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

May 29, 2008

In Reply Refer To: WTR-7

Bob Weihe, Owner
MYD Samoa, Inc.
P.O. Box 7684
Pago Pago, Tutuila, American Samoa 96799

Dear Mr. Weihe:

Enclosed is the May 29th report for our April 1, 2008 inspection of MYD Samoa. An EPA Administrative Order requiring compliance with the Clean Water Act will follow in the next 30 days. The main findings are summarized below:

1 The objective of the NPDES permit is to prevent shipyard discharges that could cause or contribute to water quality standards violations in the harbor. The permit only authorizes discharge from three catch basin sumps. It does not authorize any dry dock discharges.

2 Compliance currently depends solely on source controls since all shipyard generated wastewaters discharge to the harbor without treatment. There were significant and wide-spread shortcomings. Compliance will require upgraded treatment, implementation of additional BMPs, and a stand-by alternative to harbor discharge.

3 Blasting grit and paint chip debris were deposited on the dry dock and piers, exposed to contact with storm water drainage. Temporary planking, curtains, and sweeping captured debris but do not prevent significant losses through gaps in the deck and past uncurbed piers.

4 Numerous shipyard sources of contamination were exposed to contact with storm water drainage. Consequently, oily drainage into and out of one of the catch basin sumps resulted in an oily sheen on the harbor around the sump outfall.

5 There is no capability to accept bilge or any other ship-board wastes nor was it evident that these wastes are entirely contained on the vessels.

6 There are no current self-monitoring results as required by the NPDES permit.

We remain available to MYD Samoa 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
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:	MYD Samoa, Inc.
Facility:	Satala Shipyard P.O. Box 7684, Pago Pago, Tutuila Island, American Samoa (NPDES Permit No. AS0020026)
Receiving Water:	Pago Pago Harbor
Date of Inspection:	April 1, 2008

Inspection Participants:

US EPA:	Greg V. Arthur, CWA Compliance Office, (415) 972-3504
ASEPA:	Lt. Matt Vojic, USPHS, Director
MYD Samoa:	Ben Solaita, General Manager, (684) 644-4123 Wayne Smith, Environmental Manager, (684) 644-4123
Report Prepared By:	Greg V. Arthur, Environmental Engineer, USEPA Region 9
	May 15, 2008

1.0 Scope and Purpose

On April 1, 2008, EPA conducted an NPDES compliance evaluation inspection of the MYD Samoa, Satala Shipyard. 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 Shipyard is one of the dischargers of storm or industrial wastewater to waters of the United States whose compliance was assessed as part of evaluations of the NPDES permitted discharges in American Samoa conducted in the past year. Inspection participants are listed on the title page of this report. Arthur conducted the inspection on April 1.

1.1 Background

The Satala Shipyard is a ship repair yard sited on the northeastern side of Pago Pago Harbor in the village of Satala. The Satala Shipyard was formerly owned by Southwest Marine of Samoa, Inc. MYD Samoa purchased it on August 1, 2007. MYD Samoa provides ship repair to tuna fishing and processing ships, mostly 80 to 180-foot long liners and 250-foot purse seiners, as well as various smaller non-military vessels. Ship repair involves two cradle dry docks, berthing piers, and shops for carpentry, hose repair and testing, sheet metal fabrication, machining, welding, electrical work, and painting. MYD Samoa does not rebuild engines. MYD Samoa no longer accepts oily wastes from off-site sources. US EPA enforcement orders, issued in 2003 and 2005 against Southwest Marine, required the prevention of oil releases from waste oil storage and the clean-up of the facility. See Sections 1.3 and 1.4 on pages 3 and 4 for further description of on-site processes.

US EPA issued a revised NPDES permit No. AS0020036 to Southwest Marine for the Satala Shipyard on January 7, 2003 set to expire on February 8, 2008. MYD Samoa submitted an NPDES permit application just after the shipyard changed ownership. See Section 2.0 for further description of the permit requirements.

1.2 Facility SIC Code

MYD Samoa is assigned the SIC code for ship building and repairing (SIC 3731).

1.3 Facility Description

3000-Ton Cradle Dry Dock - The larger of two cradle dry docks was found on this inspection to be functioning and in order. The cradle dry dock consists of a long ~50x300-foot platform mounted on rolling stock. The dry dock rolls down a marine railway that extends into and is submerged under the harbor. Ships are positioned over and fixed on hauling blocks to the cradle which is then winched up the railway out of the water. The ship repair work in the dry docks involves hydroblasting, depainting, painting, fitting, repair work, and fabrication. Vessels under repair have hulls made of fiberglass, aluminum, or steel. Sandblast depainting uses copper-slag grit. The deck consists of plywood and planking without perimeter curbing. The EPA inspector observed numerous gaps between planks everywhere on deck directly over the harbor water. The dry dock has framing and rigging that allows the unfurling of portable curtains around and over the dry dock to capture painting overspray and windborne blasting debris. An electric winch engine and gearing is housed in a building at the head of the dry dock. The gearing travels through a basin pit filled with lubricating oil.

800-Ton Cradle Dry Dock - The smaller of the two dry docks was found on this inspection to be decommissioned and awaiting repair. MYD Samoa indicated its plans to commission the 800-ton dry dock back into service at an undetermined future date. The design of this dry dock is similar to the larger one, in particular, with gaps in the deck, no perimeter deck curbing, framing to unfurl portable curtains, and an electric winch engine and gearing.

South Dock - Ships berthing takes place next to the shipyard in an area called the South Dock extending south of the 3000-ton Dry Dock and the harbor, within the storm water drainage watershed referred to as Catch Basin #3. Crews from the berthed ships were observed performing light maintenance on the pier.

Fabrication Shop - Sheet metal fabrication and welding work is performed in an open but roofed building located near the South Dock just south of the 3000-ton dry dock within the storm drainage watershed referred to as Catch Basin #3. The metal fabrication work includes sheet metal shearing, welding, rolling, and bending. The EPA inspector observed the storage of materials exposed to the rain along the outside of the building. In particular, spare zinc anodes were left exposed on the ground between the building and the dry dock. Moreover, the cement driveway between the shops and the dry dock appeared to slope from the shops toward the dry dock and the gap that opens to the harbor waters below.

Machine Shop - Machining operations are conducted in a second roofed but open building located near the South Dock adjacent to the Fabrication Shop south of the 3000-ton dry dock within the storm drainage watershed referred to as Catch Basin #3. The metal machining operations include lathe turning, sawing, milling, and drilling, using synthetic cutting fluids.

Other Operations - The buildings between the 3000-ton Dry Dock and the road include warehouses and a compressor building. The warehouse buildings were covered and enclosed. The covered but open compressor building housed two compressors, a diesel fuel tank within secondary containment, and used battery storage also within secondary containment.

