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San Francisco, CA 94105-1895
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Memorandum

To: Rachel Loftin, EPA Region IX

Subject: Completed Work

Date: November 18, 1993

cc: Michele Dermer, BEI ARCS

Attached is the following completed document:

PA X SI ____ Other ____

Site Name: NASCO

EPA ID: CAD 009158932 (4770)

City, County: San Diego, San Diego County, Calif.

For EPA Use Only

Latitude: 32° 41' 29.0" N Longitude: 117° 07' 57.0" W

EPA Further Action Determination: PA-1 Complete - NFA

Lead Agency: EPa

Sign Off Date: 3/16/94

Initials of Work Assignment Manager: AC

Document Screening Coordinator: JWZ 3/17/94

Chief, Site Evaluation and Grants Section: [illegible] 3/18/94

LWOOD 3/18/94

Bechtel Environmental, Inc.

400 0010

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San Francisco, CA 94105-1895
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San Francisco, CA 94119-3965

FINAL EPA File Copy

Preliminary Assessment

Site: NASCO
(a.k.a. National Steel and Shipbuilding Company or NASSCO)
2798 East Harbor Dr.
San Diego, CA 92101

Site EPA ID Number: CAD 009158932

Work Assignment Number: 60-15-9J00, ARCSWEST Program

Submitted to: Rachel Loftin
Work Assignment Manager
EPA Region IX

Date: November 18, 1993

Prepared by: Gary Yao G.Y.

Review and Concurrence: Michele Dermer MD

Bechtel Environmental, Inc.

1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA), Region IX, under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), has tasked Bechtel Environmental, Inc. (BEI) to conduct a preliminary assessment (PA) of the NASCO (also known as the National Steel and Shipbuilding Company or NASSCO) site in San Diego, San Diego County, Calif.

The purpose of the PA is to review existing information on the site and its environs to assess the threat(s), if any, posed to public health, welfare, or the environment and to determine if further investigation under CERCLA/SARA is warranted. The scope of the PA includes the review of information available from federal, state, and local agencies and performance of an onsite reconnaissance visit.

Using these sources of existing information, the site is then evaluated using the EPA's Hazard Ranking System (HRS) criteria to assess the relative threat associated with actual or potential releases of hazardous substances at the site. The HRS has been adopted by the EPA to help set priorities for further evaluation and eventual remedial action at hazardous waste sites. The HRS is the primary method of determining a site's eligibility for placement on the National Priorities List (NPL). The NPL identifies sites at which the EPA may conduct remedial response actions. This report summarizes the findings of these preliminary investigative activities.

The NASCO site was identified as a potential hazardous waste site and entered into the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) on February 8, 1993 (CAD 009158932) (1). The site was entered into CERCLIS as a result of a site discovery program conducted by the EPA in San Diego County.

1.1 Apparent Problem

The apparent problems at the site are as follows:

- On June 25, 1987, the County of San Diego, Department of Health Services, observed a large amount of paint in San Diego Bay near NASCO's floating dry dock (2). Paints used by shipyard facilities contain hazardous substances such as acetone, chromium, copper, lead, methyl ethyl ketone, toluene, xylene, and zinc (3).

- During a National Pollutant Discharge Elimination System (NPDES) Compliance Evaluation Inspection on May 31, 1989, the Regional Water Quality Control Board (RWQCB), San Diego Region, staff observed that wastewater and abrasive sandblast wastes were being washed from NASCO's floating dry dock and discharged into San Diego Bay. Analytical results of the wastewater and abrasive sandblast waste samples collected by the RWQCB showed detectable concentrations of arsenic, chromium, copper, lead, mercury, nickel, silver, and zinc. (4)

- On March 22, 1993, spent copper slag (used in the sandblasting process) spilled into San Diego Bay when a barrier system failed. NASCO estimated that less than 250 pounds of copper slag were released into the bay. (5)

2.0 SITE DESCRIPTION

2.1 Location

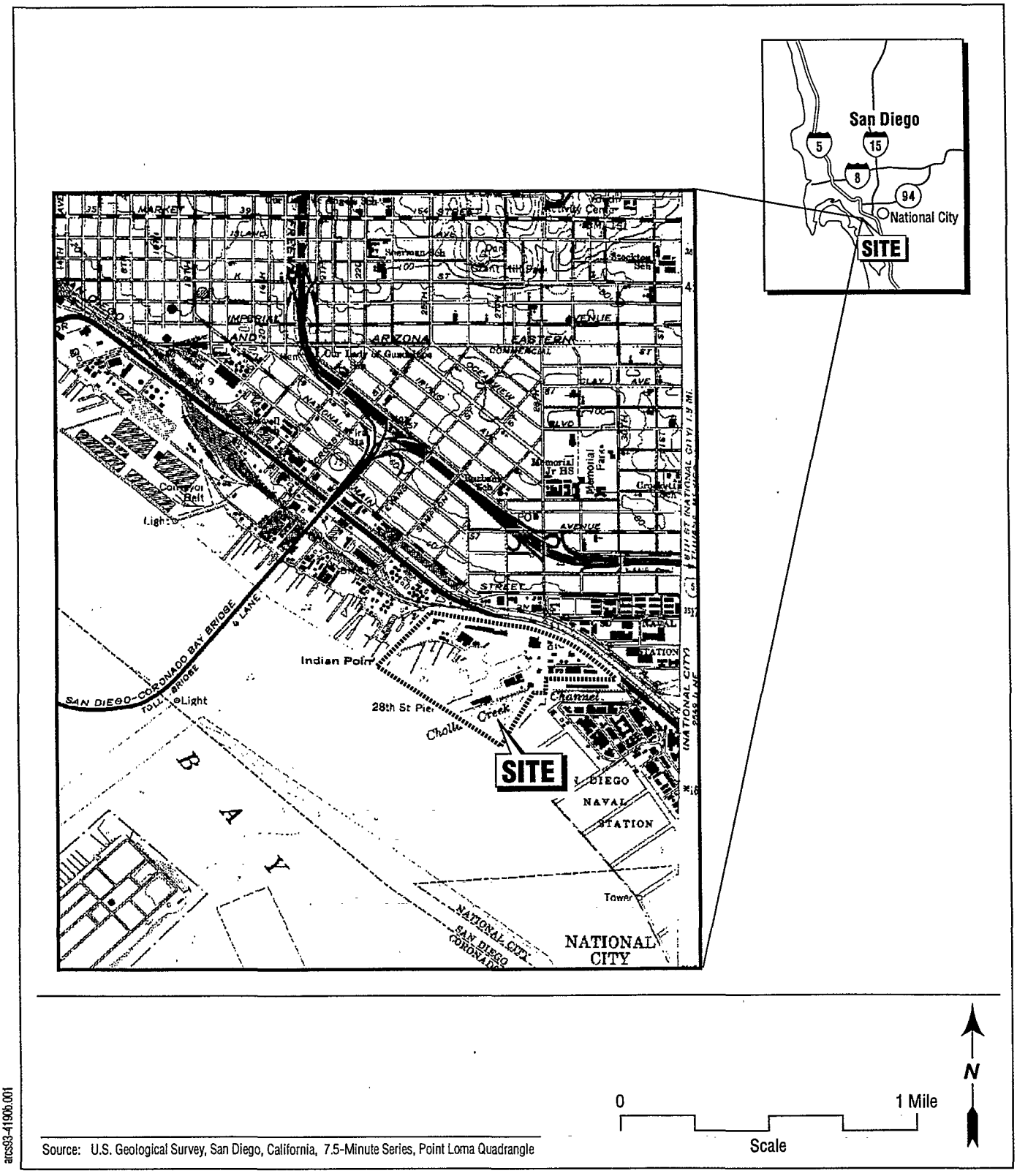
The NASCO site is located at 2798 East Harbor Dr. (at the end of 28th Street) in San Diego, Calif. The geographic coordinates of the site are 32° 41' 29.0" N latitude and 117° 07' 57.0" W longitude (No Township, Range, and Section designations, San Bernardino Baseline and Meridian, Point Loma, Calif., 7.5-minute quadrangle). (1,6,7) The location of the site is shown in Figure 2-1.

2.2 Site Description

The NASCO site occupies approximately 80 acres of land and 47 acres of water in a heavy industrial area of San Diego. The NASCO site is bordered on the north by East Harbor Drive; on the east and southeast by the U.S. Naval Surface Force - Pacific Fleet Station; on the south by San Diego Bay; and on the west and northwest by Southwest Marine, and Chevron and Unocal aboveground fuel storage tank farms. (6) The site layout is shown in Figure 2-2.

The NASCO site includes 40 to 50 buildings, 12 berths/piers, a 30,000-ton graving dock, three 35,000-ton shipbuilding ways, and a 19,750-ton floating dry dock. The graving dock consists of a U-shaped basin (three sides and a floor) that separates a ship from the harbor by means of a gate. When the gate is opened, the basin is flooded, and the ship is floated and maneuvered into place. After the gate is closed, water is pumped from the basin into San Diego Bay, leaving the vessel ready for maintenance or repair. Similarly, a shipbuilding way is an inclined basin separated from the harbor by a gate. Shipbuilding ways are primarily used for the construction of new ships. The NASCO floating dry dock consists of a platform, two sides, and a ballast tank system. When the ballast tanks are flooded, the platform sinks to allow entry of the ship. Dewatering (emptying) of the tanks lifts or floats the platform and ship above the water surface. (3,6)

NASCO has a small electroplating shop near Building 6 (Electric Shop Repair Building) that has a paved floor and berms around its sides. Hazardous substances such as sulfuric acid, cadmium cyanide, and copper cyanide are stored in dip tanks and used to electroplate parts and equipment. NASCO has several satellite collection points and a main storage area for hazardous materials on site. The main hazardous materials storage area is located near Building 76, and is paved and bermed. According to a facility representative, all hazardous substances transferred to this area from the satellite collection points are inspected, sorted, labeled, and manifested. Hazardous substances that are ready to be transported off site are stored in a locked, fenced area. Hazardous waste haulers, such as Chemical Waste Management, Inc., pick up NASCO's hazardous wastes every 2 or 3 months. (6)

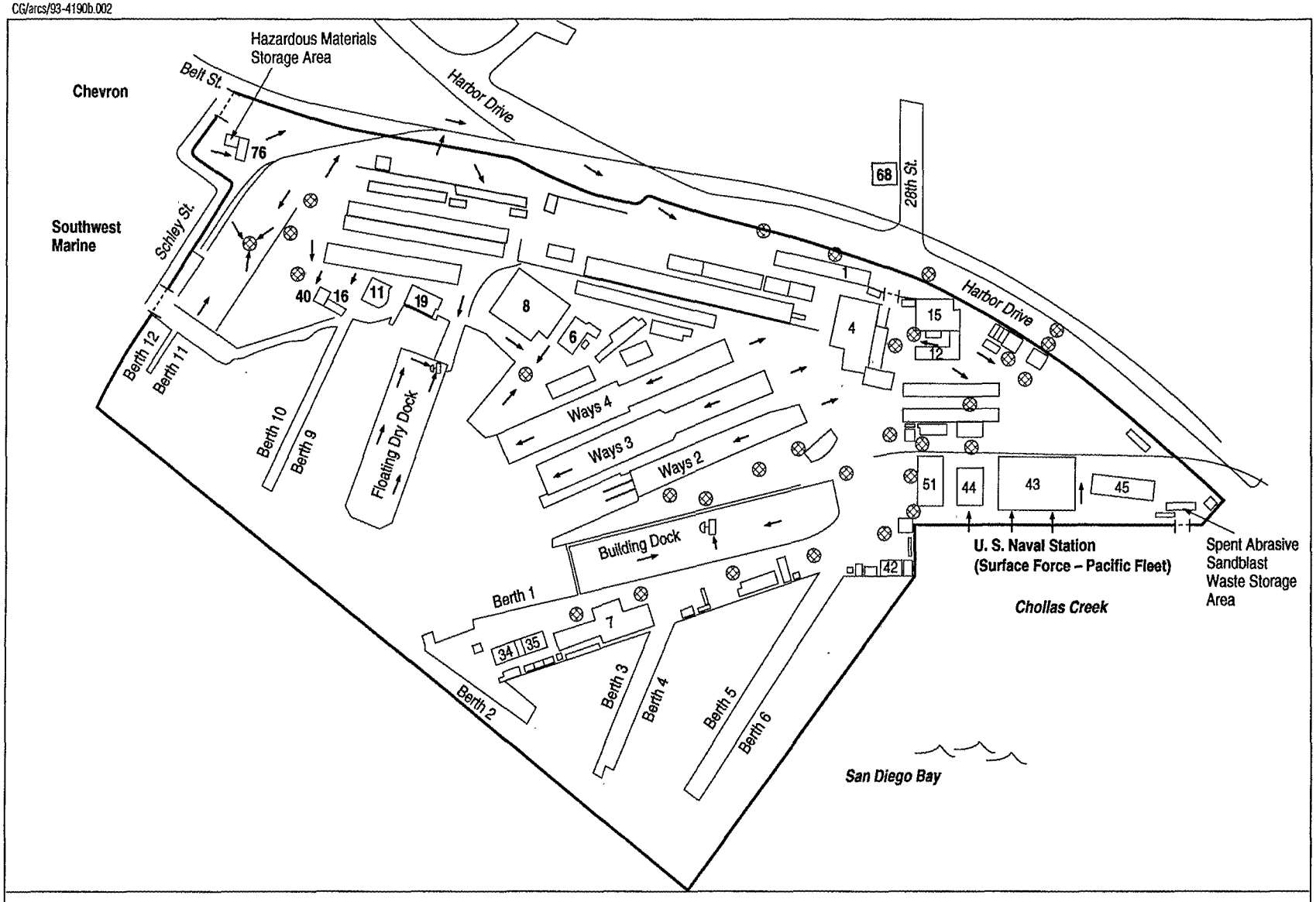


Source: U.S. Geological Survey, San Diego, California, 7.5-Minute Series, Point Loma Quadrangle

arcs93-41906.001

Figure 2-1 Site Location

CG/arcs/93-4190b.002



Legend

Site Boundary	Sewer Discharge	1, 2, 3 . . . Building Numbers
Storm Drain Grate (drains to bay)	Surface Drainage	Gate

0 400 ft
Scale

N

Source: National Steel and Shipbuilding Company, 1993.

Figure 2-2 Site Layout

Printed on 50% recycled paper.

arcs93-4190.002 Nasco
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2.3 Operational History

NASCO has occupied this site since 1946 and leases the land from the San Diego Unified Port District. The tenant before NASCO is unknown. NASCO builds and repairs U.S. naval and commercial vessels. Although new construction and repair work are currently equally distributed, this distribution has historically averaged 80 percent new construction and 20 percent repair work. (6)

NASCO performs numerous operations in building and repairing ships. These operations include the fabrication, cutting, and bending of steel; cleaning, electroplating, and metal finishing of parts; integrity and hydrostatic testing of hulls and tanks; removal of old paint by dry abrasive blasting; and the application of new paint. According to NASCO representatives, the biggest operations at the site are the removal of old paint and the application of new paint on ships. Removal of old paint is performed by blasting copper slag or steel grit abrasives using high-pressure air, while application of new paint is accomplished by using both air and airless spraying equipment. New paint that is applied to ships' hulls contains antifouling materials to prevent the growth and attachment of marine organisms. The antifouling agent tributyltin (TBT) was used in the past by NASCO, but cupric oxide is currently being used. In 1991, NASCO generated approximately 2,330 tons of abrasive sandblast wastes, 14,300 gallons of waste paint, and 23,153 gallons of waste oil. (3,6)

In 1989, NASCO employees detected solvent-like odors when preparing to excavate soil from a sump adjacent to Building 6. This unlined sump, used for the collection of steam-cleaning rinsewater, was approximately 32 inches in diameter and 10 feet deep. The sump was backfilled with concrete in 1991. Previous investigations have shown that soil and groundwater (which occurs approximately 9 feet below ground surface) in the vicinity of the sump contain detectable concentrations of 1,1,1-trichloroethane (TCA), tetrachlorothene (PCE), and other volatile organic compounds. As part of NASCO's first quarter monitoring and sampling program in 1993, groundwater samples were collected from six monitoring wells and analyzed for volatile organic compounds using EPA Methods 601 and Modified 8240, and for petroleum hydrocarbons using EPA Method Modified 8015. W-1 through W-3 were installed in 1990 and W-4 through W-6 were installed in 1992. Groundwater samples from an upgradient well (W-6) contained 0.6 micrograms per liter (µg/l) of 1,1,1-TCA, 3.1 µg/l of trichloroethene (TCE), and less than 0.5 µg/l of PCE. Analytical results of downgradient samples from W-2 and W-3 showed concentrations of 1,1,1-TCA, TCE, and PCE up to 2,600 µg/l, 8 µg/l, and 2,600 µg/l, respectively. (6,8,9)

As part of its NPDES permit, NASCO collects onsite and reference sediment samples every 6 months. Sediment samples collected during the latest (June 1993) sampling round from 18 onsite locations contained elevated concentrations of inorganic compounds, polynuclear aromatic hydrocarbons, and polychlorinated biphenyls. For example, analytical results of the samples indicated concentrations (dry weight) of arsenic up to 33.5 milligrams per kilogram (mg/kg), cadmium up to 3.83 mg/kg, copper up to 1,600 mg/kg, lead up to 197 mg/kg, mercury up to 1.42 mg/kg, zinc up to 3,890 mg/kg, and TBT up to 356 micrograms per kilogram (µg/kg). Reference (background) samples collected from three offsite locations in San Diego Bay contained concentrations of arsenic up to 4.09 mg/kg, cadmium up to 0.207 mg/kg, copper up to 71.5 mg/kg, lead up to 28.5 mg/kg, mercury less than 0.909 mg/kg, zinc up to 191 mg/kg, and TBT up to 4.5 µg/kg. (10)

2.4 Regulatory Involvement

2.4.1 U.S. Environmental Protection Agency (EPA). NASCO is listed as a large-quantity generator in the Resource Conservation and Recovery Information System (RCRIS) database, as of September 21, 1993 (11).

2.4.2 California Environmental Protection Agency, Regional Water Quality Control Board (RWQCB), San Diego Region. NASCO has been regulated by the RWQCB since 1974 under a NPDES permit (Permit No. CA0107671) (3). The RWQCB conducts NPDES compliance evaluation inspections of the site and has found violations, such as unpermitted discharges of abrasive sandblast and other wastes to San Diego Bay, failure to clean up storm drain sumps, and failure to properly certify monitoring reports (4). In 1989, NASCO remitted $10,000 in civil penalties to the California State Water Resources Control Board for discharging sandblast wastes and contaminated cooling water to the bay (12).

In 1992, the RWQCB reported analytical results of sediment samples collected from the NASCO site. These samples contained copper, zinc, and the antifouling agent TBT at concentrations (dry weight) up to 1,150 mg/kg, 1,970 mg/kg, and 5,200 µg/kg, respectively. The average concentrations of copper, zinc, and TBT detected in sediment samples collected from three offsite reference stations in San Diego Bay were 137 mg/kg, 226 mg/kg, and 78 µg/kg, respectively. (3)

In addition to the NPDES sediment sampling program, the RWQCB requested NASCO to collect core and bioassay samples. NASCO submitted a counter proposal 2 years ago, but has not received comments from the RWQCB on this counter proposal. (6)

Mussel studies at the NASCO site were performed by the California Department of Fish and Game from 1982 to 1983 and from 1987 to 1988 as part of the State Mussel Watch (SMW) Program. Results of these studies were reported by the RWQCB. Data collected during the mussel studies were compared to an internal SMW standard referred to as the Elevated Data Level (EDL). An EDL 85 is defined as the concentration of a toxic substance in a mussel that equals or exceeds 85 percent of all SMW measurements of the toxic substance in the same mussel type since the inception of the SMW Program to the time of sample collection. For the reporting years 1982-1983 and 1987-1988, copper and zinc concentrations in mussels collected within the NASCO site exceeded the SMW EDL 85 level. (3)

2.4.3 County of San Diego, Department of Health Services, Hazardous Materials Management Division (HMMD). The HMMD reviews work plans, sampling and monitoring plans, and environmental reports that are submitted by NASCO.

3.0 HAZARD RANKING SYSTEM FACTORS

3.1 Sources of Contamination

Potential sources of hazardous substances on site are:

- The paved and bermed main hazardous materials storage area near Building 76. Hazardous wastes, such as paints and thinners, are transferred from satellite collection points to this area for inspection, sorting, and labeling (6). In 1991,

NASCO generated approximately 14,300 gallons of waste paint and 23,153 gallons of waste oil (3).

- Satellite collection points and the main storage area for spent abrasive sandblast wastes (copper slag and steel grit). Approximately 2,330 tons of abrasive sandblast wastes were generated by NASCO in 1991. (3)

- The sump adjacent to Building 6 that has been backfilled and sealed with concrete. This unlined sump was approximately 32 inches in diameter and 10 feet deep. Previous investigations have shown that soil and groundwater in the vicinity of the sump contain detectable concentrations of 1,1,1-TCA, PCE, and other volatile organic compounds. (6,8)

- Approximately 47 acres of contaminated sediments within the site (6,10).

3.2 Groundwater Pathway

The NASCO site is underlain (in stratigraphically descending order) by fill, alluvium, colluvium, and the Pleistocene Bay Point Formation. Fill materials consist of 5 feet to 15 feet of reddish-brown, dense, sandy clay and clayey sand. The alluvium and colluvium consist of approximately 5 feet to 10 feet of dense, silty sand, while the Pleistocene Bay Point Formation is a reddish-brown to grayish-brown, well-graded sandstone. Groundwater at the site occurs approximately 9 feet below ground surface. Due to its proximity to San Diego Bay, groundwater flow direction is subject to tidal influences. (13)

The nearest drinking water wells are approximately 2.5 miles east of the NASCO site. These wells contribute 10 percent of the water for the Sweetwater Authority water distribution system. Surface water supplies the remaining 90 percent of system water. The Sweetwater Authority serves 160,000 people. (14)

3.3 Surface Water Pathway

*3.3.1 **Hydrological Setting.*** The NASCO site is bordered on the south by San Diego Bay. Surface water runoff from the site flows directly into San Diego Bay or drains into onsite storm drains. Nine stormwater outfalls discharge surface water runoff from the site into the bay. Eight of these outfalls originate on site and collect only NASCO's surface water runoff, while the other outfall originates off site and collects some of the site runoff. (6)

*3.3.2 **Surface Water Targets.*** There are no drinking water intakes in San Diego Bay (15); however, according to the California Department of Fish and Game, an average of 1 million pounds of fish are caught annually in the San Diego area (16). The following state- and/or federally listed threatened and endangered species are present in San Diego Bay: California brown pelican, California least tern, salt-marsh bird's beak, light-footed clapper rail, California black rail, beldings savannah sparrow, and peregrine falcon (17).

*3.3.3 **Surface Water Pathway Conclusion.*** A release of hazardous substances from the NASCO site to San Diego Bay can be established. A release is established when a material containing one or more hazardous substances has been seen entering the surface water body, or a hazardous substance is detected in an onsite sediment sample at a concentration that is at least three

times greater than the concentration detected in a background sample, and some portion of the release is attributable to the site. On June 25, 1987, the San Diego County Health Department observed a large amount of paint in San Diego Bay near NASCO's floating dry dock (2). Paints used by shipyard facilities like NASCO contain hazardous substances, such as acetone, chromium, copper, lead, methyl ethyl ketone, toluene, xylene, and zinc (3). On March 22, 1993, spent copper slag spilled into the bay from the floating dry dock. The amount of copper slag released into San Diego Bay was estimated to be less than 250 pounds. (5) Sediment samples collected during the June 1993 sampling round from 18 onsite locations contained inorganic compounds (arsenic, cadmium, copper, lead, and zinc) at concentrations that are greater than three times the background concentrations (10).

3.4 Soil Exposure and Air Pathway

The paved and fenced NASCO site occupies approximately 80 acres of land and 47 acres of water in a heavy industrial area of San Diego. No residences, schools, or daycare centers are on or within 200 feet of the site. Depending on the amount of work, NASCO employs from 1,200 to 7,500 people. The company has one 8-hour shift, 5 days a week, and adds a second 8-hour shift if required. (6) Approximately 248,582 people live within 4 miles of the site (18).

4.0 EMERGENCY RESPONSE CONSIDERATIONS

The National Contingency Plan [40 CFR 300.415 (b) (2)] authorizes the EPA to consider emergency response actions at those sites that pose an imminent threat to human health or the environment. For the following reasons, a referral to Region IX's Emergency Response Section does not appear to be necessary:

- The NASCO site is paved and fenced. Hazardous substances and wastes stored on site are inaccessible to the public.
- No residences, schools, or daycare centers are on or within 200 feet of the site.
- The sump adjacent to Building 6 has been backfilled and sealed with concrete.

5.0 SUMMARY

The NASCO (also known as the National Steel and Shipbuilding Company or NASSCO) site is located at 2798 East Harbor Dr. (at the end of 28th Street) in San Diego, San Diego County, Calif. The site occupies approximately 80 acres of land and 47 acres of water, and includes 40 to 50 buildings, 12 berths/piers, a 30,000-ton graving dock, three 35,000-ton shipbuilding ways, and a 19,750-ton floating dry dock.

NASCO has occupied this site since 1946 and leases the land from the San Diego Unified Port District. The tenant before NASCO is unknown. NASCO builds and repairs U.S. naval and commercial vessels. The biggest operations at the site are the removal of old paint and the application of new paint on ships. Removal of old paint is performed by blasting copper slag or steel grit abrasives using high-pressure air, while application of new paint is accomplished by using both air and airless spraying equipment. New paint that is applied to ships' hulls contains

antifouling materials to prevent the growth and attachment of marine organisms. The antifouling agent tributyltin was used in the past by NASCO, but cupric oxide is currently being used.

NASCO has been regulated by the California Environmental Protection Agency, Regional Water Quality Control Board (RWQCB), San Diego Region, since 1974 under a NPDES permit (Permit No. CA0107671). The RWQCB conducts NPDES compliance evaluation inspections of the site and has found violations such as unpermitted discharges of abrasive sandblast and other wastes to San Diego Bay, failure to clean up storm drain sumps, and failure to properly certify monitoring reports. As part of its NPDES permit, NASCO collects onsite and reference sediment samples every 6 months. Sediment samples collected during the latest (June 1993) sampling round from 18 onsite locations contained elevated concentrations of inorganic compounds, polynuclear aromatic hydrocarbons, and polychlorinated biphenyls.

Potential sources of hazardous substances on site are the main hazardous materials storage area near Building 76, the satellite collection points and main storage area for spent abrasive sandblast wastes, the sump next to Building 6 (Electric Shop Repair), and approximately 47 acres of contaminated sediments within the site.

The NASCO site is underlain by sandy clay, silty clay, clayey sand, and well-graded sandstone. The depth to groundwater at the site is approximately 9 feet below ground surface. Due to its proximity to San Diego Bay, groundwater flow direction is subject to tidal influences. The nearest drinking water wells are approximately 2.5 miles east of the NASCO site. These wells contribute 10 percent of the water for the Sweetwater Authority water distribution system. Surface water supplies the remaining 90 percent of system water. The Sweetwater Authority serves 160,000 people.

Surface water runoff from the site flows directly into San Diego Bay or drains into onsite storm drains. Nine stormwater outfalls discharge surface water runoff from the site into the bay. Eight of these outfalls originate on site and collect only NASCO's surface water runoff, while the other outfall originates off site and collects some of the site runoff. There are no drinking water intakes in the San Diego area; however, an average of 1 million pounds of fish are caught locally each year. In addition, seven state- and/or federally listed threatened and endangered species are associated with San Diego Bay.

No residences, schools, or daycare centers are on and within 200 feet of the NASCO site. Depending on the amount of work, NASCO employs from 1,200 to 7,500 people. The company has one 8-hour shift, 5 days a week, and adds a second 8-hour shift, if required. Approximately 248,582 people live within 4 miles of the site.

The pertinent Hazard Ranking System factors for the NASCO site are:

- The nearest drinking water wells are approximately 2.5 miles east of the NASCO site.
- San Diego Bay is not used as a source of drinking water.
- The site is paved and fenced. No residences, schools, or daycare centers are on or within 200 feet of the site.

REMEDIAL SITE ASSESSMENT DECISION - EPA REGION IX

Site Name: NASCO **EPA ID#:** CAD 009158932

Alias Site Names: National Steel and Shipbuilding Company or NASSCO

City: San Diego **County or Parish:** San Diego **State:** CA

Refer to Report Dated: 11/18/93 **Report type:** PA Report

Report developed by: Bechtel Environmental, Inc.

DECISION:

|✓| **1. Further Remedial Site Assessment under CERCLA (Superfund) is not required because:**

| | 1a. Site does not qualify for further remedial site assessment under CERCLA (Site Evaluation Accomplished - SEA)

| | 1b. Site may qualify for further action, but is deferred to: |✓| RCRA | | NRC

| | **2. Further Assessment Needed Under CERCLA:**

2a. (optional) Priority: | | Higher | | Lower

2b. Activity Type: | | PA | | ESI | | SI | | HRS evaluation

| | Other: _____

DISCUSSION/RATIONALE:

Problems with this site: release of hazardous substances and hazardous wastes to air, surface water and sediments; history of noncompliance with environmental regulations; and large quantities of hazardous wastes generated and stored on site.

Although this site requires no further action under the Superfund Site Assessment Program at this time, I recommend that EPA continue to assess this site in the larger context of the heavy industrial harbor area of San Diego Bay. Cumulative impacts of all sites located in this area on the environmental quality of San Diego Bay should be calculated or estimated.

EPA should also work with the County of San Diego Department of Health Services, RWQCB San Diego Region and NASCO to conduct a site assessment for waste minimization and pollution prevention, and work with all parties to ensure that best management practices are followed by NASCO.

Report Reviewed, Approved, and Site Decision Made by: Sandra Carroll **Signature:** Sandra Carroll **Date:** 3/16/94

EPA Form # 9100-3 Rev. 5/93

APPENDIX A

REFERENCE LIST

Site: NASCO

1. U.S. Environmental Protection Agency, Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), October 4, 1993.

2. California Regional Water Quality Control Board, San Diego Region, Complaint/Discharge Investigation Report Form for NASCO, June 25, 1987.

3. Jayne, Deborah S., California Regional Water Quality Control Board, San Diego Region, Staff Report on Petitions to Downgrade Threat to Water Quality and Complexity Ratings for Campbell Industries, Southwest Marine, and National Steel and Shipbuilding Company Shipyards, December 14, 1992, Revised February 1, 1993.

4. Delaney, Ladin H., California Regional Water Quality Control Board, San Diego Region, Letter (with attachments) to Richard Vortmann, National Steel and Shipbuilding Company, July 5, 1989.

5. Martin, John R., National Steel and Shipbuilding Company, Letter to Gloria R. Fulton, California Regional Water Quality Control Board, San Diego Region, March 25, 1993.

6. Yao, Gary, Bechtel Environmental, Inc., Site Reconnaissance Interview and Observations Report, October 15, 1993.

7. U.S. Geological Survey, Point Loma Quadrangle, California, 7.5-Minute Series (topographic), 1967, Photorevised 1975.

8. Woodward-Clyde Consultants, Soil Sampling and Excavation Report, Building No. 6 Sump, Harbor Drive and 28th Street, San Diego, California, October 2, 1989.

9. Molesworth, James L., Groundwater Technology, Inc., First Quarter 1993 Monitoring and Sampling Report, NASSCO Building 6 Sump (HMMD Case H02417), April 30, 1993.

10. Ecosystems Management Associates, Inc., National Steel and Shipbuilding Company, NPDES Permit, Marine Sediment Monitoring and Reporting, Second Semi-Annual Report, Volume 2, June 1993.

11. U.S. Environmental Protection Agency, Resource Conservation and Recovery Information System, September 21, 1993.

12. Delaney, Ladin H., California Regional Water Quality Control Board, San Diego Region, Letter to Michael Chee, National Steel and Shipbuilding Company, May 24, 1989.

REFERENCE LIST (Cont'd)

Site: NASCO

13. Radics, Vijayalakshmi, Groundwater Technology, Inc., Additional Site Assessment Report, National Steel and Shipbuilding Company, Building 6 Sump, February 4, 1993, Revised April 5, 1993.

14. Roberts, Paula, Sweetwater Authority, Telephone conversation recorded on Contact Report by Sharron L. Reackhof, Bechtel Environmental, Inc., September 28, 1992.

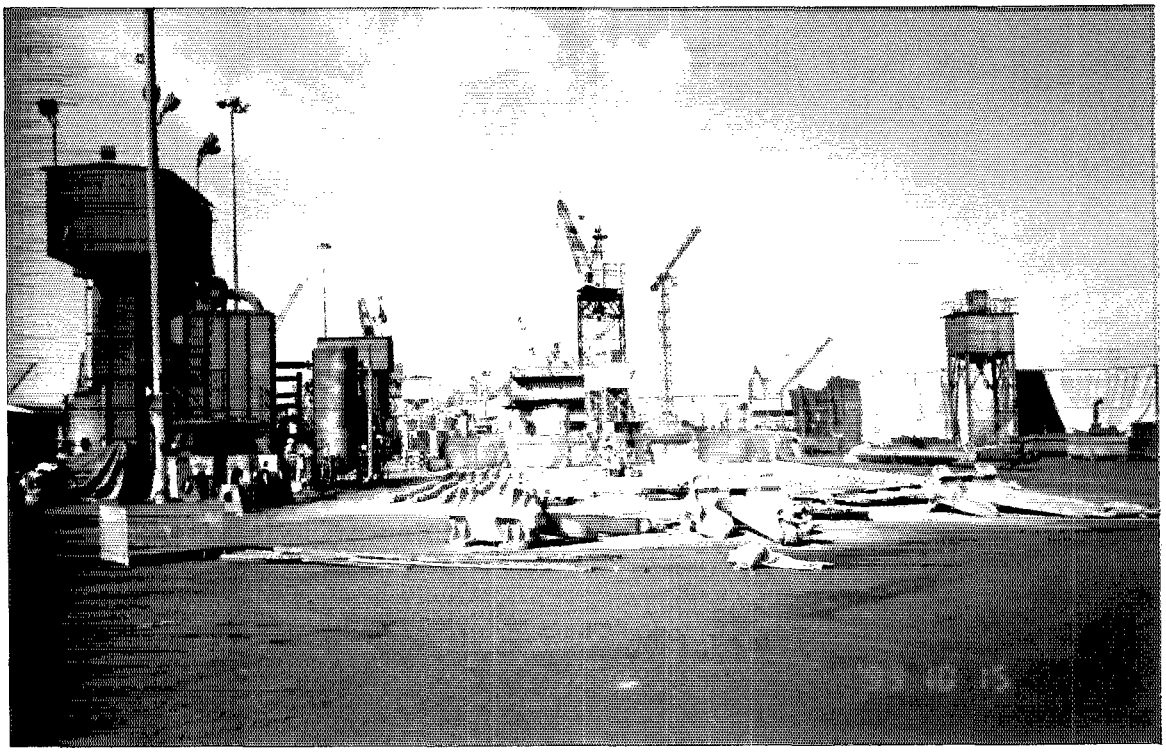
15. Eyre, Larry, San Diego Unified Port District, Telephone conversation recorded on Contact Report by Surjit Dhillon, Bechtel Environmental, Inc., April 23, 1993.

16. Reed, Bob, California Department of Fish and Game, Telephone conversation recorded on Contact Report by Sharron L. Reackhof, Bechtel Environmental, Inc., April 13, 1993.

17. Dillingham, Tim, California Department of Fish and Game, Telephone conversation recorded on Contact Report by Sharron L. Reackhof, Bechtel Environmental, Inc., April 13, 1993.

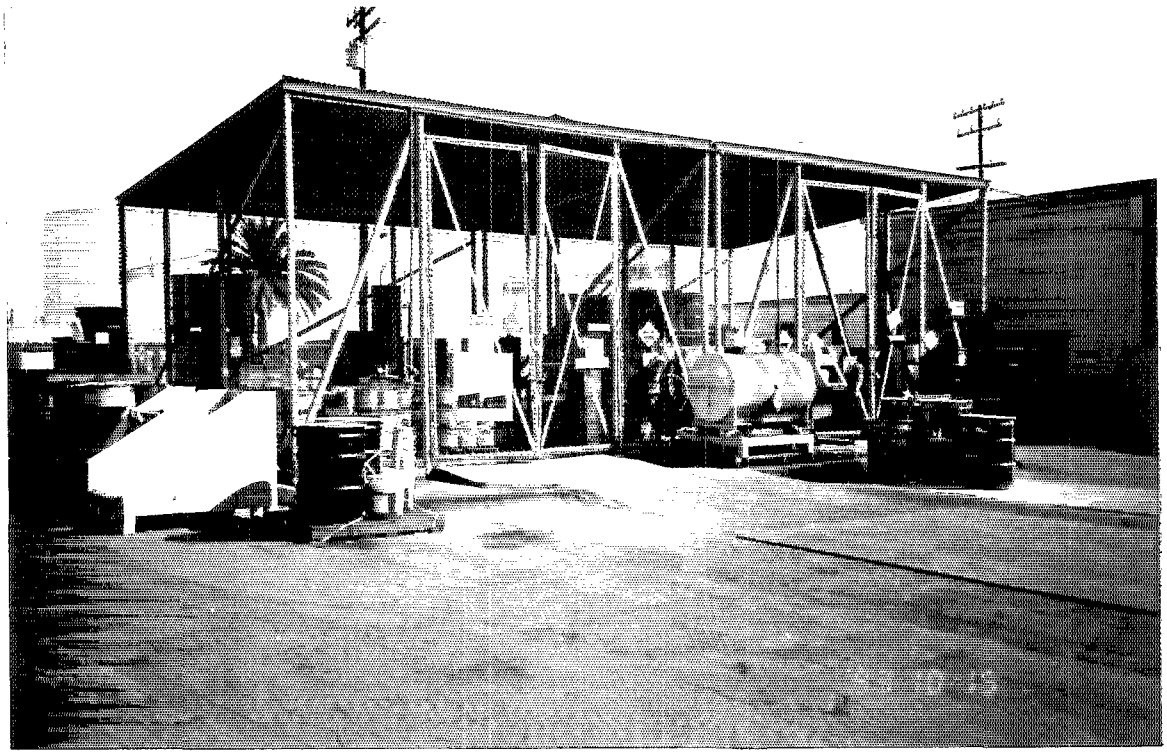
18. Bureau of the Census, 1980 Census, 1985 Population Projection.

APPENDIX B
Photographic Documentation

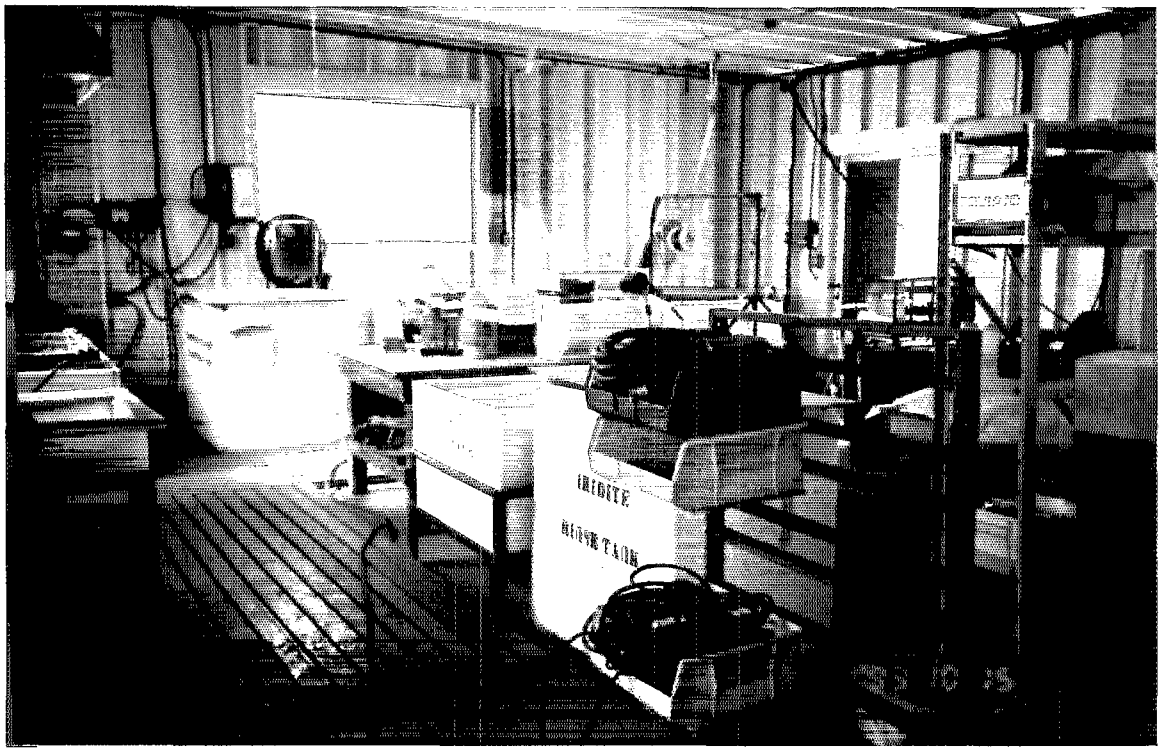


1. Photograph of an employee applying primer paint to ships' anchors in an exterior paint yard (facing south/southwest).

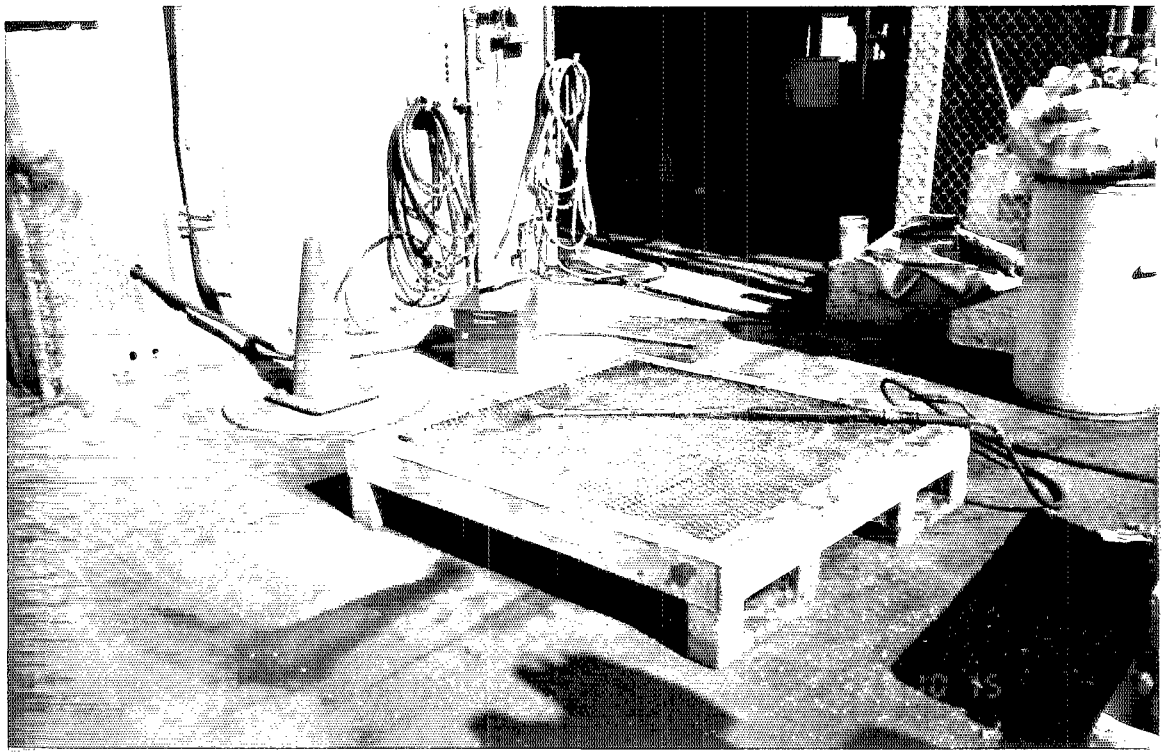
2. Main storage area for the spent abrasive sandblast wastes, copper slag, and steel grit (facing southeast). Copper slag and steel grit are used to strip paint from a ship.



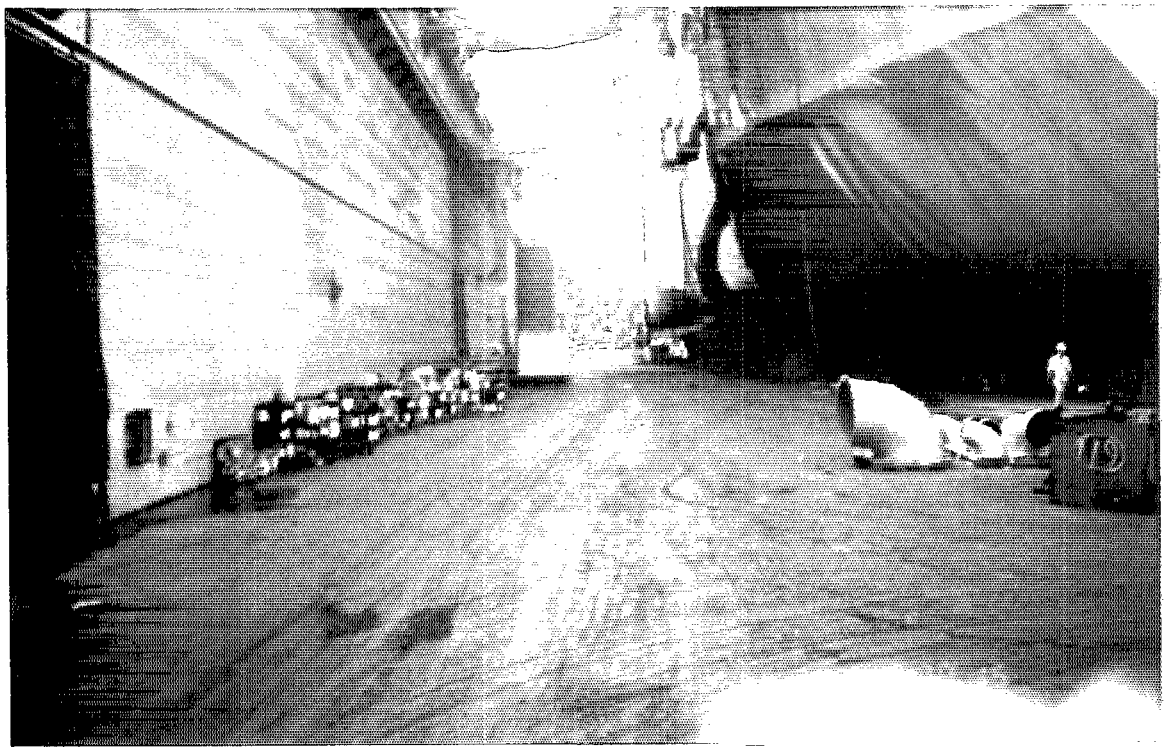
3. The main hazardous materials storage area near Building 76. Hazardous wastes that are ready to be transported off site are stored in a locked, fenced area (facing northwest).



4. Electroplating shop near Building 6 (Electric Shop Repair Building).



5. Sump (under the orange safety cone) next to Building 6. This sump was used for the collection of steam-cleaning rinsewater, and was backfilled with concrete in 1991.



6. Photograph of the floating dry dock. Note the cans of paint along the wall, and the abrasive sandblast materials on the floor.

APPENDIX C

CONTACT LOG

Site: NASCO

EPA ID: CAD 009158932

Name	Affiliation	Phone	Date	Information
Paula Roberts	Sweetwater Authority	(619) 422-8395	9/28/92	See Contact Report by Sharron L. Reackhof, Bechtel Environmental, Inc. (BEI).
Larry Purcell	San Diego County Water Authority	(619) 297-3218 ext. 236	9/28/92	See Contact Report by Sharron L. Reackhof, BEI.
Tim Dillingham	California Department of Fish and Game	(619) 525-4215	4/13/93	See Contact Report by Sharron L. Reackhof, BEI.
Bob Reed	California Department of Fish and Game, Marine Resources Division	(619) 525-4215	4/13/93	See Contact Report by Sharron L. Reackhof, BEI.
John Peterson	San Diego Flood Control	(619) 694-3820	4/19/93	See Contact Report by Eric S. Wilson, BEI.
Larry Eyre	San Diego Unified Port District, Environmental Management Department	(619) 686-6254	4/23/93	See Contact Report by Surjit Dhillon, BEI.
Larry Purcell	San Diego County Water Authority	(619) 297-3218 ext. 236	6/03/93	See Contact Report by Sally Bobb, BEI.
Julie Johnson	California Environmental Protection Agency (CAL EPA), Department of Toxic Substances Control (DTSC), Region 4	(310) 590-4980	6/07/93	The DTSC does not maintain a file for the site.
Corey Walsh	CAL EPA, Regional Water Quality Control Board (RWQCB)	(619) 265-5114	6/07/93	The RWQCB does maintain a file for NASCO.

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CONTACT LOG (Cont'd)

Site: NASCO

Name	Affiliation	Phone	Date	Information
Karen Zachary	RWQCB, Shipyards Unit	(619) 467-2981	6/07/93	The RWQCB file for the site is approximately 12 inches thick. There are two types of files: general correspondence and technical response for National Pollutant Discharge Elimination System (NPDES) permits.
Jerry Carrier	San Diego Air Pollution Control District	(619) 694-3340	6/07/93	A request for file information was sent to Pat Hackley at 9150 Chesapeake Dr., San Diego, CA 92123-1096.
Gerri Bollenbach	City of San Diego Engineering/ Development Department	(619) 533-3747	6/07/93	See Contact Report by Sally Bobb, BEI.
Pete Michaels	RWQCB, Special Projects	(619) 467-2990	6/07/93	The RWQCB has the Mussel Watch Reports for San Diego Bay [(916) 657-2390]. Results from RWQCB's sediment studies in the bay will not be available for another year. Mr. Michaels suggested that I contact John Van Rhyn of the San Diego County Environmental Health Department to inquire about the county's Health Risk Assessment of San Diego Bay [(619) 338-2222].

