

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**  
**PROPOSED PERMIT FACT SHEET**  
**DRAFT June 28 2011**

Permittee Name: Emergency Response Office, US EPA Region 9

Mailing Address: 75 Hawthorne St. (SFD9-2), San Francisco, CA 94610

Facility Location: Lots # 193E-05 & 06, Lower Base, Saipan

Contact Person(s): Chris Reiner, On-Scene Coordinator

NPDES Permit No.: MP0020401

**I. STATUS OF PERMIT**

The Emergency Response Office (ERO, the “permittee”) has applied for a new National Pollutant Discharge Elimination System (“NPDES”) permit to allow the discharge of treated groundwater from a trench drain the to the Tanapag Lagoon in the Philippine Sea off the coast of Saipan. A complete application was submitted on June 13, 2011. EPA Region IX has developed this permit and fact sheet pursuant to Section 402 of the Clean Water Act, which requires point source dischargers to control the amount of pollutants that are discharged to waters of the United States through obtaining a NPDES permit.

This permit has been classified as a minor discharger.

**II. GENERAL DESCRIPTION OF FACILITY**

The Commonwealth Utilities Corporation (CUC) Power Plants 1 & 2 are located in Lower Base, Saipan, Commonwealth of the Northern Mariana Islands. A plume of subsurface oil has been identified originating from the power plants and migrating north to the Pacific Ocean. ERO is installing a series of subsurface trenches both on the facility and parallel to the shoreline between CUC and Tanapag Lagoon to recover oil from the subsurface. (See Appendix A, Site Features and Proposed Excavation Map.) The trenches will be approximately 900 feet in total length and will generate some oil contaminated groundwater which will be pumped to the treatment unit prior to discharge.

At this location, the groundwater is saline due to its interaction with the ocean. The contaminated groundwater will be treated by an API type oil/water separator with a maximum capacity of approximately 140 gallons per minute (gpm). Flow from the oil/water separator will be passed through a sock filter and sent to granular activated carbon (GAC) units. Collected oil will likely be recycled for use at the power plant.

### **III. DESCRIPTION OF RECEIVING WATER**

The coastal waters in the location of the discharge are classified as marine Class AA. Class AA waters have the objective that these waters remain in their natural pristine state as nearly as possible with an absolute minimum of pollution or alteration of water quality from any human-related source or actions. To the extent practicable, the wilderness character of such areas shall be protected. Mixing zones for dredging and the discharge of dredged or fill material may be permitted as allowed under Part 9.6 these standards. Mixing zones for any other discharge shall not be permitted.

The beneficial uses to be protected in this class of waters are the support and propagation of shellfish and other marine life, conservation of coral reefs and wilderness areas, oceanographic research, and aesthetic enjoyment and compatible recreation with risk of water ingestion by either children or adults.

The classification of any water area as Class AA shall not preclude other uses of such waters compatible with these objectives and in conformance with the criteria applicable to them.

### **IV. DESCRIPTION OF DISCHARGE**

As a new facility, there is no effluent data available. However, ERO has conducted extensive soils and water analysis to document the location, extent, and pollutant characteristics of the plume. The groundwater is contaminated with diesel and motor oil fuel. The water table has a tidal influence at the trench location and is generally saline due to interaction with the ocean waters.

15 water samples were collected of the contaminated groundwater. Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc were all analyzed as well as volatile organic compounds, polycyclic aromatic hydrocarbons, polychlorinated biphenyls and several inorganics (see Table 3-5 of Source Investigation Report, Appendix to permit application). Almost all metals samples were non-detect, with the exception of arsenic, copper, and one detect for chromium. Arsenic was detected in untreated groundwater at a maximum concentration of 11.5 ug/L, copper was detected at a maximum concentration of 6.2 ug/L, and chromium as detected at a maximum concentration of 3.2 ug/L. Several organic compounds expected to be present in diesel contaminated water were detected at concentrations below 10 ug/L. No detectable concentrations of PCBs have been found.

ERO expects to operate the system in the 10-50gpm range, with a maximum flow of 144 gpm. The pump and treat system is expected to be in operation for several years until the contaminated groundwater has been treated.

### **V. DETERMINATION OF NUMERICAL EFFLUENT LIMITATIONS**

EPA has developed effluent limitations and monitoring requirements in the permit based on an evaluation of the technology used to treat the pollutant (e.g., “technology-based effluent limits”) and the water quality standards applicable to the receiving water (e.g., “water quality-based effluent limits”). EPA has established the most stringent of applicable technology based or water quality based standards in the proposed permit, as described below.

