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

May 28, 2009

In Reply Refer To: WTR-7

Ted Leiato, Power Plant Manager
American Samoa Power Authority
P.O. Box PPB
Pago Pago, Tutuila, American Samoa 96799

Re: April 30, 2009 Clean Water Act Inspection

Dear Mr. Leiato:

Enclosed is the May 28nd report for our April 30, 2009 inspection of the Satala Power Plant. Please submit a short response to the findings in Sections 1 through 3 of this report to EPA and ASEPA, by **July 30, 2009**. The main findings are summarized below:

1 The NPDES permit for the Satala Power Plant expired on May 7, 2009 and has not been administratively extended.

2 The Satala Power Plant not only discharges both storm water run-off and process-related wastewaters through the eastern oil water separator (NPDES Sump #1) but also discharges storm water run-off and ground water seepage through the western oil water separator (NPDES Sump #2). The last NPDES permit issued in 2004 only authorized the discharge of storm water run-off through NPDES Sump #1.

3 Compliance with the limits for conventional pollutants is reached through settling and oil skimming of low-strength drainage, and the off-site hauling of cooling tower spents and engine room pit drainage. Additional best management practices and pollution prevention practices may be needed to control sources of copper and zinc through the collection of all contact process-related wastewaters for off-hauled disposal.

4 The drainage lines from the secondary containments for the fuel tank farm, the waste oil tanks, and the transformer platform, all should be operated normally closed.

I appreciate your helpfulness and that of your staff to me during this inspection. We remain available to ASPA and the Territory of American Samoa to assist in any way. Please do not hesitate to call me at (415) 972-3504, or e-mail arthur.greg@epa.gov.

Sincerely,

Greg V Arthur

Digitally signed by Greg V Arthur
DN: cn=Greg V Arthur, o, ou=US EPA Region 9, email=arthur.greg@epa.gov, c=US
Date: 2009.05.29 15:43:57 -07'00'

Greg V. Arthur
CWA Compliance Office

cc: Lt. Matt Vojik, ASEPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION 9

CLEAN WATER ACT COMPLIANCE OFFICE

NPDES COMPLIANCE EVALUATION INSPECTION

NPDES Permittee:	American Samoa Power Authority
Facility:	Satala Power Plant P.O. Box PPB, Pago Pago, Tutuila Island, American Samoa (NPDES Permit No. AS0020044)
Receiving Water:	Pago Pago Harbor
Date of Inspection:	April 30, 2009

Inspection Participants:

US EPA:	Greg V. Arthur, CWA Compliance Office, (415) 972-3504 Carl Goldstein, CED Pacific Islands Office, (415) 972-3767
ASEPA:	LT Matt Vojic (USPHS), ASEPA Acting Dirctor (684) 633-2304
ASPA:	Ted Leiato, Power Generation Manager, (684) 252-2824 Siva Kumar, Technical Support, (684) 252-1436 CDR Brad Rae, (USPHS), ASPA Chief Engineer (684) 689-7430
Report Prepared By:	Greg V. Arthur, Environmental Engineer, USEPA Region 9 May 28, 2009

1.0 Scope and Purpose

On April 30, 2008, EPA conducted an NPDES compliance evaluation inspection of the American Samoa Power Authority ("ASPA"), Satala Power Plant. The purpose was to ensure compliance with the NPDES permit and applicable Federal regulations covering the discharge of non-domestic wastewaters and storm water runoff into waters of the United States. A secondary purpose was also to identify and verify the conditions to be in future NPDES permits. In particular, it was to ensure:

- Classification in the proper Federal category;
- Application of the correct standards at the correct sampling points;
- Application of effective best management practices;
- Consistent compliance with the standards and best management practices; and
- Fulfillment of Federal self-monitoring requirements.

The Satala Power Plant is one of the NPDES permitted dischargers in American Samoa of storm or industrial wastewater to waters of the United States whose compliance is assessed each year. Inspection participants are listed on the title page of this report. Arthur conducted the inspection on April 30th.

1.1 Background

The Satala Power Plant is a 25MWatt diesel electric power plant. Together the ASPA power plants at Satala and Tafuna interlink to provide power for the island. The Satala Power Plant was built in 1959. ASPA is now operating the Satala Power Plant without an NPDES permit. On May 5, 2004, US EPA renewed NPDES permit No. AS0020044 for the discharge of storm water run-off from the Satala Power Plant to the harbor. The 2004 NPDES permit renewal took effect on May 8, 2004 and expired on May 7, 2009. See Sections 1.3 and 1.4 on pages 3 and 4 for further description of on-site processes. Also see Section 2.0 for descriptions of the permit requirements.

1.2 Facility SIC Code

The ASPA Satala Power Plant is assigned the SIC code for electric power generation, transmission, or distribution (SIC 4911).