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CONTACT LOG (Cont'd)

Site: NASCO

Name	Affiliation	Phone	Date	Information
John Van Rhyn	San Diego County Environmental Health Department	(619) 338-2222	6/07/93	The county's Health Risk Assessment of San Diego Bay was completed in May 1990. It studied benthic species of fish in three areas of the bay. There is no site-specific sampling. He will send me the report's executive summary. Deborah Jayne of the RWQCB [(619) 467-2972] recently completed an audit of the facility regarding NASCO's threat to water quality.
County Representative	San Diego County Assessor's Office	(619) 236-3771	6/07/93	A request for parcel map was sent (with $2.50) to 1600 Pacific Coast Hwy, Rm. 103, San Diego, CA 92101.
Jack Berthlet	San Diego Fire Department (SDFD), Fire Prevention Bureau	(619) 533-4360	6/07/93	A proximity search for all SDFD's responses to significant spills, fires, or explosions between January 1, 1988 and June 1993 was conducted for the site. One response to an incident occurred at South 32nd and Harbor Drive. A request for incident information must be sent to the SDFD.
Mike Chee	NASCO	(619) 544-7778	10/05/93	Mr. Chee is the supervisor of NASCO's Environmental Engineering Department. He needs to contact his supervisor and NASCO's legal counsel before scheduling a site visit. He will call me back Thursday morning.

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CONTACT LOG (Cont'd)

Site: NASCO

Name	Affiliation	Phone	Date	Information
Mike Chee	NASCO	(619) 544-7778	10/07/93	The site visit is scheduled for next Friday, October 15, at 9:30 a.m. Mr. Chee informed me that I should check in with the security guard at Gate 6.
Mike Chee	NASCO	(619) 544-7778	10/12/93	Mr. Chee called to tell me that he hasn't received the site visit letter yet. I told him that I will fax it to him as soon as possible. His fax number is (619) 544-3542.
Corey Walsh	RWQCB	(619) 265-5114	10/12/93	File review is scheduled for this Thursday, October 14, at 1 p.m.
Pat Hackley	San Diego Air Pollution Control District	(619) 694-3307	10/12/93	Ms. Hackley will search for the information requested by Sally Bobb's letter dated last June 7, 1993. She will call me back when she gets all of the information.
Karen Zachary	RWQCB, Shipyards Unit	(619) 467-2981	10/13/93	File review is scheduled for this Thursday, October 14th, at 1 PM.
John Martin	NASCO	(619) 544-3553	10/20/93	Mr. Martin will send me today the information that I requested during the site visit.
John Martin	NASCO	(619) 544-3553	11/01/93	Mr. Martin will send me a better map showing the locations of the sediment samples. The map that was faxed to me last Friday by NASCO's consultant was unreadable.

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CONTACT LOG (Cont'd)

Site: NASCO

Name	Affiliation	Phone	Date	Information
John Martin	NASCO	(619) 544-3553	11/08/93	I called to ask about the map showing the sediment sampling locations. I also requested additional information on NASCO's property boundary and paint areas.

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APPENDIX D

CONTACT REPORT

AGENCY/AFFILIATION: Sweetwater Authority		
DEPARTMENT:		
ADDRESS: P.O. Box 2328	CITY: Chula Vista	
COUNTY: San Diego	STATE: CA	ZIP: 91912
CONTACT(S)	TITLE	PHONE
Paula Roberts	Public Information Officer	(619) 422-8395
BEI PERSON MAKING CONTACT: Sharron L. Reackhof SIR SM		DATE: 9-28-92
SUBJECT: Sweetwater Authority water distribution network.		
SITE NAME:	EPA ID: CAD	

DISCUSSION:

Ms. Roberts informed me that Sweetwater Authority utilizes three sources for drinking water within the distribution network. The sources are as follows:

Approximately 10 percent of the drinking water comes from two National City groundwater wells, located at Highway 805 and Division Street in National City. According to Ms. Roberts, the Sweetwater Authority is considering an additional groundwater well at this location, if the feasibility study supports the need for one. The water extracted from the groundwater wells is treated at the well and then pumped into one of the Authority's 24 above ground storage tanks. The water is pumped from the storage tanks into the Sweetwater Authority water distribution network as needed.

Approximately 10 percent of the drinking water utilized by the Sweetwater Authority is supplied by two local reservoirs, the Loveland Reservoir and the Sweetwater Reservoir. The Loveland Reservoir only captures water runoff and precipitation, with the collected water being transferred to the Sweetwater Reservoir as needed. Water collected at the Sweetwater Reservoir is pumped to a treatment plant located adjacent the reservoir, after treatment the water is pumped into ~~a~~ one of two clean well reservoirs (underground tank reservoirs). The water is pumped into the Sweetwater Authority drinking water distribution network as needed.

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CONTACT REPORT (Cont'd)

AGENCY/AFFILIATION: Sweetwater Authority		
CONTACT(S)	TITLE	PHONE
Paula Roberts	Public Information Officer	(619) 422-8395
SITE NAME:		EPA ID: CAD

DISCUSSION: Cont'd

Approximately 80 percent of the drinking water utilized by the Sweetwater Authority is purchased from the San Diego Water Authority. Upon receiving the water from the San Diego Water Authority, Sweetwater Authority pipes it to ~~one of~~ the storage tanks utilized by the Sweetwater Authority water distribution network.

According to Ms. Roberts, Sweetwater Authority serves 160,000 people, with 87 percent residential use, 13 percent commercial use, and two major agricultural users. The Sweetwater Authority supplies water to Chula Vista, National City, and Bonita.

CONTACT CONCURRENCE: P Roberts DATE: 10-21-92

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CONTACT REPORT

AGENCY/AFFILIATION: San Diego County Water Authority		
DEPARTMENT: Water Resource Planning Division		
ADDRESS: 3211 Fifth Avenue	CITY: San Diego	
COUNTY: San Diego	STATE: CA	ZIP: 92103
CONTACT(S)	TITLE	PHONE
Larry Purcell	Manager, Water Resource Planning	(619) 297-3218 ext. 236
BEI PERSON MAKING CONTACT: Sharron L. Reackhof SR SM		DATE: 9/28/92
SUBJECT: San Diego County Water Distribution Information		
SITE NAME:	EPA ID: CAD	

DISCUSSION: Mr. Purcell informed me that the San Diego County Water Authority supplies 80-90 percent of the water to San Diego County. The San Diego County Water Authority purchases raw water from the Metropolitan Water District of Southern California. Water distributed by the Metropolitan Water District of Southern California is a blend of water from Northern California and the Colorado River. Mr. Purcell told me that he will send me the San Diego Water Authorities Fourty-fifth Annual Report, 1990-1991. He said that the book will detail water distribution by the San Diego County Water Authority.

CONTACT CONCURRRENCE: Larry Purcell DATE: 10-5-92

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CONTACT REPORT

AGENCY/AFFILIATION: California Department of Fish and Game		
DEPARTMENT:		
ADDRESS: 1350 Front Street, Room 2041	CITY: San Diego	
COUNTY: San Diego	STATE: CA	ZIP: 92101
CONTACT(S)	TITLE	PHONE
Tim Dillingham	Wildlife Biologist	(619) 525-4215
BEI PERSON MAKING CONTACT: Sharron L. Reackhof SLR		DATE: 4/13/93
SUBJECT: Endangered and threatened species in the Mission Bay and San Diego Bay		
SITE NAME: Not Applicable	EPA ID: Not Applicable	

DISCUSSION: Mr. Dillingham and I discussed the threatened and endangered species which may be present in the Mission Bay area as well as the San Diego Bay area. He told me that the various species present in the Mission Bay are similar to those in the San Diego Bay; however, there may be a few additional species associated with the San Diego Bay. Following is the list of threatened and endangered species associated with both bays:

- The California brown pelican (*Pelecanus occidentalis*), a federal and state endangered species.
- The California least tern (*Sterna antillarum browni)*, a federal and state endangered species.
- The salt marsh bird's-beak (*Cordylanthus maritimus ssp maritimus*), a federal and state endangered species.
- The light footed clapper rail (*Rallus longirostris levipes*), a federal and state endangered species.
- The California black rail (*Laterallus jamaicensis coturniculus*), a state threatened and federally endangered species.

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CONTACT REPORT (Cont'd)

AGENCY/AFFILIATION: California Department of Fish and Game		
CONTACT(S)	TITLE	PHONE
Tim Dillingham	Wildlife Biologist	(619) 525-4215
SITE NAME: Not Applicable		EPA ID: Not Applicable

DISCUSSION: Cont'd

- The beldings savannah sparrow (*Passerculus sandwichensis beldingi*), a state endangered species.

- The peregrine falcon (*falco peregrinus anatum*), a state threatened and federally endangered species.

CONTACT CONCURRENCE: Tim Dill DATE: 9/19/93

CONTACT REPORT

AGENCY/AFFILIATION: California Department of Fish and Game		
DEPARTMENT: MARINE RESOURCES DIVISION		
ADDRESS: 1350 Front Street, Room 2041	CITY: San Diego	
COUNTY: San Diego	STATE: CA	ZIP: 92101
CONTACT(S)	TITLE	PHONE
Bob Reed	Marine Biologist	(619) 525-4215
BEI PERSON MAKING CONTACT: Sharron L. Reackhof SR		DATE: 4/13/93
SUBJECT: Fish catch data for the San Diego area		
SITE NAME: Not Applicable	EPA ID: Not Applicable	

DISCUSSION: Mr. Reed told me that fish catch data is no longer supplied according to the fish catch blocks. He said that the number of pounds of fish caught in the San Diego area is reported by the fishermen. According to Mr. Reed, the estimated total pounds of fish caught in the San Diego area last year was 0.50-0.75 million. Mr. Reed told me that there are no threatened or endangered species of fish in Mission Bay or San Diego Bay.

CONTACT CONCURRENCE: Robert B. Reed DATE: 4-19-93

Annual total pounds probably average around 1 million for all fishes in last decade... my initial guess is too pessimistic.

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TABLE 14 (PRELIMINARY)
MONTHLY LANDINGS IN POUNDS IN THE SAN DIEGO AREA DURING 1992

SPECIES	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
LANDINGS FROM:													
UNKNOWN													
FISHES:													
SHARK, BONITO	0	0	0	0	0	0	0	0	0	0	63	0	63
SHARK, COMMON THRESHER	0	0	0	0	0	0	0	0	0	0	93	0	93
TOTAL	0	0	0	0	0	0	0	0	0	0	156	0	156
CALIFORNIA WATERS													
UNIDENTIFIED GROUP:													
UNKNOWN	0	0	0	0	0	0	0	15	521	7	129	43	715
FISHES:													
ANCHOVY, NORTHERN	44,600	47,500	93,300	48,300	32,200	517	115	0	0	0	0	0	266,532
BARRACUDA, CALIFORNIA	47	0	132	144	400	0	43	1,101	51	32	0	0	1,950
BASS, GIANT SEA	161	161	26	133	361	485	470	501	229	0	0	11	2,532
BASS, KELP	0	0	0	0	0	96	0	0	0	0	0	0	96
BONEFISH	0	0	0	0	0	17	0	0	0	0	0	0	17
BONITO, PACIFIC	0	0	137	43	301	86	316	555	50	613	215	7	2,323
BUTTERFISH, PACIFIC	0	90	56	102	192	0	0	0	0	0	0	0	440
CABEZON	0	0	0	0	0	0	0	16	7	0	0	0	23
CARPILLA, SPOTTED	0	0	201	0	0	0	0	0	0	0	0	0	201
CROAKER, BLACK	0	0	0	0	409	81	184	0	1,929	1,266	297	101	4,266
CROAKER, SPOTFIN	0	0	0	0	0	0	0	123	0	0	0	0	123
CROAKER, UNSPECIFIED	0	0	0	0	77	0	0	0	0	0	0	0	77
CROAKER, WHITE	750	401	876	2,238	5,615	4,611	6,832	11,935	15,192	15,732	16,348	20,304	100,834
DOLPHINFISH	0	0	0	0	0	0	0	669	29	1,225	0	0	1,923
EEL	0	6	19	596	31	214	30	100	34	0	0	160	1,190
EEL, CALIFORNIA MORAY	56	0	0	437	0	81	180	172	126	0	0	0	1,052
GUITARFISH, SHOVELNOSE	50	85	28	194	637	143	299	63	0	0	0	0	1,499
HAGFISH	0	0	0	0	0	0	0	114	0	0	0	0	114

TABLE 14 (PRELIMINARY)
MONTHLY LANDINGS IN POUNDS IN THE SAN DIEGO AREA DURING 1992

SPECIES	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
LANDINGS FROM:													
CALIFORNIA WATERS													
FISHES:													
HALFMOON	241	0	0	55	66	76	0	0	122	0	159	34	753
HALIBUT, CALIFORNIA	3,221	2,748	1,592	5,044	8,394	6,024	4,053	4,228	1,066	667	163	662	37,762
HERRING, PACIFIC	0	0	0	0	0	13	0	0	0	0	0	0	13
JACKS, UNSPECIFIED	0	0	5	0	0	0	0	0	0	0	0	0	5
LINGCOD	142	204	159	240	306	500	92	204	13	10	0	0	1,878
LIZARDFISH, CALIFORNIA	0	0	0	0	0	0	0	0	36	14	0	0	50
LOUVAR	30	76	0	0	14	0	0	250	0	354	236	616	1,576
MACKEREL, UNSPECIFIED	1,431	1,100	1,050	3,552	2,450	6,247	2,464	2,962	3,700	5,675	3,482	3,696	36,904
MULLET, STRIPED	1,627	1,542	1,989	4,522	975	1,692	1,475	279	260	17	513	2,419	17,360
OPAH	295	0	0	0	2,474	732	4,322	3,506	2,023	3,773	2,924	14,902	35,111
OPALEYE	129	0	0	89	602	106	181	317	164	748	150	0	2,486
QUEENFISH	0	0	0	0	0	222	94	0	0	0	0	0	316
ROCKFISH, PACIFIC OCEAN PERCH	0	0	0	0	0	0	0	129	0	0	0	0	129
ROCKFISH, BANK	47	0	0	0	0	0	0	0	0	0	0	0	47
ROCKFISH, BLACK	0	0	0	0	0	0	0	94	0	0	0	0	94
ROCKFISH, BLACKGILL	20,632	7,672	3,665	11,808	16,256	8,293	2,840	6,746	1,784	1,064	1,254	15,629	95,442
ROCKFISH, BOCACCIO	1,371	982	500	9,638	3,993	1,308	524	7,580	320	427	265	1,472	28,450
ROCKFISH, CHILIPEPPER	41	0	0	118	598	93	1,128	0	0	0	0	0	1,978
ROCKFISH, COWCOD	730	1,474	2,799	1,750	2,295	1,560	73	0	0	0	0	0	10,681
ROCKFISH, GROUP RED	3,509	5,098	8,803	7,293	3,328	2,662	2,112	1,327	980	2,669	593	2,666	40,998
ROCKFISH, SPLITNOSE	129	0	0	0	377	0	0	0	0	0	0	0	506
ROCKFISH, UNSPECIFIED	6,790	17,887	70,913	45,821	42,815	30,935	21,930	23,130	2,109	13,262	4,937	4,391	285,000
ROCKFISH, VERMILION	0	0	0	0	0	0	0	0	52	0	0	0	52
ROCKFISH, YELLOWEYE	0	2,636	0	0	0	0	0	0	0	0	0	0	2,636
SABLEFISH	1,061	142	1,062	649	733	38	296	78	213	114	796	1,000	6,190
SANDDAB	57	0	0	100	21	43	23	0	19	94	106	92	580
SARDINE, PACIFIC	0	110	0	162	0	0	0	0	0	0	0	0	272
SARGO	219	0	0	28	0	0	5	37	0	136	50	0	466
SCULPIN, STAGHORN	1,298	807	1,390	1,270	742	433	16	929	1,432	1,676	1,173	2,723	13,889
SEABASS, WHITE	871	498	92	38	0	3,276	2,713	1,777	862	0	0	0	10,100

TABLE 14 (PRELIMINARY)
MONTHLY LANDINGS IN POUNDS IN THE SAN DIEGO AREA DURING 1992

SPECIES	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
LANDINGS FROM:													
CALIFORNIA WATERS													
FISHES:													
SHARK, PACIFIC ANGEL	764	174	312	750	1,266	485	449	137	0	102	0	62	4,500
SHARK, BIGEYE THRESHER	0	0	0	0	57	0	1,949	201	4,100	977	355	453	8,173
SHARK, BONITO	2,332	80	0	0	1,915	1,551	11,910	10,026	15,119	11,756	3,576	10,710	68,975
SHARK, BROWN SMOOTHHOUND	0	0	0	0	0	69	37	15	26	28	320	0	495
SHARK, COMMON THRESHER	2,472	0	0	397	19,269	4,151	7,785	2,045	10,196	1,196	206	5,297	53,014
SHARK, GRAY SMOOTHHOUND	0	0	0	0	0	26	0	0	0	0	0	0	26
SHARK, LEOPARD	737	59	419	945	883	430	1,390	868	620	199	15	214	6,724
SHARK, PELAGIC THRESHER	114	0	0	0	0	0	0	195	199	135	0	0	636
SHARK, SMOOTH HAMMERHEAD	0	0	0	0	0	0	0	0	1,027	638	0	0	1,665
SHARK, SOUPFIN	2,213	1,696	2,736	1,730	1,533	3,291	2,451	727	296	290	1,211	667	18,069
SHARK, SPINY DOGFISH	0	0	0	0	0	0	44	9	0	50	0	0	103
SHARK, UNSPECIFIED	96	133	84	0	0	0	95	22	19	0	0	119	568
SHARK, WHITE	0	0	0	0	0	0	0	0	111	0	0	0	111
SHEEPHEAD, CALIFORNIA	753	1,514	2,128	2,800	4,127	8,225	7,942	8,661	5,492	88	731	2,860	45,319
SKATE, UNSPECIFIED	101	0	0	17	27	0	0	0	0	0	36	374	635
SOLE, PETRALE	0	0	40	79	90	13	112	0	0	0	0	27	361
SOLE, UNSPECIFIED	71	43	4	31	57	68	104	38	89	7	0	0	512
SURFPERCH, BLACK	100	0	0	99	0	0	105	25	216	126	0	36	705
SURFPERCH, UNSPECIFIED	152	0	97	620	176	98	385	796	250	155	109	0	2,838
SURFPERCH, WALLEYE	0	0	0	0	0	0	0	168	118	210	0	0	496
SURFPERCH, WHITE	0	0	48	0	0	0	0	0	0	0	0	0	48
SWORDFISH	9,823	1,197	0	0	600	1,383	3,599	5,293	13,164	59,120	49,552	93,287	237,018
THORNYHEAD	51	0	0	0	0	0	0	0	88	0	0	0	139
TUNA, ALBACORE	0	0	21	0	0	410	1,150	2,375	2,010	0	136	36	6,138
TUNA, BIGEYE	0	268	0	0	0	0	0	0	0	450	0	0	718
TUNA, BLUEFIN	86	0	0	0	0	447	313	474	2,357	739	406	64	4,881
TUNA, SKIPJACK	0	0	0	0	0	0	40	961	315	683	4,034	0	6,033
TUNA, UNSPECIFIED	0	0	0	0	85	4,960	0	275	471	81	0	0	5,872
TUNA, YELLOWFIN	0	0	0	0	0	0	59	992	1,622	2,043	291,681	102	296,399
WHITEFISH, OCEAN	72	20	49	0	12	22	105	0	0	0	0	0	280

TABLE 14 (PRELIMINARY)
MONTHLY LANDINGS IN POUNDS IN THE SAN DIEGO AREA DURING 1992

SPECIES	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
LANDINGS FROM:													
CALIFORNIA WATERS													
FISHES:													
WOLF-EEL	0	0	0	0	0	13	0	0	0	0	0	0	13
YELLOWTAIL	0	72	187	192	66	504	1,118	3,376	629	100	0	10	6,254
ZERRAPERCH	0	0	0	0	31	0	0	144	179	150	124	0	630
CRUSTACEANS:													
CRAB, CLAWS	850	0	0	634	0	0	170	153	0	0	3	102	1,912
CRAB, KING	0	0	0	0	0	15	0	0	0	0	5	0	20
CRAB, ROCK	6,103	5,704	10,402	8,252	6,399	7,077	3,909	3,003	1,610	1,429	2,219	2,277	58,546
CRAB, SAND	0	0	0	0	0	0	0	0	0	0	0	12	12
CRAB, SPIDER	0	20	343	432	817	297	12	40	0	27	0	233	2,229
LOBSTER, CALIFORNIA SPINY	13,297	6,129	2,815	0	0	0	0	0	137	118,507	48,909	19,732	209,516
PRAWN, RIDGEBACK	37	70	107	59	70	126	0	0	0	0	96	114	679
PRAWN, SPOT	1,839	1,744	1,643	1,143	985	1,896	1,152	1,269	1,329	262	907	3,322	17,490
SHRIMP, BRINE	0	0	0	0	0	820	1,700	1,660	650	384	12	0	5,166
SHRIMP, UNSPECIFIED	0	47	0	0	0	57	0	0	0	0	0	0	104
ECHINODERMS:													
CUCUMBER, SEA	0	0	0	0	0	0	0	300	325	0	0	160	785
URCHIN, PURPLE SEA	0	0	0	436	1,216	20	106	525	215	550	504	1,613	5,084
URCHIN, SEA	134,731	90,390	73,511	143,665	101,871	160,760	43,950	108,017	79,702	44,343	136,775	141,452	1,259,260
MOLLUSKS:													
ABALONE, BLACK	0	0	0	0	0	0	12	0	0	0	0	0	12
ABALONE, GREEN	0	0	169	0	17	0	423	0	81	79	2	264	1,020
ABALONE, PINK	0	0	106	0	69	0	1,216	0	410	200	110	167	2,299
ABALONE, RED	0	0	0	0	15	0	229	0	0	290	30	16	580
OCTOPUS, UNSPECIFIED	16	4	0	26	11	0	0	0	0	0	0	20	77
SNAIL, SEA	31	10	10	40	103	40	28	83	26	7	0	52	520
SQUID, MARKET	0	0	0	0	0	0	0	0	36,120	0	0	0	36,120
PLANTS:													
KELP	0	0	2,505	0	0	0	0	0	0	0	0	0	2,505

TABLE 14 (PRELIMINARY)
MONTHLY LANDINGS IN POUNDS IN THE SAN DIEGO AREA DURING 1992

SPECIES	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
LANDINGS FROM:													
CALIFORNIA WATERS													
PLANTS:													
TOTAL	266,486	200,549	286,577	306,708	267,507	266,933	146,919	220,950	212,877	294,583	536,693	354,764	3,401,540
WATERS SOUTH OF STATE													
UNIDENTIFIED GROUP:													
UNKNOWN	0	0	0	0	0	0	0	50	0	36	0	0	86
FISHES:													
ROCKFISH, BLACK	0	0	0	0	0	0	0	0	82	0	0	95	177
ROCKFISH, BLACKGILL	3,203	2,152	1,910	2,007	1,721	0	0	0	0	0	0	0	11,001
ROCKFISH, UNSPECIFIED	5,230	5,577	3,107	5,752	14,349	5,664	5,997	9,410	2,984	2,347	2,072	3,167	65,736
SABLEFISH	190	205	591	392	105	112	329	130	0	50	76	0	2,340
SHARK, UNSPECIFIED	0	0	0	70	0	0	0	0	0	0	0	0	70
TUNA, SKIPJACK	0	0	0	0	0	0	0	0	0	0	76,179	0	76,179
TUNA, YELLOWFIN	0	0	0	0	0	0	0	0	0	0	241,723	0	241,723
TOTAL	8,703	8,014	5,696	8,221	16,255	5,776	6,326	9,590	3,066	2,433	320,050	3,262	397,392
GRAND TOTAL	276,189	208,563	292,273	314,929	283,762	272,709	153,245	230,540	215,943	297,016	896,099	358,016	3,799,080

22-FEB-1993

TOTAL FISH LANDINGS: 1,797,670 pounds
exceptional El Niño conditions drove large catches of tunas and other pelagic fishes.

~~000 00488~~

CONTACT REPORT

000 00513

AGENCY/AFFILIATION: San Diego Flood Control		
DEPARTMENT: Department of Planning and Land Use		
ADDRESS: 5201 Ruffin Road	CITY: San Diego	
COUNTY: San Diego	STATE: CA	ZIP: 92123-1666
CONTACT(S)	TITLE	PHONE
John Peterson	Hydrogeologist	(619) 694-3820
BEI PERSON MAKING CONTACT: Eric S. Wilson FW		DATE: 4/19/93
SUBJECT: Groundwater information for San Diego sites		
SITE NAME: N/A		

DISCUSSION:

Mr. Peterson told me that groundwater information does not exist for the San Diego downtown area because the intrusion of saltwater inland makes groundwater use impractical. He informed me that groundwater depth is roughly equal to sea level, which means the elevation at which a site sits above sea level is equivalent to its depth to groundwater. The flow of the groundwater is westward towards the San Diego Bay.

or abt above.

CONTACT CONCURRENCE: John Peterson DATE: 4-26-93

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CONTACT REPORT

AGENCY/AFFILIATION: San Diego Unified Port District		
DEPARTMENT: Environmental Management Department		
ADDRESS: P.O Box 488	CITY: San Diego	
COUNTY: San Diego	STATE: CA	ZIP: 92112
CONTACT(S)	TITLE	PHONE
Larry Eyre	Assistant Environmental Management Coordinator	(619) 686-6254
BEI PERSON MAKING CONTACT: Surjit Dhillon SSD		DATE: 4/23/93
SUBJECT: Use of surfacewater for drinking purposes		
SITE NAME: Proline Paint Store	EPA ID: CAD 983658444	
SITE NAME: Kelco Division of Merck & Co. Inc.	EPA ID: CAD 983658436	

DISCUSSION:

Mr. Eyre informed me that the San Diego Bay water is not used for drinking purposes. Most of the creeks in the area have been dewatered and channeled to stormwater drains. The water in Chollas Creek and the Seventh Street Channel is salty and is not used for drinking.

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~~914 00000~~

CONTACT REPORT

914 00013

AGENCY/AFFILIATION: San Diego County Water Authority		
DEPARTMENT: Water Resource Planning Division		
ADDRESS: 3211 Fifth Avenue	CITY: San Diego	
COUNTY: San Diego	STATE: CA	ZIP: 92103
CONTACT(S)	TITLE	PHONE
Larry Purcell	Manager, Water Resource Planning	(619) 297-3218 ext. 236
BEI PERSON MAKING CONTACT: Sally Bobb SB		DATE: 6/3/93
SUBJECT: San Diego Bay drinking water information		
SITE NAME: Willis M. Allen	EPA ID: CAD 983648890	

DISCUSSION:

Mr. Purcell is not aware of any desalinization plants located in the San Diego Bay that would enable water from the bay to be used as a source of drinking water.

It is reasonable to assume that navy ships, which are docked in San Diego Bay, obtain their drinking water from shore based services.

CONTACT CONCURRENCE: Larry Purcell DATE: 6/28/93

While I'm not aware of any current use of San Diego Bay as a source of drinking water, the Authority is investigating the potential for locating a desalination plant along the bay. Specifically, the Authority is looking at eventual construction of a 30 MGD plant in conjunction with an upgrade at an existing San Diego Gas and Electric power plant in the City of Chula Vista. Feed water for the desalination plant would be drawn from south San Diego Bay. Desalinated bay water would be blended with other potable sources for distribution to consumers. Planning studies are still ongoing.

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399 00008 ~~399 00001~~
400 00004 ~~400 00003~~

CONTACT REPORT

AGENCY/AFFILIATION: City of San Diego		
DEPARTMENT: Engineering/Development Department, Design Division		
ADDRESS: 1010 2nd Avenue, Suite 1100	CITY: San Diego	
COUNTY: San Diego	STATE: CA	ZIP: 92101
CONTACT(S)	TITLE	PHONE
Gerri Bollenbach	Assistant Engineer - Civil	(619) 533-3747
BEI PERSON MAKING CONTACT: Sally Bobb SB		DATE: 6/7/93
SUBJECT: Flood zone information		
SITE NAME: Continental Maritime of San Diego, Inc. National Steel and Ship Building Co. (NASCO)	EPA ID: CAD 981418395 CAD 009158932	

DISCUSSION:

The sites located at 1995 Bay Front in San Diego (Continental Maritime of San Diego, Inc.) and at 2798 E. Harbor Dr. (NASCO) are both located approximately 700 feet from the San Diego Bay. According to Community Panel 060-295-0159 C, the sites are both in Floodzone C, an area of minimal flooding. The portion of the San Diego Bay adjacent to these properties is classified as Floodzone A-2, an area within the boundaries of a 100-year flood event.

CONTACT CONCURRENCE: [signature] DATE: 6/21/93

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APPENDIX E

SITE RECONNAISSANCE INTERVIEW AND OBSERVATIONS REPORT

Bechtel Environmental, Inc.
P.O. Box 193965
San Francisco, CA 94119-3965

OBSERVATIONS MADE BY: Gary Yao and Frederick Heyler DATE: October 15, 1993

FACILITY REPRESENTATIVE(S) and TITLE(S):

T. Michael Chee, Supervisor of Environmental Engineering Department
John R. Martin, Environmental Engineer

SITE: NASCO (also known as National Steel and Shipbuilding Company or NASSCO)

EPA ID: CAD 009158932

A site reconnaissance was conducted at the NASCO site on October 15, 1993. The weather was sunny and warm, and the temperature was approximately 75°-80°F. The Bechtel Environmental, Inc. (BEI) team, Gary Yao and Frederick Heyler, conducted the site reconnaissance with T. Michael Chee and John R. Martin at 9:30 a.m. to gather information on the site location and size, site history, processes used, and any hazardous waste generated, treated, stored, or disposed of on site. The reconnaissance included a site tour during which photographs were taken.

The following information was obtained during the site reconnaissance:

The NASCO site is located at the intersection of East Harbor Drive and 28th Street in San Diego, Calif. The site occupies approximately 80 acres of land and 47 acres of water in a heavy industrial area of San Diego. The NASCO site is bounded on the north by East Harbor Drive; on the east and southeast by the U.S. Naval Surface Force - Pacific Fleet Station; on the south by San Diego Bay; and on the west and northwest by Southwest Marine, and Chevron and Unocal aboveground fuel storage tank farms.

The site is asphalt- or concrete-paved and fenced. NASCO has 40 to 50 buildings and three underground fuel storage tanks on site. No residences, schools, or daycare centers are on or within 200 feet of the site. Nine stormwater outfalls discharge surface water runoff from the site into the bay. Eight of these outfalls originate on site and collect only NASCO's surface water runoff, while the other outfall originates off site and collects some of the site runoff. No drinking water wells are on site, but monitoring wells are located near the Building 6 (Electric Shop Repair Building) sump. According to Mr. Chee, these monitoring wells are sampled quarterly. The Building 6 sump was used for the collection of steam-cleaning rinsewater and was approximately 2 feet to 2.5 feet in diameter and 10 feet deep. The sump was backfilled with concrete in 1991.

NASCO has occupied this site since 1946 and leases the land from the San Diego Unified Port District. The tenant before NASCO is unknown. NASCO builds and repairs U.S. naval or commercial ships. New construction and repair work are currently equally distributed, but the

distribution of work has averaged 80 percent new construction and 20 percent repair work in the past. Depending on the amount of work, NASCO employs from 1,200 to 7,500 people. The company has one 8-hour shift, 5 days a week, and adds a second 8-hour shift if required.

Numerous operations are conducted by NASCO in building and repairing ships. These operations include the fabrication, cutting, and bending of steel; cleaning, electroplating, and metal finishing of parts; integrity and hydrostatic testing of hulls and tanks; removal of old paint by dry abrasive blasting; and the application of new paint. The biggest operations at the NASCO site are the removal of old paint and the application of new paint on ships. Removal of old paint is performed by blasting copper slag or steel grit abrasives using high-pressure air, while application of new paint is accomplished by using air and airless spraying equipment. New paint that is applied to ships' hulls contains antifouling materials to prevent the growth and attachment of marine organisms. The antifouling agent tributyltin was used in the past by NASCO, but cuprous oxide is currently being used.

Spent copper slag and steel grit abrasives are transferred from satellite collection points (temporary bins) to a main storage area near the paint area. According to Mr. Martin, spent copper slag and steel grit abrasives are analyzed and contain copper and zinc at concentrations that are above the California-listed total threshold limit concentrations (TTLCs) but below the soluble threshold limit concentrations (STLCs). NASCO recycles spent copper slag or steel grit abrasives by shipping them to the California Portland Cement plant in the Mojave Desert. Waste paint (the second largest waste generated by NASCO after the bilge water from ships) is collected at satellite collection points, transferred to the main hazardous materials storage area, and shipped to Inglewood, Calif., to be used as fuel for a kiln operated by Rho-Chem Co. Bilge water from ships consists of oil and water, and is collected by NASCO in 22,000-gallon Baker™ aboveground storage tanks, where the oil and water are allowed to separate by gravity. After separation, the oil is sold to a waste oil recycler in Los Angeles, and the water is discharged into the San Diego municipal sewer system. Ballast water from ships is transferred and treated in NASCO's portable wastewater treatment system.

NASCO has a small electroplating shop near Building 6 that has a paved floor and berms around its sides. Spent electroplating solutions, such as sulfuric acid, cadmium cyanide, and copper cyanide, are picked up by Chem Waste Management. NASCO has several satellite collection points and a main storage area for hazardous materials. The main hazardous materials storage area is located near Building 76, and is paved and bermed. According to Jim Sanders, supervisor of the hazardous materials storage area, all hazardous substances transferred to this area from the satellite collection points are inspected, sorted, labelled, and manifested. Hazardous substances that are ready to be transported off site are stored in a locked, fenced area. Several hazardous waste haulers pick up NASCO's hazardous wastes every 2 or 3 months.

As part of its National Pollutant Discharge Elimination System (NPDES) permit, NASCO collects onsite and reference sediment samples once every 6 months. The California Environmental Protection Agency, Regional Water Quality Control Board (RWQCB), San Diego Region, requested NASCO to collect core and bioassay samples. NASCO submitted a counter proposal 2 years ago, but has not heard anything, nor received comments from the RWQCB on this counter proposal.

Bechtel

50 Beale Street
San Francisco, CA 94105-1895
Mailing address: P.O. Box 193965
San Francisco, CA 94119-3965

REFERENCES
for

Preliminary Assessment

Site: NASCO
(a.k.a. National Steel and Shipbuilding Company or NASSCO)
2798 East Harbor Dr.
San Diego, CA 92101

Site EPA ID Number: CAD 009158932

Work Assignment Number: 60-15-9J00, ARCSWEST Program

Submitted to: Rachel Loftin
Work Assignment Manager
EPA Region IX

Date: November 18, 1993

Prepared by: Gary Yao G.Y.

Review and Concurrence: Michele Dermer MD

Bechtel Environmental, Inc.

REFERENCE LIST

Site: NASCO

1. U.S. Environmental Protection Agency, Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), October 4, 1993.

2. California Regional Water Quality Control Board, San Diego Region, Complaint/Discharge Investigation Report Form for NASCO, June 25, 1987.

3. Jayne, Deborah S., California Regional Water Quality Control Board, San Diego Region, Staff Report on Petitions to Downgrade Threat to Water Quality and Complexity Ratings for Campbell Industries, Southwest Marine, and National Steel and Shipbuilding Company Shipyards, December 14, 1992, Revised February 1, 1993.

4. Delaney, Ladin H., California Regional Water Quality Control Board, San Diego Region, Letter (with attachments) to Richard Vortmann, National Steel and Shipbuilding Company, July 5, 1989.

5. Martin, John R., National Steel and Shipbuilding Company, Letter to Gloria R. Fulton, California Regional Water Quality Control Board, San Diego Region, March 25, 1993.

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7. U.S. Geological Survey, Point Loma Quadrangle, California, 7.5-Minute Series (topographic), 1967, Photorevised 1975.

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9. Molesworth, James L., Groundwater Technology, Inc., First Quarter 1993 Monitoring and Sampling Report, NASSCO Building 6 Sump (HMMD Case H02417), April 30, 1993.

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Site: NASCO

13. Radics, Vijayalakshmi, Groundwater Technology, Inc., Additional Site Assessment Report, National Steel and Shipbuilding Company, Building 6 Sump, February 4, 1993, Revised April 5, 1993.

14. Roberts, Paula, Sweetwater Authority, Telephone conversation recorded on Contact Report by Sharron L. Reackhof, Bechtel Environmental, Inc., September 28, 1992.

15. Eyre, Larry, San Diego Unified Port District, Telephone conversation recorded on Contact Report by Surjit Dhillon, Bechtel Environmental, Inc., April 23, 1993.

16. Reed, Bob, California Department of Fish and Game, Telephone conversation recorded on Contact Report by Sharron L. Reackhof, Bechtel Environmental, Inc., April 13, 1993.

17. Dillingham, Tim, California Department of Fish and Game, Telephone conversation recorded on Contact Report by Sharron L. Reackhof, Bechtel Environmental, Inc., April 13, 1993.

18. Bureau of the Census, 1980 Census, 1985 Population Projection.

EPA REGION IX - CERCLIS SITES
CERCLIS LIST-8 FOR REGION IX

SORTED BY SITENAME

EPA ID NO.	SITE NAME STREET CITY, COUNTY CODE & NAME	STATE ZIP CONG DIST.	EVENT QUALIF	OP UN	EVENT TYPE	ACTUAL START DATE	ACTUAL COMPL DATE	CURRENT EVENT LEAD
			G		ES1		09/04/93	FED. FAC.
CAD009158932	NASCO 2798 EAST HARBOR DRIVE SAN DIEGO 073 SAN DIEGO	CA 92101 CA-41		00	DS1		02/08/93	EPA (FUND)
AZT000623736	NATIONAL CAN CORP 211 N. 51ST AVE PHOENIX 013 MARICOPA	AZ 85031 AZ-02		00	DS1		06/12/90	STATE(FUND)
			N		SI1		09/24/93	EPA (FUND)
			H		PA1		09/17/90	STATE(FUND)
CAD982444887	NATIONAL CEMENT CO. HWY 138 5 MI E OF I-5 NORTH GORMAN 029 KERN	CA 93243 CA-20		00	DS1		04/08/92	EPA (FUND)
CAD030596886	NATIONAL DISTIL & CHEM 1345 N KEMP ST ANAHEIM 059 ORANGE	CA 92801 CA-38		00	DS1		11/01/79	EPA (FUND)
			L		PA1		09/01/84	EPA (FUND)
			N		PA2		06/01/88	EPA (FUND)
CAD980637144	NATIONAL LEAD CO 47TH AVE & E 10TH ST OAKLAND 001 ALAMEDA	CA 94601 CA-09		00	DS1		06/01/81	EPA (FUND)
			L		PA1		11/01/81	EPA (FUND)
			N		PA2		08/01/88	EPA (FUND)
CA5143690167	NATIONAL MARINE FISHERIES SERV 3150 PARADISE DR TIBURON 041 MARIN	CA 94920 CA-06		00	DS1		08/01/87	FED. FAC.
AZD007961741	NATIONAL METALS CO 320 S. 19TH AVE PHOENIX	AZ 85007						

REFERENCE 1

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN DIEGO

REFERENCE 2

COMPLAINT/DISCHARGE INVESTIGATION REPORT FORM 2/87

1. WDID 9 0 0 0 0 0 6 6 (INSPECTION COORDINATOR TO ASSIGN NUMBER)

2. DATE STAFF RECEIVED REPORT 8 1 0 6 2 5

3. COMPLAINT TYPE GOV (PRC, GOV, DIS - SEE INSTRUCTIONS)

BDK

4. REPORTED BY PAT HOY

5. AGENCY SAN DIEGO COUNTY HEALTH DEPART

6. PHONE 6 1 9 2 3 6 2 2 2 2

7. ADDRESS 1 1 0 0 PACIFIC HIGHWAY

8. CITY SAN DIEGO ZIP 9 2 1 0 1

9. COMPLAINT/DISCUSSION (INCLUDE CONTITUENTS OF WASTE DISCHARGE):

LARGE AMOUNT OF PAINT IN WATER SURROUNDING THE NASSCO FLOATING DRY DOCK.

10. CURRENT STATUS H (Active, Historical) 11. HYDROGRAPHIC UNIT 1910 9 . 22

12. SURFACE WATER NAME SAN DIEGO BAY

13. THREAT TO WATER QUALITY 2 (INSPECTION COORDINATOR WILL ASSIGN THREAT)

RESPONSIBLE PARTIES: AGENCY OR OWNER OF FACILITY

14. AGENCY NASSCO

14. ADDRESS HARBOR DRIVE AND 28th ST

14. CITY SAN DIEGO ZIP 9 2 1 3 8

14. STATE CA

14. AGENCY CONTACT JAMES D. PAULSON

14. PHONE 6 1 9 5 4 4 8 4 4 6

FACILITY SITE INFORMATION

14. NAME NASSCO

14. ADDRESS HARBOR DRIVE AND 28th ST

14. CITY SAN DIEGO ZIP 9 2 1 3 8

15. COUNTY CA

14. FACILITY CONTACT JAMES D. PAULSON

14. PHONE 6 1 9 5 4 4 8 4 4 6

16. FACILITY TYPE IND (IND MUN etc.)

BPK

17.REGIONAL BOARD STAFF ENFORCEMENT OFFICER /DTQ (ASSIGNED BY INSPECTION COORDINATOR)

18.DATE ALLEDGED VIOLATION OCCURRED /810625

19.DATE VIOLATION DETERMINED /810625

20.VIOLATION TYPE /G (A,B,C,D,E,F,G - SEE APM p. 28 & 29)

21.REFERRED TO /_/_/_/_/_/_/ (SEE INSTRUCTIONS)

TIME SCHEDULES FOR APPROPRIATE ACTIONS (SEE APM pp. 26 & 27)

LEVEL A ACTION

22.ACTION LEVEL A DATE /810710
23.ACTION COMPLETED /810625 ACTION TYPE TAKEN /SEA/_/_
25.REVIEW DATE FOR THE FIRST ACTION TAKEN /811130

LEVEL B ACTION

26.ACTION LEVEL B DATE /_/_/_/_/_/_/
27.ACTION COMPLETED /_/_/_/_/_ 28. ACTION TYPE TAKEN /_/_/_/_/_/
29.REVIEW DATE FOR THE ACTION TAKEN /_/_/_/_/_/_/

LEVEL C ACTIONS

30.ACTION LEVEL C DATE /_/_/_/_/_/_/
32.ACTION COMPLETED /_/_/_/_/_ 31. ACTION TYPE TAKEN /_/_/_/_/_/
33.ORDER NUMBER /_/_/_/_/_/_/_/_/_/
34.REVIEW DATE FOR THE ACTION TAKEN /_/_/_/_/_/_/

35.ACTION LEVEL C ACL DATE /_/_/_/_/_/_/
36.ACTION COMPLETED /_/_/_/_/_/_/ ACTION TYPE TAKEN /_/_/_/
38.ACL ORDER NUMBER /_/_/_/_/_/_/_/_/_/
39.REVIEW DATE FOR THE ACTION TAKEN /_/_/_/_/_/_/

LEVEL D ACTION

40.ACTION LEVEL D DATE /_/_/_/_/_/_/
41.ACTION COMPLETED /_/_/_/_/_/_/

42.REFERRED TO /_/_/_/_/

IF NO ACTION HAS BEEN COMPLETED CONCERNING THIS VIOLATION, OR IF THE ACTION WAS COMPLETED LATE AS DEFINED BY THE APM PLEASE BRIEFLY EXPLAIN WHY THE ACTION HAS NOT BEEN TAKEN OR WHY IT WAS LATE IN THE SPACE BELOW:

ZACHARY

REFERENCE 3

California Regional Water Quality Control Board
San Diego Region

STAFF REPORT ON PETITIONS TO DOWNGRADE THREAT TO WATER QUALITY and COMPLEXITY RATINGS FOR CAMPBELL INDUSTRIES, SOUTHWEST MARINE, AND NATIONAL STEEL and SHIPBUILDING COMPANY SHIPYARDS

Deborah S. Jayne
Environmental Specialist
December 14, 1992
(Revised February 1, 1993)

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References

Attachments

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Attachment 1:	Section 2200, Chapter 9, Division 3, Title 23, California Code of Regulations
Attachment 2:	Adoption of Regulations to Implement the Bay Protection and Toxic Cleanup Program Annual Fees - (Section 2236, Article 6, Chapter 9, Division 3, Title 23 of California Code of Regulations)
Attachment 3:	Listing of all Dischargers in San Diego Region by Rating Category
Attachment 4:	Executive Officer Summary Report, April 6, 1992
Attachment 5:	Final Statement of Reasons
Attachment 6:	Characteristics of NASSCO, Southwest Marine, and Campbell
Attachment 7:	Common Constituents in Shipyard Paints
Attachment 8:	San Diego Bay Reference Site
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Attachment 13:	CWA Section 307 (a)(1)
Attachment 14:	NPDES "Major" Dischargers in Region 9
Attachment 15:	NPDES Permit Rating Work Sheet for Campbell
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STAFF REPORT ON PETITIONS TO DOWNGRADE THREAT TO WATER QUALITY and COMPLEXITY RATINGS FOR CAMPBELL INDUSTRIES, SOUTHWEST MARINE, and NATIONAL STEEL and SHIPBUILDING COMPANY SHIPYARDS

December 14, 1992

EXECUTIVE SUMMARY

Campbell Industries (Campbell), Southwest Marine, and National Steel and Shipbuilding Company (NASSCO) are shipyards regulated by NPDES permits issued by the Regional Board. The shipyards must pay annual fees for these permits in accordance with threat to water quality (TTWQ) and complexity rating criteria specified in California Code of Regulations, Title 23, Division 3, Chapter 9, Section 2200. In the early 1980's, before ratings were used as the basis of fees, Regional Board staff determined that I-a (TTWQ-complexity) was the appropriate rating for all three shipyards.

On August 6, 1992 the Regional Board received petitions from Campbell, Southwest Marine, and NASSCO requesting that their threat to water quality-complexity ratings be downgraded to III-c. Regional Board staff has reviewed each petition and has concluded that the petitions should be denied.

To evaluate a discharger's TTWQ and complexity, the characteristics of the discharger as well as the receiving water must be examined. This report contains a comprehensive evaluation of Campbell, Southwest Marine, and NASSCO including the following relevant factors: primary activities, physical facilities, industrial processes, materials used, wastes generated, and actual and potential discharges to San Diego Bay. The report also examines relevant characteristics of San Diego Bay including it beneficial uses, local and statewide importance, water quality condition, as well as the results of sediment quality and bioaccumulation samples collected adjacent to the three shipyard sites.

As discussed in Section 13 of this report, Rebuttal to Shipyard Petitions, Regional Board staff has concluded that Campbell, Southwest Marine, and NASSCO: (1) discharge or threaten to discharge wastes having the potential to cause the long-term loss of designated beneficial uses in San Diego Bay; (2) require a high level of regulatory effort; (3) are NPDES "major" dischargers; (4) have toxic pollutants present in waste discharges; and (5) have numerous discharge points. Based on the information contained in this report and in accordance with the Section 2200 definitions, the correct TTWQ-complexity rating for Campbell, Southwest Marine, and NASSCO is I-a.

1.0 HISTORICAL PERSPECTIVE ON RATINGS

1.1 Ratings As A Resource Allocation Tool

The concepts of TTWQ and complexity ratings were originally developed about 12 years ago and have changed little since inception. The ratings were developed as an inhouse planning tool for the purpose of prioritizing allocations of staff resources. The objective of the rating system was to ensure that facilities posing the greatest TTWQ and complexity were considered highest priority and received a commensurate share of regulatory effort and expenditures.

A discharger's TTWQ is based on the nature of the facility and its operations, and the quality and/or sensitivity of the receiving water body. In its original form, the TTWQ rating was used primarily to determine the frequency and comprehensiveness of compliance inspections. Facilities posing greater threats were inspected more frequently and thoroughly.

Complexity, on the other hand, was originally used to estimate the time needed to conduct a single inspection at a particular facility. In its overall context, the complexity rating is a measure of the complexity of regulating a facility. Important factors include the nature and magnitude of the facility, and its operations, and discharges. For example it generally takes longer to write a permit, develop a monitoring program, or prepare for and conduct a compliance inspection at a more complex facility than at a simple facility. Thus time expended by regional board staff in regulating a discharger is generally greater where discharger complexity is greater, if all other factors are equal.

In the early 1980's, using this basic criteria, staff assigned TTWQ and complexity ratings to all existing dischargers. New dischargers were rated at the time of permit issuance. Generally speaking, facilities such as large sewage treatment plants, power plants, Class I landfills, and shipyards were assigned I-a ratings. At the opposite end of the scale, III-c ratings were assigned to facilities such as wineries, nurseries, and campgrounds. (There are far more things to go wrong at a sewage treatment plant than at a campground [measure of complexity] and the water quality consequences of things going wrong at the sewage treatment plant could be far more serious than the worst scenario at a campground [measure of TTWQ].) Dischargers expressed little interest in their ratings since at that time ratings were not used to determine fees.

1.2 Ratings As The Basis For Fees

In 1990 the State Water Resources Control Board (State Board) and regional boards were faced with significant cuts in their general fund allocation and were directed to make up the difference in fee revenue. Following a formal public rulemaking process, an annual fee system based on TTWQ and complexity ratings was adopted by the State Board, approved by the Office of Administrative Law, and codified. Shortly thereafter the State Board was again directed to substantially increase its fee revenue for the 1991/92 fiscal year. Following formal rulemaking proceedings, the second and current annual fee schedule was adopted and is shown in Attachment 1. Although overall fees were substantially increased, it should be pointed out that a major effort was made to minimize financial hardship to small businesses most of which were assumed to have III-c ratings. In other words, the new schedule did not reflect evenly proportioned increases within rating categories. Rather, an effort was made to keep III-c facility fees as low as possible.