## **A. Applicable Technology-based Effluent Limitations**

There are no nationally-applicable Best Available Technology (BAT) effluent limits applicable to pump and treat systems. Therefore, EPA used Best Professional Judgment (BPT) to establish BAT effluent limitations for the treatment system based on evaluation of the groundwater pollutant characteristics, the expected effluent characteristics, and the expected treatment plant performance.

As described above, the pollutants found in the untreated groundwater are consistent with diesel fuel contamination and EPA has therefore established effluent limitations consistent with this type of contamination. As noted above, EPA believes the treatment system will achieve very high removal rates. The combination of API oil water separator and GAC units as polishing filters is the best available technology for this type of contamination. However, EPA notes that the saline nature of the groundwater may impact the ability of the GAC units to function as well as may be expected in water matrix with low dissolved solids content. Due to the extremely high level of influent concentrations and the potential interferences of dissolved salts with the GAC units, EPA has determined the achievable BAT performance to be an average monthly effluent concentration of 10 mg/L of Total Petroleum Hydrocarbons, with a daily maximum of 15 mg/L.

## **B. Water Quality-Based Effluent Limitations ("WQBELs")**

Water quality-based effluent limitations, or WQBELS, are required in NPDES permits when the permitting authority determines that a discharge causes, has the reasonable potential to cause, or contributes to an excursion above any water quality standard. (40 CFR 122.44(d)(1))

When determining whether an effluent discharge causes, has the reasonable potential to cause, or contributes to an excursion above narrative or numeric criteria, the permitting authority shall use procedures which account for existing controls on point and non point sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity) and where appropriate, the dilution of the effluent in the receiving water. (40 CFR 122.44 (d) (1) (ii)).

EPA evaluated the reasonable potential to discharge toxic pollutants according to guidance provided in the *Technical Support Document for Water Quality-Based Toxics Control* (TSD) (Office of Water Enforcement and Permits, U.S. EPA, March 1991) and the *U.S. EPA NPDES Permit Writers Manual* (Office of Water, U.S. EPA, December 1996). These factors include:

- 1 Applicable standards, designated uses and impairments of receiving water
- 2 Dilution in the receiving water
- 3 Type of industry
4. History of compliance problems and toxic impacts
5. Existing data on toxic pollutants - Reasonable Potential analysis

### **1. Applicable standards, designated uses and impairments of receiving water**

All water quality-based effluent limitations for this permit are based on CNMI's Water Quality Standards criteria for Class AA marine waters.

The area in the vicinity of the discharge is listed as impaired according to the CWA Section 303(d) List of Water Quality Limited Segments for enterococci, dissolved oxygen, biocriteria, and orthophosphate. (Commonwealth of the Northern Mariana Islands Integrated 305(b) and 303(d) Water Quality Assessment Report, Nov 2010). Sources of potential contamination are listed as the Sadog Tasi WWTP outfall and the Puerto Rico Dump which are located within segment. The new discharge does not contain measurable quantities of biochemical oxygen demand, enterococci, orthophosphate, or toxic pollutants and will not contribute to the existing impairments.

## **2. Dilution in the receiving water**

No allowance for dilution of the effluent is being considered.

## **3. Existing data on toxic pollutants**

As a new facility, there is no existing effluent data.

## **C. Rationale for Effluent Limits**

EPA evaluated the typical pollutants expected to be present in the effluent and selected the most stringent of applicable technology-based standards or water quality-based effluent limitations. Where effluent concentrations of toxic parameters are unknown or are not reasonably expected to be discharged in concentration that have the reasonable potential to cause or contribute to water quality violations, EPA may establish monitoring requirements in the permit. Where monitoring is required, data will be re-evaluated and the permit may be re-opened to incorporate effluent limitations as necessary.

### *Total Petroleum Hydrocarbons*

Average monthly limit of 10.0 mg/L based on BPJ.

### *pH*

7.5 to 8.6 at all times based on CNMI water quality standards

### *BTEX*

EPA's "Model NPDES Permit for Discharges Resulting From The Cleanup of Gasoline Released From Underground Storage Tanks" (June 1989), recommends a BTEX limit of 100 ug/L. This limit is based on the typical removal efficiency of 99.5% or better for BTEX using a commercially available air stripper unit.