1.4 Facility Wastewater Sources, Handling and Discharge

MYD Samoa would be expected to generate process-related wastewaters and storm water run-off from both shipyard and ship-board sources. Shipyard sources of process-related wastewaters would include hydroblasting, painting, sand blasting, grinding, fabrication, machining, chemical cleaning and hose flushing, chemical soaking, hydrotesting, and perhaps the replacement of lead ballast and zinc anodes. Ship-board sources of process-related wastewaters might be expected also to include ballast waters, bilge, and ships sanitary wastes. Storm water run-off would be expected from three drainage areas referred to as Catch Basis #1 through #3. All of these sources and drainage areas have the potential either to produce contaminated contact wastewaters or to discharge pollutants into the harbor. MYD Samoa is not designed and does not have the capability to provide any wastewater treatment beyond make-shift oil interception. MYD Samoa also does not have non-domestic connections into the domestic ASPA sewers. As a result, the wastewater controls can only be through operational best management practices ("BMPs").

Figure 1.4.1
MYD Samoa Shipyard - Configuration

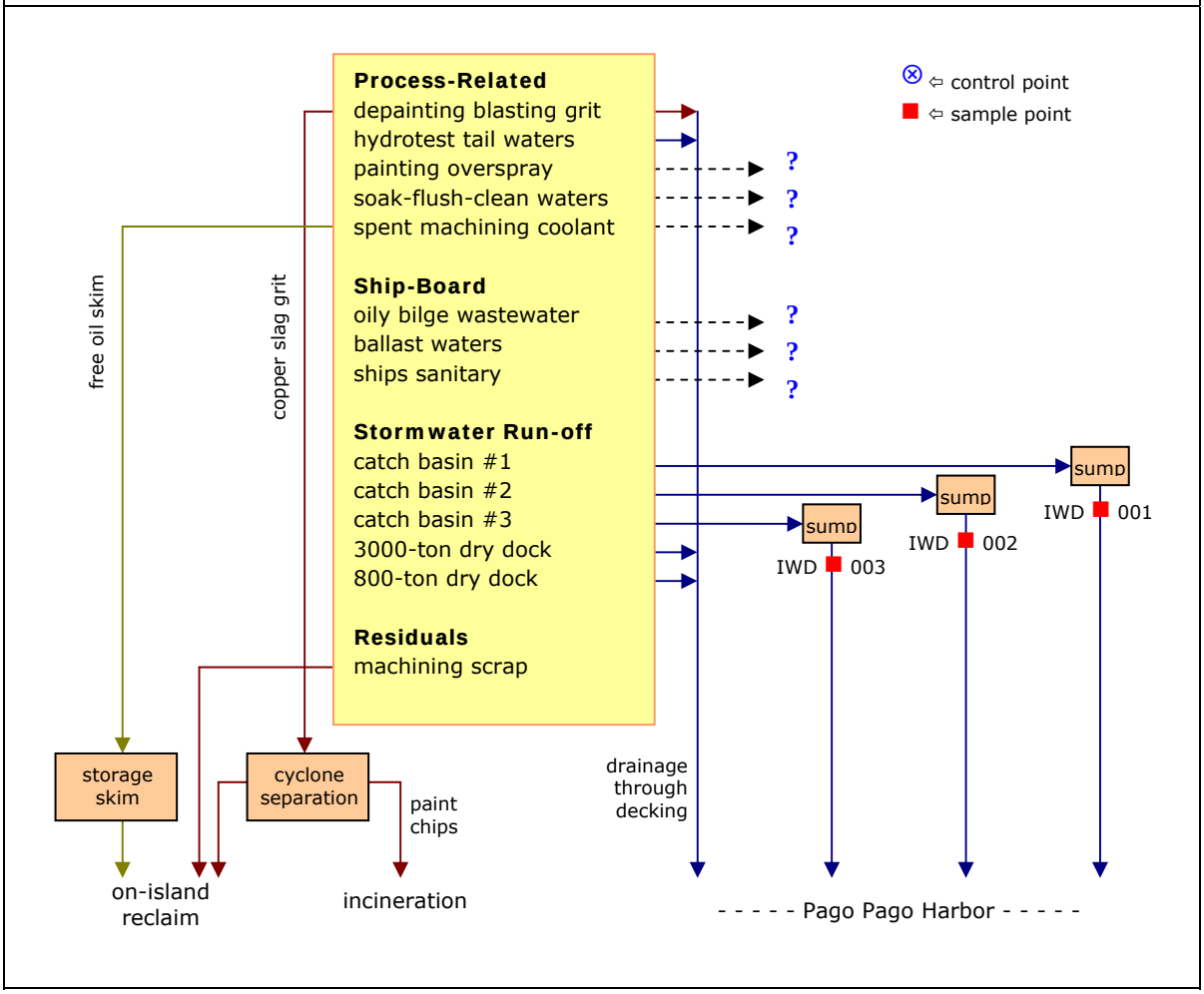
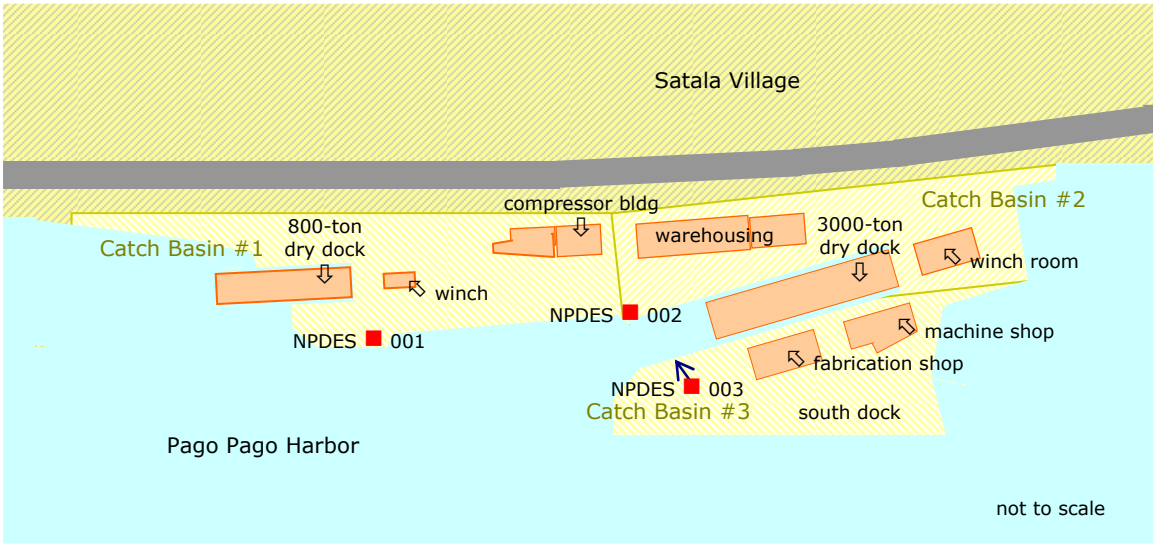