Under the current fee system, all regulated dischargers in California are subject to an annual Waste Discharge Requirement (WDR) fee based on TTWQ and complexity ratings, pursuant to California Code of Regulations, Title 23, Division 3, Section 2200, which includes a definition of each rating category.

The TTWQ and complexity definitions have also recently been incorporated into statutory law under Section 13396.5 of the California Water Code as the basis for establishing fees to fund the State Board's Bay Protection and Toxic Cleanup Program (BPTCP). Pursuant to Section 13396.5, all point and nonpoint source discharges into coastal waters are now subject to an annual BPTCP fee, in addition to any WDR fee to which they may also be subject. Furthermore, discharges into water bodies identified in the current Water Quality Assessment as Water Quality Limited Segments [303(d) listed] are also subject to an additional surcharge of 100% of the BPTCP fee. The BPTCP fee schedule is shown in Attachment 2.

These events transformed TTWQ/complexity ratings from internal planning tools into criteria upon which significant fees could be assessed. Recognizing this, in late 1990, Regional Board staff reevaluated the TTWQ and complexity ratings for all dischargers in the San Diego Region in accordance with the Section 2200 rating definitions. The current TTWQ-complexity ratings for all dischargers in the San Diego Region are shown in Attachment 3 (organized by rating category). Although the consequences of the ratings have changed dramatically, the basic definitions and intent of the rating categories remain the same.

2.0 REGIONAL BOARD RATING RESPONSIBILITIES

Pursuant to the California Water Code, the Regional Board has the responsibility to assign TTWQ and complexity ratings to all dischargers in accordance with the category definitions in the California Code of Regulations. The State Board is obligated to collect fees on the basis of these ratings. The Regional Board can re-rate dischargers but may not waive fees.

The overall issue of fees and ratings was addressed in the April 6, 1992 Executive Officer Summary Report which is included as Attachment 4.

2.1 Consequences of Downgrading Ratings

There are consequences of downgrading TTWQ and complexity ratings. Since a fixed amount of fee revenue must be generated, downgrading the ratings of some dischargers has the effect of shifting the financial burden to other dischargers. A domino effect may occur in which other dischargers, regionwide and statewide, also request downgrading of their ratings. Since case by case reviews are very time intensive, already limited resources will be shifted from higher priority regulatory activities to ratings reviews. Significant fiscal impacts to the state and regional board regulatory programs could result. Finally downgrading the ratings of dischargers will reduce the number of compliance inspections required at these facilities.

3.0 DEFINITIONS OF THREAT TO WATER QUALITY AND COMPLEXITY

Threat to water quality and complexity are defined in California Code of Regulations, Title 23, Division 3, Chapter 9, Section 2200. The Final Statement of Reasons, Title 23, Division 3, Chapter 9, Section 2200, California Code of Regulations (Final Statement of Reasons), which is shown in Attachment 5, contains general information on how the TTWQ and complexity definitions are to be interpreted under Section 2200.

3.1 Definition Of Threat To Water Quality Categories

Section 2200 defines the three threat to water quality rating categories as follows:

Category I — Those discharges of waste which could cause the long-term loss of a designated beneficial use of the receiving water. Examples of long-term loss of beneficial use would include the loss of a drinking water supply, the closure of an area used for water contact recreation, or the posting of an

area used for spawning or growth of aquatic resources, including shellfish and migratory fish.

Category II — Those discharges of waste which could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.

Category III — Those discharges of waste which could degrade water quality without violating water quality objectives, or cause a minor impairment of designated beneficial uses compared with Category I and Category II.

The meaning of threat to water quality as it is used in Section 2200 is described in the Final Statement of Reasons for Section 2200:

> "...The basis of the discharge's TTWQ is the effect the discharge would have on the receiving water (either surface or ground water) if a discharge in violation of a WDR or NPDES permit were made..."

Webster defines the word threat as the potential to inflict harm, cause damage or loss. Threat is an indication of possible or impending danger; it means to put at risk, imperil, or endanger someone or something. The key word in the definition of threat is potential. Threat is the potential to cause harm, damage, or loss and the word potential means having the ability, capability, or capacity. Potential means capable of becoming, but not necessarily yet in existence.

In summary and in accordance with the Final Statement of Reasons, to assign a TTWQ rating to a shipyard, one must evaluate the shipyard's potential to cause damage or loss to the water quality/beneficial uses of San Diego Bay assuming worst case conditions. The TTWQ rating measures the gravity of the consequences should all BMPs, treatment, and control measures fail. In assigning TTWQ, the rater must consider the worst case scenario and make an evaluation on the basis of what "could" happen under these conditions.

3.2 Definition Of Complexity Categories

Section 2200 defines the three complexity rating categories as follows:

Category "a" — Any major NPDES discharger; any discharge of toxic wastes; any small volume discharge containing toxic waste or having numerous discharge points or

ground water monitoring; any Class I waste management unit.

Category "b" Any discharger not included above which has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class II or Class III waste management units.

Category "c" Any person for whom waste discharge requirements have been prescribed pursuant to Section 13263 of the Water Code not included as a Category "a" or Category "b" as described above. Included would be discharges having no waste treatment systems or that must comply with best management practices, discharges having passive treatment and disposal systems, such as septic systems with subsurface disposal systems, or dischargers having waste storage systems with land disposal.

The meaning of complexity as it is used in Section 2200 is described in the Final Statement of Reasons for Section 2200:

> ".....The basis for determining the complexity of a discharge is the level of effort expended in regulating the discharger..."

In accordance with the Final Statement of Reasons, to assign a complexity rating one must evaluate the overall cumulative expenditure of resources required to regulate each shipyard. Numerous factors contribute to this overall expenditure as discussed in the sections below.

4.0 SHIPYARD THREAT TO WATER QUALITY AND COMPLEXITY

4.1 Threat To Water Quality

Shipyard activities often result in the discharge of wastes to receiving waters. The presence of elevated concentrations of pollutants, primarily heavy metals, in the sediment adjacent to shipyards nationwide is well documented in the literature.

Although there are numerous other potential threats, the single most significant threat to water quality posed by shipyards is the potential discharge of abrasive blast waste to receiving waters.

4.2 Complexity

From a regulatory and environmental control standpoint, shipyards present a unique and difficult problem. Traditional NPDES dischargers generate or intake wastewater, treat it to specified effluent limits, and discharge treated effluent, often by way of a single pipe. Unlike traditional dischargers, shipyards are significantly more complex in several respects:

Numerous and diverse industrial processes
Numerous discharge mechanisms/waste streams/discharge points
Best Management Practices Plans

4.21 Numerous and Diverse Industrial Processes

Because of the large number and broad range of industrial processes and the facilities and workforce necessary to conduct/operate these processes and facilities, large shipyards often resemble small cities and require several thousand workers.

4.22 Numerous Discharge Mechanisms/Waste Streams/Discharge Points

Abrasive blast waste is discharged primarily as a result of graving dock flooding, drydock immersion, drainage, or runoff. In other words, at shipyards, the principle mechanism by which wastes are conveyed to receiving waters is via the contact of wastes with water, both of which occur in large quantities. For this reason, storm water and storm drain inlets are of particular concern at shipyards. Abrasive blast waste can also become subject to tidal and/or wave action. Airborne releases represent another important discharge mechanism. Because abrasive blast waste is generated in part as airborne particulates, such releases to receiving waters pose a significant TTWQ. Furthermore, and because of their proximity to receiving waters, a third discharge mechanism exits at shipyards. Direct discharges from shipyards occur when wastes are allowed to fall directly into receiving waters (off the end drydock, edge of pier, between gratings, etc.)

In summary, because abrasive blast waste can be washed, hosed, pushed, blown, become subject to tidal/wave action, and be directly or otherwise discharged, the potential for abrasive blast waste from shipyards to enter receiving waters is great. In addition to multiple discharge mechanisms, numerous waste streams and discharge points also exist at shipyards. The discharges described above can potentially enter receiving waters from virtually any shipyard worksite including graving docks, drydocks, marine railways, piers, repair/specialty shops, as well as via storm drains and sheet flow runoff.

4.23 Best Management Practices Plans

Unlike traditional NPDES discharges which are regulated by numerical effluent limits, the control of waste discharges from shipyards is accomplished by the implementation of Best Management Practices (BMP) Plans. The purpose of a BMP Plan is to prevent, reduce, or eliminate the spillage or illicit discharge of pollutants into receiving waters and can include any number of preventive controls or measures. Due to the types of activities and multiple discharge pathways, numerical effluent limitations are not practical at shipyards. The evaluation of the effectiveness of BMP Plans from a regulatory standpoint is more complicated and resource intensive than comparison of end-of-pipe monitoring results to numerical effluent limitations.

5.0 Factors Which Should Be Considered In Ratings

In determining the effect a discharger could have on the receiving water, i.e., its TTWQ, the Section 2200 Final Statement of Reasons directs the regional boards to consider the total discharge flow, total waste volume, discharge type, effluent quality, beneficial uses, and quality of receiving water. In determining the level of effort required to regulate a discharger, i.e., its complexity, the Final Statement of Reasons directs the regional boards to consider the type, total flow, and amounts of wastes; presence of toxic materials in the discharge; flow, intricacy, and treatment of the discharge; number of waste streams or point of discharge; and the type and size of the facility.

In other words, to evaluate a discharger's TTWQ and complexity, one must examine the characteristics of the discharger as well as the characteristics of the receiving water into which it discharges. As these are the primary components of TTWQ and complexity, each must be addressed to determine the appropriate rating categories for Campbell, Southwest Marine, and NASSCO.

1. CHARACTERISTICS OF DISCHARGER

   Primary Activities
   Facilities
   Industrial Processes
   Materials Used
   Wastes Generated
   Discharges (actual and potential)

2. CHARACTERISTICS OF RECEIVING WATER

   Beneficial Uses
   Local and Statewide Importance
   Water Quality Condition (sediment and mussel data)

6.0 Factors Which Should Not Be Considered In Ratings

The amount of fees, ratings of similar dischargers in other regions, and the discharger's Best Management Practices Plans and compliance record are examples of factors which should not be taken into consideration when determining the appropriate ratings.

1. AMOUNT OF FEES

   Section 2200 defines the TTWQ and complexity rating categories strictly in terms of water quality. The only issues that should be considered in determining ratings are those related to water quality and the protection of receiving water beneficial uses. Fee amounts for each category are established in Section 2200 and are not a relevant factor for determining appropriate ratings. The ability of the discharger to pay the fee is also not a relevant factor.

2. RATINGS OF SIMILAR DISCHARGERS IN OTHER REGIONS -- STATEWIDE CONSISTENCY

   The State Board has determined that TTWQ and complexity ratings for similar dischargers need not be consistent statewide. The State Board found that the diversity of water quality conditions throughout the state warranted the assignment of TTWQ and complexity ratings on a regional/site specific, rather than statewide, basis.

3. BEST MANAGEMENT PRACTICES PLANS AND COMPLIANCE

   For purposes of determining TTWQ, other factors which should not be taken into consideration include the effectiveness of the discharger's Best Management Practices Plan, compliance record, and whether or not the discharger has actually caused adverse water quality effects as described in the rating categories.

7.0 REGULATION OF CAMPBELL, SOUTHWEST MARINE, AND NASSCO

Campbell, Southwest Marine, and NASSCO have been regulated under NPDES permits issued by the Regional Board since 1974. The NPDES permits for these shipyards are similar and in part contain the following elements:

A prohibition against the discharge of refuse, rubbish, materials of petroleum origin, spent abrasives (including old primer and antifouling paint), paint, paint chips or marine fouling organisms into San Diego Bay.

A specification requiring that shipyard discharges to San Diego Bay be essentially free of substances toxic to marine life due to increases in concentrations in marine waters or sediments.

A directive requiring the shipyards to develop and implement Best Management Practices plans to prevent or reduce the discharge of pollutants into San Diego Bay.

A monitoring and reporting program requiring the shipyards to report sediment quality data and NPDES permit violations to the Regional Board.

8.0 CHARACTERISTICS OF CAMPBELL, SOUTHWEST MARINE, AND NASSCO

As discussed in Section 5.0 above, the characteristics which determine a discharger's TTWQ and complexity are its primary activities, physical facilities, industrial processes, materials used, wastes generated, and actual and potential discharges to receiving waters. Each characteristic as it applies to Campbell, Southwest Marine, and NASSCO is discussed below and summarized in Attachment 6 of this report. Also discussed are the factors which affect the type and amount of wastes that each generate.

8.1 Primary Activities

The shipbuilding and repair industry is engaged in the construction, conversion, alteration, repair, and maintenance of all types of military and commercial ships and vessels. Shipbuilding and repair encompasses a large number and variety of activities and industrial processes including, but not limited to, formation and assembly of steel hulls; application of paint systems; installation and repair of a large variety of mechanical, electrical, and hydraulic systems and equipment; repair of damaged vessels; removal and replacement of expended/failed paint systems; and provision of entire utility/support systems to ships (and crew) during repair.

The list of occupations required to conduct these activities is also extensive, including sandblasters, painters, shipfitters, machinists, metalsmiths, welders/burners, blacksmiths, boilermakers, chemists, carpenters, coppersmiths, electricians, electronic technicians, joiners and patternmakers, laborers, riggers, pipefitters, and foundrymen. Not all occupations are present at all shipyards.

Campbell's primary business has historically been the construction of commercial fishing vessels. Campbell entered the Naval ship repair business in the early 1980's due to a decline in orders. Southwest Marine is a ship repair facility and is not

engaged in the construction of new vessels. Offering the full range of shipyard services, NASSCO has the distinction of being the last remaining shipyard on the west coast capable of producing large oceangoing tankers and miliary auxiliary and amphibious ships, including double hull oil tankers and the Navy's Sea Lift ships.

8.2 Physical Facilities

There are four major types of building/repair facilities at shipyards, which, together with cranes, enable ships to be assembled, launched, or repaired. These facilities are graving docks/shipbuilding ways, floating drydocks, marine railways, and berths/piers. With the exception of berths and piers, the basic purpose of each facility is to separate the vessel from the bay and provide access to parts of the ship normally underwater. Each facility type presents its own unique set of environmental concerns. Depending on size and capabilities, a single shipyard will generally have a combination of two or more of these facilities.

1. GRAVING DOCK/SHIPBUILDING WAYS

   A graving dock consists of a "U"-shaped basin (floor and three sides) which separates the vessel from the harbor by means of a gate. When the gate is opened, the basin is flooded and the ship is floated into place. After gate closure, water is pumped from the basin leaving the ship high and dry. Similar, and also separated from the harbor by a gate, a shipbuilding way is an inclined basin primarily used for new construction. As can be seen in Attachment 6, NASSCO has one graving dock and three shipbuilding ways. Neither of these facility types is present at Campbell or Southwest Marine.

2. FLOATING DRYDOCK

   A floating drydock consists of a platform, two sides, and ballast tank system. When the tanks are flooded, the platform sinks allowing entry of the ship. Dewatering (emptying) of the ballast tanks lifts or floats the platform and ship above the water surface. There are three floating drydocks at Campbell and two at Southwest Marine. NASSCO has one. The capacities of each drydock are shown in Attachment 6.

3. MARINE RAILWAYS

   Marine railways are used to pull vessels out of the water and onto the shore. The vessel is supported by a

frame which is pulled up the tracks with a winch. Railway tracks typically run along natural shoreline substrate (rather than pavement or concrete). Campbell and Southwest Marine each have three sets of marine railways of varying lengths and capacities. Marine railways are not used at NASSCO. See Attachment 6.

4. BERTHS and PIERS

Berths and piers are overwater structures to which vessels are tied during repair or construction activities. Because drydock space is limited and expensive, many operations are conducted pierside. For example, after painting the parts of a ship normally underwater, the ship may be moved from the drydock to a berth where the remainder of the painting will be completed. Campbell and Southwest Marine have 5 berths each; NASSCO has 12.

In addition to these facilities, shipyards must also conduct the wide range of support or complementary activities previously described. Many of these activities require their own facility, space, or shop; for example concrete platens (for steel fabrication), machine shop, pipe shop, electroplating shop, weld shop, sheet metal shop, electrical shop, coppersmith shop, blacksmith shop, carpentry shop, and boiler shop, etc. Not all facilities are present at all shipyards.

8.3 Industrial Processes

The primary activities described above involve a multitude of industrial processes, many of which must be conducted over water or very close to the waterfront. Because they typically represent the greatest threat to water quality, this discussion will focus primarily on the industrial processes conducted inside graving docks or floating drydocks including surface preparation and paint removal; paint application; tank cleaning; mechanical repair; alteration/repair of ship structure; and hydrostatic integrity testing. However it is important to remember that numerous other industrial processes take place at numerous other locations throughout a typical shipyard, including activities at a variety of repair and specialty shops. As a result of these processes, an assortment of wastes are generated, many of which are hazardous. Although specific examples are given below, the major categories of materials used and wastes generated at shipyards are covered in subsequent sections. Industrial processes conducted at Campbell, Southwest Marine, and NASSCO are summarized in Attachment 6.

1. SURFACE PREPARATION AND PAINT REMOVAL

Methods of surface preparation and paint removal include dry abrasive blasting, wet abrasive or slurry blasting, hydroblasting, and chemical paint stripping. Like the facility types, each paint removal method poses its own set of water quality risks.

a. Dry Abrasive Blasting

Dry abrasive blasting is the preferred method of preparing steel surfaces for application of a new paint system for saltwater immersion. It is used for most exterior hull work and virtually all tank interior work (e.g., fuel, bilge, ballast tanks etc.) Dry abrasive blasting is the process in which blasting abrasive is conveyed in a medium of high pressure air, through a nozzle at velocities up to 450 feet per second resulting in very large quantities of solid waste and airborne particulates (dust). Although the most efficient of the paint removal methods, dry blasting produces the largest quantity of airborne particulates. Dry abrasive blasting is the primary surface preparation and paint removal method conducted at Campbell, Southwest Marine, and NASSCO.

b. Wet Abrasive or Slurry Blasting

Wet abrasive or slurry blasting is the process in which water replaces air as the abrasive propellant. The use of water significantly reduces airborne particulate emissions but generates large quantities of wet residue and wastewater. Although used in the past, slurry blasting is no longer conducted at Campbell, Southwest Marine, or NASSCO.

c. Hydroblasting

Hydroblasting is a process in which water under very high pressure is used instead of abrasive. Hydroblasting produces large amounts of wastewater and is primarily used at boatyards or small shipyards. Hydroblasting is conducted at Campbell, Southwest Marine, and NASSCO.

d. Chemical Paint Stripping

Chemical paint stripping is uncommon in drydocks; used primarily for removable parts. Campbell, Southwest Marine, and NASSCO are not conducting chemical stripping at this time.

2. PAINT APPLICATION

After preparation, surfaces are painted. Most painting occurring in a drydock involves the ship hull and internal tanks. Painting is also conducted in other locations throughout a shipyard including piers and berths. Paint application is accomplished by way of air or airless spraying equipment and is a major activity at Campbell, Southwest Marine, and NASSCO.

3. TANK CLEANING

Tank cleaning operations utilize steam to remove dirt and sludges from internal tanks, particularly fuel tanks and bilges. Detergents, cleaners, and hot water may be injected into the steam supply hoses. Wastewater is generated. Tank cleaning is conducted at Campbell, Southwest Marine, and NASSCO.

4. MECHANICAL REPAIR/MAINTENANCE/INSTALLATION

A variety of mechanical systems and machinery may require repair, maintenance, and installation. Mechanical work is conducted at Campbell, Southwest Marine, and NASSCO.

5. STRUCTURAL REPAIR/ALTERATION/ASSEMBLY

Structural repair, alteration, and assembly generally involves welding, cutting, and fastening of steel plates or assembly blocks and other industrial processes. Structural repair, alteration, and assembly is conducted at Campbell, Southwest Marine, and NASSCO.

6. INTEGRITY/HYDROSTATIC TESTING

Hydrostatic or strength testing (flushing) is conducted on hull, tanks, or pipe repairs. Integrity testing is also conducted on new systems during ship construction phases. Integrity testing, which generates significant water flow, is conducted at Campbell, Southwest Marine, and NASSCO.

7. PAINT EQUIPMENT CLEANING

All air and airless paint spraying equipment must be cleaned following use. Paint equipment cleaning, a daily activity at most shipyards, is a major producer of hazardous waste, including solvents, thinners, and paint wastes, and sludges. Paint equipment cleaning is conducted at Campbell, Southwest Marine, and NASSCO.

8. ENGINE REPAIR/MAINTENANCE/INSTALLATION

Like automotive repair, ship engine repair, maintenance, and installation generates waste oils, solvents, fuels, batteries, and filters. Engine work is conducted at Campbell, Southwest Marine, and NASSCO.

9. PIPE FITTING

Pipe fitting involves pickling, brazing, and welding and generates substantial hazardous wastes including metal etching corrosives, paint strippers, degreasing solvents, acid cleaners, and caustic cleaners. Pipe fitting is conducted at Campbell, Southwest Marine, and NASSCO.

10. STEEL FABRICATION AND MACHINING

Fabrication of engine and ship parts is common at shipyards. Cutting oils, fluids, and solvents are used extensively including acetone, methyl ethyl ketone (MEK) and chlorinated solvents. Steel fabrication and machining is conducted at Campbell, Southwest Marine, and NASSCO.

11. ELECTRICAL REPAIR/MAINTENANCE/INSTALLATION

The repair, maintenance, and installation of electrical systems involve the use of numerous hazardous materials including trichlorethylene, trichloroethane, methylene chloride, and acetone. Electrical repair is conducted at Campbell, Southwest Marine, and NASSCO.

12. HYDRAULIC REPAIR/MAINTENANCE/INSTALLATION

The repair, maintenance, and installation of hydraulic systems involves the replacement of spent hydraulic oils and is conducted at Campbell, Southwest Marine, and NASSCO.

13. TANK EMPTYING

Bilge, fuel, and ballast tanks are typically emptied prior to ship repair activities. Tank emptying is conducted at Campbell, Southwest Marine, and NASSCO.

14. FUELING

Most fuel spills occur during fueling operations. Fueling is conducted at Campbell, Southwest Marine, and NASSCO.

15. PATTERNMAKING

Patternmaking involves the use of isocyanates, toluene, hydrocarbon solvents, and alcohol. Patternmaking is conducted at Campbell, Southwest Marine, and NASSCO during new ship construction and/or repair operations.

16. SHIPFITTING

Shipfitting is defined as the forming of ship plates and shapes, etc. according to plans, patterns, or molds. Shipfitting is conducted at Campbell and NASSCO.

17. BOILER CLEANING

Boiler cleaning involves the use of solvent cleaners and caustic cleaners and is conducted at Campbell, Southwest Marine, and NASSCO.

18. CARPENTRY

Woodworking is conducted at Campbell, Southwest Marine, and NASSCO.

19. REFURBISHING/MODERNIZATION/CLEANING

The refurbishing, modernization, and cleaning of ships can result in a variety of hazardous wastes including asbestos. Such processes are conducted at Campbell, Southwest Marine, and NASSCO.

20. AIR CONDITIONING/REFRIGERATION REPAIR

This type of repair can involve the use of methylene chloride, phenols, cresols and freon and is conducted at Campbell, Southwest Marine, and NASSCO.

21. SHEET METAL FABRICATION

The process is used, for example, during vent ducting fabrication. Sheet metal fabrication involves the use of degreasing solvents, chromic acid, alkaline cleaners, and acid cleaners, etc. and is conducted at Campbell, Southwest Marine, and NASSCO.

22. FIBERGLASS REPAIR

Fiberglassing involves numerous hazardous wastes and is conducted at Southwest Marine and NASSCO.

23. ELECTROPLATING/METAL FINISHING

Next to paint-related activities, electroplating is one of the most significant generators of hazardous wastes at shipyards including cyanide wastes, metal plating baths, metal sludges, hexavalent chromium, toxic organics, and spent acids. Electroplating is conducted at NASSCO.

24. BLACKSMITHING

Blacksmithing involves heat treatment and forging and is conducted at NASSCO.

25. ZINC PRIMER APPLICATION

Zinc primer is applied to large steel assembly plates at NASSCO.

26. PRINTING

Printing requires ammonia, ink, and toner and is conducted at NASSCO.

27. PHOTO PROCESSING

Photo processing generates ferric chloride rinse water and is conducted at NASSCO's metal photo lab.

8.4 Materials Used (Major Categories)

Materials commonly used at shipyards are listed below beginning with those utilized during graving dock or floating drydock operations. Although a few specific materials are included, the list consists primarily of major categories. A summary of materials used at Campbell, Southwest, and NASSCO is provided in Attachment 6 of this report.

1. ABRASIVE GRIT

Typically slag collected from coalfired boilers and consisting principally of iron, aluminum, silicon, and calcium oxides. Trace elements such as copper, zinc and titanium may also be present. Sand, cast iron, or steel shot are also used as abrasives. Enormous amounts of abrasive are needed to remove paint to bare metal; removing paint from a 15,000 square foot hull can take up to 6 days and consume 87 tons of grit. Grit is needed in all dry and wet (slurry) abrasive blasting.

2. PAINT

Fresh paints contain copper, zinc, chromium, and lead (all priority pollutants) as well as hydrocarbons. See Attachment 7 for a more complete list of typical paint constituents. Two major types of paints are used on ship hulls:

a. Anticorrosive Paints (primers)

Vinyl, vinyl-lead, or epoxy based coatings. Others contain zinc chromate and lead oxide.

b. Antifouling Paints

Designed to prevent growth and attachment of marine organisms by continuously releasing toxic substances into the water. Cuprous oxide and tributyltin fluoride or tributyl tin oxide are the principal toxicants in copper-based and organotin-based paints, respectively.

Estimates of annual paint usage at Campbell, Southwest Marine and NASSCO are provided in Attachment 6.

3. OILS (engine, cutting, and hydraulic)

4. LUBRICANTS, GREASE

5. FUELS

6. WELD

7. DETERGENTS, CLEANERS

8. RUST INHIBITORS

9. PAINT THINNERS

10. HYDROCARBON AND CHLORINATED SOLVENTS

11. DEGREASERS

12. ACIDS

13. CAUSTICS

14. RESINS

15. ADHESIVES/CEMENT/SEALANTS

16. CYANIDE

17. ZINC (e.g., zinc dust)

18. CHLORINE

19. MERCURY

8.5 Wastes Generated (Major Categories)

Categories of wastes commonly generated by shipyard industrial processes include but are not limited to those listed below. Wastes resulting from graving or floating drydock operations are listed first. A summary of wastes generated at Campbell, Southwest Marine, and NASSCO is shown in Attachment 6.

1. ABRASIVE BLAST WASTE:
   SPENT GRIT, SPENT PAINT, MARINE ORGANISMS, RUST

   Abrasive blast waste, consisting of spent grit, spent paint, marine organisms, and rust is generated in enormous quantities during all dry or wet abrasive blasting procedures. The constituent of greatest concern with regard to toxicity is the spent paint, particularly the copper and tributyltin antifouling components, which are designed to be toxic and designed to continuously leach into the water column. Other priority pollutants in paint include zinc, chromium, and lead (see also Attachment 7). Although the grit itself is not highly toxic, it is a major component in the enormous solid waste load and is settleable. As a result, its deposition can degrade the benthic community and increase the need for dredging. Abrasive blast waste can be conveyed by water flows, become airborne (especially during dry blasting), or fall directly into receiving waters. Wet abrasive blasting of a Naval DDG class destroyer (437-536 feet long; 47-67 feet wide; 15-20 feet draft) can generate up to 180 tons of solid wet abrasive waste.

2. FRESH PAINT

Paint losses, i.e., paint which ends up somewhere other than its intended location (e.g., drydock floor, bay, worker's clothing), results from spills, drips, and overspray. Typical overspray losses are estimated at approximately 5% for air spraying; and 1-2% for airless spraying.

3. BILGE WASTE/OTHER OILY WASTEWATER

Generated during tank emptying, leakages, and cleaning operations (bilge, ballast, fuel tanks). In addition to petroleum products (fuel, oil), tank washwater may also contain detergents or cleaners (nitrogen and phosphorus compounds) and can be generated in large quantities.

4. BLAST WASTEWATER

Wet abrasive (slurry) blasting and hyroblasting generates large quantities of wastewater. Wet abrasive blasting of a Naval DDG class destroyer can generate up to 500,000 gallons of contaminated water. In addition to suspended and settleable solids (spent abrasive, paint, rust, marine organisms) and water, blast wastewater may also contain rust inhibitors such as diammonium phosphate and sodium nitrite.

5. OILS (engine, cutting, and hydraulic)

In addition to spent products, fresh oils, lubricants, and fuels can be released as a result of spills, leaks, or ruptures from ship or drydock equipment, machinery, and tanks (especially during cleaning and refueling).

6. LUBRICANTS, GREASE

See note under OILS.

7. FUELS

See note under OILS.

8. WASTE PAINTS/SLUDGES/SOLVENTS/THINNERS

Can be generated in large quantities from paint equipment cleaning. Paint solvents, thinners, and strippers are hazardous even before use.

9. CONSTRUCTION/REPAIR WASTES AND TRASH

Examples include scrap metal, welding rods, slag (from arc welding) wood, rags, plastics, cans, paper, bottles, packaging materials, etc.

10. ASBESTOS (from ship refurbishing/modernization)

11. SEWAGE (black and grey water from vessels or docks)

12. BOILER BLOWDOWN, CONDENSATE, DISCARD

13. SPENT HYDROCARBON OR CHLORINATED SOLVENTS

14. ELECTROPLATING/METAL FINISHING WASTES

15. ACID WASTES

16. CAUSTIC WASTES

17. AQUEOUS WASTES (with and without metals)

Estimated annual quantities of wastes generated by Campbell, Southwest Marine, and NASSCO are shown in Attachment 6.

8.6 <u>Waste Discharges To San Diego Bay</u> (Actual and Potential)

Actual and potential waste discharges to San Diego Bay from Campbell, Southwest Marine, and NASSCO are described below. A summary of the discharges applicable to each is shown in Attachment 6. The discharges listed below are either the direct result of an industrial process (drydock, marine railway, or berth operations) or, more commonly, the result of water coming into contact with wastes, typically spent abrasive blast waste. There are numerous sources of water at a shipyard including industrial processes; building or repair facilities (e.g., drydock); vessels under repair (e.g., cooling water); bay water (e.g., due to tidal influence or wave action); stormwater; or other sources. Many of these actual and potential waste discharges from Campbell, Southwest Marine, and NASSCO pose significant threats to the water quality of San Diego Bay.

1. FLOATING DRYDOCK DEBALLASTING (tanks)

Emptying of ballast tanks to raise drydock. A floating drydock is typically submerged and raised twice for each ship docked.

2. FLOATING DRYDOCK SUBMERGENCE/EMERGENCE (platform)

Bay water flows over the drydock platform each time the dock is sunk. Water is discharged over the ends of the platform and through sally ports and other openings each time the dock is raised. Sinking and raising typically occurs twice for each ship docked.

3. FLOATING DRYDOCK OPERATIONS

4. GRAVING DOCK DEWATERING

Pumping of bay water from graving dock basin. A graving dock basin is typically flooded and dewatered twice for each ship docked.

5. GATE LEAKAGE

Gate leakage is bay water which leaks continuously through to a graving dock basin after it has been dewatered. Gate leakage must be pumped.

6. HYDROSTATIC RELIEF FLOWS

Hydrostatic relief consists of groundwater flows that leak into a graving dock basin through holes/cracks in its floor and walls. These flows equilibrate groundwater pressure. Relief flows must be pumped.

7. SHIPBUILDING WAYS DEWATERING/GATE LEAKAGE/RELIEF FLOWS

8. MARINE RAILWAY OPERATIONS

9. BERTH AND PIER OPERATIONS

10. STORMWATER

11. INTEGRITY/HYDROSTATIC TESTING DISCHARGE (NEW VESSELS)

12. BOILER AND COGENERATION FEEDWATER

13. FIRE PROTECTION SYSTEM DISCHARGE

Shipyards commonly have a fire protection system on each drydock, graving dock, berth or pier. The system, which is in operation at all times when a ship is docked, consists of constantly circulating bay water. Chemicals may be added to system to prevent fouling.

14. COOLING WATER

Cooling water from vessel under repair, drydock equipment, pumps, etc.

15. MISCELLANEOUS WATER FLOWS

Any other flows or spills which may contact wastes, such as hosedown of drydock floor, freshwater hosedown of hull, etc.

8.7 Factors Affecting Shipyard Waste Generation

The following factors can significantly affect the type and amount of wastes generated at shipyards.

1. NAVAL VS COMMERCIAL (Vessel Type)

Repair of Navy vessels generally produces wastes in larger amounts and greater toxicity than repair of commercial vessels. The percentages of Naval and commercial vessels built or serviced is summarized in Attachment 6 for Campbell, Southwest Marine, and NASSCO.

a. Navy

Navy vessels are typically drydocked only once every five or more years and spend more time in port or at anchor than underway. Fouling organisms attach more readily when a ship is stationary. For these reasons, Navy coating systems are required to be effective for longer periods of time than those applied to commercial vessels. Accordingly, Navy vessels are blasted to "white metal" meaning all paint is removed to bare metal and the surface is abraded in preparation for adherence of a complete new coating system. Additionally antifouling paints used on Navy vessels contain higher levels of toxicants than those used on commercial vessels.

b. Commercial

"Sand sweep" blasting is common on commercial vessels to remove marine organisms and delaminating paint. Sand sweeping is conducted in preparation for renewal of an existing paint system only. In comparison to Navy vessels, paint deterioration and fouling

may be minimal to moderate since commercial vessels are typically drydocked annually or biennially for inspection and repainting. Additionally, unlike Navy vessels which are often berthed or anchored, commercial vessels are underway most of the time, reducing the occurrence of fouling.

2. SALTWATER VS FRESHWATER (Vessel/Water Type)

Oceangoing vessels generally require antifouling paints while freshwater vessels as a rule do not. This is significant since antifouling paint is the major concern in shipyard wastes. Typically a freshwater yard will generate wastes of lower toxicity and in lesser amounts than saltwater yards. Most, if not all, vessels built or serviced by Campbell, Southwest Marine, and NASSCO are for saltwater use.

3. CONSTRUCTION VS REPAIR (Activity Type)

New construction is generally less threatening to water quality than repair activities. This is because construction operations produce less waste (no paint removal processes). Furthermore construction facilities are occupied for periods in excess of a year (rather than the high turnover of a repair facility) and typically only flooded once per ship, i.e., at launch. The percentages of construction versus repair activities which comprise total business for Campbell, Southwest Marine, and NASSCO are summarized in Attachment 6.

4. BUSINESS VOLUME

Three measures of business volume (vessels per year, vessel size, and workforce size) are provided in Attachment 6 for each yard.

5. FACILITY CHARACTERISTICS

Characteristics such as frequency of facility utilization, duration of utilization, facility configuration, age, and size can all effect waste generation. Overall facility sizes are summarized in Attachment 6.

6. CONTROLS/BMPs IMPLEMENTED

Particularly important is the frequency and thoroughness of waste removal and the separation of water from wastes.

9.0 CHARACTERISTICS OF SAN DIEGO BAY

Determination of a discharger's TTWQ and complexity requires an evaluation of the characteristics of the discharger as well as the characteristics of the receiving water.

San Diego Bay is the largest semi-enclosed embayment along the west coast between San Francisco and the Mexican border. Its deep entrance and extensive sheltered anchorage qualify it as one the finest natural harbors in the world. The Bay has undergone many significant changes over the years, primarily due to anthropogenic activities, e.g., changes in the types and amounts of habitat, changes in the timing and routes of freshwater inputs, etc. Despite these changes, the Bay currently supports a diverse and important marine ecological system including over 90 species of fish, 127 species of birds, numerous invertebrates, and marine mammals. Since, it has the characteristics of both, San Diego Bay can correctly be classified as either an enclosed bay or an estuarine system.

9.1 Significance -- Local and Statewide

Locally, San Diego Bay maintains a high profile and its protection has received substantial support from the private as well as public sectors of the San Diego community. The Bay has been the topic of considerable controversy, press coverage, task forces, workshops/hearings, and a large number of water quality related investigations and studies.

On a statewide level, San Diego Bay is also considered an important resource. The 1991 (current) California Clean Water Strategy designates San Diego Bay as the second highest priority bay or harbor in the State. The Clean Water Strategy is a management tool used to prioritize water bodies statewide for the purpose of allocating resources to the highest priority water quality issues. Water bodies are ranked on the basis of their beneficial uses, magnitude of uses, size, uniqueness (summarized as a resource value), and degree of impairment or threat.

9.2 Beneficial Uses

As described in the Comprehensive Water Quality Control Plan for the San Diego Region (Basin Plan), San Diego Bay supports a total of eleven designated beneficial uses as shown below:

1. INDUSTRIAL SERVICE SUPPLY, (IND)
   Uses which do not depend primarily on water quality such as cooling water supply or fire protection.

2. NAVIGATION (NAV)
Commercial and naval shipping.

3. WATER CONTACT RECREATION, (REC1)
Actual body contact with water.

4. NON-CONTACT WATER RECREATION, (REC2)
Involves presence of, but not contact with, water.

5. OCEAN COMMERCIAL AND SPORT FISHING, (COMM)
Commercial and sport collection of fish and shellfish.

6. SALINE WATER HABITAT, (SAL)
Inland saline water habitat.

7. WILDLIFE HABITAT, (WILD)
For maintenance of wildlife.

8. PRESERVATION OF RARE AND ENDANGERED SPECIES, (RARE)
Provides aquatic habitat necessary for survival of rare and endangered species.

9. MARINE HABITAT, (MAR)
Preservation of the marine ecosystem including the propagation and sustenance of fish, shellfish, marine mammals, waterfowl and vegetation such as kelp.

10. FISH MIGRATION, (MIGR)
Provides a migration route and temporary aquatic environment for anadromous and other fish.

11. SHELLFISH HARVESTING, (SHEL)
Collection of shellfish such as clams, oyster, abalone, shrimp, crab, and lobster for commercial or sport purposes.

9.3 Water Quality Assessment

The California Water Quality Assessment (WQA) is a catalog or inventory of the State's waterbodies and their respective water quality conditions. The 1990 WQA, which was the State's first assessment, was adopted by the State Board in April 1990. Because numerous hotspots were known to exist throughout San Diego Bay, an approach was taken in which the water quality of the entire Bay was listed as "impaired" due to high levels of four pollutants: copper, tributyltin, mercury, and polychlorinated phenyls (PCBs). As a result, San Diego Bay was placed on several Clean Water Act mandated lists of impaired water bodies. These lists included the 40 CFR 131.11 list (water body segments which may be affected by toxic pollutants); Clean Water Act Section 303(d) list (water quality limited segments

where objectives may be attainable with BAT/BCT); the Clean Water Act Section 304(l) list (the "long List" of water bodies, in which narrative or numeric objectives are violated or beneficial uses are impaired); and the Clean Water Act Section 319 list of surface waters with nonpoint source problems. The beneficial uses of San Diego Bay considered impaired were ocean commercial and sport fishing, shellfish harvesting, and marine habitat.

The 1992 WQA was adopted by the State Board in May 1992. In an effort to refine (more accurately define) the initial assessment, the 1992 WQA specifies as "impaired" only those sites for which water quality impairment has been well established i.e., substantial data exists and has been reviewed, and formal findings on the data have been made by the Regional Board. As a result the 1992 WQA identifies only four locations in San Diego Bay as water quality impaired; three in north bay (Commercial Basin, Convair Lagoon, and Shelter Island Yacht Basin) and one in south bay (Paco Terminals).[1]

In the case of the shipyards in central bay, since at the time of the 1992 WQA, much of the existing data had not been reviewed and formal findings had not been made, the area was rerated from "impaired" to "threatened" for copper, TBT, zinc, PAHs, and PCBs. It must be emphasized however, that this downgrading of the shipyard shoreline did not represent a change or improvement in water quality of any kind. It was, instead, only an attempt to more accurately define the well established problem areas throughout the bay.

Commercial Basin, one of the three remaining "impaired" locations in north bay, is impaired for copper, TBT, and mercury due to discharges of antifouling paint waste from boatyard activities. Cleanup and Abatement Orders have been issued by the Regional Board to several responsible boatyards. Boatyard discharges of antifouling paint waste containing copper and TBT in Commercial Basin are similar to shipyard discharges of antifouling paint waste containing copper and TBT in central bay. The source is same; the constituents are the same; and the chemical form of the constituents are the same. In both cases, copper and TBT are in

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FOOTNOTE 1

The 1991-92 BPTCP fee invoices were not corrected to reflect the downgrade between the 1990 WQA and the 1992 WQA as discussed above. For that reason it is believed that many dischargers on San Diego Bay were incorrectly assessed the BPTCP 303(d) surcharge fee. Staff has recommended that all affected dischargers receive a credit for overpayment in the amount of the BPTCP 303(d) surcharge. In the case of NASSCO, Southwest Marine and Campbell, each should receive an $11,000 credit towards next year's fees.

a chemical form designed to constantly leach and designed to be toxic to marine organisms. For this reason and since the shipyard data has now been reviewed (as part of this rating evaluation), an "impaired" classification for the San Diego Bay shipyards may be appropriate.

10.0 ADVERSE EFFECTS AND KEY SHIPYARD POLLUTANTS

To enhance understanding of the shipyard sediment quality and bioaccumulation data which follows, a brief discussion of adverse effects and key shipyard pollutants is provided below. Three of the significant measures of pollutant induced biological effects in the marine environment are toxicity, bioaccumulation/ biomagnification, and benthic community structure. Three of the significant shipyard pollutants are copper, zinc, and tributyltin.

10.1 Toxicity

Toxicological effects are typically characterized as either short-term acute effects or long-term chronic effects. Acute effects are lethal and are observed during or shortly after exposure to the contaminant. Chronic effects measure change in a metabolic function and indicate the chance of long-term survival or the survival of offspring. Chronic effects are often subtle and hard to quantify since they may not be expressed for significant periods of time following exposure. Common examples of long-term chronic effects include reproductive abnormalities (e.g., non-viable eggs); growth retardation; developmental/ anatomical abnormalities; and behavioral changes.

10.2 Bioaccumulation/Biomagnification

The accumulation of contaminants in the marine environment can lead to bioaccumulation and biomagnification in marine organisms. Bioaccumulation is defined as the process by which contaminants are absorbed and accumulated by an organism from the surrounding water column and food sources. A "bioaccumulation factor" indicates the number of times a pollutant has been concentrated in an organism over the concentration existing in the surrounding water column. Biomagnification is a process by which tissue concentration of contaminants increase as the contaminants progress up a food web to higher trophic levels. Biomagnification is a particular concern from a human health perspective since the consumption of contaminated fish and shellfish can adversely effect human health. Contaminants that can build up through the food web are usually high molecular weight organic complexes and are fat soluble. Tin, mercury, lead, and DDT are examples of pollutants that can biomagnify.

10.3 Benthic Community Structure

Changes in benthic assemblages (bottom dwelling organisms), i.e., species abundance and diversity are often associated with the accumulation of pollutants in marine sediments due to acute and chronic toxicological effects. Abundance and diversity of indigenous benthic infauna will typically decline with increasing pollutant concentrations, as existing species are replaced by more pollutant tolerant species.

10.4 Copper

Copper is the most widely used biocide in antifouling paints. Cuprous oxide in antifouling paints is designed to leach slowly and continuously into the surrounding water column. The toxicity of copper to aquatic organisms varies significantly, not only with the organism species, but also with the physical and chemical characteristics of the water. Calcium hardness in the water is known to decrease the toxicity due to the precipitation of copper carbonate (precipitates are readily sorbed onto surfaces of suspended solids). Copper concentrations of less than 1 mg/l have been reported to be toxic particularly in soft water to many kinds of fish, crustaceans, mollusks, insects, phytoplankton, and zooplankton. Concentrations of copper are detrimental to some oysters above 0.1 mg/l. Oysters cultured in seawater containing 0.13 to 0.5 mg/l of copper bioaccumulated the metal in their bodies and become unfit as a food substance. Oysters have been reported to concentrate copper over 28,000 times the concentration in surrounding waters (bioaccumulation factor). The sulfates of copper and zinc are synergistic in their toxic effect on fish. The Enclosed Bays and Estuaries Plan establishes a copper water quality objective for the protection of aquatic life equal of 2.9 ug/l (1-hour average).

10.5 Zinc

In addition to its use as a plating material, zinc is also used in paint pigments and insecticides. In the shipyard industry, zinc is used extensively in anticorrosive paints. In addition to its acute lethal effects, the major concern with zinc is its long-term sublethal chronic effects. Marine invertebrates exhibit the greatest sensitivity to zinc. In soft water, concentrations of zinc ranging from 0.1 to 1.0 mg/l have been reported lethal to fish. As with copper, sensitivity to zinc varies with organism species as well as with the physical and chemical characteristic of the water. The presence of copper in water may increase the toxicity of zinc to aquatic organisms, while the presence of calcium or hardness may decrease the relative toxicity. Many zinc salts are highly soluble in water; others are insoluble and precipitate. The Enclosed Bays and

Estuaries Plan establishes a water quality objective for zinc for the protection of aquatic life of 86 ug/l (4-day average).

10.6 Tributyltin

Tributlytin (TBT) is a highly effective biocide; approximately ten times as toxic to certain marine organisms as copper. In contrast to copper's two year life span, TBT based antifouling paints can be effective up to seven years, and unlike copper, TBT is not corrosive to aluminum hulls. For all of these reasons, the use of TBT based antifouling paints was widespread and rapidly increasing until the late 1980's when use of TBT was legislatively restricted due to growing environmental concerns. Today in California, the application of TBT is prohibited on vessels less than 25 meters and only paints with release rates less than 5 ug TBT/cm^2/day can be purchased.

TBT has been shown to have adverse effects on marine life at concentrations as low as 0.02 ug/l. Sensitivity to TBT varies with species; marine mollusks (gastropods and bivalves) exhibit the greatest sensitivity. Tributyltin is lipophilic (soluble in fats), rapidly adsorbs to marine sediments, can penetrate biological membranes, and can be bioaccumulated. TBT concentrations in sediment typically range between 2 to 4 orders of magnitude greater than concentrations of TBT in the overlying water column, posing particular risk to benthic organisms. TBT desorption from sediment has been shown to be totally dependent on agitation. Shipyard activities can potentially cause desorption of TBT from sediment and resuspension of TBT laden sediment, in both cases making TBT more available to organisms in the water column. Laboratory studies have documented significant uptake of TBT from sediments by organisms that live in or on the sediment. Bioaccumulation factors for TBT of up to 52,000 for fish and 45,000 for invertebrates have been determined. TBT has been found in the tissues of algae, invertebrates, fish, and marine mammals. (TBT has been found in sea otters. Since sea otters feed on shellfish this may represent the transfer of TBT to higher trophic levels).

Consumption of TBT contaminated fish and shellfish also pose a risk to human health. USEPA has calculated a Reference Dose for tributyltin oxide (TBTO) of 3.0 x 10^{-5} mg/kg (body weight)/day (2.85 mg/kg/day TBTO). This translates to a maximum recommended dietary intake of 2.0 ug TBT/day for a 70 kg (154 lb) person. In its December 1988 priority pollutant report entitled Tributyltin: A California Water Quality Assessment, the State Board uses this information to calculate the maximum number of mussels or ounces of fish which could safely be consumed from various locations throughout the State. The Enclosed Bays and Estuaries Plan establishes a water quality objective for tributyltin for the

protection of human health (consumption of fish and shellfish) of 5.0 ng/l (30-day average).

11.0 SEDIMENT QUALITY DATA FOR CAMPBELL, SOUTHWEST MARINE, AND NASSCO

Because of the nature of shipyard and boatyard wastes and discharge pathways, sediment quality data is particularly useful in the detection of discharges from shipyard and boatyard operations. The quality of bay sediment adjacent to Campbell, Southwest Marine, and NASSCO provides information regarding the occurrence of waste discharges; the presence of toxic constituents in the discharges; the number and sources of discharge points; and the potential for discharges to cause a long-term loss of designated beneficial uses. All of these factors are relevant to the determination of TTWQ and complexity ratings. Regional Board staff reviewed the results of sediment samples collected from Campbell, Southwest Marine, and NASSCO. The findings are discussed below.

11.1 Significance of Contaminated Sediment

Marine sediments support biological communities of benthic organisms (e.g., worms, clams, bottom feeding fish) that live in and eat the sediment. Marine sediments can also serve as spawning habitat for species that inhabit the water column (e.g., invertebrates and fish). Elevated concentrations of pollutants in the sediment may result in acute and chronic toxicological effects, bioaccumulation in marine organisms, and significant changes in benthic community composition. Elevated concentrations of pollutants in the sediment can also contribute to elevated concentrations of pollutants in the water column.

11.2 Long-Term Effects On Water Quality and Beneficial Uses

Unlike short lived pollutants (e.g., BOD and bacteria) the type of pollutants present in shipyard discharges are long-lasting. Shipyard pollutants, such as heavy metals and polyaromatic hydrocarbons (PAHs) are persistent in the marine environment, in part, because they can become attached to sediment particles and can accumulate to high concentrations in both sediments and in marine organisms. Once incorporated into sediment and tissues, these pollutants are very difficult to remove and may recycle in the marine system indefinitely.

Because sediment cleanup projects are difficult, expensive, and lengthy, contaminated sediment can remain in place, adversely affecting beneficial uses and water quality, for many years. For example, there are several contaminated sediment cleanup projects

currently underway in San Diego Bay. Cleanup of contaminated sediments resulting from illicit waste discharges at these sites has been required by the Regional Board to restore/protect water quality and beneficial uses. Due to the complexity, legal proceedings, and extremely high costs of these cleanup projects, no sediment removal or remediation has yet occurred at these sites. For all of these reasons, contaminated sediment resulting from illicit waste discharges or ineffective implementation of Best Management Practices plans at shipyards can cause long-term adverse effects on the water quality and beneficial uses of San Diego Bay.