Additionally, monitoring is required for chronic toxicity, dissolved solids, and priority pollutants to ensure water quality standards are protected. EPA will evaluate this data and will modify and reopen the permit if additional effluent limits are necessary to ensure water quality is protected.

#### **D. Anti-Backsliding.**

Section 402(o) of the CWA prohibits the renewal or reissuance of an NPDES permit that contains effluent limits less stringent than those established in the previous permit, except as provided in the statute.

The is a new permit and therefore does not allow backsliding.

#### **E. Antidegradation Policy**

EPA's antidegradation policy at 40 CFR 131.12 and the CNMI Water Quality Standards require that existing water uses and the level of water quality necessary to protect the existing uses be maintained.

As described in this document, the permit establishes effluent limits and monitoring requirements to ensure that all applicable water quality standards are met. The permit does not include a mixing zone, therefore these limits will apply at the end of pipe without consideration of dilution in the receiving water. Existing data shows that most pollutants will be treated and discharged below detection levels. The system is intercepting, removing, and preventing contaminants from reaching the ocean and is therefore not increasing loadings of any pollutant to the receiving waters.

Due to the low levels of toxic pollutants present in the effluent, high level of treatment being obtained, and water quality based effluent limitations, it is not expected that the discharge will adversely affect receiving water bodies.

### **VI. NARRATIVE WATER QUALITY-BASED EFFLUENT LIMITS**

CNMI Water Quality Standards contain narrative water quality standards applicable to the receiving water. Therefore, the permit incorporates applicable narrative water quality standards.

### **VII. MONITORING AND REPORTING REQUIREMENTS**

The permit requires the permittee to conduct monitoring for all pollutants or parameters where effluent limits have been established, at the minimum frequency specified. Additionally, where effluent concentrations of toxic parameters are unknown or where data is insufficient to determine reasonable potential, monitoring may be required for pollutants or parameters where effluent limits have not been established.

#### **A. Effluent Monitoring and Reporting**

The permittee shall conduct effluent monitoring to evaluate compliance with the proposed 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 proposed permit. All monitoring data shall be reported on monthly DMR forms and submitted quarterly as specified in the proposed permit.

## **B. Priority Toxic Pollutants Scan**

A Priority Toxics Pollutants scan shall be conducted during the first 90 days of discharge 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 the proposed permit or by EPA. 40 CFR 131.36 provides a complete list of Priority Toxic Pollutants.

## **C. Whole Effluent Toxicity Testing**

The permit establishes tests for toxicity for chronic toxicity.

Chronic toxicity testing evaluates reduced growth/reproduction at 100 percent effluent. For marine discharges in CNMI, chronic toxicity tests are conducted with the purple sea urchin, *Strongylocentrotus purpuratus* or the tropical collector sea urchin, *Tripneustes gratilla*. The presence of chronic toxicity shall be estimated as specified by the methods in the 40 CFR Part 136 as amended on November 19, 2002.

## **VII. SPECIAL CONDITIONS**

### **C. Development of an Initial Investigation TRE Workplan for Whole Effluent Toxicity**

In the event effluent toxicity is triggered from WET test results, the permit requires the permittee to develop and implement a Toxics Reduction Evaluation (“TRE”) Workplan. For acute toxicity, unacceptable effluent toxicity is found when "Fail" is determined, as indicated by a statistically significant difference between a test sample of 100 percent effluent and a control using a t-test. For chronic toxicity, unacceptable effluent toxicity is found in a single test result greater than 1.6 TU<sub>c</sub>, or when any one or more monthly test results in a calculated median value greater than 1.0 TU<sub>c</sub>.

## **IX. OTHER CONSIDERATIONS UNDER FEDERAL LAW**

### **A. Impact to Threatened and Endangered Species**

Section 7 of the Endangered Species Act of 1973 (16 U.S.C. § 1536) requires federal agencies to ensure that any action authorized, funded, or carried out by the federal agency does not jeopardize the continued existence of a listed or candidate species, or result in the destruction or adverse modification of its habitat.

Due to the low levels of toxic pollutants present in the effluent, the high level of treatment being obtained, and water quality based effluent limitations, and the significant pollutant reductions to be achieved by treating the plume of contaminated groundwater, EPA has concluded the discharge will not adversely affect any threatened or endangered species.