Figure 1.4.2
MYD Samoa Shipyard - Layout



Depainting and Grinding Grit - Depainting involves both hand grinding and high-pressure blast abrasion of paint using copper slag grit. MYD Samoa employs a number of BMPs to control and capture spent grit and grinding residuals. These BMPs involve laying down plywood planking on the dry dock decking during sandblasting, broom deck sweeping of spent grit and residuals into piles, vacuum cyclone cleaning of piled-up spent grit to remove paint chips, and unfurling of portable curtains to keep the grit on the dry dock deck. Vacuum cyclone cleaned grit is disposed by truck to a landfill under ASEPA approval. Removed paint chips are incinerated on-island. On the day of this inspection, these BMPs were observed to be of limited effectiveness in keeping the spent grit out of the harbor. In particular, there were innumerable gaps found throughout in the dry dock decking, spent grit spread over the entire deck and on the surrounding piers, and wet grit residue left on the deck after sweeping. In addition, the frequency of rains and the wet condition of the spent grit indicate that it was likely exposed to rainfall over the course of the previous days. See Photos #1 through #5 in Section 1.6 on page 8.

Hydroblast Tail Waters – Hydroblasting involves the high-pressure water spray removal of sea growth and slime from ship hulls, and possibly as well from ship internals such as heat exchangers, and ballast tanks. Hydroblast tail water at the Satala Shipyard cannot be collected because the dry dock decks are not curbed and sealed and there are no controlled methods of wastewater disposal. MYD Samoa indicated that hydroblasting is performed on ship hulls. As a result, although the process itself was not observed during this inspection, hydroblasting can be expected to generate an uncontrolled discharge of process-related wastewater that drains through the gaps in the deck to the harbor.

Painting Overspray - MYD Samoa paints marine finishes on ships below and above the water line. The dry dock BMPs include unfurling of the portable curtains around and above the area to be painted in order to prevent the loss of overspray to the air and harbor. On the day

of this inspection, spray painting on a small scale was observed without the unfurling of the portable curtains. The curtains should prevent the drifting of paint overspray into the harbor.

Chemical Cleaning/Flushing/Soaking/Hydrotesting Wastewaters – MYD Samoa indicated that only hose flushing is performed on-site and only at times. None of these process-wastewater generating operations were observed during this inspection. However these operations are part of typical shipyard repair work. Any tail waters generated from any of these operations would have to be drained to the harbor, either directly from uncontrolled point, or through the gaps in the dry dock deck, or through the controlled NPDES permitted points for storm water run-off.

Machining and Fabrication - The machining and fabrication shops, located on the pier, generate spent machining coolants, metal chips, and metal scrap. The spent coolant is collected into recycling barrels to skim tramp oil for on-island reclaim. Scrap metal is collected for delivery to the on-island scrap metal dealers. In addition, the removal of paint chips from spent sandblasting grit through a vacuum cyclone occurs for incineration. None of these waste streams would be expected to reach the harbor waters.

Ship-Board Waters – It is not clear whether oily bilge, ballast, or ships sanitary wastewaters are collected from the ships at berth or in dry dock. If these wastewaters are handled by the shipyard, the only available disposal method would be discharge to the harbor.

Rainwater Runoff – The Satala Shipyard, minus the two dry docks, is partitioned into three run-off basins, referred to as Catch Basins #1 through #3. See Figure 1.4.2 on page 5 for a layout of the facility.

- Catch Basin #3 includes the South Dock and the pier side landings between the fabrication and machining buildings and the 3000-ton dry dock. Catch Basin #3 was observed during this inspection to have many pollutant sources exposed to contact with storm water run-off, in particular spent blasting grit on the landings south of the dry dock, zinc anodes stacked near the fabrication building, and light boat repair work performed by the ship crews on the South Dock. Most of the drainage collects to a sump outfitted with siphon overflows to a short canal leading to the harbor, and designated as NPDES discharge point 003. There was curbing along the South Dock but on the pier around the 3000-ton dry dock. However, around the dry dock, the landing appeared to slant toward the open gap over the harbor between the uncurbed pier and the dry dock. See Photos #5 through #8 in Section 1.6 on pages 8 and 9.

- Catch Basin #2 encompasses buildings and pier side landings north and east of the 3000-ton dry dock. Catch Basin #2 was observed during this inspection to have one notable pollutant source, spent blasting grit on the landings north of the dry dock, exposed to contact with storm water run-off. The warehouses and the winch engine room were not found to have exposed pollutant sources. There curbing along the open harbor but not on the pier around the 3000-ton dry dock. The drainage collects to a sump outfitted with siphon overflows to the harbor. See Photo #9 in Section 1.6 on page 9.

- Catch Basin #1 includes the piers and landings around the 800-ton dry dock and two buildings. The compressor building houses both a diesel fueling tank and battery storage areas under roofing and behind secondary containment. There was curbing along the open harbor but not around the 800-ton dry dock. The drainage collects to a sump outfitted with siphon overflows to the harbor. On the day of this inspection, numerous pollutant sources were observed exposed to contact with storm water run-off. In particular, the ground between the dry dock and harbor was heavily contaminated with spilled oil and there were piles of trash, barrels, spent materials and equipment on the landing along the open harbor. On the day of this inspection, oily drainage from the contaminated ground and the trash and barrels was observed draining into and through the discharge sump to form an oily sheen on the harbor. See Photos #10 through #12 in Section 1.6 on page 9.

- Dry dock rainfall run-off is expected to drain through the gaps in the dry dock decking or directly to into the open gap over the harbor between the uncurbed dry dock and the pier. The 3000-ton dry dock was observed during this inspection to have one notable pollutant source, spent blasting grit on the dry dock decking, exposed to contact with storm water run-off. See Photos #1 through #4 in Section 1.6 on page 8.

1.5 Facility Wastewater Composition

Depainting and Painting - The spent grit would contain copper slag and various types of marine paint chips which incorporate, as antifouling biocides, copper oxides (up to 70%), copper thiocyanates, arsenic, mercury, or tributyltins. Clean copper slag itself consists of 55% iron oxide, 35% silica, 3% aluminum oxide, 0.42% copper, and other inert materials. Grinding residuals would consist of paint dust and fiberglass, aluminum, or iron dust from the hulls. Painting overspray would have the same composition as the marine paint chips.

Hydroblasting - The hydroblast tail waters would be expected to entrain sea growth, paint chips, and residue washed from the dry dock.

Chemical Soaking / Flushing / Hydrotesting - Tail waters from these operations could be expected to contain caustic, phosphoric acid, bleach as disinfectant, and dislodged residues.