11.3 Sediment Reference Criteria

There are currently no sediment quality criteria established for use in California. Sediment quality objectives are currently under development by the State Board pursuant to recent amendments to the Water Code. In the absence of such criteria, the Regional Board has compared sediment samples collected from boatyards and shipyards to San Diego Bay reference stations, Puget Sound Apparent Effects Threshold (AET) values, marina reference stations, and other information.

The concentrations of copper, tributyltin, and zinc in sediments collected from Campbell, Southwest Marine, and NASSCO were compared against one or more appropriate reference criteria. As previously established, copper, tributyltin, and zinc are constituents in paint. Paint is a major material used by Campbell, Southwest Marine, and NASSCO and spent paint, a component of abrasive blast waste, is generated by Campbell, Southwest Marine, and NASSCO in significant quantities.

Concentrations of these constituents in sediment samples from each shipyard were compared to the corresponding concentrations in sediment samples collected from three offsite San Diego Bay reference stations, the locations of which are shown in Attachment 8. The reference station locations were selected to represent "background" conditions in San Diego Bay for the purpose of detecting elevated concentrations of shipyard contaminants in bay sediments. Each is expected to receive all typical bay contaminant inputs (e.g., numerous boats, stormwater runoff, etc.) with the exception of shipyard or boatyard wastes.

The average concentration of copper, tributyltin, and zinc measured at the reference stations is shown below. Sediment values in excess of these reference values may be indicative of illicit shipyard or boatyard waste discharges.

SAN DIEGO BAY REFERENCE CONCENTRATIONS (dry wt)

Copper	137 mg/kg
Tributyltin	78 ug/kg
Zinc	226 mg/kg

Tributyltin values from shipyard sediments were also compared to typical boat marina tributyltin concentrations found in Shelter Island Yacht Harbor. A value of approximately 200 mg/kg, as determined by the Regional Board in a series of Cleanup and Abatement Orders issued to Commercial Basin boatyards in 1988, reflects the contribution of tributyltin which can be expected from vessel hull leaching and underwater hull cleaning activities in the absence of ship/boatyard operations. Thus sediment concentrations in excess of these values may be indicative of illicit discharges of tributyltin from shipyards or boatyards.

MARINA REFERENCE CONCENTRATION (dry wt)

Tributyltin	200 ug/kg

All shipyard copper and zinc concentrations were compared to 1988 Puget Sound Apparent Effects Threshold (AET) values. An AET is defined as the sediment concentration of a contaminant above which statistically significant ($P<0.05$) adverse effects for a particular biological indicator are always expected relative to appropriate reference conditions. Thus sediment concentrations in excess of Puget Sound AET values may be indicative of illicit shipyard/boatyard waste discharges and may also adversely effect the water quality and beneficial uses of San Diego Bay. The following Puget Sound AET values have been established for copper and zinc (no Puget Sound AET for tributyltin has been developed):

1988 PUGET SOUND AETs (dry wt)

Copper	390 mg/kg
Zinc	410 mg/kg

Additionally, shipyard concentrations of copper were also compared to the copper sediment cleanup value of 530 mg/kg (dry weight) adopted by the Regional Board in 1991 for the Commercial Basin Boatyard Cleanup and Abatement orders. Thus sediment concentrations in excess of this value may be indicative of illicit discharges of tributyltin from shipyards and may also adversely effect the water quality and beneficial uses of San Diego Bay. Furthermore, bay sediment adjacent to Campbell, Southwest Marine, and NASSCO containing copper in excess of 530 mg/kg and caused by illicit waste discharges from these shipyards may also require future cleanup or remediation.

COMMERCIAL BASIN BOATYARD CLEANUP LEVEL (dry wt)

Copper	530 mg/kg

11.4 Campbell Sediment Data

Samples of bay sediments adjacent to bulkheads and piers at Campbell were collected by Regional Board staff in February of 1989. Additional sediment quality data from and near Campbell was collected by PTI Environmental Services in January and February of 1991. Regional Board and PTI data for copper, tributyltin, and zinc are summarized in Attachment 9 of this report. All Regional Board 1989 sediment sample concentrations for copper, tributyltin, and zinc exceeded the San Diego Bay reference station values. More than of 90% of the PTI 1991 sediment sample concentrations of copper, tributyltin, and zinc exceeded the San Diego Bay reference station values. All Regional Board and 93% of the PTI sediment sample concentrations exceeded the 200 ug/kg marina reference value for tributyltin. Seventy three percent (73%) of all Regional Board sediment sample concentrations for copper and zinc exceeded the Puget Sound AET reference concentrations for these constituents. Fifty two percent (52%) of PTI copper values and 65% of PTI zinc values exceeded the Puget Sound AET reference concentrations. Fifty five percent (55%) of all Regional Board sediment sample values and 35% of all PTI sediment sample values for copper exceeded the 530 mg/kg Regional Board Commercial Basin cleanup level for copper. A preliminary review of the data sets also indicate elevated concentrations of PAHs and PCBs in some samples.

Concentrations of sediment contaminants were generally much higher at stations located within the immediate vicinity of Campbell's activities (i.e., along waterfront, adjacent to drydocks and piers) than concentrations measured at stations located further away from such activities. PTI's July 1990 sampling proposal contained a review of the existing sediment data which at that time included the Regional Board's 1989 effort and an additional 1989 sampling effort directed by Campbell itself. In addition to indicating that the results from the two studies are in general agreement, PTI's proposal states that "... there are elevated concentration of copper, lead, zinc, and mercury along the shore and immediately adjacent to the drydocks. Copper concentration range from 90 mg/kg to 2,000 mg/kg, and are greatest in the vicinity of the drydocks..." This pattern of decreasing concentrations with distance from the location of activities at Campbell, suggests that Campbell is a primary source of these contaminants.

11.5 Southwest Marine Sediment Data

Samples of bay sediments adjacent to bulkheads and piers at Southwest Marine were collected by Regional Board staff in 1988 and 1989. Additional sediment quality data from Southwest Marine was collected by Science Applications (SAIC) in 1991. Unlike the Regional Board's sediment sampling along the facility's entire waterfront, SAIC's sampling effort was limited to stations adjacent to Pier 1 only. Regional Board and SAIC data for copper, tributyltin, and zinc are summarized in Attachment 10.

Nearly all of the Regional Board 1988/1989 sediment sample concentrations and all of SAIC 1991 sediment sample concentrations for copper, tributyltin, and zinc exceeded the San Diego Bay reference station values. All Regional Board and 50% of SAIC sediment sample concentrations exceeded the 200 ug/kg marina reference value for tributyltin. Seventy three percent (73%) of all Regional Board sediment sample concentrations for copper and 82% for zinc exceeded the Puget Sound AET reference concentrations for these constituents. Seventy Five (75%) of SAIC copper values and all of SAIC zinc values exceeded Puget Sound AET reference concentrations. Twenty seven percent (27%) of the Regional Board sediment sample values and 50% of the SAIC sediment sample values for copper exceeded the 530 mg/kg Regional Board Commercial Basin cleanup level for copper. A preliminary review of the data sets also indicate elevated concentrations of PCBs in some samples.

11.6 NASSCO Sediment Data

Samples of bay sediments adjacent to bulkheads and piers at NASSCO were collected by Regional Board staff in June 1988. Additional sediment quality data from NASSCO was collected by Dames and Moore in 1991. Unlike the Regional Board's bay sediment sampling along of the facility's entire waterfront, Dames & Moore's sampling effort was limited to stations adjacent to Shipbuilding Ways 2 only. This sampling was conducted in conjunction with a proposed project to fill Ways 2 which is presently "too narrow and short to provide sufficient space for construction of modern vessels". In addition to this reduction in use, Ways 2 was primarily used for new construction rather than repair operations. For these reasons, the Dames & Moore samples, collected from three stations radiating away from Ways 2, may not be representative of sediment quality along of NASSCO's waterfront. Regional Board and Dames & Moore data for copper, tributyltin, and zinc are summarized in Attachment 11.

Sixty seven percent (67%) of the 1988 Regional Board sediment sample concentrations for copper exceeded the San Diego Bay reference station values. Ninety three percent (93%) of the Regional Board sediment sample concentrations for tributyltin and

73% for zinc also exceeded the San Diego Bay reference station values. All of the 1992 Dames & Moore sediment sample concentrations for copper, tributyltin, and zinc exceeded the San Diego Bay reference station values. Seventy three (73%) of Regional Board and 100% of the Dames & Moore sediment sample concentrations exceeded the 200 ug/kg marina reference value for tributyltin. Forty percent (40%) of all Regional Board sediment sample concentrations for copper and 53% for zinc exceeded the Puget Sound AET reference concentrations for these constituents. None of the three Dames & Moore copper or zinc values exceeded Puget Sound AET reference concentrations. Twenty seven percent (27%) of the Regional Board sediment sample values but none of the Dames & Moore sediment sample values for copper exceeded the 530 mg/kg Regional Board Commercial Basin cleanup level for copper.

11.7 Sediment Data Conclusions

The Campbell, Southwest Marine, and NASSCO sediment quality data discussed above support the following conclusions which are relevant to the determination of the threat to water quality and complexity ratings for these three shipyards.

a. Elevated concentrations of copper, tributyltin, and zinc exist in bay sediments adjacent to Campbell, Southwest Marine, and NASSCO.

b. Copper, tributyltin, and zinc are constituents in both materials used, and in wastes generated by Campbell, Southwest Marine, and NASSCO. Illicit waste discharges of copper, tributyltin, and zinc from Campbell, Southwest Marine, and NASSCO to San Diego Bay appear to have occurred.

c. It appears that the Best Management Practices plans employed by Campbell, Southwest, and NASSCO are either inadequate or are being ineffectively implemented to prevent waste discharges to San Diego Bay.

d. The contaminated bay sediments present at Campbell, Southwest Marine, and NASSCO may result in long-term deleterious effects on the water quality and beneficial uses of San Diego Bay.

e. Cleanup or remediation of the contaminated sediment at Campbell and Southwest Marine may be warranted in the future.

12.0 STATE MUSSEL WATCH DATA

Because mussels are sessile invertebrates which filter feed and can bioaccumulate pollutants, they are excellent long-term indicators of pollutants in the marine environment. For this reason, clean mussels are regularly transplanted to numerous bays, including San Diego Bay, and coastal areas throughout California as part of the State Board's State Mussel Watch (SMW) Program. Following a period of four to six months the transplanted mussels are collected and their tissues analyzed for trace metals and synthetic organic compounds.

One measure against which mussel data is routinely compared is an internal SMW standard referred to as an Elevated Data Level (EDL). An EDL 85 (or 95) is defined as the concentration of a toxic substance in a mussel that equals or exceeds 85% (or 95%) of all SMW measurements of the toxic substance in the same mussel type since inception of the SMW program to the time of collection. In other words, a concentration of a substance in a mussel equal to or exceeding an EDL 85 is within the top 15% of all concentrations of that substance ever measured in the State Mussel Watch Program statewide (from program inception to the year of collection). A concentration of a substance in a mussel equal to or exceeding an EDL 95 is within the top 5% of all concentrations of that substance ever measured in the Sate Mussel Watch Program statewide (from program inception to the year of collection).

Mussels were transplanted to stations adjacent to Campbell, Southwest Marine, and NASSCO intermittently between 1982 and 1989. The results of this data are summarized in Attachment 12.

12.1 Campbell

During 1988-89 mussels were deployed at SMW station 883.50 adjacent to the Campbell waterfront. As shown in Attachment 12, the tissue copper concentrations (wet weight) from Campbell mussels exceeded the copper 1988-89 SMW EDL 85 (wet weight). The tissue zinc concentrations (wet weight) from Campbell mussels also exceeded the zinc SMW EDL 85 (wet weight) for that year.

The additional Campbell mussel data shown in Attachment 12 is from PTI's June 1991 site characterization report entitled Campbell Shipyards Sediment Characterization - Phase 2. In this study, PTI collected 3 composite samples of resident bay mussels from various substrate along the Campbell waterfront; composites consisted of 20 individual mussels each. In addition to pollutant concentrations from PTI/Campbell mussels, Attachment 12 also shows the 1988-89 SMW resident bay mussel EDLs for purposes of comparison. Resident mussels from Campbell contained

concentrations of copper (wet weight) in excess of the copper (wet weight) EDL 95 for resident bay mussels in the SMW program.

12.2 Southwest Marine

During 1985-89 mussels were deployed at SMW station 882.6 and 882.7 adjacent to the Southwest Marine waterfront as shown in Attachment 12. For reporting year 1985-1986 copper concentrations in Southwest Marine mussels exceeded the SMW EDL 85 (dry weight). Zinc concentrations for that year in Southwest Marine mussels also exceeded the SMW EDL 85 (dry weight). For reporting year 1987-1988 copper concentrations in Southwest Marine mussels exceeded the SMW EDL 95 (dry weight). Zinc concentrations for that year in Southwest Marine mussels also exceeded the SMW EDL 95 (dry weight). For reporting year 1988-1989 copper concentrations in Southwest Marine mussels exceeded the SMW EDL 85 (wet weight). Zinc concentrations for that year in Southwest Marine mussels also exceeded the SMW EDL 85 (wet weight).

Although TBT has only been monitored on a limited basis in the SMW program and EDLs have not yet been calculated, USEPA has calculated a TBT Reference Dose equal to 3.0×10^{-5} mg/kg (body weight)/day (2.85 mg/kg/day TBT+). Mussels transplanted off Southwest Marine in 1985-86 accumulated a TBT concentration of 4680 ug/kg dry weight in their tissues. Mussels transplanted off Southwest Marine in 1986-87 accumulated a TBT concentration of 13,080 ug/kg dry weight, a increase of over 179% in one year. This data was evaluated by the State Board in its December 1988 priority pollutant report entitled Tributyltin: A California Water Quality Assessment. The report indicates that based on EPA's Reference Dose for TBT and the 1986-87 concentrations of TBT in Southwest Marine mussels, a 70 Kg (154 lb) adult person could consume only 0.1 to 0.2 mussels per day from the Southwest Marine station before exceeding EPA's recommended maximum daily intake of TBT.

12.3 NASSCO

During reporting years 1982-83 and 1987-88 mussels were deployed at SMW stations 886.0 and 882.5 respectively adjacent to the NASSCO waterfront as shown in Attachment 12. For reporting year 1982-1983 copper concentrations in NASSCO mussels exceeded the SMW EDL 85 (dry weight). Zinc concentrations for that year in NASSCO mussels exceeded the SMW EDL 85 (dry weight). For reporting year 1987-1988 copper concentrations in NASSCO mussels exceeded the SMW EDL 85 (dry weight). Zinc concentrations for that year in NASSCO mussels also exceeded the SMW EDL 85 (dry weight).

12.4 Mussel Data Conclusions

As discussed previously, copper, tributyltin, and zinc are constituents in both materials used and in wastes generated by Campbell, Southwest Marine, and NASSCO. As discussed previously, copper, TBT and zinc are present in elevated concentrations in sediments adjacent to Campbell, Southwest Marine, and NASSCO. These elevated concentrations in the sediment may be contributing to elevated concentrations of copper, TBT, and zinc in the water column. Copper, tributyltin and zinc (in dissolved and particulate form) are known to bioaccumulate in marine organisms.

The mussel data discussed above shows that copper and zinc were present in elevated concentrations in all mussels collected from Campbell, Southwest Marine, and NASSCO. Copper and zinc concentrations measured in the shipyard mussels were generally within the top 15% of concentrations ever measured in the SMW program statewide (from program inception to year of collection). In some cases, shipyard mussel concentrations fell within the top 5% of concentrations ever measured in the SMW program statewide (from program inception to sample collection).

Furthermore Southwest Marine mussels also contained very elevated concentrations of tributyltin. Based on this data it appears that the shellfish harvesting beneficial use of San Diego Bay has been adversely affected in part by the discharge of TBT from Southwest Marine. This data clearly shows the potential for bioaccumulation of TBT in shellfish to an extent that could potentially result in the posting of the area by the County Health Department warning the public against shellfish consumption. In accordance with the Section 2200 TTWQ category I definition, posting of an area is an example of the long-term loss of a beneficial use.

13.0 REBUTTAL TO SHIPYARD PETITIONS

The August 6, 1992 petitions received from Campbell, Southwest Marine, and NASSCO requested reevaluation of their TTWQ-complexity rating. Each shipyard has requested that their current I-a rating be downgraded to III-c.

Campbell, Southwest Marine, and NASSCO maintain that illicit discharges of wastes from shipyard activities to San Diego Bay have been essentially eliminated through implementation of effective BMP plans and strict compliance with environmental laws. The petitioners maintain that the major threat to water quality posed by the shipyards is from discharges identified in each NPDES permit application and that their overall TTWQ and complexity rating should be based on these discharges. The petitioners further maintain that since the identified discharges are essentially innocuous and contain no harmful substances,

Campbell, Southwest Marine, and NASSCO pose very little threat to the water quality of San Diego Bay.

Regional Board staff has reviewed each petition and has concluded that the petitions should be denied. Based on the information contained in this report, the correct TTWQ-complexity rating for Campbell, Southwest Marine, and NASSCO is I-a. Staff responses to the various assertions raised in the petitions are described below.

13.1 Misinterpretation Of Threat To Water Quality Definition

The petitioners have misinterpreted the definition of threat to water quality as defined in the California Code of Regulations, Title 23, Division 3, Section 2200. The meaning of threat to water quality as it is used in Section 2200 is described in the Final Statement of Reasons, Title 23, Division 3, Chapter 9, Section 2200, California Code of Regulations (Final Statement of Reasons) which states:

> ".....The basis of the discharger's TTWQ is the effect the discharge would have on the receiving water (either surface or ground water) if a discharge in violation of a WDR or NPDES permit were made....."

The petitioner's basic underlying premise is flawed. An evaluation of a discharger's threat must be made under the assumption of "worst case" conditions i.e., assuming all controls/BMPs have failed and waste is being discharged into San Diego Bay in violation of the NPDES permit. The evaluation of TTWQ under "best case" conditions i.e., full implementation of BMPs, is not consistent with the Final Statement of Reasons for Section 2200. For the purposes of determining the appropriate TTWQ rating category as defined in Section 2200, the petitioner's effective implementation of its BMP plan and stringent conformance with applicable environmental laws is irrelevant. Pursuant to Section 2200 the TTWQ rating must be based on all actual or potential discharges to San Diego Bay. Furthermore discharges of abrasive blast waste which the petitioners argue are prevented by the BMP plan are the most significant threat to water quality and should not be excluded from consideration of the overall threat.

13.2 Shipyard Ratings Need Not Be Consistent Statewide

The petitioners argue that TTWQ and complexity ratings should be consistent statewide for comparable facilities. This issue was previously raised by the San Diego Shipbuilder's Association during the 1991 State Board rulemaking process in which TTWQ and complexity ratings were established as the basis for Bay

Protection and Toxic Cleanup Program (BPTCP) fees. At that time and for purposes of discharger ratings, the State Board addressed and rejected the need for statewide consistency.

The Final Statement of Reasons, Title 23, Division 3, Chapter 9, Article 6, Section 2236, California Code of Regulations For Bay Protection and Toxic Cleanup Program Annual Fees (Final Statement of Reasons for BPTCP) states:

> "...Depending on the nature of the discharge and the quality of the receiving water, similar businesses do not necessarily have similar threat and complexity ratings, and therefore, are subject to fees based on individual characteristics. The Regional Boards have made a determination of threat and complexity on each discharge that has a WDR or NPDES permit..."

As previously discussed, TTWQ and complexity are a function of the characteristics of the discharger, as well as the characteristics of the receiving water. The threat to a receiving water posed by a discharger is analogous to the threat to a human posed by pathogenic organisms. If pathogenic organisms are introduced into a body with a properly functioning immune system, they are typically overwhelmed and destroyed by the immune system. If the same pathogens are introduced into a body with a weakened or malfunctioning immune system, the results may be significantly different; the immune system may become overwhelmed and unable to rid the body of the invaders.

In addition to natural characteristics, and like an immune system, a receiving water's ability to cope with waste discharges is dependent on its existing health or condition. Therefore it is possible that an industry discharging to a stressed water body can pose a much greater threat than the same industry discharging to a healthy water body. Closely related are the diversity and sensitivity of the water's beneficial uses. An industry may pose little threat to a water body supporting only industrial service supply and navigation beneficial uses; but substantial threat to a water body supporting ocean commercial and sport fishing and shellfish harvesting uses. For these reasons it is conceivable that similar shipyards throughout the state could have significantly different ratings.

13.3 Discharges Could Cause Long-Term Loss Of Beneficial Use

The petitioners assert that TTWQ Category I is an inappropriate rating for Campbell, Southwest Marine, and NASSCO because their discharges "pose no long-term threat to the designated beneficial uses of San Diego Bay".

Section 2200 provides that discharges having the potential to cause a long-term loss of a beneficial use are TTWQ category I discharges. Because water quality objectives are designed to protect beneficial uses, when water quality objectives are not achieved, beneficial uses are no longer fully protected and may be adversely affected or lost. Since water quality objectives are typically visible or measurable far sooner than impacts on beneficial uses, water quality objective violations serve as an early warning signal of impending damage to beneficial uses. In other words, the long-term violation of water quality objectives is tantamount to the long-term loss of beneficial uses. It is therefore reasonable to conclude that discharges with the potential to cause long-term violations of water quality objectives are TTWQ category I discharges.

13.31 Enclosed Bays and Estuaries Plan

San Diego Bay is an "enclosed bay" as defined in the State Board's Enclosed Bays and Estuaries Plan (Plan) and is therefore subject to the terms and conditions of the Plan. The Plan sets forth numerical and narrative water quality objectives to ensure the reasonable protection of beneficial uses of enclosed bays, including San Diego Bay. The Plan states that waste discharges shall not cause a violation of these objectives.

The Plan contains the following numerical water quality objectives for the protection of salt water aquatic life for copper and zinc (based on acid soluble fraction):

Pollutant	Water Quality Objective Saltwater Aquatic Life
Copper	2.9 ug/l (1-hour average)
Zinc	86.0 ug/l (4 day average)

The Plan contains the following numerical water quality objectives for the protection of human health for tributyltin, a noncarcinogen and for PAHs, a chemical group of known carcinogens. (The objectives are designed to protect human health from the risks associated with consuming contaminated fish or shellfish.):

Pollutant	Water Quality Objective Human Health
Tributyltin	5.0 ng/l (30-day average)
PAHs	31.0 ng/l (30-day average)

The Plan contains several narrative water quality objectives including the following:

> "The concentrations of toxic pollutants in the water column, sediments, or biota shall not adversely affect beneficial uses."
>
> "Enclosed bays and estuarine communities and populations including vertebrate, invertebrate, and plant species shall not be degraded as the result of the discharge of waste."

The Plan does not establish numerical objectives for sediment; however, to comply with the Plan, the sediment must not contain levels of constituents which will cause the exceedances of numerical objectives in the water column or violation of the narrative objectives.

13.32 Potential Long-Term Effects On Beneficial Uses

It is clear that Campbell, Southwest Marine, and NASSCO have the potential to violate the Bays and Estuaries Plan water quality objectives leading to a long-term loss of beneficial uses. The shipyards use large quantities of paint containing copper, TBT, and zinc. The shipyards generate significant quantities of waste containing copper, TBT, and zinc. Copper, TBT, and zinc can be discharged to receiving waters as a result of shipyard activities via numerous mechanisms.

Copper, TBT, and zinc can accumulate in marine sediments. Sorbed to sediment or in paint chip form, copper and zinc may persist in the marine environment for many years. Tributyltin sorbed to sediment has an estimated half-life of 6-7 months. A TBT paint chip, however, may leach for significantly longer. The form of copper and tributyltin contained in antifouling paint is designed to continuously leach from the paint and dissolve into the water column. By desorbing from sediment particles and/or leeching from paint chip particles, elevated concentrations of copper, TBT, zinc and other contaminants in sediments can, in turn, result in exceedances of water quality objectives for these constituents in the overlying water column.

The form of copper and tributyltin contained in antifouling paint is designed to be toxic to marine life. Molluscs, e.g., mussels, oysters, snails, are particularly sensitive. Elevated concentrations of copper, TBT, and zinc in marine sediment and/or the water column can render an area unsuitable as marine habitat. TBT laden sediments pose a particular risk for benthic organisms living on or in the sediment. Marine habitat is a beneficial use of San Diego Bay.

Copper, zinc, and especially TBT can readily bioaccumulate in the tissues of marine organisms. Sedentary filter feeders such as mussels are particularly vulnerable. Because the consumption of tributyltin poses a risk to human health, USEPA has established a Reference Dose for the consumption of TBT in fish and shellfish. The bioaccumulation of TBT in fish and shellfish can result in the posting or closing of an area to collection of marine organisms for human consumption. Such a posting would constitute the loss of a designated beneficial use, namely shellfish harvesting, and/or ocean commercial and sport fishing.

13.33 Actual Long-term Effects on Beneficial Uses

The results of San Diego Bay sediment quality and tissue samples collected adjacent to Campbell, Southwest Marine, and NASSCO provides some confirmation of the potential adverse effects described above. As discussed in Section 11.0 of this report on Sediment Quality, data collected between 1988 and 1992 reveal elevated concentrations of copper, TBT, zinc and other pollutants in bay sediments adjacent to Campbell, Southwest Marine, and NASSCO. The data strongly suggests that such elevated concentrations are attributable to discharges resulting from shipyard operations at Campbell, Southwest Marine, and NASSCO. The greatest concentrations of copper, TBT, and zinc were found immediately below bulkheads, drydocks, piers, and other work areas. Furthermore, data from Campbell demonstrates a gradient of decreasing concentrations of these pollutants with increasing distance from shipyard activities.

Although few water column samples have been collected in the vicinity of the shipyards, the degradation of water quality associated with elevated pollutant levels in sediment is supported by mussel bioaccumulation data. State Mussel Watch mussels transplanted to locations adjacent to Campbell, Southwest Marine, and NASSCO, contained copper and zinc concentrations within the top 15% of all copper and zinc concentrations ever measured in the SMW Program statewide (since 1977 inception to time of sample collection). Additionally, NASSCO's 1991 NPDES renewal application contains four sample results of gate leakage from the graving dock and dewatering/gate leakage from the three shipbuilding ways. Copper is reported in concentrations of 130, 40, 40, and 50 ug/l, respectively. Although these are effluent rather than receiving water concentrations, they will contribute to exceedances of the 2.9 ug/l water quality objective for copper in the receiving water.

Furthermore, based on USEPA's Reference Dose of TBT and the 1986-87 SMW data collected from mussels at Southwest Marine, a 70 Kg (154 lb) adult person could consume only 0.1 to 0.2 mussels per day from the Southwest Marine station before exceeding EPA's recommended maximum daily intake of TBT.

13.4 High Level Of Regulatory Effort Required

The Final Statement of Reasons for Section 2200 states that the overall basis for determining the complexity of a discharge is the level of effort expended in regulating the discharger.

Campbell, Southwest Marine, and NASSCO maintain numerous over water and land based facilities in which a large number of industrial processes are conducted. These processes involve the use of numerous materials in significant quantities and the generation of numerous wastes in significant quantities. In addition to multiple discharge pathways (waterborne, airborne), numerous discharge points exist for the release of these materials and wastes to San Diego Bay. Of particular concern are stormwater/stormdrain related discharges. (Stormdrain information on Campbell, Southwest Marine, and NASSCO is summarized in Attachment 6.) Many of the materials and wastes are by definition toxic and/or hazardous, can accumulate in marine sediments and tissues, and are persistent in the marine environment.

Typically, facilities with BMP based permits are more complicated to regulate than traditional dischargers with "end of pipe" effluent limits. When effluent limits exist, "end of pipe" effluent monitoring results can readily establish compliance or noncompliance with effluent limits. There is no comparable measure of compliance for BMP based permits. Many more factors must be taken into consideration, such as the overall effectiveness of the BMP plan, the diligence with which the BMP plan is implemented, sediment quality adjacent to the facility, mussel bioaccumulation data, etc.

For all of these reasons and many more (complexity and length of inspections, monitoring and reporting requirements, complaints, facility size, phone calls, paperwork/tracking, etc.), the regulation of Campbell, Southwest Marine, and NASSCO involves a very high level of regulatory effort.

13.5 Petitioners Are "MAJOR" NPDES Dischargers

Some NPDES dischargers are classified as NPDES "major" dischargers. The classification of a discharger as a NPDES "major" is made through the use of an NPDES permit rating procedure developed by USEPA. Using a standardized "NPDES Permit Rating Work Sheet", the procedure allocates points for the following six factors: Toxic Pollutant Potential; Flow Volume; Conventional Pollutants, Public Health Impacts, Water Quality Factors, and Proximity To Near Coastal Waters. Dischargers accumulating 80 points or more are classified as "major" dischargers. The rating procedure also allows USEPA and the State discretionary authority to classify industries with fewer

than 80 points as "major" dischargers if they have significant potential to adversely affect water quality through the discharge of toxic pollutants.

NPDES permit violations of "major" dischargers are summarized and reported to USEPA by the Regional Board on a quarterly basis. Violations of "major" dischargers receive greater scrutiny by the State and USEPA. A listing of all "major" NPDES dischargers in the San Diego Region is shown in Attachment 14.

Regional Board staff completed the rating work sheet for each shipyard based on USEPA's work sheet instructions and information provided by each shipyard. Completion of the rating work sheet for Campbell resulted in a total score of 68 points. As discussed in this report, Campbell has significant potential to adversely affect the water quality of San Diego Bay through the discharge of toxic pollutants. Regional Board records indicate that Campbell has violated its NPDES permit on several occasions. As discussed in this report, sediment quality adjacent to Campbell strongly indicates that Campbell has discharged toxic pollutants into San Diego Bay. Clearly the marginal NPDES permit compliance record of Campbell warrants greater scrutiny by USEPA, the State Board, and the Regional Board. Accordingly, Regional Board staff has made Campbell a "discretionary major" discharger. Campbell's work sheet and work sheet instructions are shown in Attachment 15.

Using the information provided by Southwest Marine, Regional Board staff has determined that Southwest Marine has a total score of 84 points and is therefore an NPDES "major" discharger. Southwest Marine's work sheet is shown in Attachment 16.

Using the information provided by NASSCO, Regional Board staff has determined that NASSCO has a total score of 103 points and is therefore an NPDES "major" discharger. NASSCO's work sheet is shown in Attachment 17.

13.6 Petitioners Do Discharge Toxic Pollutants

The petitioners assert that Campbell, Southwest Marine, and NASSCO do not discharge toxic wastes. In support of this assertion the petitioners maintain (1) the shipyard discharges do not contain concentrations or quantities of any waste substances that would qualify as a hazardous waste under Section 25117 of California Health and Safety Code; (2) shipyard discharges do not contain the materials identified in the State Board's Ocean Plan in sufficient quantities to be considered toxic; and (3) toxic pollutants identified by EPA in 40 CFR 129.4 are absent from the shipyard's discharges.

The petitioners have again misunderstood a definition that is critical in determining the appropriate discharger rating. The discharge of toxic waste is a necessary prerequisite for complexity category "a" under Section 2200. The petitioner's narrow interpretation of the term toxic waste is not supported by the Final Statement of Reasons for Section 2200. The Final Statement of Reasons maintains that the test for determining a discharge of toxic waste is "...whether or not toxic materials are or could be present in the discharge...." The petitioner's contention that shipyard discharges do not contain substances in sufficient concentrations or quantities to be considered toxic is irrelevant. In other words, the issue is whether or not toxic wastes are present in Campbell's, Southwest Marine's, and NASSCO's waste discharges. The issue is not the concentrations or quantities of such discharges.

Clean Water Act Section 307 (a)(1) establishes a list of pollutants identified as toxic, as shown in Attachment 13. Also known as the priority pollutant list, the list includes copper and zinc and their respective compounds. It has been well established that Campbell, Southwest Marine, and NASSCO use a number of chemicals listed as toxic pollutants under Section 307, including copper and zinc. It has also been established that copper and zinc are present in wastes generated by the shipyards and that copper and zinc are, or could be, present in discharges from Campbell, Southwest Marine, and NASSCO to San Diego Bay.

Sediment quality data, discussed in Section 11.0 of this report, collected immediately adjacent to Campbell, Southwest Marine, and NASSCO strongly suggests that discharges of copper and zinc from shipyard activities have occurred. Furthermore, NASSCO's 1991 NPDES renewal application indicates that the following Section 307 toxic pollutants are believed present in their identified discharges:

Discharges	toxic pollutants marked "believed present" (partial list)
10 stormwater outfalls (SW1-SW9, M-5)	copper, zinc, chromium, and lead
4 gate leakage/dewatering outfalls (GL-1 to GL-4)	copper, zinc, antimony, arsenic, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, and thallium.

The NPDES permit renewal applications submitted by Campbell and Southwest Marine are incomplete. Staff believes that complete and accurate applications for Campbell and Southwest Marine would also indicate the presence of numerous Section 307 constituents, including copper and zinc, in waste discharges.

13.7 Petitioners Have Numerous Discharge Points

Unlike a POTW or other traditional NPDES discharger with a single discharge point, shipyards have numerous discharge points. As described in Section 8 of this report, there are 11 different "categories" of actual and potential discharges to San Diego Bay from Campbell and Southwest Marine and 15 categories of discharges from Nassco (graving dock and shipbuilding ways). Within each category there can be several individual outfalls. For example stormwater is a single category but there may be 10 - 15 separate stormwater outfalls at a single facility as shown in Attachment 6. Campbell and Southwest Marine each have more than one floating drydock.

NASSCO identifies a total of 23 total outfalls in their 1991 NPDES renewal permit application. The applications submitted by Southwest Marine and Campbell are incomplete and fail to identify many applicable outfalls. Despite incomplete identification, all three shipyards do have numerous discharge points.

13.8 Rebuttal Conclusions -- Threat To Water Quality Rating

In accordance with the Section 2200 definition, Campbell, Southwest Marine, and NASSCO should all be assigned a TTWQ rating of category "I" because their discharges "could cause the long-term loss of a designated beneficial use."

13.9 Rebuttal Conclusions -- Complexity Rating

In accordance with the Section 2200 definition, Campbell, Southwest Marine, and NASSCO should all be assigned a complexity rating of category "a" because:

they require a high level of regulatory effort;
they are NPDES "major" dischargers;
toxic wastes are present in their discharge; and
they have numerous discharge points.

14.0 RATING RECOMMENDATIONS

14.1 Campbell, Southwest Marine, and NASSCO Are TTWQ Category "I" Dischargers

Discharges of waste from Campbell, Southwest Marine, and NASSCO clearly do have the potential to cause the long-term loss of a designated beneficial use in San Diego Bay. On this basis and in accordance with the Section 2200 definition, staff recommends a threat to water quality rating of category "I" for Campbell, Southwest Marine, and NASSCO.

14.2 Campbell, Southwest Marine, and NASSCO Are Complexity Category "a" Dischargers

Regulation of Campbell, Southwest Marine, and NASSCO requires a high level of regulatory effort. All three are NPDES "major" dischargers. Toxic pollutants are, or could be, present in wastes discharged to San Diego Bay by Campbell, Southwest Marine, and NASSCO and all have numerous discharge points. On this basis and in accordance with the Section 2200 definition, staff recommends a complexity rating of category "a" for Campbell, Southwest Marine, and NASSCO.

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ATTACHMENTS

Attachment 1

SECTION 2200,
CHAPTER 9, DIVISION 3, TITLE 23, CALIFORNIA CODE OF REGULATIONS

2200. Annual Fee Schedule

(a) (1) Each person for whom waste discharge requirements have been prescribed pursuant to Section 13263 of the Water Code shall be subject to an annual fee in accordance with the following schedule:

SCHEDULE OF ANNUAL FEES

PROGRAM

RATING	NPDES PERMIT[1]	NON-CHAP 15 WDR[2]	CHAP 15 WDR[3]
I-a	$10,000	$10,000	$10,000
I-b	$ 7,000	$ 5,500	$ 7,500
I-c	$ 5,500	$ 3,000	$ 6,000
II-a	$ 4,000	$ 2,000	$ 5,000
II-b	$ 2,000	$ 1,200	$ 4,000
II-c	$ 1,200	$ 900	$ 3,000
III-a	$ 1,000	$ 750	$ 2,000
III-b	$ 750	$ 400	$ 1,500
III-c	$ 400	$ 200	$ 750

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1 National Pollutant Discharge Elimination System (NPDES) permits are issued to point source discharges of pollutants to surface waters and are issued pursuant to Water Code Chapter 5.5 which implements the federal Clean Water Act. Examples include, but are not limited to, public wastewater treatment facilities, industries, power plants, and ground water cleanups discharging to surface waters.

2 Non-Chapter 15 Waste Discharge Requirements (Non-Chap 15 WDRs) are those discharges of waste to land which are regulated through waste discharge requirements issued pursuant to Water Code Section 13263 that do not implement the requirements of Chapter 15 of Division 3 of Title 23. Examples include, but are not limited, to waste water treatment plants, erosion control projects, and septic tank systems.

3 Chapter 15 Waste Discharge Requirements (Chap 15 WDRs) are those discharges of waste to land which are regulated through waste discharge requirements issued pursuant to Water Code Section 13263 that implement the requirements of Chapter 15 of Division 3 of Title 23. Examples include, but are not limited to, landfills– both active and closed–and mining operations

Municipal dischargers with approved pretreatment programs shall be subject to a surcharge of $3,800.

Facilities regulated pursuant to the requirements of Chapter 15 and discharging mining waste shall pay a surcharge in accordance with Chapter 542 of the Statutes of 1989.

NPDES permits for area-wide urban storm water discharges, as defined by EPA (40 CFR Part 122), for areas with a population greater than 100,000 persons shall be subject to an annual fee of $10,000. NPDES permits for areawide urban storm water discharges, as defined by EPA, for areas with a population less than 100,000 persons shall be subject to an annual fee of $5,000.

Annual fees for individual NPDES permits for industrial storm water discharges shall be based on the discharge's threat to water quality and complexity in accordance with the schedule at Section 2200(a)(1).

Industrial storm water discharges regulated by a general (NPDES) storm water permit and which discharge to a municipal storm water system regulated by an areawide urban storm water permit shall pay an annual fee of $250.00. All other industrial storm water discharges regulated by a general (NPDES) storm water permit shall pay an annual fee of $500.00. An amount equal to these fees shall be submitted with the discharger's Notice of Intent to be regulated under a general (NPDES) permit and shall serve as the first annual fee. Facilities required to have a (NPDES) storm water permit that are regulated by waste discharge requirements adopted pursuant to Water Code Section 13263 shall be exempt from the annual fee for regulation of storm water discharges.

Discharges regulated by a general permit for discharges other than storm water shall be subject to an annual fee of $1,000.

Fees for fill or dredge operations shall be assessed on an annual basis for as long as the waste discharge requirement is in effect, as follows:

Fill: One acre or less, flat fee of $1,000.
More than one acre, $1,000 per acre or part thereof (not to exceed statutory maximum).

Dredge: Less than 10,000 cubic yards, flat fee of $500.
10,000 to 20,000 cubic yards, flat fee of $2,000.
More than 20,000 cubic yards, $2,000 plus $250 for each additional 5,000 cubic yards or part thereof (not to exceed the statutory maximum).

(2) Rating is based on the discharge's threat to water quality and complexity [illegible] as defined as follows

THREAT TO WATER QUALITY

Category I - Those discharges of waste which could cause the long-term loss of a designated beneficial use of the receiving water. Examples of long-term loss of beneficial use would include the loss of a drinking water supply, the closure of an area used for water contact recreation, or the posting of an area used for spawning or growth of aquatic resources, including shellfish and migratory fish.

Category II - Those discharges of waste which could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.

Category III- Those discharges of waste which could degrade water quality without violating water quality objectives, or cause a minor impairment of designated beneficial uses compared with Category I and Category II.

COMPLEXITY

Category "a"- Any major NPDES discharger; any discharge of toxic wastes; any small volume discharge containing toxic waste or having numerous discharge points or ground water monitoring; any Class I waste management unit.

Category "b"- Any discharger not included above which has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class II or Class III waste management units.

Category "c"- Any person for whom waste discharge requirements have been prescribed pursuant to Section 13263 of the Water Code not included as a Category "a" or Category "b" as described above. Included would be discharges having no waste treatment systems or that must comply with best management practices, discharges having passive treatment and disposal systems, such as septic systems with subsurface disposal systems, or dischargers having waste storage systems with land disposal.

(b) Dischargers who own or operate confined animal feedlots, including dairies, shall not be subject to an annual fee. They shall be subject to a filing fee of $2,000 to be submitted with each report of waste discharge. If waste discharge requirements are waived pursuant to Section 13269 of the Water Code, a refund of the filing fee will be made in accordance with Subsection (h). For the purposes of this Section, a Notice of Intent (NOI) submitted pursuant to Section 2200(a)(1) is considered to be a report of waste discharge.

(c) The State Board shall notify each discharger annually of the fee to be submitted, the basis upon which the fee was calculated, and the date upon which the fee is due.

(d) Persons proposing a new discharge shall submit a report of waste discharge accompanied by a fee equal in amount to the annual fee specified in Subsection (a) of this section. This fee shall act as the first annual fee. If the submittal of this first annual fee does not coincide with the current year billing cycle, then the next, and only the next, billing shall be adjusted to account for the payment of a full annual fee for a partial year of operation.

(e) Dischargers regulated by National Pollutant Discharge Elimination System (NPDES) permits issued pursuant to federal law shall not begin paying an annual fee until such time as the NPDES permit is due to be reissued.

(f) Application for the reissuance of an expiring NPDES permit shall be accompanied by a fee equal in amount to the annual fee specified in Subsection (a) of this section. This fee shall act as the first annual fee. If the submittal of the first annual fee does not coincide with the current year

billing cycle, then the next, and only the next, billing shall be adjusted to account for the payment of a full annual fee for a partial year of operation.

(g) Failure to pay the annual fee is a misdemeanor and will result in the Regional Board seeking the collection of fees through the enforcement provisions provided in Water Code Section 13261.

(h) Any refund made pursuant to Section 13260(e), or for any other reason, shall withold sufficient funds to cover actual staff time spent in reviewing the report of waste discharge which shall be calculated using a rate of $50.00 per hour.

NOTE: Authority cited: Section 1058, Water Code. Reference Section 13260, Water Code.

Attachment 2

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 91-[illegible]

ADOPTION OF REGULATIONS TO IMPLEMENT THE
BAY PROTECTION AND TOXIC CLEANUP PROGRAM ANNUAL FEES
(SECTION 2236, ARTICLE 6, CHAPTER 9, DIVISION 3, TITLE 23 OF
THE CALIFORNIA CODE OF REGULATIONS)

WHEREAS:

1. California Water Code Section 1058 authorizes the State Water Resources Control Board (State Board) to adopt regulations as necessary to implement provisions of the Water Code.

2. Chapter 1294 of the Statutes of 1990 added Section 13385.5 to the California Water Code which requires the State Board to establish fees to fund the Bay Protection and Toxic Cleanup Program responsibilities contained in Chapter 5.6 of the California Water Code (Sections 13390 et seq.) beginning in FY 1991-92 and continuing into FY 1993-94.

3. The total fees received annually pursuant to the fee schedule will be equal in amount to the scheduled reimbursement for this program contained in the State Board's annual budget not to exceed four million dollars ($4,000,000).

4. The proposed regulations were noticed on April 5, 1991 by the Office of Administrative Law in the California Administrative Notice Register. Publication on this date opened the public comment period.

5. A public hearing was held on May 21, 1991 to receive public comments.

6. Several public comments have been received concerning the proposed regulations, and revisions have been made as appropriate. All comments have been addressed.

THEREFORE BE IT RESOLVED:

1. That the State Board adopt the proposed regulations (Attachment 1) to be codified at Section 2236, Article 6, Chapter 9, Division 3, Title 23 of the California Code of Regulations in accordance with Section 13396.5 of the Water Code.

2. That the Executive Director, or his designee, shall submit the regulations and the final rulemaking file to the Office of Administrative Law to complete the State Board's rulemaking process.

CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on October 24, 1991.

Maureen Marché
Administrative Assistant to
the Board

TITLE 23, DIVISION 3, CHAPTER 9, ARTICLE 6,
SECTION 2236, CALIFORNIA CODE OF REGULATIONS

2236. Bay Protection and Toxic Cleanup Annual Fees

(a) All point and nonpoint dischargers who discharge directly into enclosed bays, as defined in Water Code Section 13391.5(a) estuaries, as defined in Water Code Section 13391.5(b), or adjacent waters in the contiguous zone or the ocean, as defined in Section 502 of the Federal Clean Water Act (33 U.S.C. Sec. 1362), shall be subject to an annual fee pursuant to Section 13396.5 of the Water Code. This fee is in addition to the fees required in Title 23, Section 2200, California Code of Regulations.

(b) Dischargers for whom National Pollutant Discharge Elimination System (NPDES) permits or waste discharge requirements have been prescribed except as noted in Subsection (c) below, who discharge into waters described in Subsection (a), shall be subject to an annual fee in accordance with the following schedule:

BAY PROTECTION AND TOXIC CLEANUP ANNUAL FEE SCHEDULE

NPDES PERMIT AND NON-CHAPTER 15 WASTE DISCHARGE REQUIREMENTS

RATING	FEE
I-A	$11,000
I-B	$ 6,000
I-C	$ 5,000
II-B	$ 4,000
II-C	$ 2,000
II-D	$ 1,000
III-A	$ 500
III-B	$ 400
III-C	$ 300

(1) Rating is based on the relative threat of the discharge to water quality and complexity, as defined in Title 23, Section 2200(a)(2) California Code of Regulations.

(2) Discharges from public and private educational institutions resulting from the use of seawater to maintain marine organisms for educational and research purposes that are rated III-c, shall be subject to an annual fee of $0.

(c) The following categories of dischargers shall pay the amount of fee specified below. This schedule supersedes those set forth in (b) above if a discharger falls under both sections.

(1) NPDES permits for an area-wide urban storm water system which discharges into waters described in Subsection (a) shall be subject to an annual fee based on the population served by the drainage system in accordance with the following schedule:

Population	Fee
Less than 10,000	$ 1,000
10,000 to 99,999	$ 2,500
100,000 to 249,999	$ 5,000
250,000 and greater	$10,000

Each county, incorporated city or entity which operates a municipal stormdrain system which is not part of an NPDES permit for an area-wide stormwater discharge shall pay a fee based on the population served by the drainage system in accordance with the schedule shown in this paragraph.

(2) Discharges from agricultural practices into waters described in Subsection (a) shall be subject to an annual fee based on the number of acres drained in accordance with the following schedule:

Irrigated Acres	Fee
Less than 100	0
100 to 999	$ 500
1,000 to 5,999	$ 1,500
10,000 to 50,000	$ 5,000

Owners, operators, or representatives of more than 50,000 irrigated acres shall pay $5,000 for the first 50,000 acres and $0.10 for each additional acre.

A. Annual fees for discharges from agricultural practices may be paid by regional entities. Regional entities must meet the following requirements:

i. The regional entity shall be the same group created to comply with Chapter III, Section 1, of the California Enclosed Bays and Estuaries Plan.

ii. The regional entity shall demonstrate legal, institutional and managerial capability to pay annual fees for member growers.

B. If regional entities have not been identified to the State Board the fees shall be assessed on individual agricultural discharges.

(3) Each boat construction facility or repair facility or hull cleaning operation which discharges to waters described in Subsection (a) shall be subject to an annual fee of $300.

(4) Each operator of a boat marina or other recreational vessel launching or docking facility which discharges to waters described in Subsection (a) shall be subject to an annual fee based on number of vessel slips or moorings, in accordance with the following schedule:

Slips/Moorings	Fee
Less than 300	$ 0
300 to 499	$ 300
500 to 999	$ 500
1000 and greater	$ 1,000

(5) Each harbor or port facility which discharges to waters described in Subsection (a) and which is used for commercial shipping purposes shall be subject to an annual fee of $5,000.

(6) Each dredging operation in waters described in Subsection (a) for which a Water Quality Certification (33 U.S.C. Section 1341) has been issued by the State Water Resources Control Board shall be subject to a fee based on the cubic yards of dredge material authorized in the Water Quality Certification, in accordance with the following schedule:

Cubic Yards Authorized in Certification	Maintenance Dredging	New Dredging	Beach Replenishment
Less than 30,000	$ 0	$ 0	$ 0
30,000 - 99,999	$ 1,500	$ 1,000	$ 0
100,000 - 299,999	$ 4,500	$ 3,000	$1,000
300,000 and greater	$15,000	$10,000	$3,000

If the dredging quantity stated in the Water Quality Certification is less than the amount of the Section 404 (33 U.S.C. Section 1344) permit, and the permitted volume is greater than 300,000 cubic yards, the fee shall be based on the total permitted volume.

(d) Point and nonpoint dischargers who discharge into a water body described in Subsection (a) which has been identified as a Water Quality Limited Segment in the current "Water Quality Assessment", prepared by the State Board pursuant to Section 303(d) of the Federal Clean Water Act (33 U.S.C. Sect. 1313) shall be subject to a surcharge of 100 percent of the annual fee specified in Subsections (b) or (c). In no case shall the annual fee for these discharges exceed the statutory maximum specified in Subdivision (d) of Section 13396.5 of the Water Code.

(e) The State Board shall notify each discharger of the amount of the fee to be submitted, the basis upon which the fee was calculated, and the date upon which the fee is due.

(f) Any person failing to pay the fee established under this Section, when so requested by the State Board, may be liable civilly in accordance with Subdivision (d) of Section 13261 of the Water Code.