1.3 Facility Description

The Satala Power Plant consists of a main building housing the administrative offices and the power plant engine room, a fuel tank farm, a waste oil tank containment area, a transformer containment area, and a series of outdoor cooling towers. The facilities east of the fuel tank farm, previous identified as repair shops and warehousing and listed in the SPCC plans as part of the power plant, no longer are owned and operated by ASPA. The Satala Power Plant is sited on the north shore of the inner Pago Pago Harbor, west of the canneries and shipyard.

Power Plant – The power plant employs four main diesel engines, all installed since 1992, and each with a rated capacity of 4.57 MWatts. There are also four older and smaller engines on standby, two each with rated capacities 2.5 and 1.5 MWatts. Fuel arrives by tanker truck. The engines are water-jacket cooled. The alternators are air cooled. The shaft bearings are oil cooled. Each engine is taken out of service for routine maintenance every six weeks. Each engine is also overhauled once every three years with the machining work performed on-island at the ASPA Tafuna Power Plant. On the day of this inspection, two of the main engines were not operational.

Cooling Towers – Twelve individual cooling towers are used to water-jacket cool the engines. The cooling towers are located outside on the paved access road in front of the engine building between the highway and the building. ASPA does not add corrosion inhibitors or biocides to the cooling tower contents.

Fuel Tank Farm – Two 24,000 gallon diesel tanks are installed behind concrete block secondary containment walls. A lube oil tank is located outside of and adjacent to the fuel farm, without secondary containment, but housed within a steel framework super-structure.

Waste Oil Tanks – Two waste oil tanks, with capacities of 7,300 and 5,000 gallons, are installed behind concrete block secondary containment walls, adjacent to NPDES Sump #1.

1.4 Facility Wastewater Sources, Handling, Treatment and Discharge

1.4.1 General Configuration

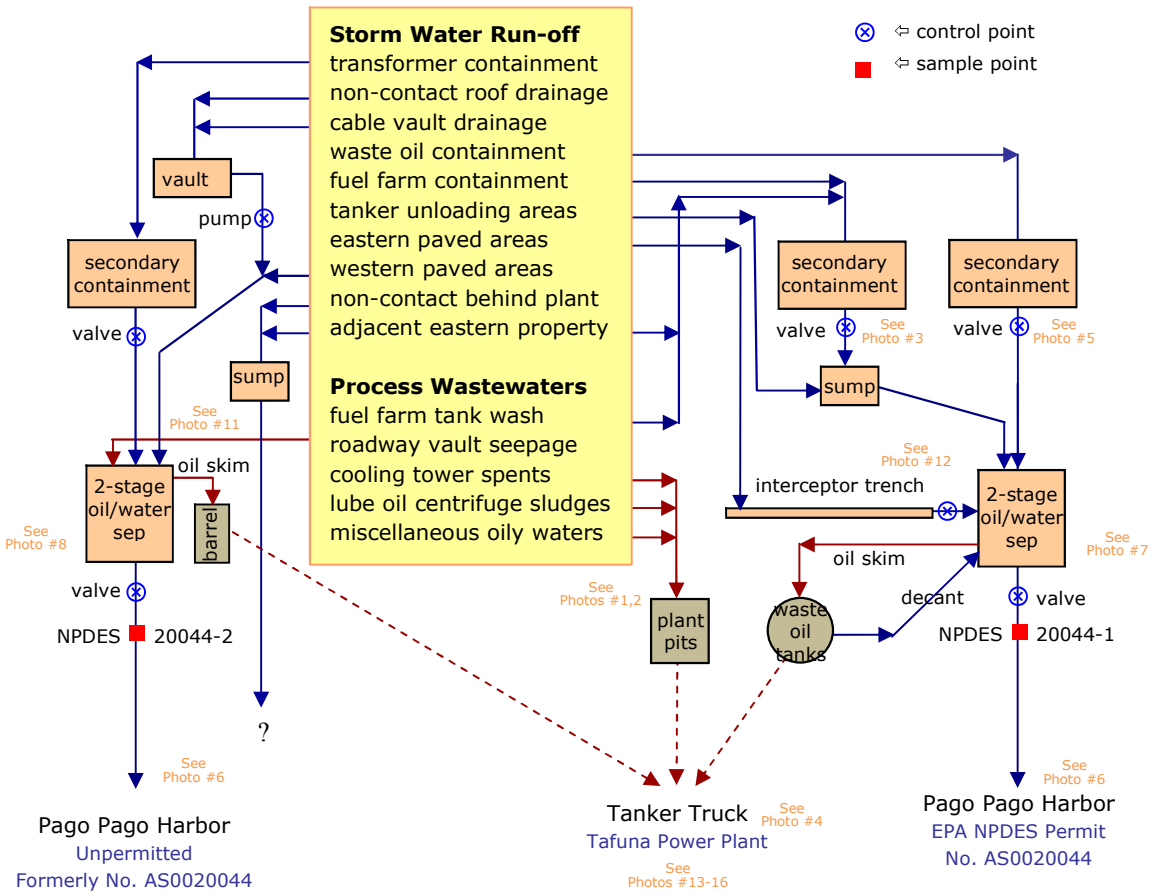
The Satala Power Plant generates oily water power plant drainage, lube oil centrifuge sludges, contact storm water run-off from processing areas, non-contact storm water run-off, fuel tank power washdown, and cooling tower spents. In addition, oily seepages, thought to be the result of historic spills and losses, fill an underground vault in front of Satala Power Plant property and can discharge to the harbor. See Figure 1.4 on the next page.