Ship-board Wastewaters - It is not clear whether these wastewaters are collected by MYD Samoa from the ships at berth or in dry dock for handling by the shipyard. Bilge waters would be expected to be oily and entrain lead and copper. Ballast waters would be sea water. Ships sanitary would be expected to be similar to septic tank domestic sewage.

Rainfall Run-off - The drainage from Catch Basin #1 would be expected to contain free and emulsified oils, suspended solids, and lead and copper. Drainage from Catch Basins #2 and #3 would be expected to contain suspended solids, copper slag and paint dust, and potentially oils. The composition of the copper slag and paint chips is summarized above.

TMDL Pollutants - No specific sources of arsenic, mercury, or PCBs were identified during this inspection.

1.6 Photo Documentation

Twelve of the 22 digital photographs taken during this inspection are depicted here in this section. The photographs are saved as *samoa-mydsamoa-01.jpg through -22.jpg.*

Photo #1: 3000-Ton Dry Dock - Leading Edge
Taken By: Greg V. Arthur
Date: 04/01/08

Photo #2: 3000-Ton Dry Dock - Gaps in Decking
Taken By: Greg V. Arthur
Date: 04/01/08

Photo #3: 3000-Ton Dry Dock - Gaps Between Boards
Taken By: Greg V. Arthur
Date: 04/01/08

Photo #4: 3000-Ton Dry Dock - Sweeping / No Curbs
Taken By: Greg V. Arthur
Date: 04/01/08

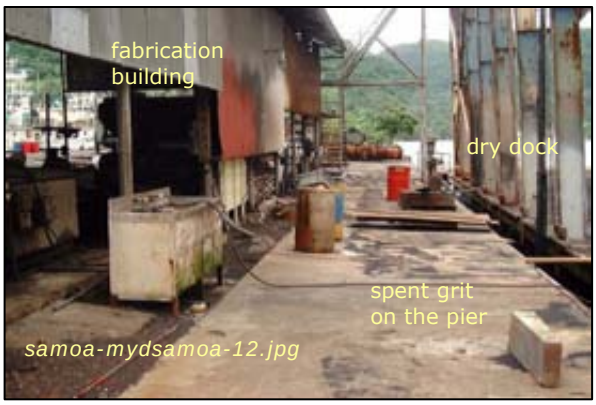


Photo #5: Catch Basin #3 - Fab Bldg / Dry Dock
Taken By: Greg V. Arthur
Date: 04/01/08

Photo #6: Catch Basin #3 - Zinc Anodes Exposed
Taken By: Greg V. Arthur
Date: 04/01/08

Photo #7: Catch Basin #3 - South Dock Crew Work
Taken By: Greg V. Arthur
Date: 04/01/08

Photo #8: Catch Basin #3 - Discharge Sump 003
Taken By: Greg V. Arthur
Date: 04/01/08

Photo #9: Catch Basin #2 - Discharge Sump 002
Taken By: Greg V. Arthur
Date: 04/01/08

Photo #10: Catch Basin #1 - Trash and Oily Ground
Taken By: Greg V. Arthur
Date: 04/01/08

Photo #11: Catch Basin #1 - Discharge Sump 001
Taken By: Greg V. Arthur
Date: 04/01/08

Photo #12: Catch Basin #1 - Oily Sheen in Harbor
Taken By: Greg V. Arthur
Date: 04/01/08

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

The NPDES permit authorizes the discharge of storm water run-off through three discharge points. The permit imposes discharge limits that apply the American Samoa water quality standards, and BMPs meant to ensure no release of blasting grit and compliance with the water quality standards. The permit specifically prohibits the discharge of any shipboard wastewaters. The underlying objective of the permit is to prevent, through full implementation of proper BMPs and treatment, all shipyard discharges that could cause or contribute to water quality standards violations in the harbor. The permit does not specify all of the BMPs needed to accomplish this objective. The application of the site-specific BMPs and the water quality standards was determined through visual inspection. See Sections 2.3 through 2.6 for NPDES permit narrative requirements and permit limits.

Requirements

- None.

Recommendations

- All pertinent BMPs, including a number of new ones specified in this report, should be formally incorporated as enforceable NPDES permit requirements.
- A BMP-driven permit for a shipyard with all pollutant sources identified could therefore apply only a limited set of limits for the indicator and TMDL-based pollutants (*oil and grease, flow, pH, arsenic, mercury, PCBs*).
- Quarterly self-monitoring should continue with samples exceeding permit limits triggering toxicity reduction evaluations resulting in new BMPs or treatment.

2.1 Permit Applicability

NPDES Permit AS0020036 currently in effect was issued January 7, 2003. It expired on February 8, 2008. 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. MYD Samoa submitted its application 26 days late on September 19, 2007. It is understood that the shipyard changed ownership during the month the NPDES permit application was due. The NPDES permit applies American Samoa water quality standards to storm water from three catch basins through sumps into Pago Pago Harbor, designated as the sample points NPDES-001, -002, and -003. It does not permit the discharge of pollutants to the harbor from other sources through other points of discharge.

2.2 Federal BAT/NSPS Categorical Standards

There are no Federal categorical standards for ship repair. MYD Samoa does not generate any wastewaters regulated under any Federal categorical standard in 40 CFR 407-471.

2.3 Effluent Discharge Limits

The NPDES permit applies American Samoa water quality standards and best professional judgment ("BPJ") technology-based effluent limits to the discharges from three storm water run-off sumps into Pago Pago Harbor, designated in this report as the sample points NPDES-001, NPDES-002, and NPDES-003.

Figure 2.3
Discharge Standards and Limits, for MYD Samoa, Inc., Satala Shipyard

NPDES Permit AS0020036 § I.A.1-2	Catch Basin #1 (daily-max)	Catch Basin #2 (daily-max)	Catch Basin #3 (daily-max)	monitoring frequency	sample type ①
flow (mgd)	②	②	②	continuous	n/a
TSS (mg/l)	②	②	②	quarterly	grab
pH min/max (s.u.)	6.0 to 8.6 s.u.	6.0 to 8.6 s.u.	6.0 to 8.6 s.u.	quarterly	grab
oil and grease (mg/l)	20 mg/l	20 mg/l	20 mg/l	quarterly	grab
total arsenic (µg/l)	69 µg/l	-	69 µg/l	quarterly	grab
total copper (µg/l)	2.9 µg/l	-	2.9 µg/l	quarterly	grab
total lead (µg/l)	320 µg/l	-	320 µg/l	quarterly	grab
total zinc (µg/l)	95 µg/l	-	95 µg/l	quarterly	grab
hex chromium (µg/l)	1100 µg/l	-	1100 µg/l	quarterly	grab
mercury (µg/l)	2.1 µg/l	-	2.1 µg/l	quarterly	grab
tributyltin (µg/l)	0.422 µg/l	-	0.422 µg/l	quarterly	grab
benzene (µg/l)	5100 µg/l	-	5100 µg/l	quarterly	grab
ethylbenzene (µg/l)	430 µg/l	-	430 µg/l	quarterly	grab
toluene (µg/l)	6300 µg/l	-	6300 µg/l	quarterly	grab
PCBs	-	-	-	-	-

① Samples collected during the first 30 minutes of a storm event greater than 0.1 inches.
② Monitoring only – No limits.