(g) In the event the amount collected under this Section exceeds the maximum allowed by Subdivision (b) of Section 13396.5 of the Water Code, an amount equal to the over collection will be credited against the next year's fees. The amount of the over collection

will be prorated among dischargers who submitted the full amount of the fees by the date specified pursuant to Subsection (e) of this Section. The prorated amount shall be reduced from the next year's fee, based on the following equation:

$$\text{Excess Collected} \times \frac{\text{Fee Paid}}{\text{Total of All Fees Paid by Dischargers who made full and Timely Payments}} = \text{Reduction Amount}$$

(h) Any new discharger identified as being subject to this section shall pay a fee based on the amount specified with the fee schedules in Subsections (b) or (c) prorated for the number of months remaining in the billing cycle.

(i) The annual fees in Subsection (b) and (c) shall be reviewed by the State Board regularly, but in no case less than once every three years. The annual fees may be adjusted on the basis of monitoring information collected as a part of the Bay Protection and Toxic Cleanup Program and information from any other programs deemed appropriate.

NOTE: Authority cited: Section 1058, Water Code.

Reference: Sections 13396.5(a), 13396.5(b), 13396.5(d), 13396.5(e), Water Code.

Attachment 3

REPORT FORM NPDATA FOR 1 STTWG .AND. A SCPLX

Page no. 00001
09/11/92

NPDES/WDR FACILITIES:THREAT TO WATER QUALITY/COMPLEXITY LIST

WDID	STAT	NPDES #	AGENCY NAME	FACILITY NAME	TWQ	CPLX	TYP	SIC1	SIC2
9 000000030	A	CA0107395	ENCINA WASTEWATER AUTHORITY	ENCINA OCEAN OUTFALL	1	A	MUN	4952	
9 000000031	A	CA0107981	ESCONDIDO,CITY OF	HALE AVE. WASTEWATER TRMT PLNT	1	A	MUN	4952	
9 000000041	A	CA0107646	CAMPBELL INDUSTRIES	CAMPBELL INDUSTRIES	1	A	IND	3731	
9 000000053	A	CA0107492	PADRE DAM MUNICIPAL WATER DIST	SANTEE WATER RECLAMATION FACIL	1	A	MUN	4952	
9 000000066	A	CA0107671	NATIONAL STEEL&SHIPBUILDING CO	NATIONAL STEEL&SHIPBUILDING CO	1	A	IND	3731	
9 000000086	A	CA0001228	SOUTHERN CALIFORNIA EDISON CO.	SONGS UNIT 1	1	A	IND	4911	4952
9 000000087	A	CA0108073	SOUTHERN CALIFORNIA EDISON CO.	SONGS UNIT 2	1	A	IND	4911	
9 000000088	A	CA0108181	SOUTHERN CALIFORNIA EDISON CO.	SONGS UNIT 3	1	A	IND	4911	
9 000000089	A	CA0001376	SAN DIEGO GAS & ELECTRIC CO.	SILVER GATE POWER PLANT	1	A	IND	4911	
9 000000090	A	CA0001384	SAN DIEGO GAS & ELECTRIC CO.	STATION B POWER PLANT	1	A	IND	4911	
9 000000091	A	CA0001368	SAN DIEGO GAS & ELECTRIC CO.	SOUTH BAY POWER PLANT	1	A	IND	4911	
9 000000092	A	CA0001350	SAN DIEGO GAS & ELECTRIC CO.	ENCINA POWER PLANT	1	A	IND	4911	
9 000000117	A	CA0107611	ALISO WATER MANAGEMENT AGENCY	ALISO OCEAN OUTFALL	1	A	MUN	4952	
9 000000125	A	CA0107999	SAN ELIJO JOINT POWERS AUTH.	SAN ELIJO WPCF	1	A	MUN	4952	
9 000000137	A	CA0107697	SOUTHWEST MARINE, INC.	SOUTHWEST MARINE	1	A	IND	3731	
9 000000144	A		RANCHO CALIFORNIA WATER DIST.	JOAQUIN RANCH WATER RECL FACIL	1	A	MUN	4952	
9 000000146	A	CA0107433	OCEANSIDE,CITY OF,WTR UTIL DEP	OCEANSIDE OCEAN OUTFALL	1	A	MUN	4952	
9 000000161	A	CA0108219	U.S. MARINE CORPS	PLANT NO. 01, HEADQUARTERS	1	A	MUN	4952	9711
9 000000162	A	CA0108227	U.S. MARINE CORPS	PLANT NO. 02, SAN LUIS REY	1	A	MUN	4952	9711
9 000000163	A	CA0108235	U.S. MARINE CORPS	PLANT NO. 03, CHAPPO	1	A	MUN	4952	9711
9 000000164	A	CA0108243	U.S. MARINE CORPS	PLANT NO. 08, SANTA MARGARITA	1	A	MUN	4952	9711
9 000000165	A	CA0108251	U.S. MARINE CORPS	PLANT NO. 09, LAS PULGAS	1	A	MUN	4952	9711
9 000000166	A	CA0108260	U.S. MARINE CORPS	PLANT NO. 10, HORNO	1	A	MUN	4952	9711
9 000000167	A	CA0108278	U.S. MARINE CORPS	PLANT NO. 11, SAN ONOFRE	1	A	MUN	4952	
9 000000168	A	CA0108286	U.S. MARINE CORPS	PLANT NO. 12, SAN MATEO	1	A	MUN	4952	9711
9 000000169	A	CA0108294	U.S. MARINE CORPS	PLANT NO. 13, TWIN LAKES	1	A	MUN	4952	9711
9 000000175	A	CA0107417	SERRA	SERRA OCEAN OUTFALL	1	A	MUN	4952	
9 000000213	A		SAN DIEGO.COUNTY OF,SLD WASTE	OTAY CLASS 1 LANDFILL	1	A	SW1	4953	
9 000000215	A		DARLING-DELEWARE COMPANY INC.	OMAR RENDERING CLOSED LANDFILL	1	A	SW1	4953	
9 000000226	A	CA0110469	DEPT OF DEFENSE, DEPT OF NAVY	NAVAL AIR STATION NORTH ISLAND	1	A	IND	9711	
9 000000275	A	CA0107409	SAN DIEGO,CITY OF,WTR UTIL DEP	POINT LOMA OCEAN OUTFALL	1	A	MUN	4952	
9 000000308	A	CA0107859	ROHR, INC.	ROHR,INC.	1	A	IND	3728	
9 000000378	A		SAN DIEGO,CITY OF,SLD WST DIV	MISSION BAY LANDFILL	1	A	SW3	4953	
9 000000395	A	CA0108171	TEXACO REFINING AND MARKETING	SAN YSIDRO TEXACO	1	A	IND	5172	
9 000000407	A	CA0108189	ARCO PETROLEUM PRODUCTS CO.	ARCO SERVICE STATION NO. 5231	1	A	IND	5172	
9 000000423	A		ARCO PETROLEUM PRODUCTS	ARCO SERVICE STATION #1851	1	A	IND	5172	
9 000000424	A	CA0108367	THRIFTY OIL COMPANY	THRIFTY SERVICE STATION # 120	1	A	IND	5541	
9 000000430	P	CA0108359	SOUTHERN CALIFORNIA EDISON CO.	SONGS ACROSS THE BEACH	1	A	IND	4911	4952
9 000000431	H		SAN DIEGO GAS & ELECTRIC CO.	SOUTH BAY POWER PLANT-TPCA	1	A	IND	4941	
9 000000434	A	CA0108383	CHEVRON U.S.A.	CHEVRON SERVICE STATION #91870	1	A	IND	5172	
9 000000439	A	CA0108413	SAN DIEGO GAS & ELECTRIC CO.	MOUNTAIN EMPIRE SATELLITE FAC.	1	A	IND	5172	
9 000000469	A	CA0108707	STARBOARD STATION INC.	GREAT AMERICAN PLAZA	1	A	OTH	7011	
9 000000489	P	CA0108626	TEXACO U.S.A.	TEXICO SERVICE STATION	1	A	IND		
9 000000492	A	CA0108642	ARCO PETROLEUM PRODUCTS	SERVICE STATION #3102	1	A	IND	5541	
9 000000506	A	CA0108791	TEXACO REFINING & MARKETING	TEXACO SAN DIEGO BULK TERMINAL	1	A	IND	5171	
9 000000507	A	CA0108804	SHELL OIL COMPANY	FORMER SHELL SERVICE STATION	1	A	IND	5541	
9 000000515	P		UNOCAL CORPORATION	SERVICE STATION 5674	1	A	OTH	5541	

NPDES/WDR FACILITIES:THREAT TO WATER QUALITY/COMPLEXITY LIST

WDID	S T A T	NPDES #	AGENCY NAME	FACILITY NAME	T W Q	C P L X	TYP	SIC1	SIC2
9 000000518	A	CA0108707	TORREY EMBARCARDERO HOTEL, LTD	HYATT REGENCY HOTEL	1	A	OTH	7011	
9 000000521	P		DESERT PETROLEUM	DESERT PETROLUEM	1	A	IND	5541	
9 000000522	P		MOBIL OIL CORPORATION	MOBIL STATION S/S 18-EET	1	A	IND	5411	
9 000000523	P		EASTERN MUNICIPAL WATER DIST.	RANCHO CALIFORNIA WATER RECL	1	A	MUN	4952	
9 000000534	P		EASTERN MUNICIPAL WATER DISTRT	RANCHO CALIFORNIA TRMT PLANT	1	A	MUN	4952	
9 000000539	A	CA0108804	BRH-GARVER, INC.	NORTH MISSION VALLEY INTERCPTR	1	A	OTH	1623	
9 000000545	A	CA0108804	CAL SOUTHWEST CONSTRUCTION	E MISSION GORGE PUMP STATION	1	A	OTH	1623	
9 000000546	A	CA0108707	MARINA VILLAGE ASSOCIATES	MARINA VILLAGE DEWATERING	1	A	OTH	1542	
9 000000547	P		MOBIL OIL COMPANY	FORMER GASOLINE STATION	1	A	IND	5541	
9 000000552	P	CA0108804	TEXACO REFINING & MARKETING	TEXACO FUELING TERMINAL	1	A	IND	5171	
9 00000305I	A	SS0107395	ENCINA ADMINISTRATIVE AGENCY.	ENCINA WATER POLUT CNTRL FACIL	1	A	MUN	4952	
9 00000305I	A	SS0107395	VALLECITOS WATER DISTRICT	MEADOWLARK WATER RECLAMTN PLNT	1	A	MUN	4952	
9 00000305I	A	SS0107395	SAN DIEGO,COUNTY OF,PUBLIC WKS	BUENA SAN DIST,SHADOWRIDGE WRP	1	A	MUN	4952	
9 00000305I	A	SS0107395	LEUCADIA COUNTY WATER DISTRICT	GAFNER WATER RECLAMATION FACIL	1	A	MUN	4952	
9 0000115S1	A	SS0108031	FALLBROOK SANITARY DISTRICT	PLANT 1	1	A	MUN	4952	
9 0000115S2	A	SS0108031	FALLBROOK SANITARY DISTRICT	PLANT 2	1	A	MUN	4952	
9 0000117S1	A	SS0107611	ALISO WATER MANAGEMENT AGENCY	COASTAL TREATMENT PLANT	1	A	MUN	4952	
9 0000117S2	A	SS0107611	ALISO WATER MANAGEMENT AGENCY	JOINT REGIONAL WATER RECL FACL	1	A	MUN	4952	
9 0000117S3	A	SS0107611	ALISO WATER MANAGEMENT AGENCY	LOS ALISOS WSTWTR TRTMNT PLANT	1	A	MUN	4952	
9 0000117S4	A	SS0107611	ALISO WATER MANAGEMENT AGENCY	EL TORO WASTEWATER TRTMNT PLNT	1	A	MUN	4952	
9 000012N88	A		TEXACO U.S.A.	TEXACO SERVICE STATION	1	A	OTH	554	
9 000013N89	A		ARCO PETROLEUM PRODUCTS	ARCO SERVICE STATION #3101	1	A	OTH	554	
9 0000146S1	A	SS0107433	OCEANSIDE,CITY OF,WTR UTIL DEP	LA SALINA WASTEWATER TRMNT PL	1	A	MUN	4952	
9 0000146S2	A	SS0107433	OCEANSIDE,CITY OF,WTR UTIL DEP	SAN LUIS REY WASTEWATER TR PLT	1	A	MUN	4952	
9 0000175S1	A	SS0107417	SERRA	LATHAM WASTEWATER TRMT PLANT	1	A	MUN	4952	
9 0000175S2	A	SS0107417	SAN CLEMENTE, CITY OF	SAN CLEMENTE WATER RCLM PLANT	1	A	MUN	4952	
9 0000175S3	A	SS0107417	CAPISTRANO BEACH SANITARY DIST	CAPISTRANO BEACH TRMT PLANT	1	A	MUN	4952	
9 0000175S4	A	SS0107417	SANTA MARGARITA WATER DISTRICT	CHIQUITA WATER RCLM PLANT	1	A	MUN	4952	
9 000062N91	A		SAN DIEGO,COUNTY OF & OTAY MWD	RANCHO SAN DIEGO PUMP STATION	1	A	MUN	4952	
9 000066N91	A		PACO TERMINALS & SDUPD	PACO TERMINALS	1	A	IND	1000	
9 000067N90	A		GENERAL DYNAMICS-CONVAIR DIV.	BUILDING 75, LINDBERGH FIELD	1	A	IND	372	
9 000070N90	A		SAN DIEGO UNIFIED PORT DIST.	8TH & HARBOR CLEANUP PROJECT	1	A	OTH	9199	

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NPDES/WDR FACILITIES:THREAT TO WATER QUALITY/COMPLEXITY LIST

WDID	STAT	NPDES #	AGENCY NAME	FACILITY NAME	TTWQ	CPL	TYP	SIC1	SIC2
9 000000011	A		U.S. MARINE CORPS	BOX CANYON SANITARY LANDFILL	1	B	SW3	9711	
9 000000012	A		U.S. MARINE CORPS	SAN ONOFRE SANITARY LANDFILL	1	B	SW3	9711	
9 000000013	A		U.S. MARINE CORPS	LAS PULGAS SANITARY LANDFILL	1	B	SW3	9711	
9 000000076	A		RAMONA MUNICIPAL WATER DISTRCT	SAN VICENTE TREATMENT PLANT	1	B	MUN	4952	
9 000000077	A		RAMONA MUNICIPAL WATER DISTRCT	SANTA MARIA WW TREATMENT PLANT	1	B	MUN	4952	
9 000000173	A		SAN DIEGO,COUNTY OF,SLD WASTE	BONSALL CLASS 3 LANDFILL	1	B	SW3	4953	
9 000000204	A		RIVERSIDE COUNTY WASTE MGMNT.	ANZA SANITARY LANDFILL	1	B	SW3	4953	
9 000000214	A		SAN DIEGO,COUNTY OF,SLD WASTE	OTAY ANNEX SANITARY LANDFILL	1	B	SW3	4953	
9 000000244	A		SAN DIEGO,COUNTY OF,SLD WASTE	VALLEY CENTER LANDFILL	1	B	SW3	4953	
9 000000248	A		SAN DIEGO,COUNTY OF,SLD WASTE	RAMONA SANITARY LANDFILL	1	B	SW3	4953	
9 000000252	A		SAN DIEGO,COUNTY OF,SLD WASTE	SYCAMORE CANYON SAN LANDFILL	1	B	SW3	4953	
9 000000261	A		ORANGE, CNTY OF,WSTE MGNT PROJ	PRIMA DESCHECHA SANIT LANDFILL	1	B	SW3	4953	
9 000000278	A		SAN DIEGO,COUNTY OF,SLD WASTE	SAN MARCOS SANITARY LANDFILL	1	B	SW3	4953	
9 000000311	A		SAN DIEGO,COUNTY OF,SLD WASTE	VIEJAS REHABILITATION CNTR LF	1	B	SW3	4953	
9 000000314	A		SAN DIEGO,CITY OF,REFUSE DISPL	WEST MIRAMAR SANITARY LANDFILL	1	B	SW3	4953	
9 000000332	H		SAN DIEGO,COUNTY OF,SLD WASTE	NORTH EAST MIRAMAR SAN LANDFIL	1	B	SW3	4953	
9 000000342	A		OCEANSIDE PUBLIC SERVICES DEPT	MISSION AVENUE SAN. LANDFILL	1	B	SW3	4953	
9 000000348	A		SAN DIEGO,COUNTY OF,SLD WASTE	POWAY CLOSED CLASS 3 LANDFILL	1	B	SW3	4953	
9 000000349	A		SAN DIEGO,COUNTY OF,SLD WASTE	JAMACHA JNCTN CLASS 3 LANDFILL	1	B	SW3	4953	
9 000000362	A		SAN DIEGO,COUNTY OF,SLD WASTE	PALOMAR AIRPORT SAN LANDFILL	1	B	SW3	4953	
9 000000363	A		SAN DIEGO,CITY OF,SLD WST DIV	SOUTH MIRAMAR SAN LANDFILL	1	B	SW3	4953	
9 000000509	P		NAS CONVOY PTNRSHP/GIRTZ GROUP	CONVOY TERRACE PARCEL LANDFILL	1	B	SW3	4953	
9 000061N91	A		COUNTY OF SAN DIEGO	SOUTH BAY BURN SITE	1	B	SW3	9511	
9 000063N91	A		LOCKHEED CORPORATION	LOCKHEED, HARBOR ISLAND	1	B	IND	3761	

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	WDID	S T A T	NPDES #	AGENCY NAME	FACILITY NAME	T W D	C P L X	TYP	SIC1	SIC2
9	000000094	A		LAIDLAW GAS RECOVERY SYSTEMS	METHANE REC-SAN MARCOS LANDFIL	1	C	IND	1311	4953
9	000000231	A	CA0107352	WESTERN SALT COMPANY	WESTERN SALT COMPANY	1	C	IND	2899	
9	000000333	A		PACIFIC LIGHTING ENERGY SYSTEM	METHANE REC-OTAY ANNEX LANDFIL	1	C	IND	4953	1311
9	000000334	A		SAN DIEGO,COUNTY OF,SLD WASTE	METHANE REC-BONSALL LANDFILL	1	C	IND	4953	1311
9	000000335	A		LAIDLAW GAS RECOVERY SYSTEMS	METHANE REC-SYCAMORE CANYON LF	1	C	IND	4953	1311
9	000000381	A		TELEDYNE RYAN AERONAUTICAL	TELEDYNE RYAN AERONAUTICAL	1	C	IND	3728	
9	000000510	A	CA0108758	SAN DIEGO,CITY OF,ENGINEERING	STORMWATER CONVEYANCE SYSTEM	1	C	OTH	9511	
9	000000511	A	CA0108740	COUNTY OF ORANGE,EMA	STORMWATER CONVEYANCE SYSTEM	1	C	OTH	9511	
9	000000512	A	CA0108766	RIVERSIDE COUNTY FLOOD CONTROL	STORMWATER CONVEYANCE SYSTEM	1	C	OTH	9511	
9	000000526	P		MOBIL OIL CORPORATION	SERVICE STATION 18-F7M	1	C	IND	5541	
9	0000510S1	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	COUNTY OF SAN DIEGO,STORMWATER	1	C	OTH	9511	
9	0000510S2	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	SD UNIFIED PORT DIST,STORMWTR	1	C	OTH	9511	
9	0000510S3	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	CITY OF CHULA VISTA,STORMWATER	1	C	OTH	9511	
9	0000510S4	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	CITY OF DEL MAR, STORMWATER	1	C	OTH	4959	4941
9	0000510S5	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	CITY OF CORONADO, STORMWATER	1	C	OTH	9511	
9	0000510S6	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	CITY OF EL CAJON, STORMWATER	1	C	OTH	9511	
9	0000510S7	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	CITY OF IMPRL BEACH,STORMWATER	1	C	OTH	9511	
9	0000510S8	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	CITY OF LA MESA, STORMWATER	1	C	OTH	9511	
9	0000510S9	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	CITY OF LEMON GROVE,STORMWATER	1	C	OTH	9511	
9	0000511S1	A	SS0108740	COUNTY OF ORANGE,EMA	OR CO FLOOD CONTRL DISTRCT, SW	1	C	OTH	9511	
9	0000511S2	A	SS0108740	COUNTY OF ORANGE,EMA	CITY OF DANA POINT, STORMWATER	1	C	OTH	0511	
9	0000511S3	A	SS0108740	COUNTY OF ORANGE,EMA	CITY OF LAGUNA NIGUEL,STRMWTR	1	C	OTH	9511	
9	0000511S4	A	SS0108740	COUNTY OF ORANGE,EMA	CITY OF SAN CLEMENTE,STORMWTR	1	C	OTH	9511	
9	0000511S5	A	SS0108740	COUNTY OF ORANGE,EMA	CITY OF LAGUNA BEACH,STORMWTR	1	C	OTH	0511	
9	0000511S6	A	SS0108740	COUNTY OF ORANGE,EMA	CITY OF MISSION VIEJO,STORMWTR	1	C	OTH	9511	
9	0000511S7	A	SS0108740	COUNTY OF ORANGE,EMA	CITY OF SAN JUAN CAPISTRANO,SW	1	C	OTH	0511	
9	0000512S1	A	SS0108766	RIVERSIDE COUNTY FLOOD CONTROL	COUNTY OF RIVERSIDE,STORMWATER	1	C	OTH	9511	
9	0000512S2	A	SS0108766	RIVERSIDE COUNTY FLOOD CONTROL	CITY OF TEMECULA, STORMWATER	1	C	OTH	9511	
9	0000512S3	A	CA0108766	RIVERSIDE COUNTY FLOOD CONTROL	CITY OF MURRIETA, STORMWATER	1	C	MUN	9511	
9	000510S10	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	CITY OF NATIONAL CITY,STRMWTR	1	C	OTH	9511	
9	000510S11	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	CITY OF POWAY, STORMWATER	1	C	OTH	9511	
9	000510S12	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	CITY OF CARLSBAD, STORMWATER	1	C	OTH	9511	
9	000510S13	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	CITY OF ESCONDIDO, STORMWATER	1	C	OTH	9511	
9	000510S14	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	CITY OF OCEANSIDE, STORMWATER	1	C	OTH	9511	
9	000510S15	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	CITY OF SAN MARCOS, STORMWATER	1	C	OTH	9511	
9	000510S16	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	CITY OF ENCINITAS, STORMWATER	1	C	OTH	9511	
9	000510S17	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	CITY OF VISTA, STORMWATER	1	C	OTH	9511	
9	000510S18	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	CITY OF SOLANA BEACH,STRMWATER	1	C	OTH	9511	
9	000510S19	A	SS0108758	SAN DIEGO,CITY OF,ENGINEERING	CITY OF SANTEE, STORMWATER	1	C	OTH	9511	

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WDID	STAT	NPDES #	AGENCY NAME	FACILITY NAME	TTWQ	CPLX	TYP	SIC1	SIC2
9 000000006	A		EASTERN MUNICIPAL WATER DIST	TEMECULA VALLEY RWRF	2	A	MUN	4952	
9 000000083	A	CA0107336	SEA WORLD, INC.	SEA WORLD	2	A	IND	0999	
9 000000115	A	CA0108031	FALLBROOK SANITARY DISTRICT	PLANT NOS 1 & 2,OCEAN OUTFALL	2	A	MUN	4952	
9 000000148	A	CA0108090	PALM ENTERPRISES & U.S. NAVY	NAPALM PROCESSING FACILITY	2	A	IND	2869	
9 000000245	A	CA0107476	CHEVRON U.S.A., INC.SW DIVISON	CHEVRON SAN DIEGO TERMINAL	2	A	IND	4613	4226
9 000000279	A		CASPIAN, INC.	CASPIAN, INC.	2	A	IND	3479	
9 000000331	A	CA0003974	U.S. MARINE CORPS	DEL MAR BOAT BASIN	2	A	IND	9711	7542
9 000000408	A	CA0000086	SAN DIEGO UNIFIED PORT DISTRCT	HARBOR BLVD-HARBOR ISL STRM DR	2	A	IND	5171	
9 000000411	H	CA0108111	WESTERN ENERGY ENGINEERS	KLONDIKE ENERGY ENTERPRISES	2	A	IND	4911	
9 000000491	A	CA0108634	SAN ELIJO JOINT POWERS AUTH.	SAN ELIJO WPCF-DEWATERING	2	A	OTH	4952	
9 000004N88	A		U.S. NAVY/NAVY PUBLIC WKS CTR	INDUSTRIAL/OIL WASTE TRMT PLNT	2	A	MUN		
9 000018N90	A		U.S. MARINE CORPS	SITE NO. 6-DRMO SCRAP YARD	2	A	OTH		
9 000038N90	A		PRIVATE PROPERTY	TRIPP SALVAGE LANDFILL	2	A	SW3	9511	
9 000040N90	A		SAN DIEGO,COUNTY OF,SLD WASTE	AGUA HEDIONDA RANCHO	2	A	SW3	9511	
9 000068N90	A		SAN DIEGO WOOD PRESERVING	SAN DIEGO WOOD PRESERVING	2	A	OTH	2491	
9 000069N90	A		CASPIAN INC.	CASPIAN INC.	2	A	OTH	347	

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9 000000005	A		ALL SEASONS CAMPGROUND	ALL SEASONS CAMPGROUND	2	B	MUN	7033	4952
9 000000018	A	CA0107239	CALIFORNIA,UNIVERSITY OF	SCRIPPS INST OF OCEANOGRAPHY	2	B	IND	8200	
9 000000032	A		CALIFORNIA DEPT OF FORESTRY	LA CIMA CONSERVATION CAMP	2	B	MUN	7000	
9 000000034	A		TRW, SYSTEMS GROUP	TRW SPACE TECHNOLOGY LABS	2	B	MUN	3721	4951
9 000000035	A		LAKE ELFIN FOREST VILLAGE MHP	LAKE ELFIN FOREST VILLAGE WWTP	2	B	MUN	6515	4952
9 000000036	A		OAK TREE RANCH, INC.	TOWN AND COUNTRY RANCHO MHP	2	B	MUN	6515	4952
9 000000068	A		RAINBOW MUNICIPAL WATER DIST	PLANT B, PALA MESA VILLAGE	2	B	MUN	4952	
9 000000073	A		ORANGE,COUNTY OF,GEN SERV AGCY	JOPLIN YOUTH CENTER	2	B	MUN	8361	4952
9 000000075	A		ORANGE,COUNTY OF,GEN SERV AGCY	LOS PINOS FORESTRY CAMP	2	B	MUN	8361	4952
9 000000078	A		TRABUCO CANYON WATER DISTRICT	ROBINSON RANCH WW RECL. PLANT	2	B	MUN	4952	
9 000000082	A		RAINBOW MUNICIPAL WATER DIST.	OAK CREST MOBILE HOME PARK	2	B	MUN	6515	4952
9 000000099	A		SAN DIEGO,COUNTY OF,PUBLIC WKS	PINE VALLEY SANITATION DIST.	2	B	MUN	4952	
9 000000100	A		SAN DIEGO,COUNTY OF,PUBLIC WKS	DESCANSO DETENTION WATER PCF	2	B	MUN	9223	4952
9 000000104	A	CA0107654	KETTENBURG MARINE CORPORATION	KETTENBURG MARINE CORPORATION	2	B	IND	3732	
9 000000107	A		HIDEAWAY LAKES MOBILE ESTATES	HIDEAWAY LAKE M.E. S.T.P.	2	B	MUN	6515	4952
9 000000109	A		SAN DIEGO,COUNTY OF,PUBLIC WKS	JULIAN WATER POLLUTION FACIL.	2	B	MUN	4952	
9 000000111	A	CA0107638	OCEANSIDE MARINE CENTRE INC.	OCEANSIDE MARINE CENTRE INC.	2	B	IND	3732	
9 000000112	A	CA0107719	NIELSEN BEAUMONT MARINE, INC.	NIELSEN BEAUMONT MARINE, INC.	2	B	IND	3732	
9 000000114	A		SANTA MARGARITA WATER DISTRICT	OSO CREEK WATER RECL PLANT	2	B	MUN	4952	
9 000000118	A		MOULTON NIGUEL WATER DISTRICT	JOINT REGIONAL WATER RECL FACL	2	B	MUN	4952	
9 000000122	A		SAN DIEGO,COUNTY OF,PUBLIC WKS	HEISE PARK CAMPGROUND	2	B	MUN	7033	4952
9 000000123	A		SAN DIEGO,COUNTY OF,PUBLIC WKS	RANCHO DEL CAMPO WPCF	2	B	MUN	4952	
9 000000145	A		PAUMA VALLEY COMMUN. SERV. DT.	COMMUNITY TREATMENT PLANT	2	B	MUN	4952	
9 000000157	A		WHISPERING PALMS COMM SERV DIS	WHISPERING PALMS WPCF	2	B	MUN	4952	
9 000000172	A		SOUTH COAST WATER DISTRICT	WATER RECLAMATION PROJECT	2	B	MUN	4952	
9 000000176	A		WARNER SPRINGS ESTATES	WARNER SPRINGS MOBILE ESTATES	2	B	MUN	6515	4952
9 000000177	A		FRANK DUDEK, DUDEK & ASSOC.	RANCHO SANTA FE SAN DIST PLANT	2	B	MUN	4952	
9 000000206	A		LEUCADIA COUNTY WATER DISTRICT	GAFNER WATER RECLAMATION FACIL	2	B	MUN	4952	
9 000000216	A		SAN DIEGO,COUNTY OF,PUBLIC WKS	RANCHO CIELO SAN DIST TRMT PT	2	B	MUN	4952	
9 000000217	A		OTAY MUNICIPAL WATER DISTRICT	JAMACHA BASIN WATER RECL PLANT	2	B	MUN	4952	
9 000000219	A	CA0107620	DANA POINT SHIPYARD	DANA POINT SHIPYARD	2	B	IND	3732	
9 000000223	A		VALLEY CENTR MUNICIPAL W.D.	SKYLINE RANCH COUNTRY CLUB	2	B	MUN	6515	4952
9 000000232	A		WOODCHUCK INCORPORATED	WOODCHUCK CAMPGROUND	2	B	MUN	7033	4952
9 000000235	A		NAVAL AIR STATION NORTH ISLAND	S.E.R.E. CAMP WARNER SPRINGS	2	B	MUN	9711	4952
9 000000236	A		VALLEY CENTR MUNICIPAL W.D.	LOWER MOOSA CANYON RECL. FACIL	2	B	MUN	4952	
9 000000246	A		SAN DIEGO,CITY OF,ANIMAL PARK	SAN PASQUAL WILD ANIMAL PK STP	2	B	MUN	7999	4952
9 000000247	A		VALLECITOS WATER DISTRICT	MEADOWLARK WTR RECLAMTN PLANT	2	B	MUN	4952	
9 000000253	A		SAN DIEGO,CITY OF,WTR UTIL DEP	FIESTA ISLAND SLUDGE DRYNG FAC	2	B	MUN	4952	
9 000000257	A		FAIRBANKS RANCH COMM SERV DIST	FAIRBANKS RANCH WPCF	2	B	MUN	4952	
9 000000262	A		WARNER DEVELOPMENT COMPANY	WARNER SPRINGS RANCH	2	B	MUN	7033	4952
9 000000270	A		SAN DIEGO,CITY OF,WTR UTIL DEP	AQUATIC TREATMENT PILOT PROJ	2	B	MUN	4952	
9 000000277	A		SAN DIEGO,COUNTY OF,PUBLIC WKS	BUENA SAN DIST,SHADOWRIDGE WRP	2	B	MUN	4952	
9 000000283	A	CA0107867	U.S. NAVY PUBLIC WORKS CENTER	NAVY PUBLIC WRK GRAVING DOCK	2	B	IND	3731	4463
9 000000290	A		SAN CLEMENTE, CITY OF	SAN CLEMENTE WATER RECL PLANT	2	B	MUN	4952	
9 000000305	A	CA0107662	KNIGHT AND CARVER YACHTCENTER	KNIGHT AND CARVER YACHTCENTER	2	B	IND	3732	
9 000000316	I		OTAY MUNICIPAL WATER DISTRICT	[illegible]					

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	WDID	STAT	NPDES #	AGENCY NAME	FACILITY NAME	TWQ	CL	TYP	SIC1	SIC2
9	000000336	A		SE CALIF. ASSOC. 7TH DAY ADVEN	SAN PASQUAL ACADEMY	2	B	MUN	7215	4952
9	000000344	A	CA0108049	SHELTER ISLAND BOATYARD	SHELTER ISLAND BOATYARD	2	B	IND	3732	
9	000000351	A		OCEANSIDE,CITY OF,WTR UTIL DEP	SAN LUIS REY LAND DISPOSAL	2	B	MUN	4952	
9	000000352	A		MOULTON NIGUEL WATER DISTRICT	MOULTON NIGUEL WD PLANT 3-A	2	B	MUN	4952	
9	000000371	A		SAN DIEGO,COUNTY OF,PUBLIC WKS	4-S RANCH WATER POL CNTRL FAC	2	B	MUN	4952	
9	000000387	A		BOULEVARD INVESTORS	DUCK POND LANDFILL	2	B	SW3	4953	
9	000000395	A		FALLBROOK SANITARY DISTRICT	PLANTS 1 & 2,RECLAMTN PROJECTS	2	B	MUN	4952	
9	000000400	A	CA0108332	CONTINENTAL MARITIME IND.,INC.	CONTINENTAL MARITIME OF SD,INC	2	B	IND	3731	
9	000000401	A		AMERICAN SOD FARM,INC.	AM-SOD,INC.	2	B	MUN	0181	
9	000000421	A		RANCHO CALIFORNIA WATER DIST.	SANTA ROSA SBR TRTMNT FACILITY	2	B	MUN	4952	
9	000000432	A		SAN DIEGO,CITY OF,WTR UTIL DEP	SAN PASQUAL WTR REC FACILITY	2	B	MUN	4952	
9	000000442	A		SAN DIEGO,COUNTY OF,PUBLIC WKS	MT. WOODSON RANCH SAN. DISTRCT	2	B	MUN	4952	
9	000000443	A		THRIFTY OIL COMPANY	THRIFTY OIL SERVICE STATION	2	B	IND	5172	
9	000000457	A		SANTA MARGARITA WATER DISTRICT	CHIQUITA WASTEWATER TRMT PLNT	2	B	MUN	4952	
9	000000464	A		VALLEY CENTR MUNICPAL W.D.	MOUNTAIN GATE WATER REC FACIL	2	B	MUN	4952	
9	000000500	H		SAN DIEGO,COUNTY OF,PUBLIC WKS	LAKE ELFIN FOREST RECL PLANT	2	B	MUN	4952	
9	000000502	A		SANTA MARGARITA WATER DISTRICT	NICHOLS RESEACH INSTITUTE WRF	2	B	MUN	4952	
9	000000514	A	CA0108804	UNOCAL REFINING & MARKETING	SERVICE STATION #3498	2	B	OTH	5541	
9	000000530	A		ARCO PETROLEUM PRODUCTS	FORMER ARCO STATION #3012	2	B	IND	5541	
9	000000531	P		OCEANSIDE, CITY OF	LA SALINA WATER RECLAMATION PT	2	B	MUN	4952	
9	000000532	P		IRVINE RANCH WATER DISTRICT	IRVINE RANCH	2	B	MUN	4952	
9	000000540	A		ENCINA WASTEWATER AUTHORITY	WATER RECLAMATION PROJECT	2	B	MUN	1629	
9	000000542	A		PADRE DAM MUNICIPAL WATER DIST	SANTEE WATER RECLAMATION PLANT	2	B	MUN	4952	
9	000000559	A		OTAY MUNICIPAL WATER DISTRICT	HIDDEN VALLEY ESTATES WRF	2	B	MUN	4952	
9	000010N90	A		HILLSBOROUGH MASTER ASSOC, INC	HILLSBOROUGH SANITARY LANDFILL	2	B	SW3		
9	000011N90	A		CAMPO BAND OF MISSION INDIANS	PROPOSED CAMPO INDIAN RES LF	2	B	SW3	4953	
9	000016N90	A		U.S. MARINE CORPS	LANDING CRAFT AIR CUSHION	2	B	OTH		
9	000020N90	A		SAN DIEGO,COUNTY OF,SLD WASTE	FALLBROOK LANDFILL	2	B	SW3	9511	
9	000021N90	A		SAN DIEGO,COUNTY OF,SLD WASTE	SAN YSIDRO LANDFILL	2	B	SW3	9511	
9	000022N90	A		SIGNAL LANDMARK	GRAND CARIBE	2	B	OTH	4953	
9	000023N90	A		SAN DIEGO,COUNTY OF,SLD WASTE	VIEJAS LANDFILL	2	B	SW3	9511	
9	000024N90	A		SAN DIEGO,COUNTY OF,SLD WASTE	CARLSBAD LANDFILL	2	B	SW3	9511	
9	000025N90	A		SAN DIEGO,COUNTY OF,SLD WASTE	SAN MARCOS (OLD) LINB VISTA LF	2	B	SW3	9511	
9	000026N90	A		SAN DIEGO,COUNTY OF,SLD WASTE	ENCINITAS LANDFILL	2	B	SW3	9511	
9	000027N90	A		U.S. NAVY	SAN CLEMENTE CANYON BURN DUMP	2	B	SW3	9511	
9	000028N90	A		U.S. NAVY	OLD REFUSE DISPOSAL AREA	2	B	SW3	9511	
9	000029N90	A		U.S. NAVY	OLD SPANISH BIGHT LANDFILL	2	B	SW3	9511	
9	000030N90	A		U.S. NAVY	SANDBLAST GRIT DISPOSAL AREA	2	B	SW3	9511	
9	000031N90	A		U.S. NAVY	ADMIRAL BAKER GOLF COURSE	2	B	SW3	9511	
9	000032N90	A		U.S. NAVY	CAMP ELLIOT HEATING PLANT	2	B	SW3	9511	
9	000033N90	A		SAN DIEGO,CITY OF,SLD WST DIV	PARADISE HILLS LANDFILL	2	B	SW3	9511	
9	000034N90	A		SAN DIEGO,CITY OF,SLD WST DIV	ARIZONA STREET LANDFILL	2	B	SW3	9511	
9	000035N90	A		SAN DIEGO,CITY OF,SLD WST DIV	SOUTH CHOLLAS LANDFILL	2	B	SW3	9511	
9	000036N90	A		CAPISTRANO ASCOT DEVELOPMENT	FORSTER CANYON LANDFILL STN 17	2	B	SW3	9511	
9	000037N90	A		OCEANSIDE,CITY OF, PUBIC WORKS	MAISON STREET LANDFILL	2	B	SW3	9511	
9	000039N90	A		SAN DIEGO,COUNTY OF,SLD WASTE	ALPINE II	2	B	SW3	9511	

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	WDID	S T A T	NPDES #	AGENCY NAME	FACILITY NAME	T W Q	C P L Y	TYP	SIC1	SIC2
9	000000004	A		SPARKLETTS DRINKING WATER CORP	WATER SOFTENING AND BOTTLE PLT	2	C	IND	7339	
9	000000020	A	CA0003565	MISSION LINEN SUPPLY,OCEANSIDE	MISSION LINEN SUPPLY	2	C	IND	7215	
9	000000033	A		CALIFORNIA DEPT OF FORESTRY	PUERTA LA CRUZ CONSERV CAMP	2	C	MUN	4951	
9	000000047	A		SWISS COMPANY ENTERPRISES	SANTA YSABEL RANCH DAIRY	2	C	AGR	0241	
9	000000048	A		JOSEPHINE L. SCRIPPS DAIRY	JOSEPHINE L. SCRIPPS DAIRY	2	C	AGR	0241	
9	000000056	H	CA0108022	FLUID SYSTEMS DIVISION,UOP INC	FLUID SYSTEMS DIVISION,UOP INC	2	C	IND	4941	
9	000000136	H		ED BROWER DAIRY	ED BROWER DAIRY	2	C	AGR	0241	
9	000000190	A		PHIL MAR DAIRY	PHIL MAR DAIRY	2	C	AGR	0241	
9	000000196	A		VAN OMMERING DAIRY	VAN OMMERING DAIRY	2	C	AGR	0241	
9	000000197	A		VALLEY VIEW DAIRY	VALLEY VIEW DAIRY	2	C	AGR	0241	
9	000000198	A		VAN TOL DAIRY	VAN TOL DAIRY	2	C	AGR	0241	
9	000000200	A		VALLEY DAIRY	VALLEY DAIRY	2	C	AGR	0241	
9	000000202	A		BERT VERGER DAIRY	BERT VERGER DAIRY	2	C	AGR	0241	
9	000000205	A		PETE-VERBOOM DAIRY NO. 2	PETE VERBOOM DAIRY NO. 2	2	C	AGR	0241	
9	000000208	A		ZWIERSTRA AND SON DAIRY	ZWIERSTRA AND SON DAIRY	2	C	AGR	0241	
9	000000209	A		VANDER WOUDE DAIRY	VANDER WOUDE DAIRY	2	C	AGR	0241	
9	000000211	A		HOLLANDIA DAIRY	HOLLANDIA DAIRY	2	C	AGR	0241	
9	000000218	A		EDENVALE DAIRY	EDENVALE DAIRY	2	C	AGR	0241	
9	000000224	A		DE JONG DAIRY	CLOVERDALE DAIRY	2	C	AGR	0241	
9	000000228	A		KONYN,TMY FARMS,SAN DIEGO CITY	FRANK KONYN DAIRY, TMY FARMS	2	C	AGR	0241	
9	000000237	A		MESA CHIQUITA RANCH DAIRY	MESA CHIQUITA RANCH DAIRY	2	C	AGR	0241	
9	000000239	A		WESSELINK AND SONS DAIRY	WESSELINK AND SONS DAIRY	2	C	AGR	0241	
9	000000256	A		JOHN KONYN AND SON DAIRY	JOHN KONYN AND SON DAIRY	2	C	AGR	0241	
9	000000258	A		WHELAN DAIRY	WHELAN DAIRY	2	C	AGR	0241	
9	000000259	A		DE RAADT DAIRY	DE RAADT DAIRY	2	C	AGR	0241	
9	000000267	A	CA0107450	CULLIGAN WATER CONDITION, INC.	CULLIGAN WATER CONDITION, INC.	2	C	IND	7399	
9	000000276	A		CARLSBAD RACEWAY CORPORATION	CARLSBAD RACEWAY	2	C	MUN	7948	4951
9	000000361	H		WEARY RIVER RANCH DAIRY	WEARY RIVER RANCH DAIRY	2	C	AGR	0241	
9	000000366	A		PETE VERBOOM DAIRY NO. 1	PETE VERBOOM DAIRY NO.1	2	C	AGR	0241	
9	000000440	A		S & S DAIRY	S & S DAIRY	2	C	AGR	0241	
9	000000441	P		MUSCOVY GROVE DUCK FARM	MUSCOVY GROVE DUCK FARM	2	C	AGR	2017	
9	000000452	A		AMERICANA HOLSTEIN DAIRY	AMERICANA HOLSTEIN DAIRY	2	C	AGR	0241	
9	000000465	H		AMERICAN FIRST BEEF INC.	AMERICAN FIRST BEEF INC.	2	C	AGR	0211	
9	000000529	A	CA0108707	CORONADO POINT CONDO CORP.	THE LANDING PHASES II AND III	2	C	OTH	7011	
9	000000533	P		DEPT OF FORESTRY	RAINBOW CONSERVATION CAMP	2	C	MUN	9223	4952

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WDID	STAT	NPDES #	AGENCY NAME	FACILITY NAME	TWQ	CPLX	TYP	SIC1	SIC2
9 000000427	A		SAN DIEGO GAS & ELECTRIC CO.	ENCINA POWER PLANT-TPCA	3	A	IND	4941	
9 000003N87	A		TRULY NOLEN	TRULY NOLEN	3	A	OTH		
9 000005N89	A		POWAY INDUSTRIAL COMPLEX	POWAY INDUSTRIAL COMPLEX	3	A	IND	6512	
9 000019N90	A		DEPARTMENT OF THE NAVY	FIRE FIGHTER DRILL FIELDS	3	A	OTH		

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WDID	S T A T	NPDES #	AGENCY NAME	FACILITY NAME	T W G	C E I	TYP	SIC1	SIC2
9	000000001	A	METRO WATER DIST OF SOUTH CAL	SKINNER PLANT LANDFILL	I	B	SW3	4959	4941
9	000000054	A	PADRE DAM MUNICIPAL WATER DIST	SANTEE RECREATIONAL LAKES PARK	I	B	MUN	4952	
9	000000084	A	RALPH DAILY SOD FARM	EASTERN MWD,RANCHO WATER REUSE	I	B	MUN	0181	
9	000000106	A	OCEANSIDE,CITY OF,WTR UTIL DEP	ROBERT WEESE FILTRATION PT LF	I	B	SW3	4953	4941
9	000000282	A	PRINCE OF PEACE ABBEY	PRINCE OF PEACE ABBEY	I	B	MUN	8661	4951
9	000000383	A	LONIMAR STABLES, INC.	WHISPERING PALMS,WATER REUSE	I	B	MUN	0139	
9	000000410	A	SOLK RANCH	RAMONA SAN VICENTE,WATER REUSE	I	B	MUN	0139	
9	000000486	A	RANPAC ENGINEERING CORPORATION	RAINBOW CANYON HGTS LANDFILL	I	B	SW3	4953	
9	000002N89	A	CITY OF CHULA VISTA	CITY OF CHULA VISTA	I	B	MUN		
9	000017N90	A	U.S. MARINE CORPS	STUART MESA STABILIZATION POND	I	B	OTH		
9	000042N90	A	INDUSTRIAL ASPHALT	SAN JUAN CAPISTRANO FACILITY	I	B	IND	395	

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WDID	STAT	NPDES #	AGENCY NAME	FACILITY NAME	TWB	CL	TYP	SIC1	SIC2
9 000000002	A		METRO WATER DIST OF SOUTH CAL	SKINNER FILTRATION PLANT	3	C	OTH	4941	
9 000000003	A		VR DENNIS CONSTRUCTION COMPANY	CONSTRUCTION AGGREGATE WASHING	3	C	IND	1442	
9 000000007	A		EASTLAKE DEVELOPMENT COMPANY	OTAY JAMACHA BASIN,WATER REUSE	3	C	MUN	1531	
9 000000008	A		CALLAWAY VINEYARD & WINERY	CALLAWAY VINEYARD & WINERY	3	C	IND	2084	
9 000000010	A		C.L. PHARRIS	C. L. PHARRIS	3	C	IND	1442	
9 000000014	A		SWALLOWS-SUN ISLAND CLUB	SWALLOWS-SUN ISLAND CLUB	3	C	MUN	7033	
9 000000015	A		SKYLINE RANCH CAMPGROUND	SKYLINE RANCH CAMPGROUND	3	C	MUN	7033	
9 000000021	A		MODERN STAIRWAYS INC.	MODERN STAIRWAYS INC.	3	C	IND	3271	
9 000000023	A		SUPERIOR READY-MIX CONCRETE	VISTA PLANT	3	C	IND	3273	
9 000000024	A		SUPERIOR READY MIX CONCRETE	SUPERIOR READY MIX-FALLBROOK	3	C	IND	3273	
9 000000025	A		SUPERIOR READY MIX CONCRETE LP	ESCONDIDO CONCRETE BATCH PLANT	3	C	IND	3273	
9 000000026	A		SAN DIEGO GAS & ELECTRIC CO	OTAY JAMACHA BASIN,WATER REUSE	3	C	MUN	4911	4971
9 000000027	A		FALLBROOK KAMP RETREAT	FALLBROOK KAMP RETREAT	3	C	MUN	7033	
9 000000028	A		ALPINE R. V. RESORT	ALPINE R.V. RESORT	3	C	MUN	7033	
9 000000037	A		NORTH AMER. INDIAN MISSION,INC	BUFFALO VALLEY CAMPGROUND	3	C	MUN	7033	
9 000000038	A		TUCALOTA SPRINGS R.V. PARK,INC	TUCALOTA SPRINGS R.V. PARK,INC	3	C	MUN	7033	
9 000000039	A	CA0107191	TRI-CITY MEDICAL CENTER	TRI-CITY HOSPITAL	3	C	IND	8062	
9 000000040	A		ANZA PINES MOBILE HOME PARK	ANZA PINES MOBILE HOME PARK	3	C	MUN	4951	
9 000000042	A		L&H GROUP/ST. CLAIRE PROP. MGT	TWIN LAKES RESORT	3	C	MUN	7033	4951
9 000000043	A		R.C.P. BLOCK & BRICK, INC.	RCP BLOCK & BRICK, INC.	3	C	IND	1442	
9 000000044	A		THOUSAND TRAILS, PIO PICO	PIO PICO PRESERVE	3	C	MUN	7033	4951
9 000000050	A		SEA BREEZE MANAGEMENT CO.	SANTA MARGARITA WD,WATER REUSE	3	C	MUN	8811	6531
9 000000051	A		MISSION VIEJO COMPANY	SANTA MARGARITA WD,WATER REUSE	3	C	MUN	7992	
9 000000052	A		MOUNT PALOMAR WINERY	MOUNT PALOMAR WINERY	3	C	IND	2084	
9 000000057	A		VAIL LAKE/DAE PARTNERS	BUTTERFIELD COUNTRY R.V. RESRT	3	C	MUN	7033	
9 000000059	A		THOMAS JAEGER WINERY	THOMAS JAEGER WINERY	3	C	IND	2084	
9 000000060	A		EL NIGUEL COUNTRY CLUB	MOULTON NIGUEL JR, WATER REUSE	3	C	MUN	7992	
9 000000061	A	CA0108065	RITZ-CARLTON HOTEL	RITZ-CARLTON HOTEL	3	C	IND	7011	
9 000000062	A		DEPT OF PARKS AND RECREATION	CUYAMACA RANCHO STATE PARK	3	C	MUN	7033	
9 000000063	A		MT. EMPIRE UNIFIED SCHOOL DIST	MT EMPIRE JR & SR HIGH SCHOOL	3	C	MUN	8211	
9 000000064	A		CALTRANS	RAINBOW TRUCK WGH & INSP FACIL	3	C	MUN	4782	
9 000000067	A		LAKE MORENA RV PARK	LAKE MORENA RV PARK	3	C	MUN	7033	6515
9 000000071	A		PINEZANITA TRAILER RANCH	PINEZANITA TRAILER RANCH	3	C	MUN	7033	
9 000000072	A		PAUMA VALLEY INVESTMENT TRUST	RANCHO CORRIDO TRAILER PARK	3	C	MUN	7032	
9 000000079	A		CALIFORNIA SILICA PRODUCTS CO.	MISSION VIEJO SAND PLANT	3	C	IND	1446	
9 000000081	A		SIM J. HARRIS COMPANY	SIM J. HARRIS COMPANY PLANT	3	C	IND	1442	3273
9 000000093	A		SAN DIEGO GAS & ELECTRIC CO.	AGUA HEDIONDA LAGOON DREDGING	3	C	OTH	1629	4911
9 000000095	A		HOLIDAY RANCH	HOLIDAY RANCH	3	C	MUN	7033	4951
9 000000096	A		WARNER RESORT COMPANY	LAKE HENSHAW RESORT	3	C	MUN	7033	4951
9 000000097	A		LAKE CUYAMACA REC & PARK DIST.	LAKE CUYAMACA REC & PARK DIST	3	C	MUN	7033	4951
9 000000098	A		IVY DEL TRAILER PARK	IVY DEL TRAILER PARK	3	C	MUN	7033	4951
9 000000101	A		ORANGE,COUNTY OF,ENVIRON MGMT	O'NEILL REG. PARK CAMPGROUND	3	C	MUN	7033	4951
9 000000102	A		SKP RESORT OF SO. CALIF., INC.	LAZY K RANCH CAMPGROUND	3	C	MUN	7033	4951
9 000000103	A		SHILOAH SPRINGS BIBLE RETREAT	INDIAN HILLS CAMPGROUND	3	C	MUN	7033	4951
9 000000105	A		INDIAN OAKS TRAILER RANCH	INDIAN OAKS TRAILER RANCH	3	C	MUN	7033	4951
9 000000108	A		LIVE OAK SPRINGS RESORT	LIVE OAK SPRINGS RESORT	3	C	MUN	7033	4951
9 000000110	A		OAKVALE PARK	OAKVALE PARK	3	C	MUN	7033	4951