### **B. Impact to Coastal Zones**

The Coastal Zone Management Act (“CZMA”) requires that Federal activities and licenses, including Federally permitted activities, must be consistent with an approved state Coastal

Management Plan (CZMA Sections 307(c)(1) through (3)). Section 307(c) of the CZMA and implementing regulations at 40 CFR 930 prohibit EPA from 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 (or Territory) Coastal Zone Management program, and the State (or Territory) or its designated agency concurs with the certification.

The permittee is working with the CNMI Coastal Management Program to approve a Consistency Determination.

### **C. Impact to Essential Fish Habitat**

The 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act ("MSA") set forth a number of new mandates for the National Marine Fisheries Service, regional fishery management councils and other federal agencies to identify and protect important marine and anadromous fish species and habitat. The MSA requires Federal agencies to make a determination on Federal actions that may adversely impact Essential Fish Habitat ("EFH").

The proposed permit contains technology-based effluent limits and numerical and narrative water quality-based effluent limits as necessary for the protection of applicable aquatic life uses. The proposed permit does not directly discharge to areas of essential fish habitat. Therefore, EPA has determined that the proposed permit will not adversely affect essential fish habitat.

EPA has sent a copy of the permit to National Marine Fisheries Service, Pacific Islands Regional Office for comment.

### **D. Impact to National Historic Properties**

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the effect of their undertakings on historic properties that are either listed on, or eligible for listing on, the National Register of Historic Places. Pursuant to the NHPA and 36 CFR § 800.3(a)(1), EPA is making a determination that issuing this proposed NPDES permit may have the potential to affect any historic properties or cultural properties. The permittee is pursuing a Memorandum of Agreement with the CNMI Historic Preservation Officer to mitigate any potential impacts to historic properties as a result of excavation and installation of subsurface trenches.

## **X. STANDARD CONDITIONS**

### **A. Reopener Provision**

In accordance with 40 CFR 122 and 124, 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. Standard Provisions**

The permit requires the permittee to comply with EPA Region IX Standard Federal NPDES Permit Conditions, dated July 1, 2001.

## **XI. ADMINISTRATIVE INFORMATION**

### **A. Public Notice (40 CFR 124.10)**

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft NPDES permit or other significant action with respect to an NPDES permit or application.

### **B. Public Comment Period (40 CFR 124.10)**

Notice of the draft permit will be placed in a daily or weekly newspaper within the area affected by the facility or activity, with a minimum of 30 days provided for interested parties to respond in writing to EPA. After the closing of the public comment period, EPA is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

### **C. Public Hearing (40 CFR 124.12(c))**

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if EPA determines there is a significant amount of interest expressed during the 30-day public comment period or when it is necessary to clarify the issues involved in the permit decision.

### **D. Water Quality Certification Requirements (40 CFR 124.53 and 124.54)**

For States, Territories, or Tribes with EPA approved water quality standards, EPA is requesting certification from the affected State, Territory, or Tribe that the proposed permit will meet all applicable water quality standards. Certification under section 401 of the CWA shall be in writing and shall include the conditions necessary to assure compliance with referenced applicable provisions of sections 208(e), 301, 302, 303, 306, and 307 of the CWA and appropriate requirements of Territory law.

## **XII. CONTACT INFORMATION**

Comments submittals and additional information relating to this proposal may be directed to:

John Tinger (415) 420-2217  
or Tinger.John@epa.gov

EPA Region IX  
75 Hawthorne Street (WTR-5)  
San Francisco, California 94105

## **XIII. REFERENCES**

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. Prepared by EPA, Office of Water Enforcement and Permits, in March 1991. EPA/505/2-90-001.



EPA. 1996. *Regions IX & X Guidance for Implementing Whole Effluent Toxicity Testing Programs*, Interim Final, May 31, 1996.

EPA. 2002a. *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* - Fifth Edition. Office of Water, EPA. EPA-821-R-02-012.