The NPDES permit applies limits for pH, anti-fouling agents (*copper, arsenic, mercury, tributyltin*), petroleum indicators (*oil and grease, benzene, ethylbenzene, toluene*), and ship repair materials (*copper, lead, zinc, chromium*). The permit also requires self-monitoring for flow, and total suspended solids. The next permit is expected to add PCB limits and revised limits for mercury and arsenic based on a 2007 TMDL study for Pago Pago Inner Harbor.

Shipyards achieve compliance through the elimination of contact of pollutant sources with drainage. Moreover, no treatment short of reverse osmosis or distillation can result in compliance with the American Samoa and TMDL-based water quality standards of 0.37 µg/l arsenic, 82 µg/l chrome^{+6}, 2.9 µg/l copper, 13.3 µg/l lead, 0.0425 µg/l mercury, 0.12 µg/l

tributyltin, 90 µg/l zinc, and 15 mg/l oil and grease. Both reverse osmosis and distillation far exceed best-available-technology treatment and are unsuitable for high-rate applications. As a result, MYD Samoa, with its pollutant sources identified, may be better regulated through a BMP-driven permit which sets as requirements the BMPs necessary for compliance. A BMP permit would apply only a limited set of limits for indicators (*oil and grease, pH, flow*) and TMDL-based pollutants (*arsenic, mercury, PCBs*). It would require samples exceeding standards to trigger toxicity reduction evaluations resulting in new BMPs or treatment.

2.4 Site-Specific Discharge Specifications and Prohibitions

The NPDES permit provides (1) specifications that apply to the storm water discharges authorized by permit, (2) specified prohibitions against certain discharges and practices from shipyard pollutant sources, and (3) an implied prohibition against discharges other than those authorized by the permit. These specifications and prohibitions were not found to be effective in controlling the contact of pollutant sources with storm water. See Section 3.1 and 3.2 for a discussion of the BMPs that would need to be added to the NPDES permit to ensure storm water run-off discharges comply with water quality standards.

Figure 2.4.1
NPDES Permit Discharge Prohibitions

Permit §	NPDES Permit and Pago Pago Harbor discharge prohibitions:
I.A.1-2	MYD Samoa is ***only*** authorized to discharge storm water from the outfalls (*catch basin sumps*) serial numbers NPDES-001, -002, and -003.
I.B.1	The dumping or discharge of solid waste.
I.B.2	The dredging and filling activities, except as approved by the Environmental Quality Commission in accordance with the Environmental Quality Act.
I.B.3	Hazardous and radioactive waste discharges.
I.B.4	Discharge of oil sludge, oil refuse, fuel oil, or bilge water, or any other wastewater from any vessel or unpermitted shoreside facility.

Figure 2.4.2
NPDES Permit Narrative Specifications for Storm Water Run-off Discharges

Permit §	Pago Pago Harbor discharge specifications:
I.B.1	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.2	Discharges shall be substantially free from visible floating materials, grease, oil, scum, foam, and other floating material attributable to sewage, industrial wastes ...
I.B.3	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.4	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.

2.5 Dry Dock BMPs

The NPDES permit requires the implementation of the following BMPs meant to control the discharge of spent blasting grit and paint overspray. These BMPs were not found to be effective nor did they address other industrial wastewater discharges from the dry docks (*hydroblasting, etc.*). See Section 3.1 for a discussion of the BMPs that would need to be added to the NPDES permit to result in no release of pollutants from the dry docks.

Figure 2.5
NPDES Permit BMPs for the Shipyard Dry Docks

Permit §	To prevent the discharge of pollutants from the dry docks to the harbor BMPs shall be established to ensure that:
III.D.1(a)	Curtains are used on the sides of the railway when sandblasting and painting operations are under way to prevent the discharge of blasting grit, etc ... .
III.D.1(b)	Debris from the dry dock is swept and removed several times while a ship is in for repair and, at a minimum, at the end of each workday.
III.D.1(c)	Flooring is completely covered during the time of sandblasting to prevent grit material from falling through spaces in the slatted railway floor.
III.D.1(d-g)	Grit-blasting wastes are (1) properly stored under cover to prevent any contact with storm water; (2) disposed in accordance with Federal rules with the approval of EPA and ASEPA; and (3) *processed* to separate grit from paint waste.
III.D.1(h)	Drainage(s) are covered to prevent pollutants from mixing with storm water.
III.D.1(i)	Employees involved in blasting or painting are given proper training to ensure awareness of techniques necessary to minimize airborne blasting grit and overspray.
III.D.1(j-m)	Alternative methods of control and tracking should be considered.
III.D.1(n)	Usage of paints containing arsenic, mercury, lead, or tributyltin is prohibited.
III.D.2(a)	Scrap metal, wood... trash, etc., are removed from the dry dock floor prior to each launching and hauling of vessels to and from the harbor.
III.D.3(d)	Ships that are painted with anti-fouling or anti-corrosion agents containing arsenic, mercury, lead, or tributyltin are not grit blasted. (Permittee shall attain written certification from the owner or operator of the vessel).
III.D.4(c)	During dry docked periods, accidental spills of oil, grease, or fuel are prevented from reaching drainages, and from discharge to surface waters.
III.D.4(d)	Cleanup is carried out promptly after an oil or grease spill is detected.
III.D.4(e-f)	When ships are on the railway, oil containment booms with a tide slide are installed across the entrance to the railway, or around spills.

2.6 Storm Water BMPs

The NPDES permit authorizes discharge of only storm water run-off from only three catch basin sump in compliance with water quality standards. Toward these requirements, the permit also implements of the following BMPs intended to result in compliance with the

water quality standards. The BMPs were not found to be effective in controlling the contact of pollutant sources with storm water run-off. See Section 3.2 for a discussion of the BMPs that would need to be added to the NPDES permit to ensure storm water run-off discharges comply with water quality standards.