1.4.2 Wastewater Sources and Handling

Engine Room Drainage – Oil spills, oily wastewaters, lube oil centrifuge sludges, and slop captured within the power plant are conveyed through floor drains to four blind pit sumps in the engine room. These wastewaters used to be pumped to the waste oil tanks located near NPDES Sump #1 for off-site hauling to the Tafuna Power Plant for reprocessing. However, ASPA now indicates that these oily wastewaters are pumped directly from the pit sumps to a 2000-gallon truck for off-site disposal. See Photos #1 and #2 in Section 1.5 on page 6.

Cooling Tower Spents – In last year's inspection, ASPA indicated that spents were drained from the cooling towers to the underlying cement pad. ASPA now maintains that the cooling towers are not drained, but instead, an as-of-yet undetermined amount of overflow bleed is directed from a common roof-top fill sump for the cooling system to the pit sumps inside the engine room.

Figure 1.4
ASPA Satala Power Plant – Configuration



Fuel Farm Tank Wash – The diesel tanks are power washed every three weeks. Run-off captured within the tank farm secondary containment drains to a small sump located inside, in the center, and against the front wall. This sump drains by buried line to a central sump drain located at the edge of the truck unloading area outside of the fuel farm. The central sump drain discharges by gravity through underground pipe to NPDES Sump #1. The buried drain line from the sump inside of the fuel tank farm containment is valved, and was found in the closed position during this inspection. This tank wash water would be expected to entrain diesel, grime, and organic material. See Photos #3 and #4 in Section 1.5 on page 6.

Waste Oil Storage Decant – Oily wastewaters collected into the two waste oil storage tanks are now pumped directly to a 2,000 gallon tanker truck. The waste oil storage tanks had decant return lines to NPDES Sump #1 although it is not certain that these are still in use. The waste oil storage secondary containment is outfitted with a valved drain line to NPDES Sump #1. The drain line valve was once again found in the open position during this inspection. See Photo #5 in Section 1.5 on page 6.

Vault Seepage – Oily seepage collects in a cable and pipe vault located under the road near NPDES Sump #2. ASPA periodically pumps out oily seepage to the eastern oil water separator of NPDES Sump #2 or to a collection barrel, all for off-hauling by 2,000 gallon tanker truck. See Photo #6 in Section 1.5 on page 6.

Contact Storm Water Drainage – Drainage from storm water contact with the fuel tanks, the lube oil tank, the waste oil storage tanks, the cooling towers, the truck fueling station, and the east-side facility grounds, all drain into an interceptor trench into the eastern oil water separator, identified in this report as NPDES Sump #1. Drainage from storm water contact with the transformers, the building roof, and the west-side facility grounds, all drain on the pavement into the western oil water separator, identified as NPDES Sump #2. These drainages would also be expected to entrain oily wastewaters, grime, and organic material. Transformers are installed over a vault box, adjacent to NPDES Sump #2. The platform is curbed to provide secondary containment around the transformers. Since the last inspection, ASPA installed a valve (found closed on this inspection) on the drainage line into NPDES Sump #2. See Photos #11, #12 in Section 1.5 on page 7.

Other Areas – Drainage from behind the fuel farm and the adjacent Starkist cold storage property to the west collects into a sump drain with an unidentified outlet. ASPA also now asserts that no truck washing occurs on-site and that the cloudy wastewaters observed last year in the interceptor trench were from these adjacent off-site sources.

1.4.3 Wastewater Treatment and Discharge

NPDES Sump #1 – Storm water and process wastewater drainage are by design directed through the eastern oil water separator for discharge to the harbor. The eastern oil water separator provides solids settling and oil skimming in two chambers as well as trace free oil removal through a small contact oil film skimmer. Captured oils are pumped to the adjacent waste oil tanks for off-hauling by tanker truck to the Tafuna Power Plant for disposal. NPDES Sump #1 discharges into a storm drainage ditch along the highway that empties through a culvert under the highway to the harbor. See Photos #6, #7, #9, #10 in Section 1.5 on pages 6 and 7.

NPDES Sump #2 – Storm water drainage and vault seepage are discharged to the harbor through the western oil water separator. It is equivalent in design to the eastern oil water separator except it does not have a small contact oil film skimmer to remove trace sheen. Captured oils are pumped to a small barrel also for off-hauling by tanker truck. NPDES Sump #2 also discharges into the storm drainage ditch along the highway. See Photos #6, #8, #9, #10 in Section 1.5 on pages 6 and 7.