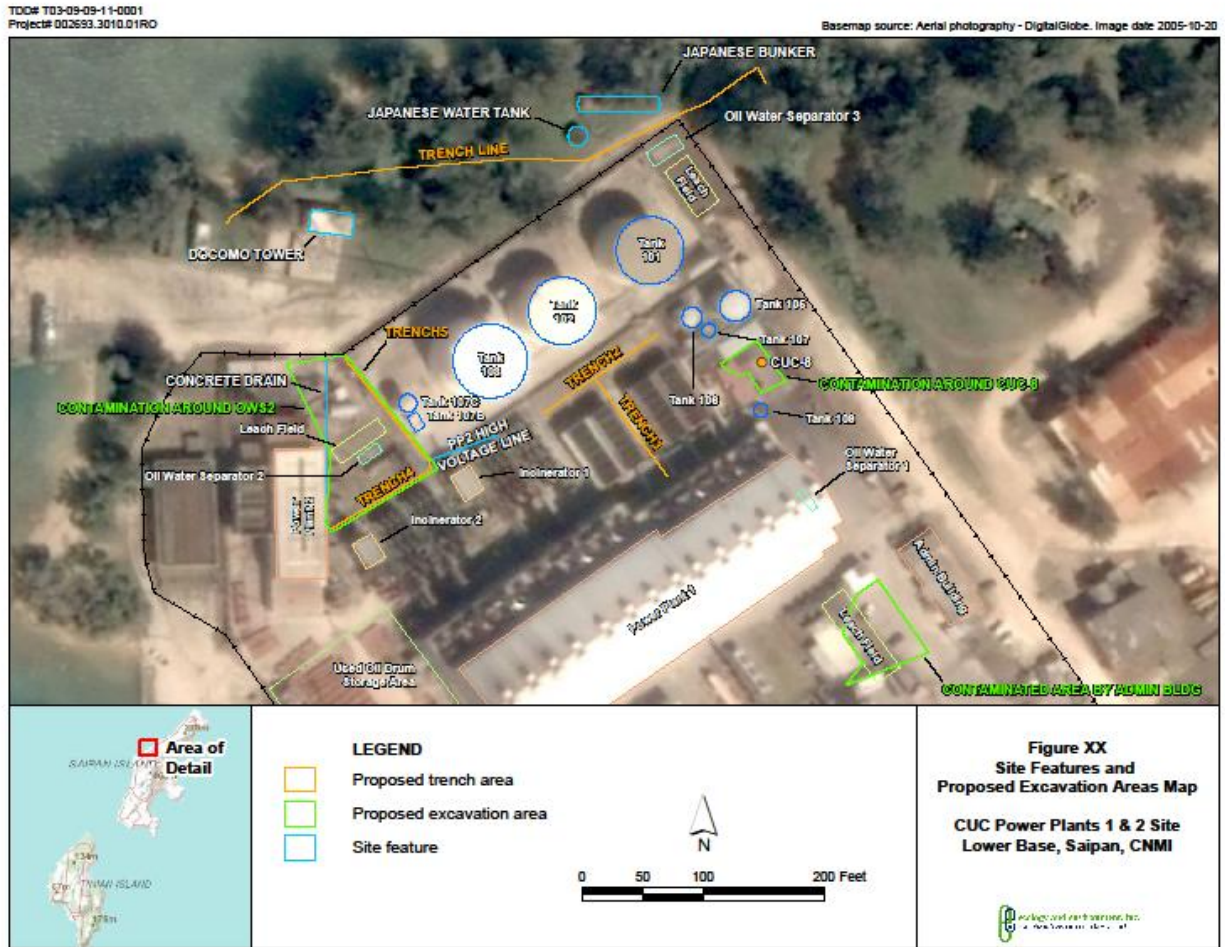
EPA. 2002b. *National Recommended Water Quality Criteria*. Office of Water, EPA. EPA-822-R-02-047.

EPA. 1996. *U.S. EPA NPDES Basic Permit Writers Manual*. EPA. EPA-833-B-96-003.