Figure 2.6
NPDES Permit BMPs for Shipyard Storm Water Run-off

Permit §	To ensure storm water run-off discharges comply with water quality standards BMPs shall be established to ensure that:
III.D.2(b)	Routine cleanup of litter and debris in the yard and around the dry docks is performed to prevent accumulation and possible discharge to the receiving water.
III.D.2(c)	Used batteries, used oil, paint generator, scrap metal, and unused machinery in the yard are stored under cover or disposed of in a manner that ... prevents receiving water contamination.
III.D.3(a)	Hazardous wastes including used grit blast (if applicable), paint, oils, brake fluids, antifreeze, batteries, petroleum products, degreasers, and tool coolants are labeled and handled properly under the Federal RCRA rules.
III.D.3(b)	Hazard or "No Dumping" signs are posted where there is a significant risk of spills.
III.D.3(c)	Trash bins have signs designating the type of material that is acceptable and/or unacceptable.
III.D.4(a-b)	Used oils are properly stored within secondary containment that is sufficiently impervious, and preferably covered, to contain by volume 10% of the total and 110% of the largest container.
III.D.4(d)	Cleanup is carried out promptly after a spill of oil or grease is detected.
III.D.5(a)	Paints / solvents shall be mixed in designated areas with secondary containment.
III.D.5(b)	Paint and solvent spills are treated like oil spills, contained until completion of cleanup, and with liquid absorbent pads kept in stock for emergency use.
III.E.1	Structural controls (*oil water separators*, *retention basins*, *etc.*) and/or vegetative controls (*grassy swales*) are constructed if and when the implementation of all source controls BMPs is unable to completely control storm water contamination.
III.E.2(a-b)	Oil water separators ... are routinely inspected and cleaned to ensure their proper operation, and that captured oils and fuels are properly disposed.

3.0 Compliance with NPDES Permit Requirements

Shipyard discharges are only authorized from three permitted catch basin sumps and must comply with the discharge limitations set forth as the application of the water quality standards. [NPDES Permit §I.A.1-2, §I.B.1-4, §III.D.2-5, §III.E.1-2]

Shipyard and dry dock operations must follow the BMPs specified in the permit to result in compliance with the water quality standards. [NPDES Permit §III.D.1-4]

Ship-board sources of wastewaters are prohibited from discharge. [NPDES Permit §I.B.4]

Summary

As in previous inspections, the Satala Shipyard was found to be ineffective in controlling its discharges to the harbor through BMPs and limited treatment. First, blasting grit and paint chip debris were deposited on the dry dock deck and along the piers, all exposed to frequent rain-fall and contact with storm water drainage. Second, temporary planking and sweeping capture much blasting debris but do not prevent significant losses into the harbor through the many uncontrolled drainage entry points found during this inspection, in particular, gaps in the decking and uncurbed piers. Third, oily drainage into and out of one of the catch basin sumps also was found to result in an oily sheen on the harbor. Fourth, numerous shipyard sources of contamination were found exposed to rainfall, in potential contact with drainage. Fifth, other than harbor discharges, there are no alternate methods of process wastewater disposal. Sixth, it was not evident that ship-board wastes are contained on the vessels. Finally, there are no current self-monitoring results. Taken together, these shortcomings are widespread and significant.

Requirements

- MYD Samoa must seal and curb the dry dock deck in order to capture and control all discharges of process wastewaters, wastes, and storm water drainage to the harbor.
- MYD Samoa must establish both a method to segregate contaminated wastewaters from uncontaminated storm water drainage and an alternative to harbor discharge.
- MYD Samoa must curb the piers surrounding the dry docks and along the harbor.
- MYD Samoa must implement BMPs to minimize storm water contact with all process equipment, materials, debris, and wastes.
- MYD Samoa must install dry dock drainage controls to allow the settling of solids, the skimming of oils and floating solids, visual inspection prior to discharge, and controlled discharge through a sample point or points.
- MYD Samoa must establish a sample point or set of points through which all dry dock wastewaters and drainage can discharge to the harbor.

Recommendations

- MYD Samoa should consider the installation of perimeter scuppers and drainage lines around the edge of the 3000-ton dry dock.
- MYD Samoa should consider the installation of a settling and skimming tank located either on-pier near the dry dock fantail or deployed on a floating barge with this capability.
- MYD Samoa should ensure any land-installed or barge-deployed treatment tank has an outfall for treated effluent to the harbor and a stand-by connection to the ASPA domestic sewer system.
- MYD Samoa should consider installing a bilge water treatment system and providing a connection for ships sanitary wastewaters to the ASPA domestic sewer system.

3.1 Dry Dock Wastewaters and Drainage

Compliance Status - The dry docks are not designed to successfully achieve full compliance with the requirements of the NPDES permit. In particular, during this inspection the EPA inspector found spent blasting grit and paint chip debris deposited on the dry dock deck and alongside on the piers, all exposed to frequent rainfall and contact with storm water drainage, as well as many uncontrolled drainage entry points through gaps in the dry dock decking and from some uncurbed piers. These findings constitute a violation of the following BMPs required by the permit. See Photos #2 through #5 on page 8 of this report, and Figures 2.2 and 2.4.1 and on pages 11 and 13 for the current NPDES BMPs for the dry docks.

- Complete coverage of the flooring to "prevent grit material from falling through spaces in the slatted railway floor" [§ III.D.1(c)].
- Store grit under cover to "prevent any contact with storm water" [§ III.D.1(d)].
- Use of curtains to "prevent the discharge of spent sandblasting materials, abrasives, paint chips, and paint overspray to the receiving water" [§ III.D.1(a)].
- "The permittee is authorized to discharge (only) storm water (only) from the outfall serial numbers 001, 002, and 003" [§ I.A.1-2].

Corrective Actions - Wastewater handling has to prevent the loss of blasting debris and paint overspray into the receiving waters, and yet still permit uncontaminated storm water and de-watering drainage to discharge under controlled conditions. To do this, MYD Samoa must implement a number of corrective actions to upgrade dry dock design and operation. In particular, the deck needs to be sealed, curbed, and outfitted with drainage controls to allow for solids settling, oil skimming, and controlled discharge. See Figure 3.1.1 on the next page for a list of corrective actions and BMPs for the dry docks. Two conceptual upgrade option possibilities follow the list.

Figure 3.1.1
Corrective Actions for the Dry Docks

3.1.1	The dry dock decks shall be entirely sealed and curbed in order to capture and control all discharges of process wastewaters, wastes, and storm water drainage from the dry dock to the harbor.
3.1.2	The dry docks shall be outfitted with drainage controls which allow at least 20 minutes of impoundment, the settling of solids, skimming of oils and trash, visual inspection for sheen and floating solids prior to discharge, and controlled discharge through EPA-approved sample point or point(s).
3.1.3	The dry dock drainage controls shall be operated normally closed to impound all wastewaters and storm water drainage for visual inspection prior to discharge.
3.1.4	The dry dock deck shall not be rinsed off with water, nor shall water be used to collect spent blasting grit or remove solids from vessel exteriors.
3.1.5	At the end of each shift, the physical capture of solids (*blasting grit, removed scale, trash, rust*), the removal of these solids from the dry dock deck, and broom or vacuum cleaning shall be done to prevent solids entrainment in storm water runoff.
3.1.6	Hull hydroblasting shall occur only after the dry dock is broom or vacuum cleaned and the drainage controls are closed to prevent the washdown of contaminants (*solids, spills, oils, etc.*) with hydroblast tailwaters to the harbor.
3.1.7	Hydrotest and pump test tailwaters shall discharge to dry dock drainage controls by hose or hard pipe in order to prevent the washdown of contaminants to the harbor.
3.1.8	Chemical cleaning wastewaters, wet sandblasting tail waiters, and hydroblasting tailwaters for paint or surface preparation or of heat exchangers or ballast tanks shall be collected for discharge to the ASPA domestic sewers.
3.1.9	ASPA shall be notified the day before the dry dock is resubmerged and shall formally sign-off before ship refloating is authorized.
3.1.10	Corrosion inhibitors (nitric-acid bearing) in wet sandblasting and the accumulation of hazardous wastes shall be prohibited.