Off-Site Disposal – Collected oily wastewaters from the engine room pit sumps and the NPDES sumps are now pumped to a 2,000 gallon tanker truck for off-site disposal at the Tafuna Power Plant. ASPA estimates six loads are collected per month. The disposal involves enclosed batch settling tanks, an oil skimming pit, settling basins, evaporation and percolation of the water fraction, and the off-site waste oil reclaim in the boilers at Chicken of the Sea. See Photos #4, #13, #14, #15, #16 in Section 1.5 on pages 6 and 8.

1.5 Photo Documentation

Fifteen of the 22 digital photographs taken during this inspection are depicted here in this section. The 2009 photographs are saved as *samoa-satala-10.jpg through -31.jpg*.

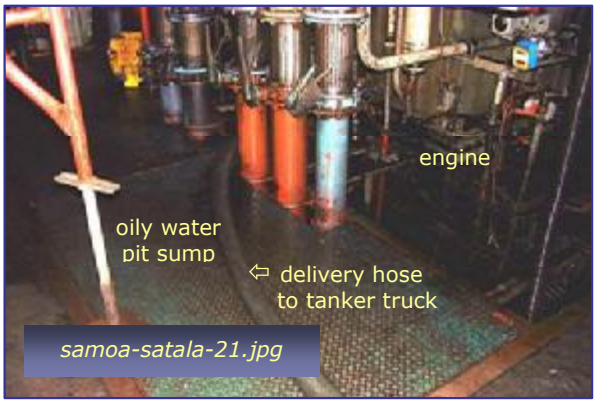


Photo #1: One of Four Power Plant Pit Sumps
Taken By: Greg V. Arthur
Date: 04/30/09

Photo #2: One of Four Lube Oil Centrifuges
Taken By: Greg V. Arthur
Date: 04/30/09

Photo #3: Drainage Sump within Fuel Tank Farm
Taken By: Greg V. Arthur
Date: 04/30/09

Photo #4: Lube Oil Tank - ASPA Tanker Truck
Taken By: Greg V. Arthur
Date: 04/30/09

Photo #5: Waste Oil Tanks 2°Containment
Taken By: Greg V. Arthur
Date: 04/30/09

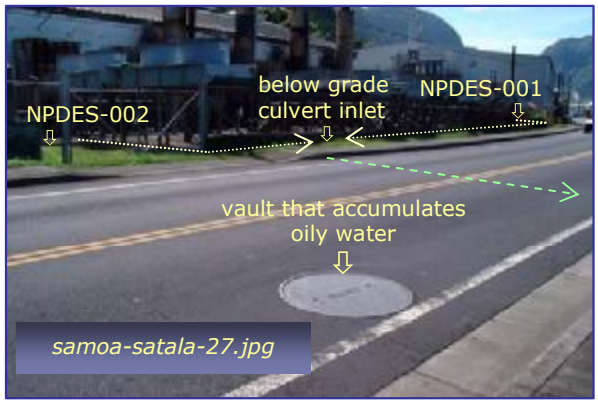


Photo #6: Power Plant and Vault Location
Taken By: Greg V. Arthur
Date: 04/30/09

Photo #12 was taken during the 2008 inspection. The 2008 photographs are saved as *samoa-satala-01.jpg through -09.jpg*.

Photo #7: NPDES Sump #1 – Eastern Oil Water Sep
Taken By: Greg V. Arthur
Date: 04/30/09

Photo #8: NPDES Sump #2 – Western Oil Water Sep
Taken By: Greg V. Arthur
Date: 04/30/09

Photo #9: Storm Drainage Ditch – Culvert Inlet
Taken By: Greg V. Arthur
Date: 04/30/09

Photo #10: Culvert Outlet to the Harbor
Taken By: Greg V. Arthur
Date: 04/30/09

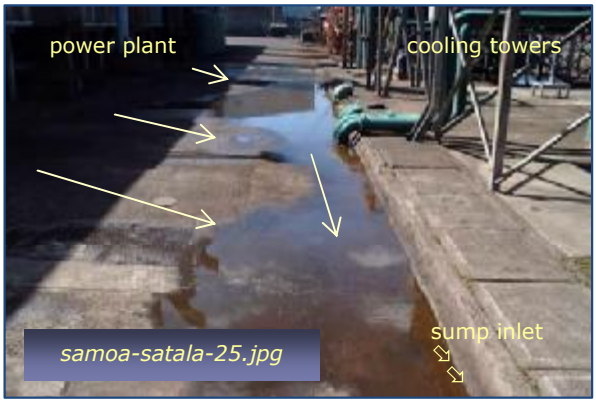


Photo #11: Drainages into NPDES Sump #2
Taken By: Greg V. Arthur
Date: 04/30/09

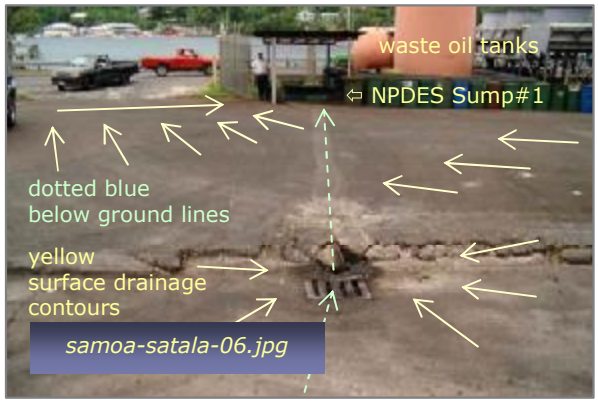


Photo #12: Drainages into NPDES Sump #1
Taken By: Greg V. Arthur
Date: 04/01/08

Photos #13, #14, #15, #16 were taken at the Tafuna Power Plant during this inspection.