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	WDID	S T A T	NPDES #	AGENCY NAME	FACILITY NAME	T W Q	C L I	TYP	SIC1	SIC2
9	000000116	A		AMERICAN ADVENTURE, INC.	GREAT OUTDOOR AMERICAN ADVENTR	3	C	MUN	7033	4951
9	000000121	A		SAN DIEGO,COUNTY OF,PKS & REC	DOS PICOS PARK	3	C	MUN	7033	4951
9	000000126	A		SAN DIEGO,COUNTY OF,PUBLIC WKS	DEER PARK	3	C	MUN	7033	4952
9	000000127	A		ASPHALT INCORPORATED	SLAUGHTERHOUSE CANYON PLANT	3	C	IND	2951	
9	000000128	A		REGAL MARKETING INC.	CAMELOT RESORT	3	C	MUN	7033	
9	000000129	A		THOUSAND TRAILS INC.	OAKZANITA SPRINGS PARK	3	C	MUN	7033	
9	000000130	A		EL RANCHO GRANDE RV PARK	EL RANCHO GRANDE RV PARK	3	C	MUN	7033	
9	000000131	A		PROGRESSIVE MGMT & INVESTMENT	ORTEGA OAKS CAMPGROUND	3	C	MUN	7033	4951
9	000000132	A		OAK KNOLL CAMPGROUND	OAK KNOLL CAMPGROUND	3	C	MUN	7033	4951
9	000000133	A		SAN DIEGO,COUNTY OF,PKS & REC	POTRERO PARK	3	C	MUN	7033	4951
9	000000134	A		MALLORCA ASSOCIATION	SANTA MARGARITA WD,WATER REUSE	3	C	MUN	6531	4971
9	000000135	A		LAKE ASSOCIATION	SANTA MARGARITA WD,WATER REUSE	3	C	MUN	7999	4971
9	000000140	A		EL TORO MATERIAL COMPANY	GLASS CANYON FACILITY	3	C	IND	1442	
9	000000142	A		MISSION VIEJO COMPANY	SANTA MARGARITA WD, WTR REUSE	3	C	MUN	6531	4971
9	000000143	A		MISSION VIEJO COMPANY	SANTA MARGARITA WD, WTR REUSE	3	C	MUN	6531	4971
9	000000147	A		SORRENTO READY MIX, INC.	CARMEL VALLEY-DEL MAR PLANT	3	C	IND	1442	
9	000000150	H		AMERON PIPE PRODUCTS GROUP	AMERON PIPE PRODUCTS GROUP	3	C	IND	3272	
9	000000153	A		CALMAT CO.	CALMAT SAND & GRAVEL PLANT	3	C	IND	1442	3273
9	000000154	A		PINE VALLEY TRAILER PARK	PINE VALLEY TRAILER PARK	3	C	MUN	7033	4951
9	000000155	A		OAK GROVE FISH FARMS	OAK GROVE FISH FARMS	3	C	OTH	0279	4951
9	000000158	A		NELSON AND SLOAN	OTAY SAND & CONCRETE BATCH PLT	3	C	IND	1442	3273
9	000000159	A		CAL-MAT COMPANY	SLOAN CANYON SAND PLANT	3	C	IND	1442	
9	000000160	A		U.S. ARMY CORPS OF ENGINEERS	SWEETWATER CHANNEL IMPRVMT PJT	3	C	OTH	1442	
9	000000171	A		NELSON AND SLOAN	CHANNEL ROAD SAND PLANT	3	C	IND	1442	
9	000000180	A		NIGUEL SHORES COMMUNITY ASSOC.	SOUTH COAST WD,WATER REUSE	3	C	MUN	6531	4971
9	000000181	A		ALISO CRK(BEN BROWN)GOLF COURS	SOUTH COAST WD,WATER REUSE	3	C	MUN	7992	4971
9	000000182	A		AVCO COMMUNITY DEVELOPERS,INC.	SOUTH COAST WD,WATER REUSE	3	C	MUN	6531	4971
9	000000183	A		CAPISTRANO BAY PK & RECR DIST	SOUTH COAST WD,WATER REUSE	3	C	MUN	7999	4971
9	000000184	A		CAPISTRANO UNIFIED SCHOOL DIST	SOUTH COAST WD,WATER REUSE	3	C	MUN	8211	4971
9	000000185	A		EMERALD RIDGE HOMEOWNERS ASSOC	SOUTH COAST WD,WATER REUSE	3	C	MUN	6531	4971
9	000000186	A		ORANGE,COUNTY OF,HBRS,PKS&RCHS	SOUTH COAST WD,WATER REUSE	3	C	MUN	7999	4971
9	000000187	A		CRAFTSTONES	GEMSTONES PROCESSING PLANT	3	C	IND	3915	
9	000000189	A		MISSION VIEJO MATERIALS, INC.	MISSION VIEJO MATERIALS, INC.	3	C	IND	1442	3273
9	000000191	A		PAIR-A-DICE MOBILE HOME PARK	PAIR-A-DICE MOBILE HOME PARK	3	C	MUN	7033	4951
9	000000195	A		RIVERSIDE,COUNTY OF,PARKS DEPT	SKINNER RECREATION AREA	3	C	MUN	7033	4952
9	000000201	P		THE CASTER GROUP, L.P.	LAKESIDE SAND PLANT	3	C	IND	1442	
9	000000203	H	CA0107221	U.S. SILICA COMPANY OF CALIF.	U.S. SILICA COMPANY OF CALIF.	3	C	IND	1446	
9	000000210	A		LILAC OAKS CAMPGROUND	LILAC OAKS CAMPGROUND	3	C	MUN	7033	4951
9	000000212	A		SAN DIEGO,COUNTY OF,PKS & REC	LOWER OTAY LAKE COUNTY PARK/	3	C	MUN	7033	4951
9	000000221	A		OUTDOOR WORLD CAMPGROUND	OUTDOOR WORLD CAMPGROUND	3	C	MUN	7033	4951
9	000000230	A		LA COSTA GOLF COURSE	VALLACITOS WD WATER REUSE	3	C	MUN	7011	4971
9	000000233	H		MARRON BROTHERS,INC.	MARRON BROTHERS,INC.	3	C	IND	1442	
9	000000238	A		BARRETT LAKE TRAILER PARK	BARRETT LAKE TRAILER PARK	3	C	MUN	7033	4951
9	000000241	A		VISTA IRRIGATION DISTRICT	BUENA SANIT DIST, WATER REUSE	3	C	MUN	4971	
9	000000242	I		DAON CORPORATION	BUENA SANIT. DIST,WATER REUSE	3	C	MUN	4971	
9	000000249	A		WOODS VALLEY CAMPGROUND	WOODS VALLEY CAMPGROUND	3	C	MUN	7033	4951
9	000000250	H	CA0108138	SAN JUAN CAPO HOT SPRINGS REST	SAN JUAN CAPISTRANO HOTSPRINGS	3	C	IND	7999	4951

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WDID	S T A T	NPDES #	AGENCY NAME	FACILITY NAME	T W Q	C P L I	TYP	SIC1	SIC2
9 000000251	A	CA0107956	SAN JUAN BASIN AUTHORITY	SAN JUAN GRNDWTR IMPRVMNT PRJT	3	C	OTH	9511	
9 000000255	A		CAL-MAT COMPANY	PALA PRODUCTION PLANT	3	C	IND	1442	
9 000000260	A		CAL-MAT COMPANY	MISSION VALLEY PLANT COMPLEX	3	C	IND	1442	3273
9 000000263	A		VIEJAS BAND OF MISSION INDIANS	VIEJAS INDIAN RV PARK & CAMPGD	3	C	MUN	7033	4951
9 000000264	A		CAL-MAT COMPANY, INC.	CARROL CANYON PLANT	3	C	IND	1442	
9 000000265	A		CAL-MAT COMPANY, INC.	SAN JUAN CAPISTRANO PLANT	3	C	IND	1442	
9 000000266	A		CAL-MAT COMPANY, INC.	LAKESIDE SAND PLANT	3	C	IND	1442	3273
9 000000281	A		CONTINENTAL GRANITE CORP.	CONTINENTAL GRANITE CORP.	3	C	IND	1411	
9 000000284	A		CALTRANS	SAN DIEGO,CITY OF,AQ WTR REUSE	3	C	MUN	9621	4971
9 000000287	A		WARM SPRINGS MOBILHOME & RV PK	WARM SPRINGS MOBILHOME & RV PK	3	C	MUN	6515	4951
9 000000288	A		CONVAIR RECREATION ASSOCIATION	PINE CREST PARK	3	C	MUN	7041	4951
9 000000291	H		RSD NITTA ENTERPRISES	RANCHO SAN DIEGO GOLF COURSE	3	C	OTH	1442	
9 000000292	A		CIRCLE H RANCH, INC.	CIRCLE H RANCH	3	C	MUN	7033	4951
9 000000293	A	CA0107891	SAN DIEGO UNIFIED PORT DIST	FISH SORTING SLABS	3	C	IND	0912	
9 000000294	A		PALOMAR TRANSIT MIX, INC.	WASHINGTON AVENUE PLANT	3	C	IND	3273	
9 000000301	A		COLOR SPOT FOLIAGE INC.	COLOR SPOT FOLIAGE INC.	3	C	IND	5261	
9 000000302	A		CARLSBAD MUNICIPAL WATER DIST.	RECLAIMED WATER PURVEYOR	3	C	MUN	4971	
9 000000304	A		COAST SAND COMPANY INC.	COAST SAND COMPANY INC.	3	C	IND	1442	
9 000000312	A		PALOMAR TRANSIT MIX COMPANY	OCEANSIDE CONCRETE BATCH PLANT	3	C	IND	3273	
9 000000318	A		CATERED LIVING, INC.	CHAMPAGNE LAKES RV RESORT	3	C	MUN	7033	4951
9 000000320	A		HARMONY QUARRY, INC.	HARMONY ROCK PRODUCTS PLANT	3	C	IND	1499	
9 000000323	A		THOUSAND TRAILS, INC.	PALOMAR VALLEY PRESERVE	3	C	MUN	7033	4951
9 000000325	A		PACIFIC COAST PROPERTY	SANTA MARGARITA WD,WATER REUSE	3	C	MUN	6531	4971
9 000000326	A		KEY PACIFIC PROPERTY MANAGEMNT	SANTA MARGARITA WD,WATER REUSE	3	C	MUN	6531	4971
9 000000327	A		BRISTOL COVE PROP OWNERS ASSOC	BRISTOL COVE DREDG-AQUA HED LN	3	C	OTH	1442	8811
9 000000329	A	CA0108103	SAN DIEGO UNIFIED PORT DIST.	SAN DIEGO CONVENTION CENTER	3	C	OTH	4629	
9 000000330	A		COWBOY COUNTRY RV PARK	COWBOY COUNTRY RV PARK	3	C	MUN	7033	4951
9 000000338	A		BOULDER OAKS RESORT	BOULDER OAKS RESORT	3	C	MUN	7033	4951
9 000000339	A		GROSVENOR & GROSVENOR	STALLION OAKS RANCH	3	C	MUN	7033	4951
9 000000340	A		CALTRANS	SANTA MARGARITA WD,WATER REUSE	3	C	MUN	9621	4971
9 000000355	A	CA0107514	H.G. FENTON MATERIAL CO.	FENTON MAT. MISSION VALLEY PT.	3	C	IND	1442	3273
9 000000356	A		H.G. FENTON MATERIAL CO.	FENTON MATERIALS PALA PLANT	3	C	IND	1442	
9 000000357	A		H.G. FENTON MATERIAL CO.	PRE-MIXED CONCRETE COMPANY	3	C	IND	3273	
9 000000358	A		H.G. FENTON MATERIAL CO.	FENTON MAT., ESCONDIDO PLANT	3	C	IND	3273	
9 000000359	A		U.S. ARMY CORPS OF ENGINEERS	OCEANSIDE HARBOR DREDGING	3	C	OTH	4469	
9 000000367	H		SAN LUIS REY DOWNS ENTERPRISES	SAN LUIS REY DOWNS ENTERPRISES	3	C	IND	1442	
9 000000374	A	CA0108146	SNYDER LANGSTON INCORPORATED	PACIFIC BEACH PROMENADE	3	C	OTH	1629	
9 000000377	A		KELCO,DIVISION OF MERCK & CO.	AGRONOMY DEMONSTRATION PROJECT	3	C	IND	4953	
9 000000388	A		EL TORO MATERIAL COMPANY	LOS ALISOS WD- WATER REUSE	3	C	MUN	3532	
9 000000391	A		J.W. SAND & MATERIAL INC.	J.W. SAND & MATERIAL INC.	3	C	IND	1442	
9 000000405	A	CA0108201	PACIFIC MARKET INVESTMENT CO.	EMBASSY SUITES HOTEL	3	C	OTH	1522	
9 000000406	A		MISSION VIEJO COUNTRY CLUB	MOULTON NIGUEL 3A, WATER REUSE	3	C	MUN	7992	4952
9 000000409	A		CALTRANS	FALLBROOK SAN DIST WATER REUSE	3	C	MUN	9621	4971
9 000000422	A		KELCO, DIVISION OF MERCK & CO.	FENTON JANAL RANCH (KELCO)	3	C	IND	4953	
9 000000435	P		SAN DIEGO,CITY OF,PARKS & REC	SOUTH SHORES PROJECT	3	C	OTH	1442	
9 000000436	A	CA0108391	MOUNTAIN WATER ICE COMPANY	MOUNTAIN WATER ICE COMPANY	3	C	IND	2097	
9 000000459	A		JOHN MCGRAW	SINGLE FAMILY RESIDENCE	3	C	OTH	1521	

NPDES/WDR FACILITIES:THREAT TO WATER QUALITY/COMPLEXITY LIST

WDID	STAT	NPDES #	AGENCY NAME	FACILITY NAME	TWQ	CPL	TYP	SIC1	SIC2
9 000000461	A	CA0108481	SAN DIEGO,CITY OF,WTR UTIL DEP	MISSION BAY AREA CONSTRUCTION	3	C	OTH	1623	
9 000000463	A		CALIFORNIA,STATE OF,TRANSPORT	TEMECULA TRUCK INSPECT FACIL	3	C	OTH	4782	
9 000000476	A		TEMECULA CREEK GOLF COURSE	EASTERN MWD,RANCHO WATER REUSE	3	C	MUN	7992	
9 000000477	A		PACIFIC SOD CORPORATION	EASTERN MWD,RANCHO WATER REUSE	3	C	MUN	0181	
9 000000478	A		REDHAWK GOLF COURSE	EASTERN MWD,RANCHO WATER REUSE	3	C	MUN	7992	
9 000000479	A		DOVE CANYON GOLF COURSE	SANTA ANA MTNS CWD,WATER REUSE	3	C	MUN	7992	
9 000000485	A		U.S. ARMY CORPS OF ENGINEER	SAN LUIS REY RIVER DREDGING	3	C	OTH	1629	
9 000000488	P	CA0108600	SAN DIEGO,CITY OF,WTR UTIL DEP	PUMP_STATION 38 DEWATERING	3	C	MUN		
9 000000494	P		BOY SCOUTS OF AMERICA	MATAGUAY SCOUT RESERVATION	3	C	OTH		
9 000000501	A	CA0108693	INTERNATIONAL BOUNDARY & WATER	SOUTH BAY LAND OUTFALL DEWATER	3	C	OTH	1623	
9 000000505	P	CA0109774	SANTA MARGARITA WATER DISTRICT	SOUTH COUNTY PIPELINE	3	C	MUN	1623	
9 000000516	P		CITY OF CARLSBAD	CANNON ROAD REACH 1	3	C	OTH	1611	
9 000000527	P		BRISTOL COVE PROPERTY OWNERS	BRISTOL COVE DREDGING	3	C	OTH		
9 000000536	A		THE CASTER GROUP	WOODWARD SAND PIT RECL PROJECT	3	C	SW3	4953	
9 000000560	P		R.C.P. BLOCK & BRICK, INC.	RCP BLOCK & BRICK, INC.	3	C	IND	1442	
9 000001N90	A		SIGNAL LANDMARK	RANCHO CARRILLO, GRAND CRIBE	3	C	OTH	4953	
9 000009N89	A		BROTHERTON RANCH	BROTHERTON RANCH	3	C	AGR	0291	
9 000044N90	A		SANTA MARGARITA WATER DISTRICT	S. COUNTY PIPELINE PRJ C-1485A	3	C	OTH	4952	
9 000065N91	A		WHELAN LAKE BIRD SANCTUARY	WHELAN-LAKE BIRD SANCTUARY	3	C	OTH	9999	

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ATTACHMENT 6
CHARACTERISTICS SUMMARY

CHARACTERISTIC	CAMPBELL INDUSTRIES	SOUTHWEST MARINE	NASSCO
SIZE			
Land Acres	10	7	80
Water Acres	13	15	47
Total Acres	23	22	127
BUSINESS VOLUME			
Vessels per Year	24 to 30	40 to 50	10 to 20
Vessel Size	80' to 400'	16' to 700'	20' to 1000'
Navy Vessels (% of total business)	80%	90%	80%
Commercial Vessels (% of total business)	20%	10%	20%
Workforce Size (typical number of employees)	200 -750	1100	4000
PRIMARY ACTIVITIES			
Vessel Construction (% of total business)	60%	None	60%
Vessel Repair (% of total business)	40%	100%	40%
FACILITIES			
Graving Dock	No	No	Yes
• Number	0	0	1
• Capacities (tons)	NA	NA	30000 LT
Shipbuilding Ways	No	No	Yes
• Number	NA	NA	2
• Capacities (tons)	0	0	35000 LT
Floating Drydocks	Yes	Yes	Yes
• Number	3	2	1
• Capacities (tons)	28,000 1000 & 400	22,000 4,000	19,750 LT
Marine Railways	Yes	Yes	No
• Number	3	3	NA
• Capacities (tons)	1000	#2 900k dwt #3 700k dwt	NA
Berths/Piers	Yes	Yes	Yes
• Number	5	5	12

ATTACHMENT 6
CHARACTERISTICS SUMMARY

CHARACTERISTIC	CAMPBELL INDUSTRIES	SOUTHWEST MARINE	NASSCO
INDUSTRIAL PROCESSES			
Surface Preparation and Paint Removal	Yes	Yes	Yes
• Dry Abrasive Blasting	Yes	Yes	Yes
• Wet Abrasive/Slurry Blasting	No	No	No
• Hydroblasting	Yes	Yes	Yes
• Chemical Stripping	No	No	No
Paint Application	Yes	Yes	Yes
Tank Cleaning	Yes	Yes	Yes
Mechanical Repair/Maintenance/Installation	Yes	Yes	Yes
Structural Repair/Alteration/Assembly	Yes	Yes	Yes
Integrity/Hydrostatic Testing	Yes	Yes	Yes
Paint Equipment Cleaning	Yes	Yes	Yes
Engine Repair/Maintenance/Installation	Yes	Yes	Yes
Pipe Fitting	Yes	Yes	Yes
Steel Fabrication and Machining	Yes	Yes	Yes
Electrical Repair/Maintenance/Installation	Yes	Yes	Yes
Hydraulic Repair/Maintenance/Installation	Yes	Yes	Yes
Tank Emptying (bilge, fuel, ballast etc.)	Yes	Yes	Yes
Fueling	Yes	Yes	Yes
Patternmaking	Yes	Yes	Yes
Shipfitting	Yes	Yes	Yes
Boiler Cleaning	Yes	Yes	Yes
Carpentry	Yes	Yes	Yes
Refurbishing/Modernization/Cleaning	Yes	Yes	Yes
Air Conditioning/Refrigeration Repair	Yes	Yes	Yes
Sheet Metal Fabrication	Yes	Yes	Yes
Fiberglass Repair	No	Yes	Yes
Electroplating/Metal Finishing	No	No	Yes
Blacksmithing	Yes	No	Yes
Zinc Primer Application (assembly plates)	Yes	No	Yes
Printing	No	No	Yes
Photo Processing	No	No	Yes
MATERIALS USED (Major Categories)			
Abrasive grit	Yes	Yes	Yes
Paint	Yes	Yes	Yes
• Anticorrosive Paints (primers)	Yes	Yes	Yes
• Antifouling Paints	Yes	Yes	Yes
Oils (engine, cutting and hydraulic)	Yes	Yes	Yes
Lubricants, Grease	Yes	Yes	Yes

ATTACHMENT 6
CHARACTERISTICS SUMMARY

CHARACTERISTIC	CAMPBELL INDUSTRIES	SOUTHWEST MARINE	NASSCO
Fuels	Yes	Yes	Yes
MATERIALS USED (Major Categories) (cont'd)			
Weld	Yes	Yes	Yes
Detergents, Cleaners	Yes	Yes	Yes
Rust Inhibitors	Yes	Yes	Yes
Paint Thinners/Solvents	Yes	Yes	Yes
Hydrocarbon or Chlorinated Solvents	Yes	Yes	Yes
Degreasers	Yes	Yes	Yes
Acids	Yes	Yes	Yes
Caustics	Yes	Yes	Yes
Resins	Yes	Yes	Yes
Adhesives, Cements, Sealants	Yes	Yes	Yes
Cyanide	No	No	Yes
Zinc (e.g., zinc dust)	No	Yes	Yes
Chlorine	Yes	Yes	Yes
Mercury	No	No	Yes
WASTES GENERATED (Major Categories)			
Abrasive Blast Waste	Yes	Yes	Yes
• Spent Grit	Yes	Yes	Yes
• Spent Paint	Yes	Yes	Yes
• Marine Organisms	Yes	Yes	Yes
• Rust	Yes	Yes	Yes
Fresh Paint	Yes	Yes	Yes
Bilge Waste/Other Oily Wastewater	Yes	Yes	Yes
Blast Wastewater	Yes	Yes	Yes
Oils (engine, cutting, hydraulic)	Yes	Yes	Yes
Lubricants, Grease	Yes	Yes	Yes
Fuels	Yes	Yes	Yes
Waste Paints/Sludges/Solvents/Thinners	Yes	Yes	Yes
Integrity/Hydrostatic Testing Discharge (repairs)	No	Yes	Yes
Construction/Repair Wastes and Trash	Yes	Yes	Yes
Asbestos	Yes	Yes	Yes
Sewage	Yes	Yes	Yes
Boiler Blowdown, Condensate, Discard	Yes	Yes	Yes
Spent Hydrocarbon or Chlorinated Solvents	Yes	Yes	Yes
Acid Wastes	Yes	Yes	Yes
Caustic Wastes	Yes	Yes	Yes
Aqueous Wastes (with and without metals)	Yes	Yes	Yes

ATTACHMENT 6
CHARACTERISTICS SUMMARY

CHARACTERISTIC	CAMPBELL INDUSTRIES	SOUTHWEST MARINE	NASSCO
WASTE DISCHARGES TO SAN DIEGO BAY			
(ACTUAL AND POTENTIAL)			
Floating Drydock Deballasting (tanks)	Yes	Yes	Yes
Floating Drydock Submergence/Emergence (platform)	Yes	Yes	Yes
Floating Drydock Operations	Yes	Yes	Yes
Graving Dock Dewatering	No	No	Yes
Gate Leakage	No	No	Yes
Hydrostatic Relief Flows	No	No	Yes
Shipbuilding Ways Dewatering/Gate Leakage/Relief F	No	No	Yes
Marine Railway Operations	Yes	Yes	No
Berth & Pier Operations	Yes	Yes	Yes
Stormwater	Yes	Yes	Yes
Integrity/Hydrostatic Testing Discharge (new vessels	No	No	Yes
Boiler & Cogeneration Feedwater	Yes	Yes	No
Fire Protection System Discharge	Yes	Yes	Yes
Cooling Water (vessels, equipment, etc.)	Yes	Yes	Yes
Miscellaneous Water Flows	Yes	Yes	Yes
STORM DRAIN STRUCTURES			
Storm Drain Inlets	1	15	30
Storm Drain Outfalls	3	15	9
TOTAL ANNUAL PAINT USAGE			
1991 Anticorrosive (gal.)	774	265	12,783
Antifouling (gal.)	1,009	4667	1,949
Total (gal.)	8,418	25,399	60,525
1990 Anticorrosive (gal.)	134	347	7,535
Antifouling (gal.)	501	3992	3,031
Total (gal.)	4,740	22,175	75,355
1989 Anticorrosive (gal.)	1,579	125	4,794
Antifouling (gal.)	713	1,309	1,040
Total (gal.)	6,957	7,273	57,117
1988 Anticorrosive (gal.)	738	120	4,020
Antifouling (gal.)	85	12,50	425
Total (gal.)	1,527	6,950	26,040
1987 Anticorrosive (gal.)	?	100	1,510
Antifouling (gal.)	?	1,100	890
Total (gal.)	?	6,500	33,332

ATTACHMENT 6
CHARACTERISTICS SUMMARY

CHARACTERISTIC	CAMPBELL INDUSTRIES	SOUTHWEST MARINE	NASSCO
TOTAL ANNUAL WASTE GENERATED			
1991 Abrasive Blast Waste (tons)	302	2,580	2,330
Waste Paint (gal.)	240	3,048	14,300
Waste Mixed Oil (gal.)	1,600	546,286	23,153
1990 Abrasive Blast Waste (tons)	249	3,850	2,214
Waste Paint (gal.)	0	2,666	9,040
Waste Mixed Oil (gal.)	5,000	464,343	10,500
1989 Abrasive Blast Waste (tons)	18	1,585	2,100
Waste Paint (gal.)	355	872	1,000
Waste Mixed Oil (gal.)	2,650	162,520	26,101
1988 Abrasive Blast Waste (tons)	62	1,400	2,513
Waste Paint (gal.)	0	834	672
Waste Mixed Oil (gal.)	1,125	150,000	50,475
1987 Abrasive Blast Waste (tons)	203.5	1,300	2,700
Waste Paint (gal.)	0	780	700
Waste Mixed Oil (gal.)	3,791	140,000	22,700

ATTACHMENT 7

COMMON CONSTITUENTS IN SHIPYARD PAINTS

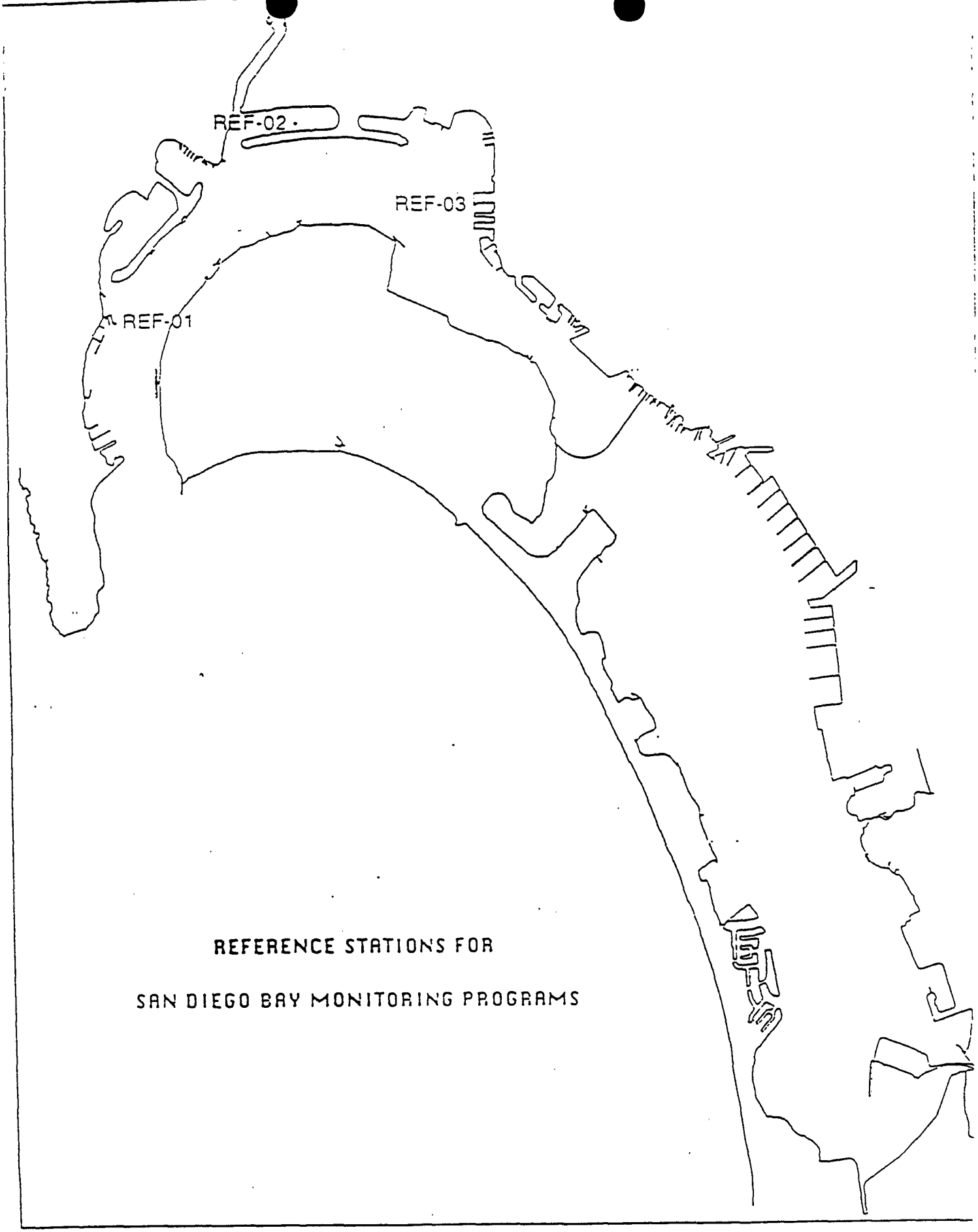
PAINTS:

2-butanone oxide
acetone
aluminum powder
alkyd resin
barium sulfate
butoxy ethanol
butyl alcohol
butyl glycidyl ether
chromium
coal tar pitch
copper oxide
epoxy resin
ethoxy ethanol
ethyl alcohol
ethyl benzene
hydrochloric acid
iso butyl alcohol
isopropyl alcohol
lampblack
lead
magnesium silicate
methy ethyl ketone
methyl alcohol
methyl iso-butyl ketone
methyl iso-smyl ketone
methyl n-amyl detone
mineral spirits
n-butyl acetate
n-utyl alcohol
naphtha
nolybdate orange
phenolic resin
phosphoric acid
polyamide resin
polyanide
polyvinyl-butyral resin
propopylene glycol methyl
rod lead
rosin
silica
talc
tetraethylene
thixatrope
titanium dioxide
toluene
tributyl tin oxide
tributyltin fluoride

tricresol phosphate
vinyl acetate
vinyl alcohol
vinyl chloride
vinyl resin
water
xylene
zinc
zinc chromate
zinc oxide

THINNERS:

acetone
isopropyl alcohol
linseed oil
n-butyl alcohol



REFERENCE STATIONS FOR

SAN DIEGO BAY MONITORING PROGRAMS

ATTACHMENT 9 -- CAMPBELL SEDIMENT DATA

CONSTITUENT	UNITS (DRY WT.)	NUMBER OF SAMPLES	RANGE OF VALUES	MEDIAN	PERCENT > S.D. BAY REFERENCE (1)	PERCENT > MARINA REFERENCE (2)	PERCENT > PUGET SOUND AET (3)	PERCENT > CLEANUP LEVEL (4)
REGIONAL BOARD, 1989								
Copper	mg/kg	11	194 - 1190	733	100%	NA	73%	55%
Tributyltin	ug/kg	10	1200 -13000	3700	100%	100%	NA	NA
Zinc	mg/kg	11	245 - 902	547	100%	NA	73%	NA
PTI, 1991								
Copper	mg/kg	46	75 - 2500	408	91%	NA	52%	35%
Tributyltin	ug/kg	44	53 -16300	1690	91%	93%	NA	NA
Zinc	mg/kg	46	168 - 2600	478	94%	NA	65%	NA

NA= Not Applicable

1 **Reference Concentrations**
Average of three samples collected at Stations Ref-01, Ref-02, and Ref-03 in San Diego Bay.
Copper Reference Value = 137 mg/kg (dry wt.)
Tributyltin Reference Value = 78 ug/kg (dry wt.)
Zinc Reference Value = 226 mg/kg (dry wt.)

2 **Marina Reference**
Based on samples from Shelter Island Yacht Harbor.
Tributyltin (TBT) Marina Reference Value = 200 mg/kg (dry wt.)

3 **Apparent Effects Threshold (AET), 1988 Puget Sound**
AET is defined as the sediment concentration of a contaminant above which statistically significant ($P \leq 0.05$) adverse effects for a particular biological indicator are always expected relative to appropriate reference conditions.
Copper AET Value = 390 mg/kg (dry wt.)
TBT AET Value = Not Available
Zinc AET Value = 410 mg/kg (dry wt.)

4 **Cleanup Level**
Sediment cleanup concentration established by the Regional Board for the Commercial Basin Boatyards in 1991.
Copper Cleanup Level = 530 mg/kg (dry wt.)

ATTACHMENT 10 -- SOUTHWEST MARINE SEDIMENT DATA

CONSTITUENT	UNITS (DRY WT.)	NUMBER OF SAMPLES	RANGE OF VALUES	MEDIAN	PERCENT > S.D. BAY REFERENCE (1)	PERCENT > MARINA REFERENCE (2)	PERCENT > PUGET SOUND AET (3)	PERCENT > CLEANUP LEVEL (4)
REGIONAL BOARD, 1988 AND 1989								
Copper	mg/kg	11	175 - 1170	499	100%	NA	73%	27%
Tributyltin	ug/kg	5	1000 - 8800	3500	100%	100%	NA	NA
Zinc	mg/kg	11	179 - 782	460	91%	NA	82%	NA
SAIC, 1991 (Pier 1 Only)								
Copper	mg/kg	4	388 -670	524	100%	NA	75%	50%
Tributyltin	ug/kg	4	100 - 1259	380	100%	50%	NA	NA
Zinc	mg/kg	4	420 - 1322	828	100%	NA	100%	NA

1 **Reference Concentrations**
Average of three samples collected at Stations Ref-01, Ref-02, and Ref-03 in San Diego Bay. NA= Not Applicable
Copper Reference Value = 137 mg/kg (dry wt.)
Tributyltin Reference Value = 78 ug/kg (dry wt.)
Zinc Reference Value = 226 mg/kg (dry wt.)

2 **Marina Reference**
Based on samples from Shelter Island Yacht Harbor.
Tributyltin (TBT) Marina Reference Value = 200 mg/kg (dry wt.)

3 **Apparent Effects Threshold (AET), 1988 Puget Sound**
AET is defined as the sediment concentration of a contaminant above which statistically significant ($P \leq 0.05$) adverse effects for a particular biological indicator are always expected relative to appropriate reference conditions.
Copper AET Value = 390 mg/kg (dry wt.)
TBT AET Value = Not Available
Zinc AET Value = 410 mg/kg (dry wt.)

4 **Cleanup Level**
Sediment cleanup concentration established by the Regional Board for the Commercial Basin Boatyards in 1991.
Copper Cleanup Level = 530 mg/kg (dry wt.)

ATTACHMENT 11 -- NASSCO SEDIMENT DATA

CONSTITUENT	UNITS (DRY WT.)	NUMBER OF SAMPLES	RANGE OF VALUES	MEDIAN	PERCENT > S.D. BAY REFERENCE (1)	PERCENT > MARINA REFERENCE (2)	PERCENT > PUGET SOUND AET (3)	PERCENT > CLEANUP LEVEL (4)
REGIONAL BOARD, 1988								
Copper	mg/kg	15	87 - 1150	312	67%	NA	40%	27%
Tributyltin	ug/kg	15	25 - 5200	420	93%	73%	NA	NA
Zinc	mg/kg	15	159 - 1970	460	73%	NA	53%	NA
Dames & Moore, 1991 (Shipbuilding Ways 2 Only)								
Copper	mg/kg	3	204 -319	245	100%	NA	0%	0%
Tributyltin	ug/kg	3	346 - 559	422	100%	100%	NA	NA
Zinc	mg/kg	3	227 - 325	272	100%	NA	0%	NA

NA= Not Applicable

1 **Reference Concentrations**
Average of three samples collected at Stations Ref-01, Ref-02, and Ref-03 in San Diego Bay.
Copper Reference Value = 137 mg/kg (dry wt.)
Tributyltin Reference Value = 78 ug/kg (dry wt.)
Zinc Reference Value = 226 mg/kg (dry wt.)

2 **Marina Reference**
Based on samples from Shelter Island Yacht Harbor.
Tributyltin (TBT) Marina Reference Value = 200 mg/kg (dry wt.)

3 **Apparent Effects Threshold (AET), 1988 Puget Sound**
AET is defined as the sediment concentration of a contaminant above which statistically significant ($P \leq 0.05$) adverse effects for a particular biological indicator are always expected relative to appropriate reference conditions.
Copper AET Value = 390 mg/kg (dry wt.)
TBT AET Value = Not Available
Zinc AET Value = 410 mg/kg (dry wt.)

4 **Cleanup Level**
Sediment cleanup concentration established by the Regional Board for the Commercial Basin Boatyards in 1991.
Copper Cleanup Level = 530 mg/kg (dry wt.)

ATTACHMENT 12
MUSSEL DATA

CAMPBELL INDUSTRIES				
STATE MUSSEL WATCH REPORT	1988-89	-	-	-
PTI DATA	-	2/1/91	2/1/91	2/1/91
STATION	883.50	Mussel 1	Mussel 2	Mussel 3
COPPER mg/kg wet wt.	7.86	4.20	5.30	5.90
COPPER mg/kg dry wt.	52.4	-	-	-
COPPER EDL 85 mg/kg wet wt.	4.79	1.70	1.70	1.70
COPPER EDL 95 mg/kg wet wt.	12.26	2.61	2.61	2.61
ZINC mg/kg wet wt.	56.1	30.6 (est)	38.9 (est)	24.8 (est)
ZINC mg/kg dry wt.	374.0	-	-	-
ZINC EDL 85 mg/kg wet wt.	53.52	43.1	43.1	43.1
ZINC EDL 95 mg/kg wet wt.	77.91	55.6	55.6	55.6
TBT ug/kg wet wt.	-	240 (est)	190	390 (est)
TBT ug/kg dry wt.	-	-	-	-
SOUTHWEST MARINE				
STATE MUSSEL WATCH REPORT	1985-86	1986-87	1987-88	1988-89
STATION	882.6	882.7	882.7	882.7
COPPER mg/kg wet wt.	4.29	-	22.64	12.25
COPPER mg/kg dry wt.	35.19	-	168.93	87.5
COPPER EDL 85 mg/kg wet wt.	-	-	-	4.79
COPPER EDL 85 mg/kg dry wt.	21.85	-	21.85	-
COPPER EDL 95 mg/kg wet wt.	-	-	-	12.26
COPPER EDL 95 mg/kg dry wt.	47.83	-	47.83	-
ZINC mg/kg wet wt.	46.51	-	77.73	57.5
ZINC mg/kg dry wt.	381.22	-	580	410.5
ZINC EDL 85 mg/kg wet wt.	-	-	-	53.52
ZINC EDL 85 mg/kg dry wt.	336.34	-	336.34	-
ZINC EDL 95 mg/kg wet wt.	-	-	-	77.91
ZINC EDL 95 mg/kg dry wt.	431.94	-	431.94	-
TBT ug/kg wet wt.	608	1960	-	-
TBT ug/kg dry wt.	4680	13080	-	-
NASSCO				
STATE MUSSEL WATCH REPORT	1982-83	1987-88		
STATION	886.0	882.5		
COPPER mg/kg wet wt.	5.77	5.67		
COPPER mg/kg dry wt.	37.73	44.3		
COPPER EDL 85 mg/kg dry wt.	21.85	21.85		
COPPER EDL 95 mg/kg dry wt.	47.83	47.83		
ZINC mg/kg wet wt.	53.33	43.23		
ZINC mg/kg dry wt.	348.53	337.76		
ZINC EDL 85 mg/kg dry wt.	336.34	336.34		
ZINC EDL 95 mg/kg dry wt.	431.94	431.94		
TBT ug/kg wet wt.	-	-		
TBT ug/kg dry wt.	-	-		

est= estimate

Attachment 13

LIST OF PRIORITY POLLUTANTS REFERRED TO IN SECTION 307

[Section 307(a)(1) of the Act refers to the list of toxic pollutants published in Table 1 of Committee Print Number 95-30 of the House Committee of Public Works and Transportation. Following is the text of Table 1:]

TABLE 1. -- SECTION 307 -- TOXIC POLLUTANTS

Acenaphthene
Acrolein
Acrylonitrile
Aldrin/Dieldrin
Antimony and compounds*
Arsenic and compounds
Asbestos
Benzene
Benzidine
Beryllium and compounds
Cadmium and compounds
Carbon tetrachloride
Chlordane (technical mixture and metabolites)
Chlorinated benzenes (other than dichlorobenzenes)
Chlorinated ethanes (including 1,2-dichloroethane, 1,1,1-trichloroethane, and hexachloroethane)
Chloroalkyl ethers (chloromethyl, chloroethyl, and mixed ethers)
Chlorinated naphthalene
Chlorinated phenols (other than those listed elsewhere; includes trichlorophenols and chlorinated cresols)
Chloroform
2 chlorophenol
Chromium and compounds
Copper and compounds
Cyanides
DDT and metabolites
Dichlorobenzenes (o,2-, 1,3-, and 1,4-dichlorobenzenes)
Dichlorobenzidine
Dichloroethylenes (1,1- and 1,2-dichloroethylene)
2,4-dichlorophenol
Dichloropropane and dichloropropene
2,4-dimethylphenol
Dinitrotoluene
Diphenylhydrazine
Endosulfan and metabolites
Endrin and metabolites
Ethylbenzene
Fluoranthene
Haloethers (other than those listed elsewhere; includes chlorophenylphenyl ethers, bromophenylphenyl ether, bis(dischloroisopropyl) ether, bis-(chloroethoxy) methane and polychlorinated diphenyl ethers)
Halomethanes (other than those listed elsewhere; includes methylene chlorid methylchloride, methylbromide, bromide, bromoform, dichlorobrommethane, trichlorofluoromethane, dichlorodifluoromethane)
Heptachlor and metabolites
Hexachlorobutadiene
Hexachlorocyclohexane (all isomers)
Hexachlorocyclopentadiene
Isophorone
Lead and compounds
Mercury and compounds
Naphthalene
Nickel and compounds
Nitrobenzene
Nitrophenols (including 2,4-dinitrophenol) dinitrocresol)
Nitrosamines
Pentachlorophenol
Phenol
Phthalate esters
Polychlorinated biphenyls (PCBs)
Polynuclear aromatic hydrocarbons (including benzanthracenes, benzopyrenes, benzofluoranthene, chrysenes, dibenzanthracenes, and indenopyrenes)
Selenium and compounds
Silver and compounds
2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)
Tetrachloroethylene
Thallium and compounds
Toluene
Toxaphene
Trichloroethylene
Vinyl chlpride
Zinc and compounds

* The term "compounds" shall include organic and inorganic compounds

Attachment 14

Major NPDES Facility Listing

NPDES	Facility ID	Agency Name & Address	Facility Name & Address
CA0107611	9 000000117	ALISO WATER MANAGEMENT AGENCY 25411 CABOT ROAD, SUITE 209 LAGUNA HILLS, CA 92653	ALISO OCEAN OUTFALL 31592 WEST STREET SOUTH LAGUNA, CA 92677
CA0108740	9 000000511	COUNTY OF ORANGE,EMA P.O. BOX 4048 SANTA ANA, CA 927024048	STORMWATER CONVEYANCE SYSTEM P.O. BOX 4048 SANTA ANA, CA 927024048
CA0107395	9 000000030	ENCINA WASTEWATER AUTHORITY 6200 AVENIDA ENCINAS CARLSBAD, CA 92009	ENCINA OCEAN OUTFALL 6200 AVENIDA ENCINAS CARLSBAD, CA 92009
CA0107984	9 000000031	ESCONDIDO,CITY OF 201 N. BROADWAY ESCONDIDO, CA 920252798	HALE AVE. WASTEWATER TRET FLDT 1521 SOUTH HALE AVENUE ESCONDIDO, CA 92029
CA0108031	9 000000115	FALLBROOK SANITARY DISTRICT 431 SOUTH MAIN STREET FALLBROOK, CA 92028	PLANT NOS-1 & 2,OCEAN OUTFALL 1400 S. ALTURAS/2528 OVERLAND FALLBROOK, CA 92028
CA0107671	9 000000066	NATIONAL STEEL&SHIPBUILDING CO P.O. BOX 85278 SAN DIEGO, CA 92138	NATIONAL STEEL&SHIPBUILDING CO HARBOR DR AT 28TH STREET SAN DIEGO, CA 92138
CA0107433	9 000000146	OCEANSIDE,CITY OF,WTR UTIL DEP 320 NORTH HORNE STREET OCEANSIDE, CA 92054	OCEANSIDE OCEAN OUTFALL 320 NORTH HORNE STREET OCEANSIDE, CA 92054
CA0107492	9 000000053	PADRE DAM MUNICIPAL WATER DIST 10887 WOODSIDE PO BOX 719003 SANTEE, CA 920719003	SANTEE WATER RECLAMATION FACIL NORTH END FANITA PARKWAY SANTEE, CA 92071
CA0108766	9 000000512	RIVERSIDE COUNTY FLOOD CONTROL P.O BOX 1033 RIVERSIDE, CA 925021033	STORMWATER CONVEYANCE SYSTEM 1995 MARKET STREET RIVERSIDE, CA 925021033
CA0001350	9 000000092	SAN DIEGO GAS & ELECTRIC CO P O. BOX 1831 SAN DIEGO, CA 92112	ENCINA POWER PLANT 4600 CARLSBAD BOULEVARD CARLSBAD, CA 92008
CA0001376	9 000000089	SAN DIEGO GAS & ELECTRIC CO. P O. BOX 1831 SAN DIEGO, CA 92112	SILVER GATE POWER PLANT 1348 SAMPSON STREET SAN DIEGO, CA 92113

Major NPDES Facility Listing

NPDES	Facility ID	Agency Name & Address	Facility Name & Address
CA0001368	9 000000091	SAN DIEGO GAS & ELECTRIC CO. P.O. BOX 1831 SAN DIEGO, CA 92112	SOUTH BAY POWER PLANT 990 BAY BOULEVARD WEST CHULA VISTA, CA 91911
CA0001384	9 000000090	SAN DIEGO GAS & ELECTRIC CO. P.O. BOX 1831 SAN DIEGO, CA 92112	STATION B POWER PLANT 700 WEST BROADWAY SAN DIEGO, CA 92101
CA0108758	9 000000510	SAN DIEGO,CITY OF,ENGINEERING 1222 FIRST ST., MS 500 SAN DIEGO, CA 92101	STORMWATER CONVEYANCE SYSTEM SAN DIEGO CITY SAN DIEGO, CA 92101
CA0107409	9 000000275	SAN DIEGO,CITY OF,WTR UTIL DEP 202 C STREET SAN DIEGO, CA 92101	POINT LOMA OCEAN OUTFALL 1902 GATCHELL ROAD SAN DIEGO, CA 92101
CA0107999	9 000000125	SAN ELIJO JOINT POWERS AUTH. 1925 PALOMAR OAKS WAY,STE.300 CARLSBAD, CA 92008	SAN ELIJO WPCF 2695 MANCHESTER AVE. CARDIFF-BY-THE-SEA, CA 92007
CA0107417	9 000000175	SERRA 25411 CABOT ROAD, SUITE 209 LAGUNA HILLS, CA 92653	SERRA OCEAN OUTFALL 34152 DEL OBISPO DANA POINT, CA 92653
CA0001228	9 000000086	SOUTHERN CALIFORNIA EDISON CO. P.O. BOX 128 SAN CLEMENTE, CA 926740128	SONGS UNIT 1 P.O BOX 128 SAN CLEMENTE, CA 926740128
CA0108073	9 000000087	SOUTHERN CALIFORNIA EDISON CO. P.O. BOX 128 SAN CLEMENTE, CA 926740128	SONGS UNIT 2 P.O BOX 128 SAN CLEMENTE, CA 926740128
CA0108181	9 000000088	SOUTHERN CALIFORNIA EDISON CO. P.O. BOX 128 SAN CLEMENTE, CA 926740128	SONGS UNIT 3 P.O. BOX 128 SAN CLEMENTE, CA 926740128
CA0108219	9 000000161	U S. MARINE CORPS ENV/NAT RES.MANAGEMENT OFFICE CAMP PENDLETON, CA 920555010	PLANT NO. 01, HEADQUARTERS BUILDING NO 22916 CAMP PENDLETON, CA 92055
CA0108235	9 000000163	U S. MARINE CORPS ENV/NAT RES.MANAGEMENT OFFICE CAMP PENDLETON, CA 920555010	PLANT NO. 03, CHAPPO BUILDING NO 2296 CAMP PENDLETON, CA 92055
CA0108251	9 000000165	U S. MARINE CORPS ENV/NAT RES.MANAGEMENT OFFICE CAMP PENDLETON, CA 920555010	PLANT NO 09, LAS FULGAS BUILDING NO. 2296 CAMP PENDLETON, CA 92055

Major NPDES Facility Listing

NPDES	Facility ID	Agency Name & Address	Facility Name & Address
CA0108294	9 000000169	U.S. MARINE CORPS ENV/NAT RES.MANAGEMENT OFFICE CAMP PENDLETON, CA 920555010	PLANT NO. 13, TWIN LAKES BUILDING NO. 2296 CAMP PENDLETON, CA 92055

Total NPDES Majors is: 24

NPDES Permit Rating Work Sheet

- ☐ Regular Addition
- ☐ Discretionary Addition
- ☐ Score change, but no status change
- ☐ Deletion

NPDES No.: CA0107646

Facility Name: Campbell Industries

City: San Diego

Receiving Water: San Diego Bay

Reach Number:

Is this facility a steam electric power plant (SIC=4911) with one or more of the following characteristics?