Configuration Options - Figures 3.1.2 and 3.1.3 on the next page depicts two drainage control system options. The first involves perimeter drains installed on the side of the dry dock, which drain into a transfer pump station installed on the dry dock fantail that, in turn, feeds a settling tank installed on the pier. The second also involves perimeter drains installed on the side of the dry dock, but which instead drain into a floating barge for settling and skimming. The settling tank or the floating barge would capture entrained solids (*spent blasting grit, paint chips, sea growth*) and floatables (*tramp oils, trash*) and would allow the visual inspection of the drainage prior to discharge to the harbor. Tank or barge valving also would allow some off-spec drainage to discharge to the ASPA domestic sewers.

Dewatering outlets on the dry dock fantail would be locked in the open position when the dry dock is winched into and out of the harbor to allow the free flow of water, but returned to the closed position during ship repair. The outfall(s) from the drainage controls would be established as new NPDES permit sampling point(s).

Figure 3.1.2
Schematic of Possible Upgrades - Option 1 Settling Tank Treatment

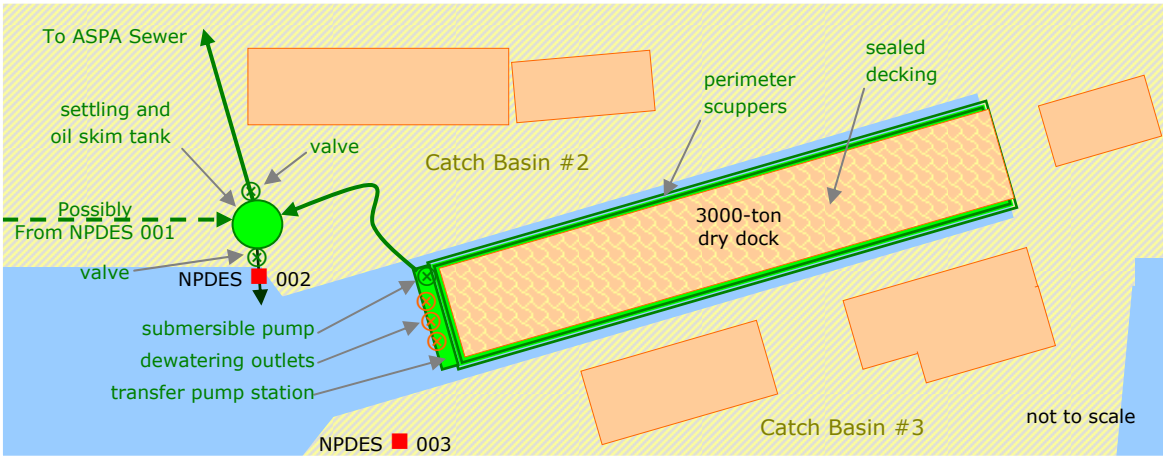
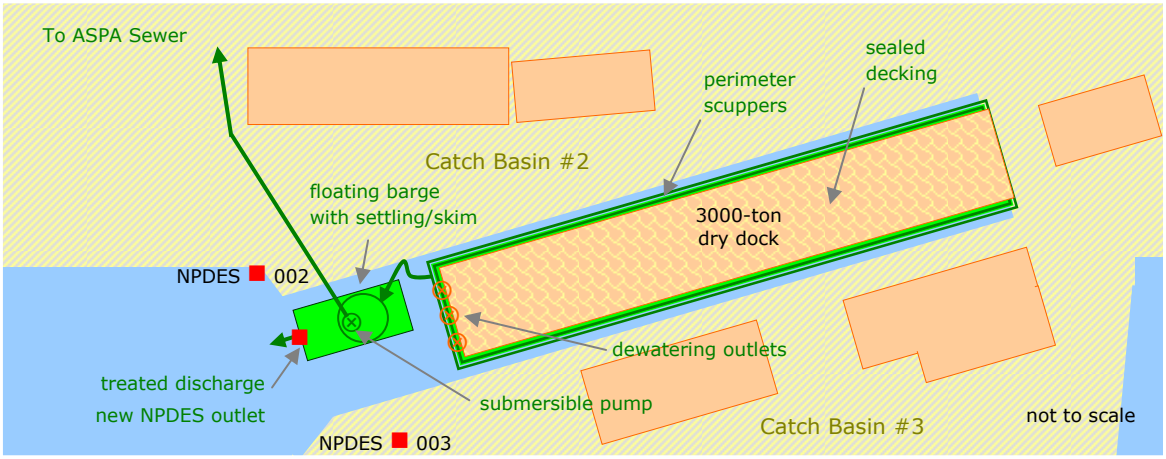


Figure 3.1.3
Schematic of Possible Upgrades - Option 2 Floating Barge Treatment



3.2 Shipyard Wastewaters and Drainage Sources

Compliance Status - The shoreside shipyard areas are not designed to successfully achieve full compliance with the requirements of the NPDES permit. There are areas around the dry docks in particular that are not curbed and from which runoff appeared to drain into the harbor. See Photo #5 on page 7 of this report. There are also numerous potential sources of storm water contamination from the observed exposure to rainfall or runoff of materials, wastes, or equipment. See Photos #6, #7, and #10. Also while the three sumps each discharge through inverted siphons to capture floating solids, during this inspection, the EPA inspector found oily drainage into and from the sump serving as the NPDES discharge point for Catch Basin #1. See Photos #11 and #12. These findings constitute a violation of the

following BMPs required by the permit and the permit discharge limits. See Figures 2.3, 2.4.1 and 2.4.2 on pages 12 and 13 for the current NPDES BMPs for shoreside activities.

- Discharge shall be "substantially free from visible floating materials, grease, oil, scum, foam, and other floating material attributable to sewage, industrial wastes, or other activities of man" [§ I.B.2].

- "Routine cleanup of litter and debris in the yard and around the dry docks is performed to prevent accumulation and possible discharge to the receiving water" [§ III.D.2(b)].

- Contamination sources such as "used batteries, used oil, paint generator, scrap metal, and unused machinery in the yard are stored under cover or disposed of in a manner that is safe, legal, and prevents receiving water contamination" [§ III.D.2(c)].