Photo #13: Waste Oil Step 1 - Batch Settling Tanks
Taken By: Greg V. Arthur
Date: 04/30/09

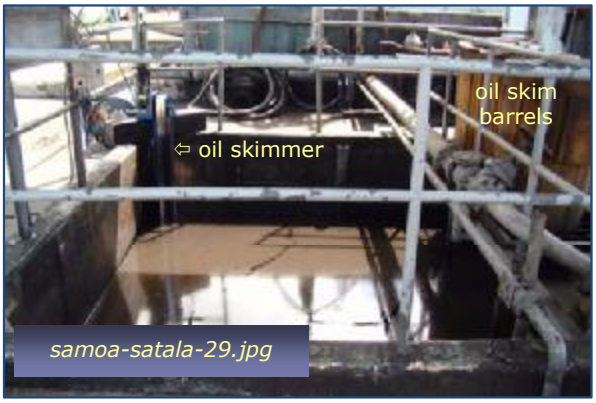


Photo #14: Waste Oil Step 2 – Oil Skim Pit
Taken By: Greg V. Arthur
Date: 04/30/09

Photo #15: Waste Oil Step 3 – Settling Basins
Taken By: Greg V. Arthur
Date: 04/30/09

Photo #16: Waste Oil Step 4 - Percolation
Taken By: Greg V. Arthur
Date: 04/30/09

2.0 NPDES Permit Requirements

The NPDES permit must apply Federal BAT/NSPS standards to all regulated sources and the American Samoa water quality standards to the discharge to the ocean.

Summary

ASPA is now discharging from the Satala Power Plant without an NPDES permit. The permit that previously authorized discharge from the Satala Power Plant to the harbor expired on May 7, 2009, and was not administratively extended. In addition, the expired permit authorized the discharge of only storm water run-off through the eastern oil water separator (NPDES Sump #1). A future permit would have to recognize that the Satala Power Plant generates and discharges process-related wastewaters, ground water seepages, and storm water run-off and does so through both the eastern and western oil water separators (NPDES Sump #1 and Sump #2). The expired permit established discharge limits that apply American Samoa water quality standards for oil and grease, copper, nickel, lead, zinc, pH, and a few narrative receiving water limits. The expired permit also required ASPA to implement a storm water pollution prevention plan ("SWPPP"), which upon approval then became an enforceable condition of the permit. See Sections 2.3, 2.4 and 2.5 for expired NPDES permit discharge limits, and narrative requirements.

Requirements

- The NPDES permit must either authorize or prohibit the discharge of processes waste-waters (*fuel tank wash*) through the eastern oil water separator (NPDES Sump #1).

- The NPDES permit must either authorize or prohibit the discharge of storm water run-off and vault seepage through the western oil water separator (NPDES Sump #2).

Recommendations

- The NPDES permit should specifically prohibit the discharge of the process wastewaters hauled off-site (*cooling water spents, lube oil centrifuge sludges, engine room drainage*).

- The NPDES permit should specifically prohibit the discharge of any other process wastewaters (*specifically truck wash*).

2.1 Permit Applicability

ASPA is now operating the Satala Power Plant without an NPDES permit. On May 5, 2004, US EPA issued a revised NPDES permit No. AS0020044 to ASPA for the discharge of storm water run-off from the Satala Power Plant to the harbor. The 2004 permit took effect on May 8, 2004 and expired on May 7, 2009. The Federal regulations in 40 CFR 122.21(d) allow the administrative extension of an NPDES permit if a permit application is submitted for renewal at least 180 days before it expires. ASPA did not submit the application for renewal before

the November 8, 2008 180-day deadline, therefore, the permit is not administratively extended. A previous version was issued effective on April 15, 1997 and to expire on April 14, 2002. The 1997 permit was administratively extended since ASPA submitted its application for permit renewal on time.

The now expired 2004 NPDES permit applied American Samoa water quality standards to process wastewaters and storm water drainages. The 2004 permit authorized discharge through the eastern oil water separator sump, designated in this report as the sample point NPDES-20044-1. Discharges through the western oil water separator sump were thought to be entirely of non-contact storm water, and thus authorization for discharge under permit was not extended. The previous 1997 version authorized discharge through the western oil water separator sump, designated in this report as the sample point NPDES-20044-2.