1. Power output 500 MW or greater (not using a cooling pond/lake)
2. A nuclear power plant
3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

☐ YES; score is 600 (stop here) ☒ NO (continue)

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

☐ YES; score is 700 (stop here)
☒ NO (continue)

FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: Primary SIC Code: 3731

Other SIC Codes:

Industrial Subcategory Code: 0100 (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
☐ No process waste streams	0	0	☐ 3.	3	15	☐ 7.	7	35
☐ 1.	1	5	☐ 4.	4	20	☐ 8.	8	40
☐ 2.	2	10	☐ 5.	5	25	☐ 9.	9	45
			☒ 6.	6	30	☐ 10.	10	50

Code Number Checked: 06

Total Points Factor 1: 30

FACTOR 2: Flow/Stream Flow Volume *(Complete either Section A or Section B; check only one)*

Section A —Wastewater Flow Only Considered

Wastewater Type (See Instructions)			Code	Points
Type I:	Flow < 5 MGD	☐	11	0
	Flow 5 to 10 MGD	☐	12	10
	Flow >10 to 50 MGD	☐	13	20
	Flow > 50 MGD	☐	14	30
Type II:	Flow <1 MGD	☒	21	10
	Flow 1 to 5 MGD	☐	22	20
	Flow >5 to 10 MGD	☐	23	30
	Flow >10 MGD	☐	24	50
Type III:	Flow <1 MGD	☐	31	0
	Flow 1 to 5 MGD	☐	32	10
	Flow >5 to 10 MGD	☐	33	20
	Flow >10 MGD	☐	34	30

Section B —Wastewater and Stream Flow Considered

Wastewater Type (See Instructions)	Percent of Instream Wastewater Concentration at Receiving Stream Low Flow		Code	Points
TYPE I/III:	< 10%	☐	41	0
	≥ 10% to <50%	☐	42	10
	≥ 50%	☐	43	20
Type II:	< 10%	☐	51	0
	≥ 10% to <50%	☐	52	20
	≥ 50%	☐	53	30

Code Checked from Section A or B: 21

Total Points Factor 2: 10

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NPDES Permit Rating Work Sheet

FACTOR 3: Conventional Pollutants
(only when limited by the permit)

NPDES No.: |C|A|0|1|0|7|6|5|6|

A. Oxygen Demanding Pollutant: (check one) ☐ BOD ☐ COD ☐ Other: _____

Permit Limits: (check one)		Code	Points
☐	<100 lbs/day	1	0
☐	100 to 1000 lbs/day	2	5
☐	>1000 to 3000 lbs/day	3	15
☐	>3000 lbs/day	4	20

Code Checked: |__|

Points Scored: |__|__|

B. Total Suspended Solids (TSS)

Permit Limits: (check one)		Code	Points
☐	<100 lbs/day	1	0
☐	100 to 1000 lbs/day	2	5
☐	>1000 to 5000 lbs/day	3	15
☐	>5000 lbs/day	4	20

Code Checked: |__|

Points Scored: |__|__|

C. Nitrogen Pollutant: (check one) ☐ Ammonia ☐ Other: _____

Permit Limits: (check one)		Nitrogen Equivalent	Code	Points
☐	<300 lbs/day		1	0
☐	300 to 1000 lbs/day		2	5
☐	>1000 to 3000 lbs/day		3	15
☐	>3000 lbs/day		4	20

Code Checked: |__|

Points Scored: |__|__|

Total Points Factor 3: |__|0|

FACTOR 4: Public Health Impact

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this includes any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above referenced supply.

☐ YES (If yes, check toxicity potential number below)

☐ NO (If no, go to Factor 5)

Determine the *human health* toxicity potential from Appendix A. Use the same SIC code and subcategory reference as in Factor 1. (Be sure to use the human health toxicity group column — check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
☐ No process waste streams	0	0	☐ 3.	3	0	☐ 7.	7	15
☐ 1.	1	0	☐ 4.	4	0	☐ 8.	8	20
☐ 2.	2	0	☐ 5.	5	5	☐ 9.	9	25
			☐ 6.	6	10	☐ 10.	10	30

Code Number Checked: |__|__|

Total Points Factor 4: |0|0|

FACTOR 5: Water Quality Factors

NPDES [redacted]: | C | A | 0 | 1 | 0 | 7 | 6 | 4 | 6 |

A. *Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines, or technology-based state effluent guidelines), or has a wasteload allocation been assigned to the discharge?*

	Code	Points
☒ Yes	1	10
☐ No	2	0

B. *Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?*

	Code	Points
☐ Yes	1	0
☒ No	2	5

C. *Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?*

	Code	Points
☒ Yes	1	10
☐ No	2	0

Code Number Checked: A | 1 | B | 2 | C | 1 |

Points Factor 5: A | 1 | 0 | + B | 5 | + C | 10 | 0 = | 2 | 5 | TOTAL

FACTOR 6: Proximity to Near Coastal Waters

A. *Base Score: Enter flow code here (from Factor 2):* | 2 | 1 |

Enter the multiplication factor that corresponds to the flow code: | .1 | 0 |

Check appropriate facility HPRI Code (from PCS):

	HPRI #	Code	HPRI Score
☐	1	1	20
☐	2	2	0
☒	3	3	30
☐	4	4	0
☐	5	5	20

HPRI code checked: | 3 |

Flow Code	Multiplication Factor
11, 31, or 41	0.00
12, 32, or 42	0.05
13, 33, or 43	0.10
14 or 34	0.15
21 or 51	0.10
22 or 52	0.30
23 or 53	0.60
24	1.00

Base Score: (HPRI Score) 30 x (Multiplication Factor) .1 = 3.0 (TOTAL POINTS)

B. *Additional Points — NEP Program*
For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?

	Code	Points
☐ Yes	1	10
☒ No	2	0

C. *Additional Points — Great Lakes Area of Concern*
For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see instructions)

	Code	Points
☐ Yes	1	10
☒ No	2	0

Code Number Checked: A | 3 | B | 2 | C | 2 |

Points Factor 6: A | 3 | .0 | + B | 0 | 0 | + C | 0 | 0 | = | 3.0 | TOTAL

SCORE SUMMARY

NPDES No.: C A C 1 C 7 6 [illegible]

Factor	Description	Total Points
1	Toxic Pollutant Potential	30
2	Flow/Streamflow Volume	10
3	Conventional Pollutants	0
4	Public Health Impacts	0
5	Water Quality Factors	25
6	Proximity to Near Coastal Waters	3
	TOTAL (Factors 1 through 6)	68

S1. Is the total score equal to or greater than 80? ☐ Yes (Facility is a major) ☒ No

S2. If the answer to the above question is no, would you like this facility to be discretionary major?

☐ No

☒ Yes (Add 500 points to the above score and provide reason below:

Reason: See 12-14-92 Threat to Water Quality Staff Report (Campbell, Southwest Marine, NASSCO)

NEW SCORE: _____

OLD SCORE: _____

D.S. JAYNE
Permit Reviewer's Name

(____)_____-_____
Phone Number

12-14-92
Date

INSTRUCTIONS FOR COMPLETING THE NPDES PERMIT RATING WORK SHEET

General Information

From the permit, enter the NPDES number, facility name, and city. Enter the receiving water name and EPA reach number.

The eleven digit reach number for a facility can be obtained through the use of the STORET water quality database that resides on the EPA IBM mainframe computer. The user will need to have a USERID to access the computer and will need to have STORET database privileges. See your EPA ADP coordinator for the former and call STORET User Support at 1-800-424-9067 for the latter. Once these items have been obtained, the user may access a procedure known as the "PCS/STORET Interface" (or IPS5). This procedure links the PCS and STORET databases together and allows the user to obtain information from both. In order to obtain information from the PCS system, the user will have to be approved by PCS for access. Call PCS User Support for information on getting access to this database. However, access to PCS is not necessary for obtaining a reach number.

Once logged on to the EPA IBM computer, simply issue the following command at the "Ready" prompt: *WQAB IPS5*. The procedure will ask you to provide an NPDES number; the rest is menu driven. One of the reports that is available from the procedure is the "Basic" report. This will provide the reach number. Questions about the use of this procedure may be directed to Phillip Taylor at FTS 382-7046 or (202) 382-7046.

Answer the next two questions regarding steam electric facilities and stormwater permits. An answer of "yes" to either of these questions automatically makes this facility a major. A steam electric major will be automatically assigned a score of 600 and stormwater major will be assigned a score of 700. If either of the "yes" boxes are checked, there is no need to go further.

FACTOR 1: Toxic Pollutant Potential

Determine what SIC codes are assigned to the facility covered by the permit. This will usually be on page II-3 of Form C. Be sure that the SIC codes are those contained in the latest SIC code book published in 1987. If the facility has more than one outfall, there will be a Section II for each outfall. When multiple SIC codes are assigned, select the one that appears to represent the primary activity at the facility and enter it in the primary SIC code box. Then enter up to three other SIC codes in the indicated boxes, selecting those that appear most significant if more than four have been reported (this will be rare).

Use the primary SIC code to search Appendix A of these instructions to determine if there are industrial subcategories for that SIC code. If not, there will be a single entry in Appendix A for that SIC code or no entry at all. If there are subcategories (indicated by multiple entries for one SIC code), select the subcategory that best corresponds to this facility. Use the CFR part and subpart number to help you identify the appropriate subcategory. Continue this procedure for each of the other SIC codes recorded. Select the industrial subcategory for the SIC code that has the highest toxicity group. Enter the industrial subcategory code on the rating sheet (use 000 if there is no subcategory) and check the appropriate TOTAL toxicity potential number. Note that regardless of the facility's SIC code, if the facility discharges no process waste stream to a receiving water, the points scored are 0.

Enter the appropriate code number and points scored for Factor 1 in the shaded area.

FACTOR 2: Flow/Stream Flow Volume

This factor consists of two methods, A and B. Section A or Section B should be completed, but not both. Section A takes into account only the quantity and type of wastewater discharge from the facility. Section B scores the facility for not only the quantity and type of wastewater discharged, but also it's relationship to the receiving stream low flow.

Determine the wastewater type (I, II, or III) based on the relative volumes of noncontact cooling waters, process wastewaters, and other wastewaters in the total combined discharge from the facility.

a. Type I: Noncontact cooling waters are once-through cooling only and do not include blowdown from cooling towers and recirculating cooling systems.

b. Type II: Process wastewaters include wastewaters resulting from most manufacturing processes, contact cooling water, and contaminated surface run-off.

c. Type III: Other wastewaters include boiler blowdown, blowdown from cooling towers and recirculating cooling systems, sanitary wastewater, and uncontaminated surface runoff.

The relative volumes of different wastewaters discharged can usually be determined from the permit application. Use Figure 1 to determine the wastewater type. If the entire discharge is noncontact cooling water, it is Type I. If it is all process wastewater, it is Type II. If it is neither noncontact cooling water or process wastewater, it is Type III.. If the flow contains more than 1 MGD of process wastewater or more than 10 percent process wastewater, it is Type II. If the flow is predominantly noncontact cooling water (more than 90 percent) and contains less than 1 MGD of process wastewaters, it is Type I.

Once the wastewater type has been determined, compute the total volume of wastewater discharged for all outfalls. This is the sum of the daily average discharges for each outfall shown in the permit application.

On the worksheet under the type of wastewater selected, check the appropriate flow range. Although a facility may discharge some of any or all of the three types of wastewater, only one flow range and type should be checked representing the composite of all flows. Record the two-digit flow code checked in the code box and the associated points in the total points box in the shaded area under Section A.

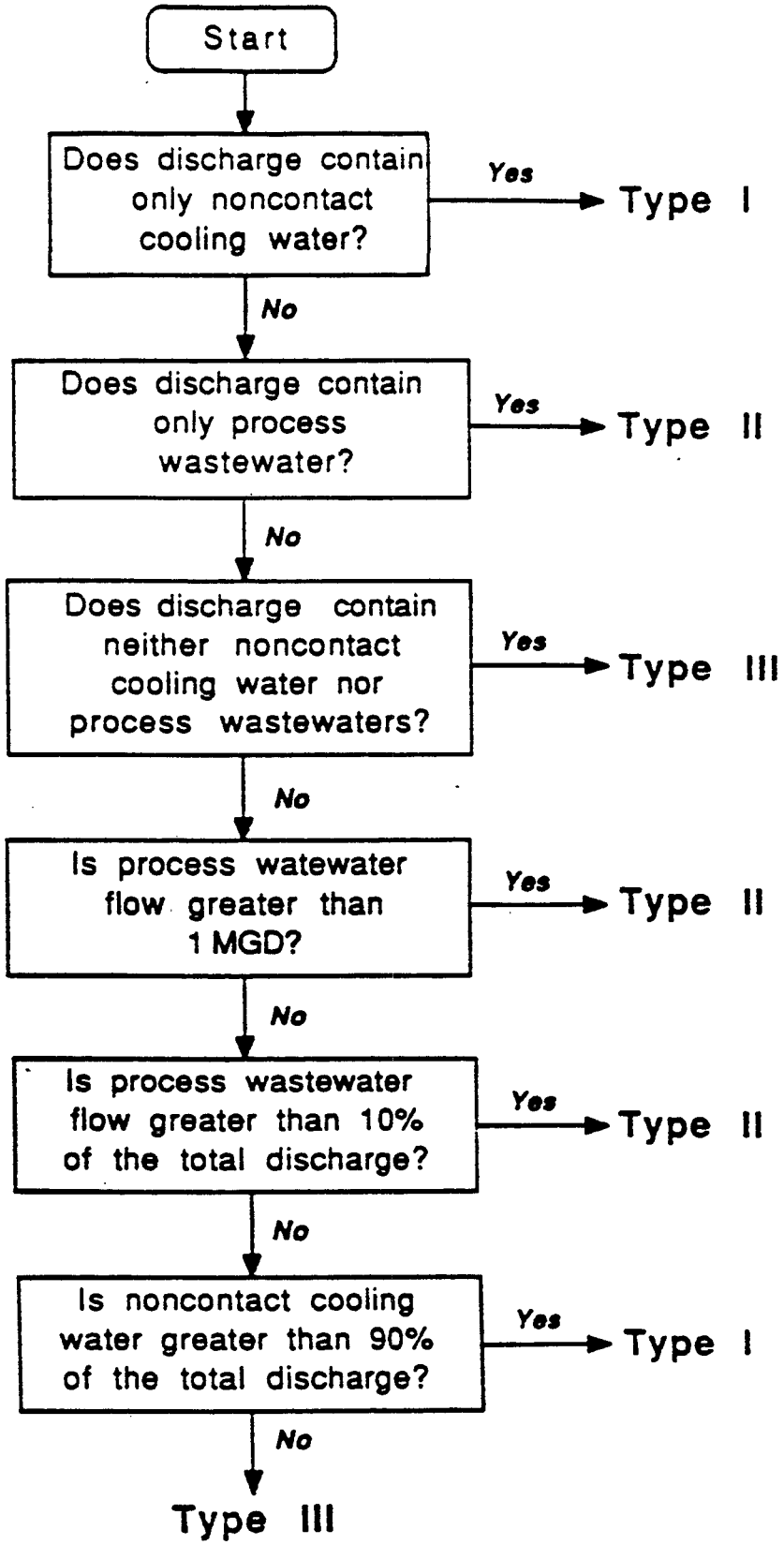
For a few selected facilities, the volume of wastewater discharged may be large relative to the low flow of the receiving water. Section B of the rating work sheet allows the reviewer to calculate rating points based on the relative amounts and types of wastewater and receiving stream flows. The reviewer should identify the type of wastewater discharged from the facility based on the procedure described above and in Figure 1. The other piece of information that will be necessary to complete Section B is the receiving stream's low flow (i.e., the 7Q10 flow or the state standard). Check off the box that most closely describes the circumstances at this facility and enter the appropriate code and points in the shaded box under Section B.

FACTOR 3: Conventional Pollutants

Data on conventional pollutants are obtained from the NPDES permit. This may be present in the permit and/or compliance files. Review the permit to see what traditional pollutants (i.e., oxygen demanding, TSS, and Ammonia) are limited. Conventional pollutant loads are to be computed only when they are limited by the permit. Use the current permit limits if the permit contains two or more sets of limits for each outfall.

Add the daily average load for the oxygen-demanding pollutant and identify on the work sheet what this parameter is (e.g., BOD, COD, TOC, UOD, etc.). If the permit is limited for more than one oxygen-demanding pollutant, use the one that provides the highest load. Most effluent limits specify loads in

Figure 1
Wastewater Type Selection Flow Diagram



kilograms or pounds per day. However, they may sometimes be given in concentration units (usually mg/l) or in loads per production unit, such as kg BOD/1000 kg of product. In such cases, the discharge must be converted to loads in terms of pounds per day using standard conversion factors and flow and/or production data from the application or the discharge monitoring reports (DMRs).

Once the load has been determined, check the appropriate box and enter the code number checked and the points scored in the shaded area. Continue this for TSS and Ammonia if these pollutants are limited.

FACTOR 4: Public Health Impact

Determine if there is a public drinking water supply within 50 miles downstream of the facility. (A drinking water intake may include infiltration galleries or other methods of conveyance that ultimately get it's water from the receiving stream of the NPDES facility). If this condition is true, answer "yes" to the question posed on the rating work sheet. Determine the human health toxicity potential from Appendix A in a similar manner as outlined in Factor 1 of this instruction sheet. Once the toxicity number has been identified, enter the code number and the points scored in the shaded area.

If there are no drinking water utilities within 50 miles downstream of this facility, answer "no" to this question and continue to Factor 5.

FACTOR 5: Water Quality Factors

Determine if the discharge is subject to water quality limiting factors. This will be true if the discharge is to a stream designated as water quality limiting by the State agency or for which waste-load allocations have been established. This will also be true if some of the effluent limits in the permit are based on water quality conditions in the receiving stream rather than on effluent guidelines (technology-based, the usual case). Making this determination may be somewhat difficult. Sources to review for the necessary information are the Fact Sheet (the rationale on which permit limits were based), water quality inventory reports prepared by the State and submitted to EPA biennially as required by Section 305, and area-wide Waste Treatment Management planning reports prepared for some urban areas by local planning agencies under Section 208. Some states may have reports summarizing these data.

Some facilities may have had whole effluent toxicity studies performed within the last two years. If this is true and the results of those tests indicated that the effluent from this facility shows toxicity, answer "yes" to question in Section C of this factor.

After answering questions A, B, and C, enter the appropriate code and points in the shaded area.

FACTOR 6: Proximity to Near Coastal Waters

Facilities may receive addition points if their discharge is to a water that is considered a "near coastal water." Each facility nationally has been assigned a Headquarters Priority Permit Indicator (HPRI). These codes range from 1 through 5, or a facility may have no code. The following are the definitions of each code:

Code	Description
1	§403(c) direct ocean discharger: dischargers seaward of the inner baseline of territorial seas. These facilities were identified in the §403(c) Report to Congress.

Code	Description
2	Discharger in coastal county not in a major estuary drainage area and not a §403(c) discharger.
3	Discharger into a major estuary or estuary drainage area.
4	Discharger in a non-coastal county, some part of which is in an estuary drainage area, discharging into fresh non-tidal waters.
5	Great Lakes discharger: dischargers that are located in a county that physically borders the Great Lakes except where the discharge is diverted into another basin (e.g., Mississippi River).

The reviewer should enter the two-digit flow code found in the section of the work sheet known as Factor 2. From PCS, ascertain the appropriate HPRI code for this facility or determine the appropriate HPRI code from the above definition. If the facility is not a near coastal facility, skip this factor entirely and continue to the score summary.

Identify the appropriate multiplication factor based on the Factor 2 flow code. Enter the HPRI score and the multiplication factor in the appropriate blanks and perform the multiplication. Enter the HPRI code checked and the points scored for Section A in the shaded area.

Facilities will receive additional points if they are discharging to an estuary that is listed in the National Estuary Protection (NEP) program (see Appendix B) or the Chesapeake Bay. Alternatively, facilities can receive additional points if they discharge to one of the Great Lakes Areas of Concern. To receive points under the Great Lakes Area of Concern section, the facility must be discharging at least one of the pollutants of concern for each of the geographic locations (see Appendix C). Points may be scored for either Section B or Section C of this factor, but not both.

Score Summary

Enter the total points scored under each of the six factors considered in this rating work sheet. Add the scores together and if the sum is greater than or equal to 80, the facility is considered a major. If a facility has scored less than 80 points and the reviewer feels that the facility should still be considered a major, the reviewer may make the facility a discretionary major by adding 500 points to the total score of each of the factors. Each EPA Region is allocated a certain number of discretionary majors. This number is a flat 50 or 10% of the actual majors plus 40, whichever is higher. Example: If Region I had 300 actual majors, the number of allocated discretionary majors would be 70 (i.e., (300 X .1) + 40 = 70). Should the reviewer wish to make this facility a discretionary major, it is strongly urged that the reasoning for this decision be provided on the rating work sheet.

To assist reviewers in ascertaining the candidates for discretionary addition, Appendix D provides some guidelines for ranking specific industrial categories.

APPENDIX A

SIC Code Cross Reference

and Total and Human Health Toxicity Number

1987 SIC Code	1987 Title	CFR Part	CFR Sub-Part	Sub-part title	Human Health Toxicity Number	Total Toxicity Number	Indus Subca Numb
211	BEEF CATTLE FEEDLOTS	412	A	All Feedlots Except Ducks	1	1	0
212	BEEF CATTLE, EXCEPT FEEDLOTS		NR	Beef Cattle not in Feedlots	1	1	99
213	HOGS	412	A	All Feedlots Except Ducks	1	1	0
213	HOGS		NR	Hogs not in Feedlots	1	1	99
214	SHEEP AND GOATS	412	A	All Feedlots except Ducks	1	1	0
214	SHEEP AND GOATS		NR	Sheep and Goats not in Feedlots	1	1	99
219	GENERAL LIVESTOCK, NEC		NR	General Livestock Farms	1	1	99
241	DAIRY FARMS	412	A	All Feedlots Except Ducks	1	1	0
241	DAIRY FARMS		NR	DAIRY CATTLE NOT CONFINED	1	1	99
251	BROILER, FRYER AND ROASTER CHICKENS	412	A	All Feedlots Except Ducks	1	1	0
252	CHICKEN EGGS	412	A	All Feedlots Except Ducks	1	1	0
253	TURKEY AND TURKEY EGGS	412	A	All Feedlots Except Ducks	1	1	0
254	POULTRY HATCHERIES		NR	Hatcheries Without Poultry Feeding	1	1	99
259	POULTRY AND EGGS, NEC	412	B	Ducks	1	1	0
259	POULTRY AND EGGS, NEC		NR	Other Poultry Farms	1	1	99
271	FUR-BEARING ANIMALS AND RABBITS		NR		1	1	99
272	HORSES AND OTHER EQUINES		NR		1	1	99
273	ANIMAL SPECIALTIES, NEC		NR		1	1	99
279	ANIMAL SPECIALTIES, NEC		NR		1	1	99
291	GENERAL FARMS, PRIMARILY LIVESTOCK		NR		1	1	99
291	GENERAL FARMS, PRIMARILY LIVESTOCK		NR		1	1	99
721	CROP PLANTING & PROTECTION		NR	Crop Dusting & Spraying	6	6	99
721	CROP PLANTING & PROTECTION		NR	Crop Planting/Cultivation	1	1	99
921	FISH HATCHERIES AND PRESERVES		NR		1	1	99
1011	IRON ORES	440	A	Iron Ore	7	7	0
1021	COPPER ORES	440	J	Cu, Pb, Zn, Ag, Au, Mo Ores	8	10	0
1031	LEAD AND ZINC ORES	440	J	Cu, Pb, Zn, Ag, Au, Mo Ores	8	10	0
1041	GOLD ORES	440	J	Cu, Pb, Zn, Ag, Au, Mo Ores	8	10	1
1041	GOLD ORES	440	M	Gold Placer Mines	8	9	2
1044	SILVER ORES	440	J	Cu, Pb, Zn, Ag, Au, Mo Ores	8	10	0
1099	BAUXITE & OTHER ALUMINUM ORES	440	B	Aluminum Ore	5	10	0
1061	FERROALLOY ORES, EXCEPT VANADIUM	440	F	Tungsten Ore	1	6	1
1061	FERROALLOY ORES, EXCEPT VANADIUM	440	G	Nickel Ores	8	8	2
1061	FERROALLOY ORES, EXCEPT VANADIUM	440	J	Cu, Pb, Zn, Ag, Au, Mo Ores	7	7	3
1061	FERROALLOY ORES, EXCEPT VANADIUM		NR	Ferroalloy Ores, NEC	8	8	99
1081	METAL MINING SERVICES		NR	Exploration/Development	8	8	99
1099	MERCURY ORES	440	D	Mercury Ores	8	8	0
1094	URANIUM-RADIUM-VANADIUM ORES	440	C	Uranium-Radium-Vanadium Ores	8	9	1
1094	URANIUM-RADIUM-VANADIUM ORES	440	H	Vanadium Ore	8	8	2
1099	METAL ORES, NEC	440	E	Titanium Ores	1	4	1
1099	METAL ORES, NEC	440	I	Antimony Ore	8	8	2
1099	METAL ORES, NEC	440	K	Platinum Ores	8	8	3
1099	METAL ORES, NEC		NR	Metal Ore, NEC	8	8	99
1231	ANTHRACITE MINING	434	B	Coal Preparation Plants	6	6	4
1231	ANTHRACITE MINING	434	C	Acid or Ferruginous Mine Drainage	5	5	1
1231	ANTHRACITE MINING	434	D	Alkaline Mine Drainage	5	5	2
1231	ANTHRACITE MINING	434	E	Post Mining Areas	5	5	5
1241	ANTHRACITE MINING SERVICES		NR		5	5	99
1221	BITUMINOUS COAL AND LIGNITE	434	B	Coal Preparation Plants	6	5	3
1221	BITUMINOUS COAL AND LIGNITE	434	C	Acid or Ferruginous Mine Drainage	5	5	1
1221	BITUMINOUS COAL AND LIGNITE	434	D	Alkaline Mine Drainage	5	5	2
1221	BITUMINOUS COAL AND LIGNITE	434	E	Post Mining Areas	5	5	4
1222	BITUMINOUS COAL AND LIGNITE	434	B	COAL PREPARATION PLANTS	6	6	5
1222	BITUMINOUS COAL AND LIGNITE	434	C	ACID OR FERRUGINOUS MINE DRAINAGE	5	5	6

APPENDIX A

SIC Code Cross Reference

and Total and Human Health Toxicity Number

972/ 977 SIC Code	1987 SIC Code	1987 Title	CFR Part	CFR Sub-Part	Sub-part title	Human Health Toxicity Number	Total Toxicity Number	Indus Subca Number
691	3691	STORAGE BATTERIES	461	A	CADMIUM BATTERIES	5	10	14
691	3691	STORAGE BATTERIES	461	B	CALCIUM BATTERIES	5	5	1
691	3691	STORAGE BATTERIES	461	C	LEAD BATTERIES	2	9	5
691	3691	STORAGE BATTERIES	461	D	LECLANCHE BATTERIES	5	5	17
691	3691	STORAGE BATTERIES	461	E	LITHIUM BATTERIES	5	5	7
691	3691	STORAGE BATTERIES	461	O	MERCURY (WESTON) CELLS	5	5	11
691	3691	STORAGE BATTERIES	461	G	ZINC BATTERIES	10	10	4
691	3691	STORAGE BATTERIES	461	O	MERCURY (RUBEN) BATTERIES	5	5	10
691	3691	STORAGE BATTERIES	461	O	LEAD ACID RESERVE BATTERIES	5	5	6
691	3691	STORAGE BATTERIES	461	F	MAGNESIUM BATTERIES	5	5	9
692	3692	PRIMARY BATTERIES, DRY & WET	461	A	CADMIUM BATTERIES	5	10	14
692	3692	PRIMARY BATTERIES, DRY & WET	461	B	CALCIUM BATTERIES	5	5	1
692	3692	PRIMARY BATTERIES, DRY & WET	461	C	LEAD BATTERIES	2	9	5
692	3692	PRIMARY BATTERIES, DRY & WET	461	E	LITHIUM BATTERIES	5	5	7
692	3692	PRIMARY BATTERIES, DRY & WET	461	F	MAGNESIUM BATTERIES	5	5	9
692	3692	PRIMARY BATTERIES, DRY & WET	461	O	MERCURY (RUBEN) BATTERIES	5	5	10
692	3692	PRIMARY BATTERIES, DRY & WET	461	O	MERCURY (WESTON) CELLS	5	5	11
692	3692	PRIMARY BATTERIES, DRY & WET	461	O	LEAD ACID RESERVE BATTERIES	3	3	6
692	3692	PRIMARY BATTERIES, DRY & WET	461	G	ZINC BATTERIES	10	10	4
693	3845	ELECTROMEDICAL EQUIPMENT	469	C	ELECTRON TUBES	8	8	1
693	3844	X-RAY APPARATUS AND TUBES	469	C	ELECTRON TUBES	8	8	2
694	3694	ELECTRICAL EQUIP FOR INTERNAL COMBUSTION	433	A	METAL FINISHING	1	9	0
694	3694	ELECTRICAL EQUIP FOR INTERNAL COMBUSTION		NR	NO ELECTROPLATING	1	1	99
699	3641	ELECTRICAL MACHINERY, EQUIPMENT & SUPPLI	433	A	METAL FINISHING	1	9	1
699	3585	ELECTRICAL MACHINERY, EQUIPMENT & SUPPLI	433	A	METAL FINISHING	1	9	2
699	3699	ELECTRICAL MACHINERY, EQUIPMENT & SUPPLI	433	A	METAL FINISHING	1	9	3
711	3711	MOTOR VEHICLES & PASSENGER CAR BODIES	433	A	METAL FINISHING	1	9	0
711	3711	MOTOR VEHICLES & PASSENGER CAR BODIES		NR	NO ELECTROPLATING	1	1	99
713	3713	TRUCK & BUS BODIES	433	A	METAL FINISHING	1	9	0
713	3713	TRUCK & BUS BODIES		NR	NO ELECTROPLATING	1	1	99
714	3714	MOTOR VEHICLE PARTS & ACCESSORIES		NR	NO ELECTROPLATING	1	1	99
714	3714	MOTOR VEHICLE PARTS & ACCESSORIES	433	A	METAL FINISHING	1	9	0
715	3715	TRUCK-TRAILERS	433	A	METAL FINISHING	1	9	0
715	3715	TRUCK TRAILERS		NR	NO ELECTROPLATING	1	1	99
721	3721	AIRCRAFT	433	A	METAL FINISHING	1	9	0
721	3721	AIRCRAFT		NR	NO ELECTROPLATING	1	1	99
724	3724	AIRCRAFT ENGINES & ENGINE PARTS	433	A	METAL FINISHING	1	9	0
724	3724	AIRCRAFT ENGINES & ENGINE PARTS		NR	NO ELECTROPLATING	1	1	99
728	3492	AIRCRAFT EQUIPMENT, NEC	433	A	METAL FINISHING	1	9	0
728	3593	AIRCRAFT EQUIPMENT, NEC		NR	NO ELECTROPLATING	1	1	99
728	3594	AIRCRAFT EQUIPMENT, NEC		NR	NO ELECTROPLATING	1	1	99
728	3594	AIRCRAFT EQUIPMENT, NEC	433	A	METAL FINISHING	1	9	1
728	3593	AIRCRAFT EQUIPMENT, NEC	433	A	METAL FINISHING	1	9	2
728	3492	AIRCRAFT EQUIPMENT, NEC		NR	NO ELECTROPLATING	1	1	99
728	3728	AIRCRAFT EQUIPMENT, NEC		NR	NO ELECTROPLATING	1	1	99
728	3728	AIRCRAFT EQUIPMENT, NEC	433	A	METAL FINISHING	1	9	3
731	3731	SHIP BUILDING AND REPAIRING	470	1	SHIP BUILDING & REPAIRING	6	6	0
732	3732	BOAT BUILDING AND REPAIRING		NR	NO ELECTROPLATING	1	1	99
732	3732	BOAT BUILDING AND REPAIRING	433	A	METAL FINISHING	1	9	0
743	3743	RAILROAD EQUIPMENT	433	A	METAL FINISHING	1	9	0
743	3743	RAILROAD EQUIPMENT		NR	NO ELECTROPLATING	1	1	99
751	3751	MOTORCYCLES, BICYCLES AND PARTS	433	A	METAL FINISHING	1	9	0
751	3751	MOTORCYCLES, BICYCLES AND PARTS		NR	NO ELECTROPLATING	1	1	99
761	3761	GUIDED MISSILES AND SPACE VEHICLES	433	A	METAL FINISHING	1	9	0

NPDES Permit Rating Work Sheet

Attachment 10

- ☐ Regular Addition
- ☐ Discretionary Addition
- ☐ Score change, but no status change
- ☐ Deletion

NPDES No.: CA0107697

Facility Name: Southwest Marine, Inc.; Shipyard 4

City: San Diego

Receiving Water: San Diego Bay

Reach Number:

Is this facility a steam electric power plant (SIC=4911) with one or more of the following characteristics?

1. Power output 500 MW or greater (not using a cooling pond/lake)
2. A nuclear power plant
3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

☐ YES; score is 600 (stop here) ☒ NO (continue)

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

☐ YES; score is 700 (stop here)
☒ NO (continue)

FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: Primary SIC Code: 3731

Other SIC Codes:

Industrial Subcategory Code: 000 (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
☐ No process waste streams	0	0	☐ 3.	3	15	☐ 7.	7	35
☐ 1.	1	5	☐ 4.	4	20	☐ 8.	8	40
☐ 2.	2	10	☐ 5.	5	25	☐ 9.	9	45
			☒ 6.	6	30	☐ 10.	10	50

Code Number Checked: 06

Total Points Factor 1: 30

FACTOR 2: Flow/Stream Flow Volume *(Complete either Section A or Section B; check only one)*

Section A —Wastewater Flow Only Considered

Wastewater Type (See Instructions)			Code	Points
Type I:	Flow < 5 MGD	☐	11	0
	Flow 5 to 10 MGD	☐	12	10
	Flow >10 to 50 MGD	☐	13	20
	Flow > 50 MGD	☐	14	30
Type II:	Flow <1 MGD	☐	21	10
	Flow 1 to 5 MGD	☒	22	20
	Flow >5 to 10 MGD	☐	23	30
	Flow >10 MGD	☐	24	50
Type III:	Flow <1 MGD	☐	31	0
	Flow 1 to 5 MGD	☐	32	10
	Flow >5 to 10 MGD	☐	33	20
	Flow >10 MGD	☐	34	30

Section B —Wastewater and Stream Flow Considered

Wastewater Type (See Instructions)	Percent of Instream Wastewater Concentration at Receiving Stream Low Flow		Code	Points
TYPE I/III:	< 10%	☐	41	0
	≥ 10% to <50%	☐	42	10
	≥ 50%	☐	43	20
Type II:	< 10%	☐	51	0
	≥ 10% to <50%	☐	52	20
	≥ 50%	☐	53	30

Code Checked from Section A or B: 22

Total Points Factor 2: 20

FACTOR 3: Conventional Pollutants
(only when limited by the permit)

NPDES [redacted]: |C|A|0|1|0|7|6|0|-|

A. Oxygen Demanding Pollutant: (check one) ☐ BOD ☐ COD ☐ Other: _____

Permit Limits: (check one)		Code	Points
☐	<100 lbs/day	1	0
☐	100 to 1000 lbs/day	2	5
☐	>1000 to 3000 lbs/day	3	15
☐	>3000 lbs/day	4	20

Code Checked: |__|

Points Scored: |__|__|

B. Total Suspended Solids (TSS)

Permit Limits: (check one)		Code	Points
☐	<100 lbs/day	1	0
☐	100 to 1000 lbs/day	2	5
☐	>1000 to 5000 lbs/day	3	15
☐	>5000 lbs/day	4	20

Code Checked: |__|

Points Scored: |__|__|

C. Nitrogen Pollutant: (check one) ☐ Ammonia ☐ Other: _____

Permit Limits: (check one)		Nitrogen Equivalent	Code	Points
☐		<300 lbs/day	1	0
☐		300 to 1000 lbs/day	2	5
☐		>1000 to 3000 lbs/day	3	15
☐		>3000 lbs/day	4	20

Code Checked: |__|

Points Scored: |__|__|

Total Points Factor 3: |__|0|

FACTOR 4: Public Health Impact

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this includes any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above referenced supply.

☐ YES (If yes, check toxicity potential number below)
☐ NO (If no, go to Factor 5)

Determine the *human health* toxicity potential from Appendix A. Use the same SIC code and subcategory reference as in Factor 1. (Be sure to use the human health toxicity group column — check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
☐ No process waste streams	0	0	☐ 3.	3	0	☐ 7.	7	15
☐ 1.	1	0	☐ 4.	4	0	☐ 8.	8	20
☐ 2.	2	0	☐ 5.	5	5	☐ 9.	9	25
			☐ 6.	6	10	☐ 10.	10	30

Code Number Checked: |__|0|

Total Points Factor 4: |0|0|

NPDES Permit Rating Work Sheet

FACTOR 5: Water Quality Factors

NPDES No.: C A 0 1 1 0 7 6 9 -

A. *Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines, or technology-based state effluent guidelines), or has a wasteload allocation been assigned to the discharge?*

		Code	Points
☒	Yes	1	10
☐	No	2	0

B. *Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?*

		Code	Points
☐	Yes	1	0
☒	No	2	5

C. *Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?*

		Code	Points
☒	Yes	1	10
☐	No	2	0

Code Number Checked: A 1 B 2 C 1

Points Factor 5: A 10 + B 5 + C 10 = 25 TOTAL

FACTOR 6: Proximity to Near Coastal Waters

A. *Base Score: Enter flow code here (from Factor 2):* 22

Enter the multiplication factor that corresponds to the flow code: 30

Check appropriate facility HPRI Code (from PCS):

	HPRI #	Code	HPRI Score
☐	1	1	20
☐	2	2	0
☒	3	3	30
☐	4	4	0
☐	5	5	20

HPRI code checked: 3

Flow Code	Multiplication Factor
11, 31, or 41	0.00
12, 32, or 42	0.05
13, 33, or 43	0.10
14 or 34	0.15
21 or 51	0.10
22 or 52	0.30
23 or 53	0.60
24	1.00

Base Score: (HPRI Score) 30 x (Multiplication Factor) .30 = 9.0 (TOTAL POINTS)

B. *Additional Points — **NEP Program***
*For a facility that has an **HPRI code of 3**, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?*

		Code	Points
☐	Yes	1	10
☒	No	2	0

C. *Additional Points — Great Lakes Area of Concern*
For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see instructions)

		Code	Points
☐	Yes	1	10
☒	No	2	0

Code Number Checked: A 3 B 2 C 2

Points Factor 6: A 90 + B 0 + C 0 = 9.0 TOTAL

SCORE SUMMARY

NPDES No.: [illegible]

Factor	Description	Total Points
1	Toxic Pollutant Potential	30
2	Flow/Streamflow Volume	20
3	Conventional Pollutants	0
4	Public Health Impacts	0
5	Water Quality Factors	25
6	Proximity to Near Coastal Waters	9
	TOTAL (Factors 1 through 6)	84

51. Is the total score equal to or greater than 80? ☒ Yes (Facility is a major) ☐ No

52. If the answer to the above question is no, would you like this facility to be discretionary major?

☐ No

☐ Yes (Add 500 points to the above score and provide reason below:

Reason: _____

NEW SCORE: _____

OLD SCORE: _____

D.S. JAYNE
Permit Reviewer's Name

( ) _____ - _____
Phone Number

12-14-92
Date

NPDES Permit Rating Work Sheet

Attachment

- ☐ Regular Addition
- ☐ Discretionary Addition
- ☐ Score change, but no status change
- ☐ Deletion

NPDES No.: CA0107671

Facility Name: National Steel Shipbuilding Company

City: San Diego

Receiving Water: San Diego Bay

Reach Number:

Is this facility a steam electric power plant (SIC=4911) with one or more of the following characteristics?

1. Power output 500 MW or greater (not using a cooling pond/lake)
2. A nuclear power plant
3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

☐ YES; score is 600 (stop here) ☒ NO (continue)

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

☐ YES; score is 700 (stop here)
☒ NO (continue)

FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: ____ Primary SIC Code: 3731

Other SIC Codes: ____ ____ ____ ____

Industrial Subcategory Code: 000 (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
☐ No process waste streams	0	0	☐ 3.	3	15	☐ 7.	7	35
☐ 1.	1	5	☐ 4.	4	20	☐ 8.	8	40
☐ 2.	2	10	☐ 5.	5	25	☐ 9.	9	45
			☒ 6.	6	30	☐ 10.	10	50

Code Number Checked: 06

Total Points Factor 1: 30

FACTOR 2: Flow/Stream Flow Volume *(Complete either Section A or Section B; check only one)*

Section A —Wastewater Flow Only Considered

Wastewater Type (See Instructions)			Code	Points
Type I:	Flow < 5 MGD	☐	11	0
	Flow 5 to 10 MGD	☐	12	10
	Flow >10 to 50 MGD	☐	13	20
	Flow > 50 MGD	☐	14	30
Type II:	Flow <1 MGD	☐	21	10
	Flow 1 to 5 MGD	☐	22	20
	Flow >5 to 10 MGD	☒	23	30
	Flow >10 MGD	☐	24	50
Type III:	Flow <1 MGD	☐	31	0
	Flow 1 to 5 MGD	☐	32	10
	Flow >5 to 10 MGD	☐	33	20
	Flow >10 MGD	☐	34	30

Section B —Wastewater and Stream Flow Considered

Wastewater Type (See Instructions)	Percent of Instream Wastewater Concentration at Receiving Stream Low Flow		Code	Points
TYPE I/III:	< 10%	☐	41	0
	≥ 10% to <50%	☐	42	10
	≥ 50%	☐	43	20
Type II:	< 10%	☐	51	0
	≥ 10% to <50%	☐	52	20
	≥ 50%	☐	53	30

Code Checked from Section A or B: 23

Total Points Factor 2: 30

FACTOR 3: Conventional Pollutants
(only when limited by the permit)

NPDES #: C A 0 1 0 7 6

A. Oxygen Demanding Pollutant: (check one) ☐ BOD ☐ COD ☐ Other: _____

Permit Limits: (check one)		Code	Points
☐	<100 lbs/day	1	0
☐	100 to 1000 lbs/day	2	5
☐	>1000 to 3000 lbs/day	3	15
☐	>3000 lbs/day	4	20

Code Checked: |__|

Points Scored: |__|__|

B. Total Suspended Solids (TSS)

Permit Limits: (check one)		Code	Points
☐	<100 lbs/day	1	0
☐	100 to 1000 lbs/day	2	5
☐	>1000 to 5000 lbs/day	3	15
☐	>5000 lbs/day	4	20

Code Checked: |__|

Points Scored: |__|__|

C. Nitrogen Pollutant: (check one) ☐ Ammonia ☐ Other: _____

Permit Limits: (check one)		Nitrogen Equivalent	Code	Points
☐	<300 lbs/day	1	0
☐	300 to 1000 lbs/day	2	5
☐	>1000 to 3000 lbs/day	3	15
☐	>3000 lbs/day	4	20

Code Checked: |__|

Points Scored: |__|__|

Total Points Factor 3: |__|0|

FACTOR 4: Public Health Impact

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this includes any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above referenced supply.

☐ YES (If yes, check toxicity potential number below)

☐ NO (If no, go to Factor 5)

Determine the *human health* toxicity potential from Appendix A. Use the same SIC code and subcategory reference as in Factor 1. (Be sure to use the human health toxicity group column — check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
☐ No process waste streams	0	0	☐ 3.	3	0	☐ 7.	7	15
☐ 1.	1	0	☐ 4.	4	0	☐ 8.	8	20
☐ 2.	2	0	☐ 5.	5	5	☐ 9.	9	25
			☐ 6.	6	10	☐ 10.	10	30

Code Number Checked: |__|__|

Total Points Factor 4: |__|0|

NPDES Permit Rating Work Sheet

FACTOR 5: Water Quality Factors

NPDES No.: | C | A | 0 | 1 | 0 | 7 | 6 | 7 | 1 |

A. *Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines, or technology-based state effluent guidelines), or has a wasteload allocation been assigned to the discharge?*

		Code	Points
☒	Yes	1	10
☐	No	2	0

B. *Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?*

		Code	Points
☐	Yes	1	0
☒	No	2	5

C. *Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?*

		Code	Points
☒	Yes	1	10
☐	No	2	0

Code Number Checked: A | 1 | B | 2 | C | 1 |

Points Factor 5: A | 1 | 0 | + B | 5 | + C | 10 | = | 25 | TOTAL

FACTOR 6: Proximity to Near Coastal Waters

A. *Base Score: Enter flow code here (from Factor 2):* | 2 | 3 |

Enter the multiplication factor that corresponds to the flow code: | .60 |

Check appropriate facility HPRI Code (from PCS):

	HPRI #	Code	HPRI Score
☐	1	1	20
☐	2	2	0
☒	3	3	30
☐	4	4	0
☐	5	5	20

HPRI code checked: | 3 |

Flow Code	Multiplication Factor
11, 31, or 41	0.00
12, 32, or 42	0.05
13, 33, or 43	0.10
14 or 34	0.15
21 or 51	0.10
22 or 52	0.30
23 or 53	0.60
24	1.00

Base Score: (HPRI Score) 30 x (Multiplication Factor) .60 = 18 (TOTAL POINTS)

B. *Additional Points — NEP Program*
For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?

		Code	Points
☐	Yes	1	10
☒	No	2	0

C. *Additional Points — Great Lakes Area of Concern*
For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see instructions)

		Code	Points
☐	Yes	1	10
☒	No	2	0

Code Number Checked: A | 3 | B | 2 | C | 2 |

Points Factor 6: A | 18 | + B | 0 | + C | 0 | = | 18 | TOTAL

SCORE SUMMARY

NPDES No.: _ _ _ _ _ _ _ _ _ _

Factor	Description	Total Points
1	Toxic Pollutant Potential	30
2	Flow/Streamflow Volume	30
3	Conventional Pollutants	0
4	Public Health Impacts	0
5	Water Quality Factors	25
6	Proximity to Near Coastal Waters	18
	TOTAL (Factors 1 through 6)	103

S1. Is the total score equal to or greater than 80? ☒ Yes (Facility is a major) ☐ No

S2. If the answer to the above question is no, would you like this facility to be discretionary major?

☐ No

☐ Yes (Add 500 points to the above score and provide reason below:

Reason: _____

NEW SCORE: _____

OLD SCORE: _____

D.S. JAYNE
Permit Reviewer's Name

(____)_____-_____
Phone Number

12-14-92
Date

REFERENCE 4

STATE OF CALIFORNIA GEO
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
9771 Clairemont Mesa Blvd., Ste. B
San Diego, California 92124-1331
Telephone. (619) 265-5114

CERTIFIED MAIL-RETURN RECEIPT
P-959-506-273

July 5, 1989

Mr. Richard Vortmann, President
National Steel and Shipbuilding Company
P.O. Box 85278
San Diego, California 92128

Dear Mr. Vortmann:

NPDES Compliance Evaluation Inspection-NASSCO
(NPDES Permit No. CA0107671)

Enclosed is a copy of the results of the recent NPDES compliance evaluation inspection conducted by Regional Board staff on May 31, 1989. Please take immediate action to correct the deficiencies noted regarding: 1) sandblast and other waste discharges from the dry dock to San Diego Bay; 2) sandblast waste discharges to Harbor Drive; 3) failure to clean storm drain sumps; and 4) failure to properly certify monitoring reports. As previously discussed, I request that you submit a report by July 7, 1989, which contains the information outlined in Reporting Requirement E.5.

Please correct other deficiencies related to your permit and submit a report describing what actions you have taken or intend to take to correct those deficiencies by December 10, 1989.

