of management practices in 40 CFR 503.24; and for closed sites, the date of site closure and certifications of management practices for the three years following site closure.

(g) All reports shall be submitted to:

Regional Biosolids Coordinator
U.S. Environmental Protection Agency
Region IX
CWA Compliance Office (WTR-7)
75 Hawthorne Street
San Francisco, CA 94105-3901

Guam EPA
17-3304 Mariner Avenue,
Tiyan, Guam 96913

PART VII - DEFINITIONS

24-hr Composite. A composite sample means a time-proportioned mixture of not less than eight discrete aliquots obtained at equal time intervals (e.g., 24-hour composite means a minimum of eight samples collected every three hours). The volume of each aliquot shall be directly proportional to the discharge flow rate at the time of sampling, but not less than 100 ml. Sample collection, preservation, and handling shall be performed as described in the most recent edition of 40 CFR 136.3, Table II. Where collection, preservation, and handling procedures are not outlined in 40 CFR 136.3, procedures outlined in the 18th edition of *Standard Methods for the Examination of Water and Wastewater* shall be used.

Acute Toxicity. The degree to which a pollutant, discharge, or water sample causes a rapid adverse impact to aquatic organisms.

Acute Toxic Unit (TU_a). The reciprocal of the effluent concentration that causes 50 percent of the test organism to die in an acute toxicity test (i.e., $TU_a = 100 \div LC_{50}$).

Average Monthly Effluent Limitation (AML). The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWL). The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Best Management Practices (BMPs). Best Management Practices or “BMPs” are schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural, and/or managerial practices to prevent or reduce the pollution of waters of the U.S. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may further be characterized as operational, source control, erosion and sediment control, and treatment BMPs.

Chronic Toxicity. The degree to which a pollutant, discharge, or water sample causes a sub lethal toxic response, such as an alteration in growth rate or reproduction.

Chronic Toxic Unit (TU_c). The reciprocal of the highest tested concentration of an effluent or test sample whose effect is not statistically different from the control determined in a chronic toxicity test (i.e., $TU_c = 100 \div NOEC$).

Daily Discharge. A daily discharge means the discharge of a pollutant, measured during a calendar day or any 24-hour period, that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the average measurement of the pollutant over the day.

Discharge Monitoring Report (DMR). An NPDES form for the reporting of self-monitoring NPDES results by the permittee.

Discrete sample. Any individual sample collected in less than 15 minutes. The sampling period shall coincide with the period of maximum discharge flow.

Grab Sample. A single individual sample collected at a particular time and place that represents the composition of the discharge only at that time and place. Sample collection, preservation, and handling shall be performed as described in the most recent edition of 40 CFR 136.3, Table II. Where collection, preservation, and handling procedures are not outlined in 40 CFR 136.3, procedures outlined in the 18th edition of *Standard Methods for the Examination of Water and Wastewater* shall be used.

LC50. The lethal toxic or effluent concentration that causes death in 50 percent of the test organisms over a specified period of time.

Maximum Daily Effluent Limitation (MDL). The highest allowable daily discharge of a pollutant or parameter, over a calendar day or 24-hr period. For pollutants with limitations expressed in terms of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day.

Method Detection Limit (MDL). The minimum concentration of an analyte that can be detected with 99 percent confidence that the analyte concentration is greater than zero, as defined by a specific laboratory method in 40 CFR 136. The procedure for determination of a laboratory MDL is in 40 CFR 136, Appendix B.

Minimum Level (ML). The concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed in a specific analytical procedure, assuming that all the method-specific sample weights, volumes, and processing steps have been followed (as defined in EPA's draft *National Guidance for the Permitting, Monitoring, and Enforcement of Water Quality-Based Effluent Limitations Set Below Analytical Detection/Quantitative Levels*, March 22, 1994). If a published method-specific ML is not available, then an interim ML shall be calculated. The interim ML is equal to 3.18 times the published method-specific MDL rounded to the nearest multiple of 1, 2, 5, 10, 20, 50, etc. (When neither an ML nor MDL are available under 40 CFR 136, an interim ML should be calculated by multiplying the best estimate of detection by a factor of 3.18; when a range of detection is given, the lower end value of the range of detection should be used to calculate the ML.) At this point in the calculation, a different procedure is used for metals, than non-metals:

- For metals, due to laboratory calibration practices, calculated MLs may be rounded to the nearest whole number; and
- For non-metals, because analytical instruments are generally calibrated using the ML as the lowest calibration standard, the calculated ML is then rounded to the nearest multiple of $(1, 2, \text{ or } 5) \times 10^n$, where n is zero or an integer. (For example, if an MDL is $2.5 \mu\text{g/L}$, then the calculated ML is: $2.5 \mu\text{g/L} \times 3.18 = 7.95 \mu\text{g/L}$. The multiple of $(1, 2, \text{ or } 5) \times 10^n$ nearest to 7.95 is $1 \times 10^1 = 10 \mu\text{g/L}$, so the calculated ML, rounded to the nearest whole number, is $10 \mu\text{g/L}$).

NODI(B). The concentration of the pollutant in a sample is not detected. NODI(B) is reported on a DMR when a sample result is less than the laboratory's MDL.

NODI(Q). The concentration of the pollutant in a sample is detected but not quantified. NODI(Q) is reported on a DMR when a sample result is greater than or equal to the laboratory's MDL, but less than the ML.

No Observed Effect Concentration (NOEC). The highest tested concentration of an effluent or test sample whose effect is not statistically different from the control.

Toxicity Identification Evaluation (TIE). A set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organisms toxicity tests.

Toxicity Reduction Evaluation (TRE). A study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate.

Whole Effluent Toxicity (WET). The aggregate toxic effect of an effluent measured directly with a toxicity test.

PART VIII - REFERENCES

EPA. 1989. Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations. Fava, J. A., Lindsay, D., Clement, W. H., Clark, R., and DeGraeve, G. M. Chemicals and Chemical Product Branch, Risk Reduction Engineering Laboratory, EPA. EPA/600/2-88/070.

EPA. 1992. Toxicity Identification Evaluations: Characterization of Chronically Toxic Effluents, Phase I. Office of Research and Development, Environmental Research Laboratory, EPA. EPA/600/6-91/005F.

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EPA 1993b. Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity. Office of Research and Development, EPA. EPA/600/R-92/081.

EPA. 1995. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms. EPA/600/R-95/136

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EPA. 2002. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms. EPA/821/R-02/014.

EPA. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. EPA publication SW-846.

PART IX – ATTACHMENTS