2.2 Federal BAT/NSPS Categorical Standards

No Federal categorical standards apply to the Satala Power Plant. The Federal standards in 40 CFR 423 do not apply to diesel engines but rather to steam electric power generating units with 'a thermal cycle employing the steam water system as the thermodynamic medium'.

2.3 Effluent Discharge Limits

The now expired 2004 NPDES permit applied American Samoa water quality standards limits to storm water run-off discharges through only the eastern oil water separator sump to the harbor, designated in this report as the sample point NPDES-20044-1. The previous 1997 permit also applied limits to the storm water run-off discharges through the western oil water separator sump, designated in this report as sample point NPDES-20044-2.

Figure 2.3
2004 NPDES Permit - Discharge Standards and Limits for the Satala Power Plant

NPDES Sump #1 and Sump #2 (NPDES 20044-1 and NPDES 20044-2)						
NPDES Permit ① AS0020044 - §I.A(1)	Before May 8, 2004		After May 8, 2004		Monitoring Frequency	sample type ③
	d-max	mo-avg	d-max	mo-avg		
flow (mgd)	②	-	②	-	continuous	estimate
TSS (mg/l)	②	-	②	-	monthly	grab
oil and grease (mg/l)	20.0	-	20.0	-	monthly	grab
copper (µg/l)	②	-	5.8	-	quarterly	grab
lead (µg/l)	②	-	220	-	quarterly	grab
nickel (µg/l)	②	-	75	-	quarterly	grab
zinc (µg/l)	②	-	95	-	quarterly	grab
pH - min/max (s.u.)	6.0 - 8.6	-	6.0 - 8.6	-	monthly	grab

① NPDES permit limits applied to NPDES-20044-1 through the May 7, 2009 permit expiration, and to both NPDES-20044-1 and NPDES-20044-2 before May 8, 2004.
② Monitoring only – No limits.
③ Sampling of discharges from a storm events over 0.1 inches and over 24 hours apart.

2.4 Receiving Water Limits

The NPDES permit applies American Samoa water quality standards as narrative receiving water limits for the discharge to the harbor, but does not require the self-monitoring of the receiving waters.

Figure 2.4
2004 NPDES Permit - General Receiving Water Prohibitions

§I.A	Discharges of only storm water drainages are only authorized from the eastern oil water separator sump to the harbor.
§I.B.1a	Discharges shall be substantially free from materials attributable to sewage, industrial wastes ... that will produce objectionable color, odor, or taste in the harbor or biota.
§I.B.1b	Discharges shall be substantially free from visible floating materials, grease, oil, scum, foam, and other floating material attributable to sewage, industrial wastes ...
§I.B.1c	Discharges shall be substantially free from materials attributable to sewage, industrial wastes ... that will produce visible turbidity or settle to form objectionable deposits.
§I.B.1d	Discharges shall be substantially free from substances and conditions ... which may be toxic to humans, animals, plants, and aquatic life, or produce undesirable aquatic life.
§I.B.2	No dumping or discharge of solid, hazardous, or radioactive wastes.

2.5 Storm Water Pollution Prevention Plan

The 2004 NPDES permit requires the development and implementation of a storm water pollution prevention plan that is incorporated as an enforceable element of the permit. The July 1999 plan for the Satala Power Plant established a number of site-specific best management practices ("BMPs") pertinent to the water quality of discharges from the facility.

Figure 2.5
2004 NPDES Permit - Storm Water Pollution Prevention Plan BMPs

§11.A	Scrap metal and non-hazardous waste stored in marked and covered bins for off-site disposal; a waste delivery truck kept operational at all times.
§11.B(a)	The oil water separator visually checked twice per day and hourly during rains; skimmers activated when oil is present; drain valves normally closed and locked.
§11.B(a,b)	Oil water separator oils to be tested prior to off-site reuse; used oil to be delivered to off-site reuse; engine lube oil to be centrifuged for on-site reuse;
§11.B(c)	Spent lube oil centrifuge sludge pumped to the waste oil holding tank; waste oil holding tank decant to return to oil water separator.
§11.B(d)	Lube oil drums stored upright, on elevated pallets, unstacked, and within covered secondary containment; daily visual drum inspections to ensure secured lids.
§11.C(a,b)	Fuel tank farm visually checked upon delivery of diesel to ensure no cracks in the berms, visible oil, visible pipe or valve corrosion; drain valve closed during fueling.
§11.C(c)	Drain valve to the oil water separator normally open.

§11.D	Diesel fuel storage tanks contained within concrete, impermeable secondary containment with a capacity to hold 110% of the largest container.
§12.B(a)	Contents of oil water separator pumped to waste oil holding tanks when oil thickness in the separator exceeds ½-inch.
§12.B(b)	Weekly inspection of the oil water separator for bottom sand, dirt, or sludge, and for leaks or cracks in the waste oil tanks; shovel out when sediment exceeds 2-inches;
§12.B(c)	Monthly clearing of trash and trimming of vegetation from discharge drains.