- "The permittee is authorized to discharge (only) storm water (only) from the outfall serial numbers 001, 002, and 003" [§ I.A.1-2].

In addition, the discharge monitoring reports ("DMRs") submitted by MYD Samoa and the previous operator record violations of the NPDES permit effluent limits for the three permitted discharges through the catch basin sumps.

Corrective Actions - Shipyard drainage handling has to minimize rainwater contact with all sources of contamination and to capture contaminated drainage for alternative disposal, in order to discharge uncontaminated storm water runoff to the harbor through the NPDES permitted discharge points. To do this, MYD Samoa would need to implement some corrective actions. In particular, all contamination sources exposed to rainfall need to be contained within pans or in covered or sealed secondary containment structures. These sources of contamination include anode storage, trash piles, spent barrels, and crew repair work on the south dock. A list of the corrective actions and resulting BMPs follow below.

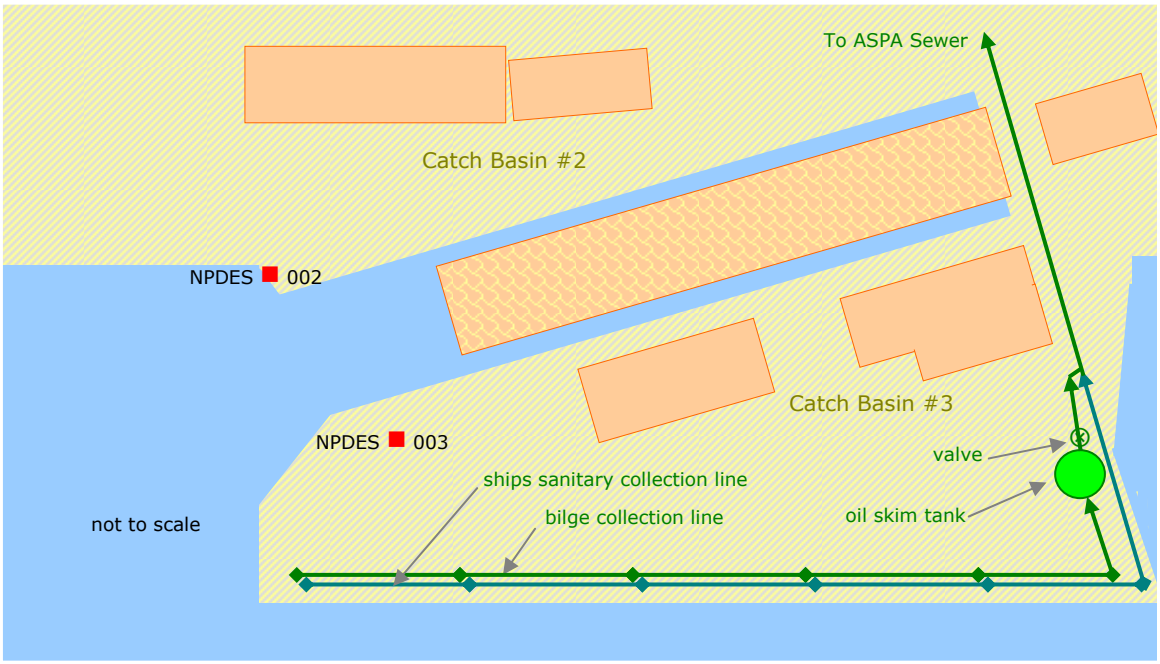
Figure 3.2
Correction Actions for Shipyard Operations

3.2.1	Secondary containment always shall be deployed around all materials, paints, fuel, containers, drums, trash heaps, hazardous materials storage, tooling and mechanized equipment exposed to rainfall on the dry docks or on shore.
3.2.2	New zinc or aluminum anodes and lead ballast shall be covered or wrapped in plastic to prevent contact with rain and storm water runoff, and spent anodes and ballast shall be contained within drums or sealed crates.
3.2.3	Collected spent blasting grit shall be stored in a way that prevents contact with rainfall or storm water run-off.
3.2.4	All captured runoff from contact with contamination sources shall be disposed either through settling and oil skimming or to the ASPA sewers.
3.2.5	Pierside curbs surrounding the dry docks and along the harbor shall be constructed.

3.3 Ship-board Wastewaters Sources

Compliance Status - The NPDES permit BMPs prohibit the discharge of any wastewater from any vessel within Pago Pago Harbor. During this inspection, there was no observed evidence of the discharge of wastewaters from ship-board sources. However, there also was no positive evidence that ballast waters, bilge, ships sanitary, or any other ship-board waste-waters were entirely contained in the ships berthed at pier or under repair. In particular, MYD Samoa no longer has the oily water collection and separation tanks for bilge waters. The used oil recovery system was removed as part of an oil clean-up order in 2005. MYD Samoa also does not have any other method of wastewater disposal beyond the discharges of drainage and industrial wastewaters to the harbor.

Figure 3.3
Schematic of Possible Upgrades - Ship-board Wastewater Handling



4.0 Compliance with NPDES Permit Monitoring Requirements

The three catch basin sumps must be self-monitored for conventionals, nutrients, toxicity, and toxics. [NPDES Permit §A(1), B(1), C(1), E(1)]

Samples must be representative of the sampling day's operations and of the conditions occurring during the reporting period. 40 CFR 403.12(g) and 403.12(h).

Summary

There were no recent results in the sampling record for the self-monitoring of the NPDES permit discharge points. The permit requires continuous self-monitoring for flow at each NPDES permit discharge point. The permit requires quarterly self-monitoring from the catch basins #1 and #3 sumps for anti-fouling agents (*arsenic, copper, tributyltin*), various metals (*chromium, lead, mercury, zinc*), petroleum products (*ethylbenzene, toluene*), and indicator pollutants (*pH, total suspended solids, oil & grease*). The permit also requires quarterly self-monitoring from the sump for catch basin #2 for indicator pollutants (*pH, oil & grease*).

Until full deployment of all corrective actions and BMPs, quarterly self-monitoring should continue with any samples exceeding permit limits triggering toxicity reduction evaluations resulting in new BMPs or treatment. Once all pollutant sources identified and all corrective actions and BMPs deployed, the self-monitoring requirements then could be reduced to a minimum of annual sampling for an abbreviated set of limits for the indicator and TMDL-based pollutants (*oil & grease, pH, arsenic, mercury, PCBs, flow*). Instead, in place of quarterly self-monitoring, the permit could be a BMP-driven permit for a shipyard in which various BMPs are required by permit to be implemented. It follows that the quarterly self-monitoring reporting also could be replaced with self-certifications to full implementation of the BMPs required by the NPDES permit.

Requirements

- MYD Samoa must self-monitor as required by the NPDES permit.

Recommendations

- None.