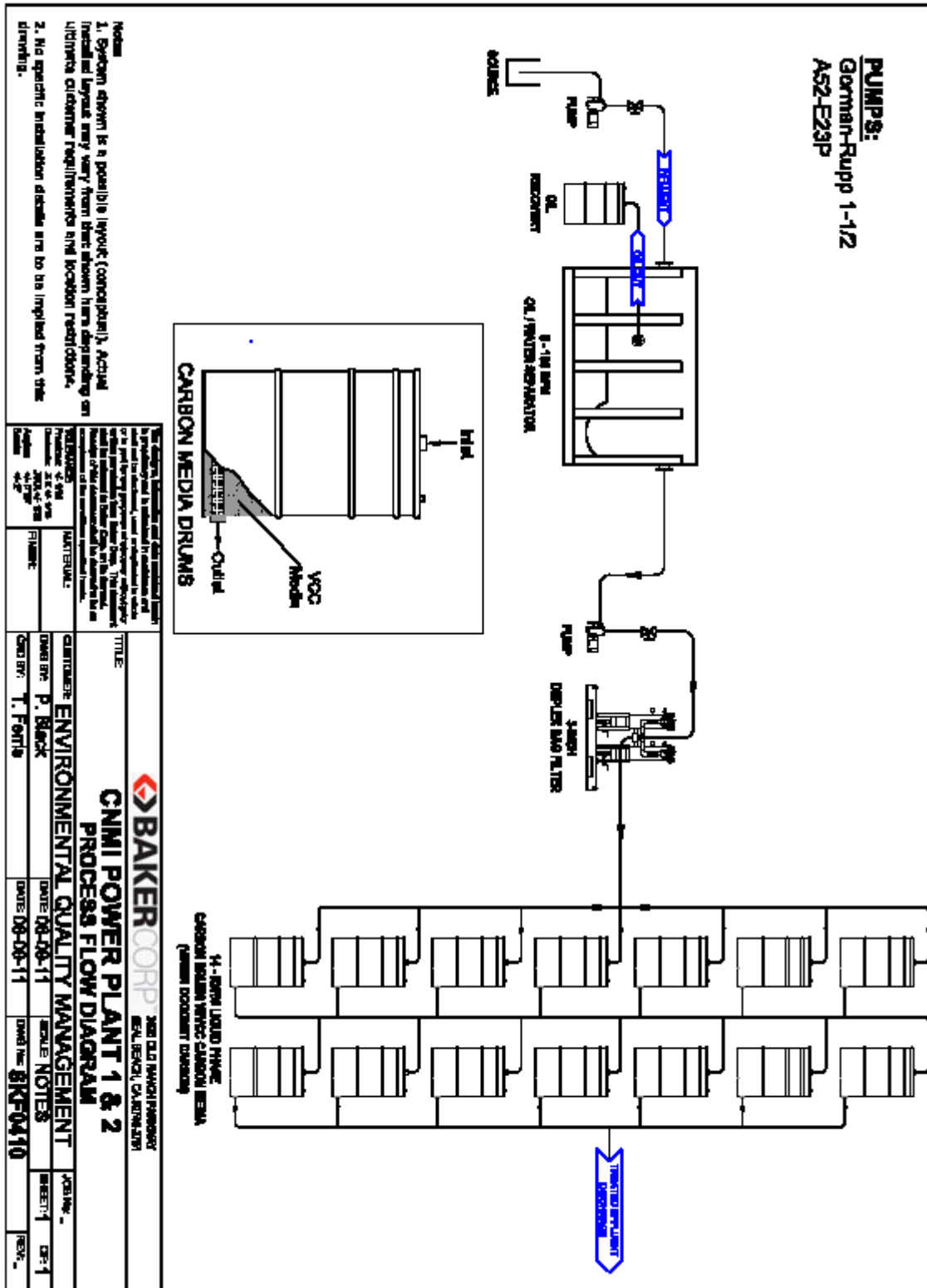
*Commonwealth of the Northern Mariana Islands Integrated 305(b) and 303(d) Water Quality Assessment Report 2010*

# XIV. APPENDICIES

## Appendix A- Site Feature Map



# Appendix B- Flow Schematic



**Notes:**

1. System design is a possible layout (conceptual). Actual mechanical layout may vary from what shown, items depending on different customer requirements and location restrictions.
2. No specific installation details are to be implied from this drawing.

<b>DESCRIPTION:</b>	Flow schematic for the process flow management system.
<b>DATE:</b>	08-08-11
<b>BY:</b>	T. Fortis
<b>APPROVED:</b>	[Signature]

<b>BAKER CORP</b>	<b>3800 OLD HAWTHORNE</b>	<b>IRVING, TEXAS 75039</b>
<b>CNI POWER PLANT 1 &amp; 2</b>	<b>PROCESS FLOW DIAGRAM</b>	<b>SCALE: NOTES</b>
<b>DATE: 08-08-11</b>	<b>BY: T. Fortis</b>	<b>APPROVED: [Signature]</b>
<b>DATE: 08-08-11</b>	<b>BY: T. Fortis</b>	<b>APPROVED: [Signature]</b>
<b>DATE: 08-08-11</b>	<b>BY: T. Fortis</b>	<b>APPROVED: [Signature]</b>