2.6 Permit Self-Monitoring Requirements

The 2004 permit specifically required the sampling of storm water drainages resulting from storm events of greater than 0.1 inches. The permit required self-monitoring of both discharges through NPDES Sump #1 and Sump #2. This sampling requirement did not account for the discharge of process wastewaters (*fuel tank farm wash*) through NPDES Sump #1, nor of the vault seepage discharges through NPDES Sump #2, since these waste streams are generated irrespective of storm events.

3.0 Compliance with NPDES Permit Requirements

Process wastewaters and storm water drainages are authorized under permit to discharge through the eastern oil water separator to the harbor. [NPDES Permit §I.A]

Process wastewaters and contact storm water drainages are not authorized under permit to discharge through the western oil water separator to the harbor. [NPDES Permit §I.A]

Discharges must comply with the NPDES permit limits set forth as the application of water quality standards and must not cause adverse impacts in the harbor. [NPDES Permit §I.A,B]

Site-specific best management practices developed as part of a storm water pollution prevention plan must be implemented. [NPDES Permit §11,12]

Summary

ASPA Satala Power Plant consistently complies with the expected NPDES effluent permit limits for conventional pollutants and some metals (*oil and grease, total suspended solids, pH, lead, nickel*), but not all metals (*copper, zinc*). Sampling is limited to the run-off from storm water events of sufficient size and would not account for the process-related waste-waters. On-site wastewater control involves (1) the settling and skimming of low-strength drainage, and now (2) as a new best management practice, the collection of some process-related wastewaters into the engine room pits for off-hauling. The permit limits for metals are set equivalent to the water quality standards for the harbor, and as such are not achievable end-of-pipe through the existing or other available technologies for storm water run-off.

Requirements

- None.

Recommendations

- The valved drain lines from the fuel tank farm containment sump, waste oil storage containment, and transformer platform should be operated in the normally closed position.
- Groundwater seepage should be off-hauled for disposal or treated in a package oil water separator for NPDES discharge. See U.S. Army Corp of Engineers design publication, "Designing Coalescing Oil/Water Separators for US Army Washracks, ERDC/CERL TR-00-40, Dec 2000. (http://aec.army.mil/usaec/technology/ows-designing.pdf)
- Outdoor truck and equipment washing should be prohibited on-site.
- Perimeter curbing should be installed in order to prevent the off-site run-off from the adjacent properties from draining through the NPDES sumps.
- Additional best management practices should be instituted to ensure that only non-contact storm water run-off discharges to the harbor through the NPDES sumps.

3.1 NPDES Permit Effluent Limits

See Appendices 1 and 2 for sampling results of the storm water run-off discharges through NPDES Sump #1 and NPDES Sump #2 to the harbor for conventional pollutants and metals.

Conventional Pollutants - ASPA Satala Power Plant should consistently comply with NPDES permit limits for conventional pollutants. At NPDES Sump #1, settling and oil skimming, involving a two-chambered sump and a contact film skimmer, resulted in average and 99th% peak concentrations of 5.1 and 18.0 mg/l oil and grease, 7.2 and 20.5 mg/l total suspended solids, and pH's ranging between 6.2 and 7.3 s.u. While there was one oil and grease sample over the NPDES permit limit, the sample record indicates a statistical probability of violation of less than 1%, which is a level of performance considered as "consistent" compliance. For NPDES Sump #2, settling and oil skimming, involving a two-chambered sump, resulted in little or no conventional pollutant contamination of storm water drainage with average and 99th% peak concentrations of 3.8 and 10.9 mg/l oil and grease, 6.0 and 16.8 mg/l total suspended solids, and pH's ranging between 6.1 and 7.5 s.u.

Toxic Pollutants - ASPA Satala Power Plant would not consistently comply with its NPDES permit limits for metals. At NPDES Sump #1 the average and 99th% peak concentrations were 14 and 36 µg/l copper, 86 and 231 µg/l zinc, and 1 and 2 µg/l nickel and lead. At NPDES Sump #2 samples magnify the trend with average and 99th% peak concentrations of 16 and 49 µg/l copper, 237 and 782 µg/l zinc, and 1 and 2 µg/l nickel and lead. While the nickel and lead levels are consistent with non-contact storm water drainage, the copper and zinc levels are indications of contact with pollutant sources, with statistical probabilities of violation calculated to be roughly 80% for copper and 40% for zinc at NPDES Sump #1 and 70% for both copper and zinc at NPDES Sump #2. ASPA identified oily contamination as a source and is now diverting some contact waste streams into the engine room pits for off-hauled disposal. In response, in the last two DMRs, copper levels remained essentially unchanged but zinc levels dropped significantly below the NPDES permit limits.

3.2 NPDES Permit Receiving Water Limits

The NPDES permit establishes a number of narrative prohibitions as the receiving water limits for Pago Pago Harbor. The drainages observed to discharge through the NPDES sumps would be expected to be substantially free of color, odor, taste, visible floating materials, oils, turbidity, toxicity, or solid wastes. On this day of inspection, no apparent sheen was observed in the harbor at the culvert outlet.

3.3 Water Pollution Prevention Plan Requirements

As a new best management practice, ASPA now collects of some process-related contact wastewaters into the engine room pits for off-hauling. On the other hand, it was observed during this inspection (1) that not all drain valves from the secondary containment areas are operated as normally closed, and (2) that contaminated ground water seepages are directed through NPDES Sump #2.

Appendix 1
ASPA Satala Power Plant
Sampling Results for Conventionals and Metals (July 2005 – March 2009)

SAMPLE RECORD SUMMARY

pollutants	NPDES 001 ①			NPDES 002 ②			viol rates ③		Sample
	mean	99th%	max	mean	99th%	max	001	002	Count
flow rate (mgd)	-	-	74206	-	-	83971	-	-	27/27
total susp solids (mg/l)	7.2	20.5	31	6.0	16.8	23.3	-	-	31/32
oil and grease (mg/l)	5.1	18.0	32.0	3.8	10.9	11.1	**1** / 35	0 / 32	35/32
copper (µg/l)	14.2	35.8	41.0	15.5	49.4	53.0	**10** / 13	**9** / 13	13/13
lead (µg/l)	0.46	1.92	2.23	0.48	2.22	2.70	0 / 13	0 / 13	13/13
zinc (µg/l)	85.5	230.9	270	236.7	781.9	818	**4** / 13	**8** / 13	13/13
nickel (µg/l)	0.92	2.11	2.0	0.70	2.10	2.10	0 / 13	0 / 13	13/13
pH min-max (s.u.)	-	6.2 min	7.3 max	-	6.1 min	7.5 max	0 / 27	0 / 27	27/27

NPDES SUMP #1 (NPDES 20044-1)

violation probabilities	mean	std dev	N	statistical probability ③		%
d-max - oil and grease (mg/l)	µ = 5.106	σ = 5.5486	35	α(*20*)	= 0.0036	~0%
d-max - copper (µg/l)	µ = 14.20	σ = 9.2636	13	α(*5.8*)	= 0.8177	~80%
d-max - zinc (µg/l)	µ = 85.52	σ = 62.408	13	α(*95*)	= 0.4396	~40%

NPDES SUMP #2 (NPDES 20044-2)

violation probabilities	mean	std dev	N	statistical probability ③		%
d-max - oil and grease (mg/l)	µ = 3.757	σ = 3.0469	32	α(*20*)	= 0.0000	~0%
d-max - copper (µg/l)	µ = 15.46	σ = 14.552	13	α(*5.8*)	= 0.7466	~70%
d-max - zinc (µg/l)	µ = 236.7	σ = 233.97	13	α(*95*)	= 0.7276	~70%

① No permit limits in effect for NPDES 001 after May 7, 2009.
② No permit limits in effect for NPDES 002 after May 8, 2004.
③ Violation rates and statistical probabilities based on the comparison of the 2004 permit limits over the entire sample record irrespective of whether the permit was in effect.

Appendix 2
ASPA Satala Power Plant – Violations (July 2005 – March 2009)

NPDES Sump #1 – Western Oil Water Separator (NPDES 20044-1)							
sample date	sample point	sampler	type	NPDES permit effluent limits		violation	days
12/08/08	NPDES 20044-1	ASPA	grab	copper d-max	5.8 µg/l	16.0	1
09/24/08	NPDES 20044-1	ASPA	grab	copper d-max	5.8 µg/l	17.0	1
06/14/08	NPDES 20044-1	ASPA	grab	zinc d-max	95 µg/l	270	1
06/14/08	NPDES 20044-1	ASPA	grab	copper d-max	5.8 µg/l	11.0	1
03/04/08	NPDES 20044-1	ASPA	grab	copper d-max	5.8 µg/l	8.3	1
09/24/07	NPDES 20044-1	ASPA	grab	copper d-max	5.8 µg/l	11.0	1
03/06/07	NPDES 20044-1	ASPA	grab	copper d-max	5.8 µg/l	14.1	1
12/26/06	NPDES 20044-1	ASPA	grab	zinc d-max	95 µg/l	108	1
08/20/06	NPDES 20044-1	ASPA	grab	copper d-max	5.8 µg/l	41.0	1
06/14/06	NPDES 20044-1	ASPA	grab	copper d-max	5.8 µg/l	15.3	1
06/14/06	NPDES 20044-1	ASPA	grab	zinc d-max	95 µg/l	128	1
04/08/06	NPDES 20044-1	ASPA	grab	oil and grease d-max	20 mg/l	32.0	1
02/02/06	NPDES 20044-1	ASPA	grab	zinc d-max	5.8 µg/l	35.6	1
01/02/06	NPDES 20044-1	ASPA	grab	copper d-max	5.8 µg/l	16.3	1
09/19/05	NPDES 20044-1	ASPA	grab	copper d-max	5.8 µg/l	17.9	1