Finally, a second inspection of your facility was conducted on June 29, 1989, during which Regional Board staff noted that the sandblast waste on Harbor Drive had not been removed despite Regional Board staff's request on May 31, 1989, that the waste be removed immediately. Please note that failure to comply with your waste discharge requirements may result in additional enforcement action by the Regional Board.

Correspondence file

If you have any questions, please call Mr. Lance K. McMahan at (619) 265-5114.

Very truly yours,

LADIN H. DELANEY
Executive Officer

cc (w/enclosure):

Jeremy Johnstone
Water Management Division
Compliance Branch (W-4)
U.S. Environmental
Protection Agency
215 Fremont Street
San Francisco, CA 94105

Don Nay, Director
Port of San Diego
P.O. Box 488
San Diego, CA 92112

Steve P. Crowther
BDET
P.O. Box 429
Centreville, VA 22020

T. Michael Chee, Senior Plant Mgr.
NASSCO

Chris Gonaver
San Diego County, Dep't of Health
Services, Hazardous Materials
1700 Pacific Highway
San Diego, CA 92101

LKM3/7-5-89.ltr

United States Environmental Protection Agency
Washington, D. C. 20460

EPA NPDES Compliance Inspection Report

Form Approved
OMB No 2040-0003
Approval Expires 7-31-85

Section A: National Data System Coding

Transaction Code	NPDES	yr/mo/day	Inspection Type	Inspector	Fac Type
1 [ ] 2 [5]	3 CA0107671 11	12 890531 17	18 [C]	19 [S]	20 [2]

Remarks 21 — 66

Reserved	Facility Evaluation Rating	BI	QA	Reserved
67 [ ] 69	70 [1]	71 [N]	72 [N]	73 [ ] 74 — 75 [ ] 80

Section B: Facility Data

Name and Location of Facility Inspected	Entry Time	Permit Effective Date
National Steel and Shipbuilding Company 28th Street and Harbor Drive San Diego, CA 92113	[X] AM [ ] PM 11:00 Exit Time/Date 12:30 pm/ 890531	June 20, 1985 Permit Expiration Date June 10, 1990

Name(s) of On-Site Representative(s)	Title(s)	Phone No(s)
T. Michael Chee	Senior Plant Engineer	544-7778
James D. Paulson	Mgr. Safety, Ind. Hygiene, Fire	544-8446

Name, Address of Responsible Official	Title	Contacted
Richard Vortmann P.O. Box 85278 San Diego, CA 92138	President Phone No.	[X] Yes [ ] No

Section C: Areas Evaluated During Inspection
(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

U	Permit	U	Flow Measurement	N/A	Pretreatment	M	Operations & Maintenance
U	Records/Reports	N/A	Laboratory	N/A	Compliance Schedules	N/A	Sludge Disposal
U	Facility Site Review	N	Effluent/Receiving Waters	U	Self-Monitoring Program		Other:

Section D: Summary of Findings/Comments *(Attach additional sheets if necessary)*

The number and location of discharge points are not as described in the permit. Sandblast waste was being discharged to Harbor Drive and there was evidence that sandblast waste was discharged to San Diego Bay. The monitoring program does not require sampling for effluents, receiving waters, or bay sediments. Certification statements are not included with monitoring reports. Sample Nos. LKM889-200-A;B;C; and D were collected at NASSCO. Sample results are attached.

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Telephone	Date
Lance K. McMahan Lance K. McMahan	California Regional Water Quality Control Bd./San Diego/(619)265-5114	July 5, 1989
Signature of Reviewer	Agency/Office	Date

Regulatory Office Use Only

Action Taken	Date	Compliance Status
		[ ] Noncompliance [ ] Compliance

NATIONAL STEEL AND SHIPBUILDING COMPANY
NPDES COMPLIANCE INSPECTION REPORT
MAY 31, 1989

Section C: Areas Evaluated During Inspection

PERMIT

1. The number and location of discharge points are NOT as described in the permit. Except for item a, the following outfalls/discharge points are not identified in the permit:

   a) There are 6 storm drain systems which originate on-site and one which originates off-site. All of these systems have the potential to carry sandblast waste and other pollutants to San Diego Bay.

   b) One of the 6 on-site storm drains also carries ground water, rain water and other miscellaneous water flows pumped from the graving dock (Building Dock 1) to San Diego Bay. Wastewater from the graving dock has the potential to contain sandblast wastes and other pollutants.

   c) The graving dock has a large pump used for dewatering the dock after a ship has been brought in for repairs/ maintenance. If the ship were damaged and spilling pollutants into the water or if the graving dock was not properly cleaned prior to flooding, this discharge would be considered to be of "chemically changed" water.

   d) The facility has an active fire protection system which draws in sea-water constantly and pumps it back to San Diego Bay.

   e) There are numerous sources of domestic sewage at the facility. The potential exists for some of these sources to be discharged to San Diego Bay.

   f) Sandblast waste was being discharged to Harbor Drive with the potential for this material to be discharged to San Diego Bay via the storm drain system.

   g) There are numerous processes related to the use and reclamation of sandblast waste which could result in the discharge of waste to the bay. These processes should be identified in a NPDES permit application.

2. None of the aforementioned discharges is permitted. Many of them are not even identified in the permit.

RECORDS/REPORTS

NASSCO does not keep records related to cleaning out the storm drains.

FACILITY SITE REVIEW

1. Sandblast waste was being discharged to Harbor Drive with the potential for this material to be discharged to San Diego Bay via the storm drain system in violation of Prohibition A.1 of Order No. 85-05. Analyses of a sample of the waste (LKM889-200-B) shows that the waste has elevated concentrations of metals. In particular, the zinc concentration of 35,900 mg/Kg is over seven times the hazardous waste limitation of 5,000 mg/Kg. Also, the copper concentration of 2490 mg/Kg is very nearly the hazardous waste limitation of 2,500 mg/Kg. Sample LKM889-200-A was collected from the planter on Harbor Drive.

2. Order No. 85-05 requires that the storm drain sumps be cleaned following each rainfall. A random inspection of one of the storm drain sumps shows that the sumps are rarely cleaned, if ever. Furthermore, the screen used in the sump would only catch large trash; it could not contain sandblast waste.

3. Water flow patterns in sandblast waste on the floating drydock show that a substantial amount of sandblast waste was washed into San Diego Bay. Hay bales on the drydock were ineffective in preventing the wet sandblast waste from being discharged to the bay. Analyses of a sample of the sandblast waste on the drydock (LKM889-200-D) shows that the sandblast waste has elevated concentrations of metals. In particular, the copper concentration of 6,690 mg/Kg is nearly three times the hazardous waste limitation of 2,500 mg/Kg.

4. NASSCO installed rubber coated wooden barricades in the sallyports for the control of sandblast waste which had been knocked down or otherwise rendered ineffective.

5. Turbid wastewater was being discharged off the drydock through a hose. A sample of this waste (LKM889-200-C) was collected and found to have elevated concentrations of metals.

FLOW MEASUREMENT

None of the discharges are metered.

LABORATORY

There is no sampling required at this time.

EFFLUENT/RECEIVING WATERS

Not Evaluated

PRETREATMENT

Not applicable

COMPLIANCE SCHEDULES

Not applicable

SELF-MONITORING PROGRAM

NASSCO's monitoring program is deficient as follows:

1. There is no sampling required for effluents, receiving waters, or bay sediments.

2. The Regional Board should be kept informed of the schedule for sinking the drydock/flooding the graving dock and be provided with a general schedule of ship repair activities.

3. Reporting Requirement E.11(c) requires certification of monitoring reports. The certification statement is not included with monitoring reports.

4. A mass balance procedure for monitoring sandblast material and other potential wastes should be established.

OPERATIONS AND MAINTENANCE

The BMP does not provide a schedule for inspections of activities by responsible NASSCO personnel.

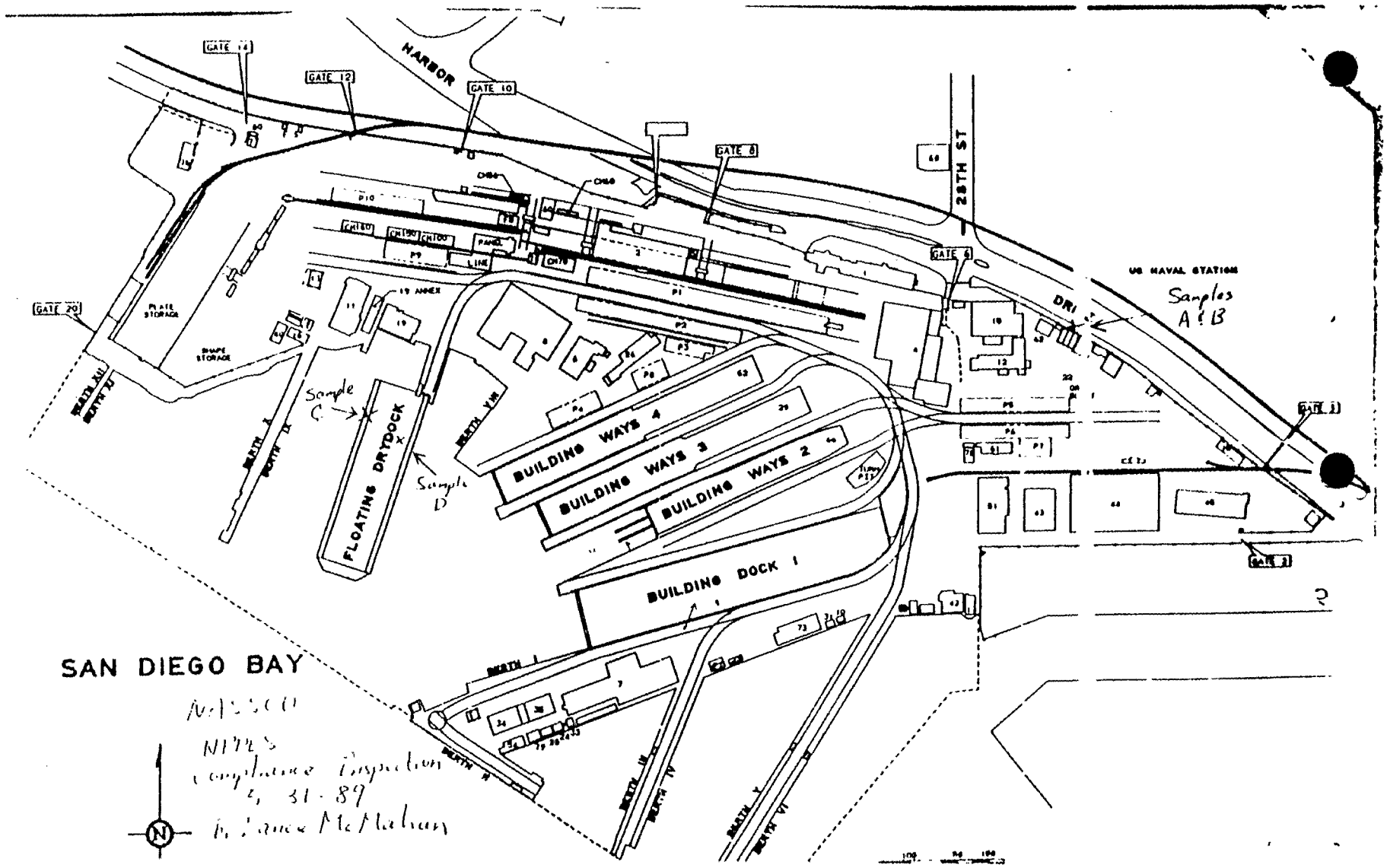
SLUDGE DISPOSAL

Not applicable

OTHER: SANDBLAST WASTE DISPOSAL

NASSCO should take steps to ensure that sandblast wastes and other solid wastes are disposed/treated/reused in a manner in compliance with local, state and federal laws. I recommend that NASSCO contact the San Diego County Department of Health Services, Hazardous Materials Management Division for information related to the handling of hazardous waste.

LKM3/nassco.I1


HARBOR
GATE 14
GATE 12
GATE 10
GATE 8
GATE 6
GATE 20
28TH ST
US NAVAL STATION
Samples A & B
PLATE STORAGE
SHAPE STORAGE
19 ANNEX
Sample C
Sample D
FLOATING DRYDOCK
BUILDING WAYS 4
BUILDING WAYS 3
BUILDING WAYS 2
BUILDING DOCK 1
BERTH I
BERTH II
BERTH III
BERTH IV
BERTH V
BERTH VI
BERTH VII
BERTH IX
BERTH X
BERTH XI
SAN DIEGO BAY
NASSCO
NPDES
Compliance Inspection
5-31-89
Dr. Lance McMahan

QUALITY ASSURANCE LABORATORY
6555 NANCY RIDGE DR., SUITE 300
SAN DIEGO, CALIFORNIA 92121
(619) 566-1060

RECEIVED
28

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
ATT: LANCE MCMAHAN
9771 CLAIREMONT MESA BLVD., STE. B
SAN DIEGO, CA 92124

DATE OF REPORT	JUNE 26, 1989
DATE RECEIVED	JUNE 1, 1989
DATE OF SAMPLE	MAY 31, 1989
DATE COMPLETED	JUNE 23, 1989
ANALYZED BY	TP CC RM JM TOXSCAN
PROJECT NAME	LKM889-200

ANALYSES RESULTS

		LOG NUMBER:	6635-89
		SAMPLE ID:	C
		TYPE:	WATER
ANALYSIS	METHOD	UNITS:	MG/L
CADMIUM	6010		<0.088
CHROMIUM	6010		0.534
COPPER	6010		6.33
LEAD	6010		1.02
NICKEL	6010		0.258
SILVER	6010		<0.044
ZINC	6010		6.37
ARSENIC	7060		0.151
MERCURY	7470		0.011

PETER SHEN
LABORATORY DIRECTOR

PS/at

JUNE 26, 1989

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
ANALYSES RESULTS
SAMPLE TYPE - SEDIMENT

LOG NUMBER	SAMPLE ID	ANALYSIS: METHOD: UNITS:	MONOBUTYLTIN * PPB	DIBUTYLTIN * PPB	TRIBUTYLTIN * PPB
6633-89	A		<1.0	<1.0	<1.0
6634-89	B		1.0	<1.0	<1.0
6636-89	D		<1.0	<1.0	<1.0
6637-89	E		<1.0	1.7	3.8
6638-89	F		19	30	310

* HYDRIDE CRYOGENIC ATOMIC ABSORPTION DETERMINED AS OUTLINED BY VALKIRS

PETER SHEN
LABORATORY DIRECTOR

PS/at

JUNE 26, 1989

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
ANALYSES RESULTS
SAMPLE TYPE - SEDIMENT

		LOG NUMBER:	6633-89	6633-89	6634-89	6634-89
		SAMPLE ID:	A	A	B	B
ANALYSES	METHOD	UNITS:	MG/KG WET WT.	MG/KG DRY WT.	MG/KG WET WT.	MG/KG DRY WT.
SOLIDS	GRAVIMETRIC			89 %		99 %
CADMIUM	6010		< 3.98	< 4.47	< 3.67	< 3.71
CHROMIUM	6010		1190	1337	1010	1020
COPPER	6010		1540	1730	2490	2515
LEAD	6010		468	526	752	760
NICKEL	6010		690	775	568	574
SILVER	6010		13.2	14.8	13.8	13.9
ZINC	6010		6600	7416	35900	36263
ARSENIC	7060		68.1	76.5	96.9	97.9
MERCURY	7471		< 0.049	< 0.055	< 0.045	< 0.045

		LOG NUMBER:	6636-89	6636-89	6637-89	6637-89
		SAMPLE ID:	D	D	E	E
ANALYSES	METHOD	UNITS:	MG/KG WET WT.	MG/KG DRY WT.	MG/KG WET WT.	MG/KG DRY WT.
SOLIDS	GRAVIMETRIC			99 %		90 %
CADMIUM	6010		< 0.402	< 0.406	1.82	2.02
CHROMIUM	6010		101	102	126	140
COPPER	6010		6590	6657	1980	2200
LEAD	6010		238	240	468	520
NICKEL	6010		20.0	20.2	23.0	25.6
SILVER	6010		4.36	4.40	3.76	4.18
ZINC	6010		926	935	5000	5556
ARSENIC	7060		104	105	120	133
MERCURY	7471		< 0.044	< 0.044	0.208	0.231

PETER SHEN
LABORATORY DIRECTOR

PS/at

JUNE 26, 1989

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
ANALYSES RESULTS
SAMPLE TYPE - SEDIMENT

ANALYSES	METHOD	LOG NUMBER: 6638-89 SAMPLE ID: F UNITS: MG/KG WET WT.	6638-89 F MG/KG DRY WT.
SOLIDS	GRAVIMETRIC		97 %
CADMIUM	6010	3.66	3.77
CHROMIUM	6010	153	158
COPPER	6010	3360	3464
LEAD	6010	830	856
NICKEL	6010	25.6	26.4
SILVER	6010	5.42	5.59
ZINC	6010	6370	6567
ARSENIC	7060	143	147
MERCURY	7471	0.141	0.145

PETER SHEN
LABORATORY DIRECTOR

PS/at

QUALITY ASSURANCE
LABORATORY

REFERENCE 5

NATIONAL STEEL AND SHIPBUILDING COMPANY

RECEIVED
MAR 30 1993
SAN DIEGO REGIONAL
WATER QUALITY CONTROL BOARD

FAXED TO 571-6972

March 25, 1993

Gloria R. Fulton
California Regional Water-
Quality Control Board
San Diego Region
9771 Clairemont Mesa Boulevard, Suite B
San Diego, California 92124

Re: Reporting Requirements E.5 of Order 85-05

Dear Ms Fulton:

On Tuesday March 23, 1993 at 9:35 am, I notified Brian Kelly at your office by phone concerning the discharge that occurred at NASSCO on March 22, 1993. I have listed below our spill investigation and corrective action:

Spill Investigation:

On Monday March 22, 1993 at 11:00 am, a discharge of spent copper slag occurred in the area of the NASSCO Builder (floating drydock). The cause of the spill was a break in the barrier system located at the bow section of the floating drydock. The barrier system is a system consisting of plastic sheeting, wood stripping, and sandbags mounted on barges positioned at the bow and stern sections of the floating drydock. The barges were required because the ship in the drydock was longer than the length of the drydock. To protect against any spent abrasive escaping during blasting operations, we totally enclosed the vessel bow and stern sections using the barges to support the barrier system. The use of barges attached to the floating drydock is not normally done at NASSCO and was a special operation due to the length of the vessel in the drydock.

The malfunction of the barrier system was due to wave action and tidal action of the Bay on the barge which caused a break in the barrier system and the release to the Bay. The estimated amount of the release to the Bay was less than 250 pounds. Once the break in the barrier was discovered, no work was allowed to occur until the break was repaired and all the spent copper slag was removed from the barge surface to avoid any additional discharge to the Bay.

HARBOR DRIVE AND 28TH STREET • P.O. BOX 85278 • SAN DIEGO, CA 92186-5278
TELEPHONE (619) 544-3400 TWX (910) 335-1250 TELEX 695034

Corrective Action:

NASSCO has developed some engineering changes to prevent a recurrence of this type of release from this type of operation. The changes will make sure the barrier system does not break under any type of movement between the barge and the floating drydock.

If any additional information is needed, please contact me.

Very truly yours,

NATIONAL STEEL AND SHIPBUILDING COMPANY

John R. Martin
Environmental Engineer
Environmental Engineering Department / MS-20J

APPENDIX E

SITE RECONNAISSANCE INTERVIEW AND OBSERVATIONS REPORT

Bechtel Environmental, Inc.
P.O. Box 193965
San Francisco, CA 94119-3965

OBSERVATIONS MADE BY: Gary Yao and Frederick Heyler DATE: October 15, 1993

FACILITY REPRESENTATIVE(S) and TITLE(S):

T. Michael Chee, Supervisor of Environmental Engineering Department
John R. Martin, Environmental Engineer

SITE: NASCO (also known as National Steel and Shipbuilding Company or NASSCO)

EPA ID: CAD 009158932

A site reconnaissance was conducted at the NASCO site on October 15, 1993. The weather was sunny and warm, and the temperature was approximately 75°-80°F. The Bechtel Environmental, Inc. (BEI) team, Gary Yao and Frederick Heyler, conducted the site reconnaissance with T. Michael Chee and John R. Martin at 9:30 a.m. to gather information on the site location and size, site history, processes used, and any hazardous waste generated, treated, stored, or disposed of on site. The reconnaissance included a site tour during which photographs were taken.

The following information was obtained during the site reconnaissance:

The NASCO site is located at the intersection of East Harbor Drive and 28th Street in San Diego, Calif. The site occupies approximately 80 acres of land and 47 acres of water in a heavy industrial area of San Diego. The NASCO site is bounded on the north by East Harbor Drive; on the east and southeast by the U.S. Naval Surface Force - Pacific Fleet Station; on the south by San Diego Bay; and on the west and northwest by Southwest Marine, and Chevron and Unocal aboveground fuel storage tank farms.

The site is asphalt- or concrete-paved and fenced. NASCO has 40 to 50 buildings and three underground fuel storage tanks on site. No residences, schools, or daycare centers are on or within 200 feet of the site. Nine stormwater outfalls discharge surface water runoff from the site into the bay. Eight of these outfalls originate on site and collect only NASCO's surface water runoff, while the other outfall originates off site and collects some of the site runoff. No drinking water wells are on site, but monitoring wells are located near the Building 6 (Electric Shop Repair Building) sump. According to Mr. Chee, these monitoring wells are sampled quarterly. The Building 6 sump was used for the collection of steam-cleaning rinsewater and was approximately 2 feet to 2.5 feet in diameter and 10 feet deep. The sump was backfilled with concrete in 1991.

NASCO has occupied this site since 1946 and leases the land from the San Diego Unified Port District. The tenant before NASCO is unknown. NASCO builds and repairs U.S. naval or commercial ships. New construction and repair work are currently equally distributed, but the

distribution of work has averaged 80 percent new construction and 20 percent repair work in the past. Depending on the amount of work, NASCO employs from 1,200 to 7,500 people. The company has one 8-hour shift, 5 days a week, and adds a second 8-hour shift if required.

Numerous operations are conducted by NASCO in building and repairing ships. These operations include the fabrication, cutting, and bending of steel; cleaning, electroplating, and metal finishing of parts; integrity and hydrostatic testing of hulls and tanks; removal of old paint by dry abrasive blasting; and the application of new paint. The biggest operations at the NASCO site are the removal of old paint and the application of new paint on ships. Removal of old paint is performed by blasting copper slag or steel grit abrasives using high-pressure air, while application of new paint is accomplished by using air and airless spraying equipment. New paint that is applied to ships' hulls contains antifouling materials to prevent the growth and attachment of marine organisms. The antifouling agent tributyltin was used in the past by NASCO, but cuprous oxide is currently being used.

Spent copper slag and steel grit abrasives are transferred from satellite collection points (temporary bins) to a main storage area near the paint area. According to Mr. Martin, spent copper slag and steel grit abrasives are analyzed and contain copper and zinc at concentrations that are above the California-listed total threshold limit concentrations (TTLCs) but below the soluble threshold limit concentrations (STLCs). NASCO recycles spent copper slag or steel grit abrasives by shipping them to the California Portland Cement plant in the Mojave Desert. Waste paint (the second largest waste generated by NASCO after the bilge water from ships) is collected at satellite collection points, transferred to the main hazardous materials storage area, and shipped to Inglewood, Calif., to be used as fuel for a kiln operated by Rho-Chem Co. Bilge water from ships consists of oil and water, and is collected by NASCO in 22,000-gallon Baker™ aboveground storage tanks, where the oil and water are allowed to separate by gravity. After separation, the oil is sold to a waste oil recycler in Los Angeles, and the water is discharged into the San Diego municipal sewer system. Ballast water from ships is transferred and treated in NASCO's portable wastewater treatment system.

NASCO has a small electroplating shop near Building 6 that has a paved floor and berms around its sides. Spent electroplating solutions, such as sulfuric acid, cadmium cyanide, and copper cyanide, are picked up by Chem Waste Management. NASCO has several satellite collection points and a main storage area for hazardous materials. The main hazardous materials storage area is located near Building 76, and is paved and bermed. According to Jim Sanders, supervisor of the hazardous materials storage area, all hazardous substances transferred to this area from the satellite collection points are inspected, sorted, labelled, and manifested. Hazardous substances that are ready to be transported off site are stored in a locked, fenced area. Several hazardous waste haulers pick up NASCO's hazardous wastes every 2 or 3 months.

As part of its National Pollutant Discharge Elimination System (NPDES) permit, NASCO collects onsite and reference sediment samples once every 6 months. The California Environmental Protection Agency, Regional Water Quality Control Board (RWQCB), San Diego Region, requested NASCO to collect core and bioassay samples. NASCO submitted a counter proposal 2 years ago, but has not heard anything, nor received comments from the RWQCB on this counter proposal.

Information extracted from:

U.S. Geological Survey, Point Loma Quadrangle, California, 7.5-Minute Series (topographic), 1967, Photorevised 1975.

REFERENCE 8

Project No. 8953257X-0004

Woodward-Clyde Consultants

REVIEWED 1/16/95

HMMD

H024:7-003K75

SOIL SAMPLING AND EXCAVATION REPORT BUILDING NO. 6 SUMP HARBOR DRIVE AND 28TH STREET SAN DIEGO, CALIFORNIA

Prepared for:

National Steel and Shipbuilding Company
Harbor Drive and 28th Street
San Diego, California 92113

a/klf2

1550 Hotel Circle North
San Diego, California 92108
(619) 294-9400
Fax: (619) 293-7920

Woodward-Clyde Consultants

October 2, 1989
Project No. 8953257X-0004

National Steel and Shipbuilding Company
Harbor Drive and 28th Street
San Diego, California 92113

Attention: Mr. Robert A. White

SOIL SAMPLING AND EXCAVATION REPORT
BUILDING NO. 6 SUMP
HARBOR DRIVE AND 28TH STREET
SAN DIEGO, CALIFORNIA

Dear Mr. White:

Woodward-Clyde Consultants (WCC) is pleased to provide this soil sampling and excavation report to National Steel and Shipbuilding Company (NASSCO). This project was conducted for the NASSCO facility located at Harbor Drive and 28th Street in San Diego and these services were performed in accordance with WCC Proposal No. 8953257P.

WCC has enjoyed working with NASSCO on this project, and we look forward to continuing to work with you in the future. If you have any questions concerning our soil sampling and excavation report or would like additional information, please feel free to contact Kris Franklin at 294-9400.

Very truly yours,

WOODWARD-CLYDE CONSULTANTS

Kristen L. Franklin
Project Scientist

KLF/hal (a/klf2)

a/klf2

TABLE OF CONTENTS

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SCOPE OF SERVICES	1
SOIL EXCAVATION AND SAMPLING	2
LABORATORY ANALYSES AND DISCUSSION	2
CONCLUSIONS AND RECOMMENDATIONS	3

Table

1. Soil Analytical Results - Cyanide, Volatile and Semi-Volatile Organics
2. Soil Analytical Results - Metals

Figures

1. Site Location Map
2. Sump Location

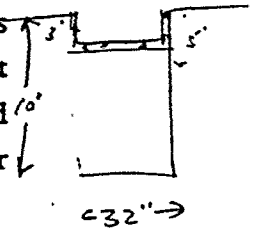
Appendix

A. Analytical Laboratory Data and Chain of Custody Form

SOIL SAMPLING AND EXCAVATION REPORT
BUILDING NO. 6 SUMP
HARBOR DRIVE AND 28TH STREET
SAN DIEGO, CALIFORNIA

BACKGROUND

National Steel and Shipbuilding Company (NASSCO) requested Woodward-Clyde Consultants (WCC) to visit the NASSCO facility located at Harbor Drive and 28th Street to inspect a sump which we understand has been in operation since the 1970s. The site visit was performed on July 26, 1989 and site-specific information was collected. Construction of the sump specifications are not known; it is assumed that a 32-inch diameter boring was advanced to a depth of ten feet. The boring was then backfilled to a depth of three feet below grade. A concrete liner was then installed from three feet below grade to ground surface and the remaining void was then backfilled. A 32-inch diameter steel grate cover was installed to complete the construction.



does the sump have a concrete bottom and sides? Sounds like concrete sid only.

This sump served as the wash down drain for machine shop (Building 6) operations; the sump is also located approximately 20 feet west of the electroplating shop. Recently, NASSCO employees began excavating the soil from the sump for proper soil disposal. Solvent-like odors were detected, and the excavation was suspended at a depth of three feet. where did this soil go?

max 32" x 32" x 36" deep = <1 yd³

SCOPE OF SERVICES

The purpose of our investigation, presented in our soil sampling and excavation plan submitted to NASSCO on September 12, 1989, was to evaluate potential soil contamination in the sump and to remove soil within the sump to a depth of approximately five feet. ? What does this mean? they already know there is ~~contamin~~ contaminated soil based on the odors ?

Machine shop operations in electroplating Need to ID all potential contaminants i.e. (8240; 8010) all metals 8015, 418.1, 802

Our scope of service included the following tasks:

- Soil excavation and sampling;
- Analyzing the soil sample for potential contamination; and

- Preparing a report documenting our activities and conclusions.

SOIL EXCAVATION AND SAMPLING

Soil excavation and soil sampling was performed at the subject site (Figure 1) on September 14, 1989. A health and safety plan was prepared prior to the investigation due to the possibility of contamination being present at the site. Because the excavation was only advanced to a depth of five feet and groundwater was not expected to be encountered, a boring permit was not required by the San Diego County Department of Health Services, Hazardous Materials Management Division.

No mention of concrete removal — this is an inadequate diagram for sample locat

The sump and soil sample locations are shown on Figure 2. A pick and shovel was used to remove soil from the sump to a depth of five feet. The excavated fill material consisted of light to medium brown coarse-grained sand with one to three inch rock fragments. Excavated soil was placed in DOT-approved 55-gallon drums for disposal, pending laboratory results. Once the excavation reached five feet in depth, a four-inch diameter area was cleared to expose a representative soil surface. A 2.5-inch diameter stainless steel tube was pushed into the soil to collect a representative soil sample (N-1). A second sample (N-2) was collected for possible future analysis and is currently being held at Analytical Technologies, Inc. (ATI), a state-certified laboratory in San Diego. The soil samples were sealed with plastic caps, taped, labeled, stored in a cooler with ice, and transported to ATI under WCC chain of custody procedures.

— Where are these dru

LABORATORY ANALYSES AND DISCUSSION

A Priority Pollutant Scan was performed on the soil sample collected at five feet below grade within the sump. This scan included analyses for volatile organics by Environmental Protection Agency (EPA) Method 8240, semi-volatile organics by EPA Method 8270, chlorinated pesticides and PCBs by EPA Method 8080, total phenols, priority pollutant metals, and cyanide.

Some of the analytical results for the soil sample N-1 are presented in Table 1. Volatile organics analyses indicate that 1,1,1-trichloroethane (TCA) and tetrachloroethene (PERC) were detected in the soil sample at 180 mg/kg and 5,800 mg/kg, respectively.

Cyanide was detected at 0.4 mg/kg, which is below the designated levels to protect groundwater (15,400 mg/kg), surface waters (52 mg/kg), and marine waters (1.0 mg/kg) proposed by Dr. Jon Marshack of the of the California Regional Water Quality Control Board, Central Valley Region in his report "Designated Level Methodology for Waste Classification and Cleanup Level Determination," (October 1986). No abnormal concentrations were observed for any semi-volatile organic compounds, except extractable hydrocarbons. Extractable hydrocarbons C8-C15 and extractable hydrocarbons C18-C28 were detected at 80 and 70 mg/kg, respectively. No organochlorine pesticides nor polychlorinated biphenyls were detected. The Priority Pollutant Metals analysis results indicate no significant metal concentrations, as shown in Table 2.

CONCLUSIONS AND RECOMMENDATIONS

Based on the field investigation and laboratory analyses, the following conclusions can be made:

- PERC and TCA were detected in the soil sample collected at five feet within the sump. We recommend additional soil borings be advanced to further evaluate the horizontal and vertical extent of PERC and TCA contamination.

- Organochlorine pesticides and polychlorinated biphenyls were not detected in the soil sample.

- The concentration of cyanide in the soil at 0.4 mg/kg is considered to be below any action levels.

- The concentrations of priority pollutant metals in the soils do not exceed the California Total Threshold Limit Concentration values.

Table 1

SOIL SAMPLE ANALYTICAL RESULTS
CYANIDE, VOLATILE AND SEMI-VOLATILE ORGANICS

Building No. 6 Sump

Soil Sample ID		Analytical Parameters	Results (mg/kg)	
N-1		Cyanide	0.4	
	by 8240	1,1,1-Trichloroethane (TCA)	180	all other 8240 cpds ND
	by 8240	Tetrachloroethene (PCE)	5,800	*Note: sample diluted by 500 factor ∴ detection lim are 25 ppm or greater f all cpds.
	by 8270	Extractable Hydrocarbons C8-C15	80	
	by 8270	Extractable Hydrocarbons C18-C28	70	
	by 8270	Naphthalene	0.19	
	by 8270	2-Methylnaphthalene	0.30	all other 8270 cpds ND
	by 8270	Di-butylphthalate	1.2	
	by 8270	bis (2-ethylhexyl) phthalate	7.4	
	by 8270	Di-n-octylphthalate	1.8	
	by 8270	Chlorinated hydrocarbon	10	
	by 8270	Branched Alcohol 1	9	
	by 8270	Branched Alcohol 2	9	
	by 8270	Branched Alcohol 3	3	
	by 8270	Branched Alkane	5	
		Total Phenols (8040)	<.2	
		All 8080 cpds	ND	

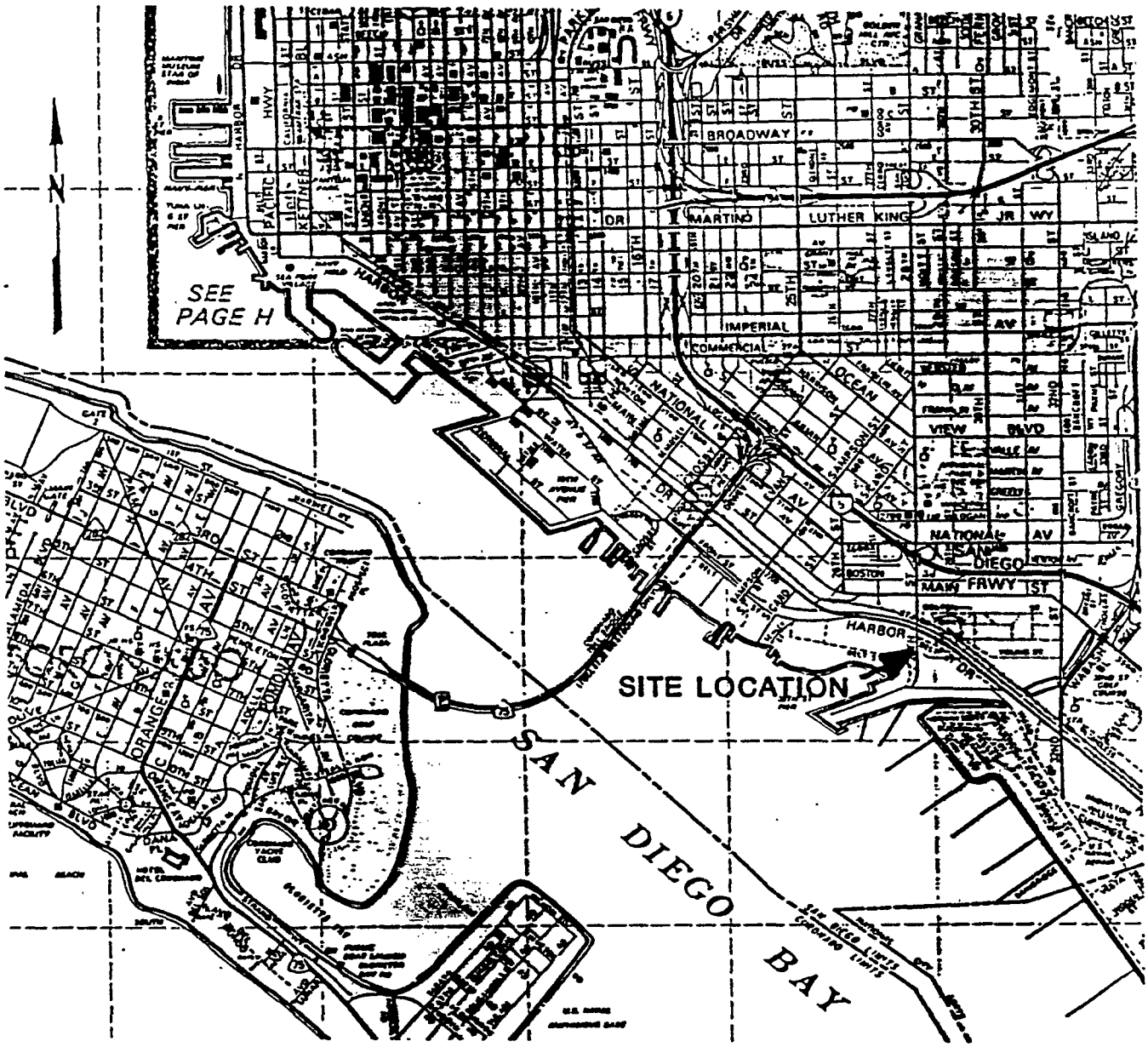
Table 2

SOIL SAMPLE ANALYTICAL RESULTS
METALS

Building No. 6 Sump

Soil Sample ID	Analytical Parameters	Results (mg/kg)		TTLC* (mg/kg)
N-1	Antimony	<3.0		500
	Arsenic	1.9	50	500
	Beryllium	<0.50		75
	Cadmium	12.6	10	100
	Chromium	22.1	250	2500
	Copper	67.2	250	2500
	Lead	5.2	100	1000
	Mercury	<0.25		20
	Nickel	3.5	200	2000
	Selenium	<1.0		100
	Silver	1.8	50	500
	Thallium	<10		700
	Zinc	193	500	5000

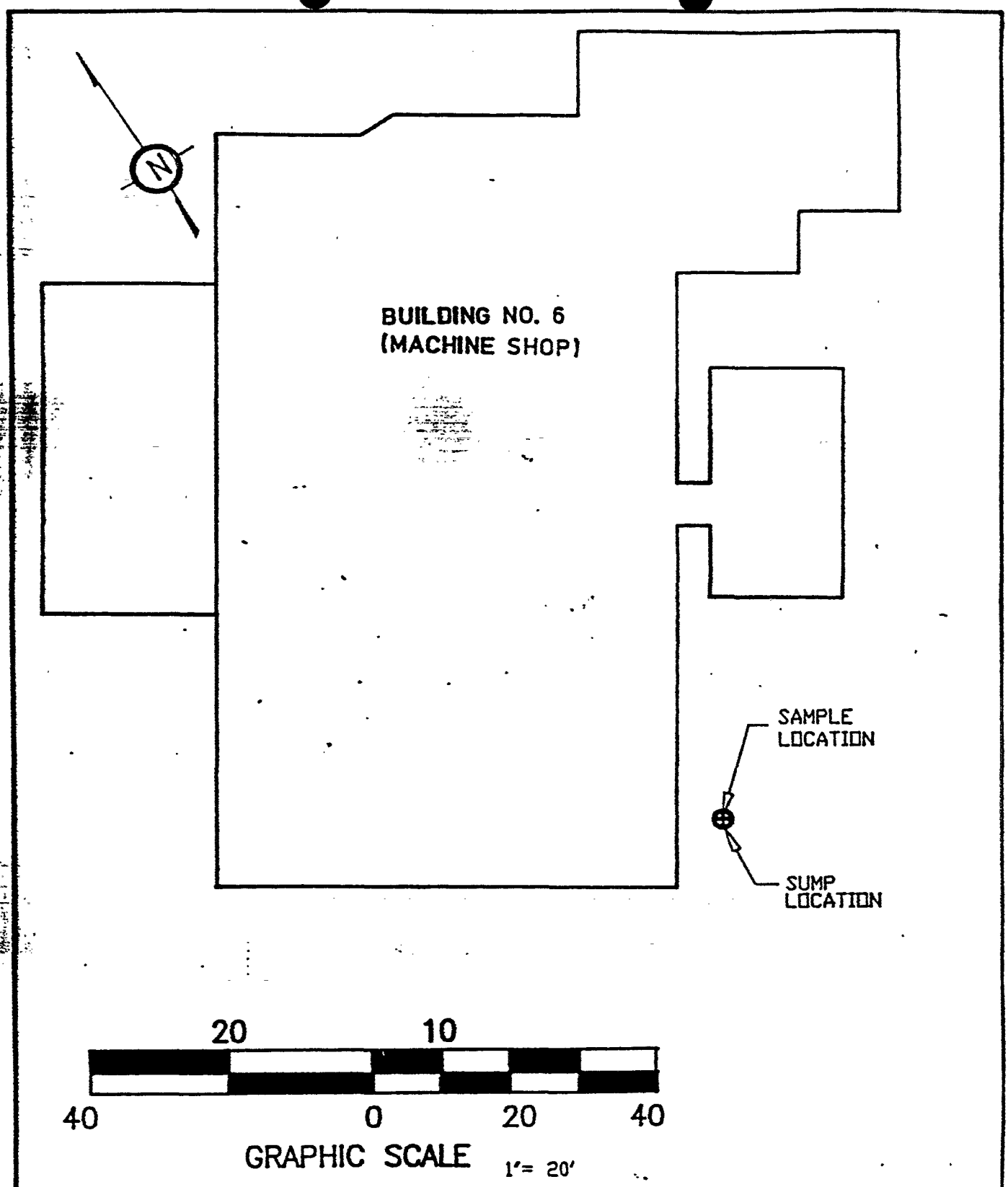
*TTLC - Total Threshold Limit Concentration, California Code of Regulations, Title 22.



Source: The Thomas Bros. guide
San Diego County
1989 edition

SITE LOCATION MAP
NATIONAL STEEL AND SHIPBUILDING COMPANY

DRAWN BY: cb	CHECKED BY: VLF	PROJECT NO: 8953257X-0004	DATE: 9-29-89	FIGURE NO: 1



NASSCO FACILITY DIAGRAM

SUMP LOCATION

DRAWN BY: LAS	CHECKED BY: KLF	PROJECT NO: 8953257x-0004	DATE: 10-2-89	FIGURE NO: 2

WOODWARD CLYDE CONSULTANTS

REFERENCE 9

GROUNDWATER TECHNOLOGY

Groundwater Technology, Inc.
9940 Mesa Rim Road, Suite B, San Diego, CA 92121
Tel: (619) 453-8415

FIRST QUARTER 1993 MONITORING AND SAMPLING REPORT NASSCO BUILDING 6 SUMP HARBOR DRIVE AND 28TH ST SAN DIEGO, CALIFORNIA HMMD CASE # H02417

JDE #023401055

April 30, 1993

Prepared for:
Mr. Thomas Snider
National Steel and Shipbuilding Company
P. O. Box 85278
San Diego, California, 92138

Groundwater Technology, Inc.
Written/Submitted by

James L. Molesworth
Geologist

Groundwater Technology, Inc.
Reviewed/Approved by

Vijayalakshmi Radics
Senior Project Manager

Kyle Rheubottom
Senior Hydrogeologist
RG #5100

REGISTERED GEOLOGIST
KYLE RHEUBOTTOM
No. 5100
STATE OF CALIFORNIA

023401055
1055R-4.30/Main #3

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APPENDIX 2 MONITORING AND PURGING DATA SHEET

APPENDIX 3 HYDROGRAPH

APPENDIX 4 ANALYTICAL REPORT

APPENDIX 5 GRAPH OF DISSOLVED PCE & TCA CONCENTRATIONS VERSUS TIME

1.0 INTRODUCTION

Groundwater Technology, Inc. was contracted by National Steel and Shipbuilding Company (NASSCO) to perform quarterly monitoring and sampling at Building 6 Sump located at Harbor Drive and 28th Street in San Diego, California (Figs. 1 and 2). On March 16, 1993, 6 wells (W-1 through W-6) were monitored, purged, and sampled. This report presents the results from the first quarter of 1993.

1.1 Background

Building 6 is a machine shop located at the site (Fig. 3). The sump used to receive roof drainage from the building, and is located approximately 20 feet west of an electroplating facility. In 1989, NASSCO employees detected solvent-like odors when preparing to excavate soil from the sump for proper disposal. Subsequent analysis of the soil detected 1,1,1-trichloroethane (TCA), tetrachloroethene (PCE) and petroleum hydrocarbons. Metals were not detected above TTLC values (Woodward-Clyde Consultants, 1989).

Results from a site assessment performed by Groundwater Technology indicated the presence of TCA, PCE and other volatile organic compounds in the groundwater, which occurs at approximately 8 to 9 feet below grade. No petroleum hydrocarbons were detected in the groundwater (Groundwater Technology, 1990). Similar results were obtained when the groundwater was sampled in April 1991 (Groundwater Technology, 1991).

In December 1991, the extent of the volatile halocarbon plume was investigated using a cone-penetrometer to evaluate subsurface conditions and to sample the groundwater at various depths. The data suggested that a silty/clayey zone encountered at approximately 15 feet below grade was a sufficient barrier to prevent any significant downward migration of halocarbons. Samples from the groundwater monitoring wells, which extend to approximately 15 feet below grade, are therefore representative of the groundwater quality in the upper aquifer, which is the zone of concern.

In November 1992, 5 soil borings were drilled and sampled. Three of the borings were converted to groundwater monitoring wells W-4 through W-6. Chlorinated hydrocarbon compounds were detected in the soil and groundwater around the Building 6 sump. The soil data indicate that the hydrocarbon concentrations are localized to an area immediately surrounding the former sump, and

that the lateral extent of hydrocarbons in the soil has been delineated. Chlorinated hydrocarbon concentrations are highest at 6 to 7 feet below grade in the silty vadose zone sediment near the former sump, and decrease at approximately 10 feet below grade.

During the November 1992 monitoring episode, the interface probe detected a difference in electrical conductivity in some of the wells. Three groundwater samples were analyzed this quarter for petroleum hydrocarbons, which are a potential cause of different conductivities.

2.0 FIELD ACTIVITIES

2.1 Well Head Conditions

The following well heads and road boxes were in need of repair when inspected on March 16, 1993:

- W-2 had a broken locking cap.
- W-1 and W-2 needed locks.

The locking cap and locks will be replaced during the next site visit.

2.2 Monitoring, Purging and Sampling

On March 16, 1993, wells W-1 through W-6 were gauged, purged and sampled in accordance with the San Diego County *Site Assessment and Mitigation* manual guidelines and Groundwater Technology's "Groundwater Monitoring, Purging and Sampling Techniques" (Appendix 1). Monitoring and purging data are included in Appendix 2. Groundwater samples were sent to GTEL Environmental Laboratories. Samples W-2, W-3, and W-4 were analyzed for hydrocarbon screen and volatile organics by EPA Methods Modified 8015 and 8240 to evaluate the potential presence of petroleum hydrocarbon. Samples W-1, W-5, and W-6 were analyzed for volatile organics by EPA Method 8240.

The trip blank was inadvertently labeled W-1. The laboratory was notified of the error in writing and was asked to analyze three of the four vials labeled W-1. However, the laboratory only analyzed one vial (GTEL sample # 03189-1) which did not contain detectable amounts of volatile organics. This suggested that it was the trip blank and not the sample from well W-1. The laboratory then analyzed

a second vial (GTEL sample # 03189-1C) three days after the holding period had expired. The second sample did contain volatile organics, which suggested it was the sample from well W-1.

Steve Durham (San Diego County HMMD) was notified of the situation on April 16, 1993. He approved the submittal of the results with the condition they fall within the statistical range of the laboratory QA/QC. The results are within the statistical range of the laboratory QA/QC.

2.3 Waste Disposal

Purged groundwater was stored in Department of Transportation (DOT) approved 55 gallon drums and left on site. Disposal of waste water is handled by Nassco.

3.0 FINDINGS

3.1 Groundwater Monitoring and Gradient

Prior to sampling, all wells were gauged on March 16, 1993. Depth to groundwater ranged between 8 and 9 feet below top-of-casing. No phase-separated hydrocarbons were detected during this quarter. However, orange-brown suspended particles were found in wells W-1, W-2, W-3 and W-6; these particles may have caused the change in conductivity detected by the interface probe last quarter. The particles may represent either bio-fouling or silt. Monitoring data are summarized in Table 1. The groundwater gradient was to the south-southwest at approximately 0.003 feet/feet in the northern portion of the site, quickly steepening to approximately 0.015 feet/feet in the southern portion of the site (Fig. 4). A graph of water elevations versus time (Appendix 3) shows a rise in water elevations in all wells between 1990 and 1993. Groundwater elevations at this site may be tidally influenced due to the proximity of the bay.

3.2 Groundwater Analytical Results

Table 2 summarizes groundwater analytical results from this sampling episode. Laboratory analytical reports are included in Appendix 4.

Total petroleum hydrocarbons were not detected at or above the reporting limit of 100 µg/L in any of the six wells (Table 2).

Figure 5 shows dissolved TCA, PCE and 1,1-dichloroethane concentrations from samples collected from the six wells. Detectable TCA concentrations ranged from 0.6 µg/L in well W-6 to 2,600 µg/L in well W-3. Detectable PCE concentrations ranged from 170 µg/L in well W-4 to 2,600 µg/L in well W-2.

Appendix 5 contains graphs of dissolved TCA and PCE concentrations in the wells over time. There is no perceptible trend to the fluctuations.

4.0 CONCLUSIONS

- Depth to water in March 1993 ranged from 8 to 9 feet below grade.
- The groundwater gradient was to the south when measured on March 16, 1993.
- The highest concentrations of volatile organics in groundwater occur immediately downgradient (south) of the sump. The concentrations decrease downgradient, but a zero line has not been established.
- There is no apparent trend to the changes in dissolved chlorinated hydrocarbons over time.

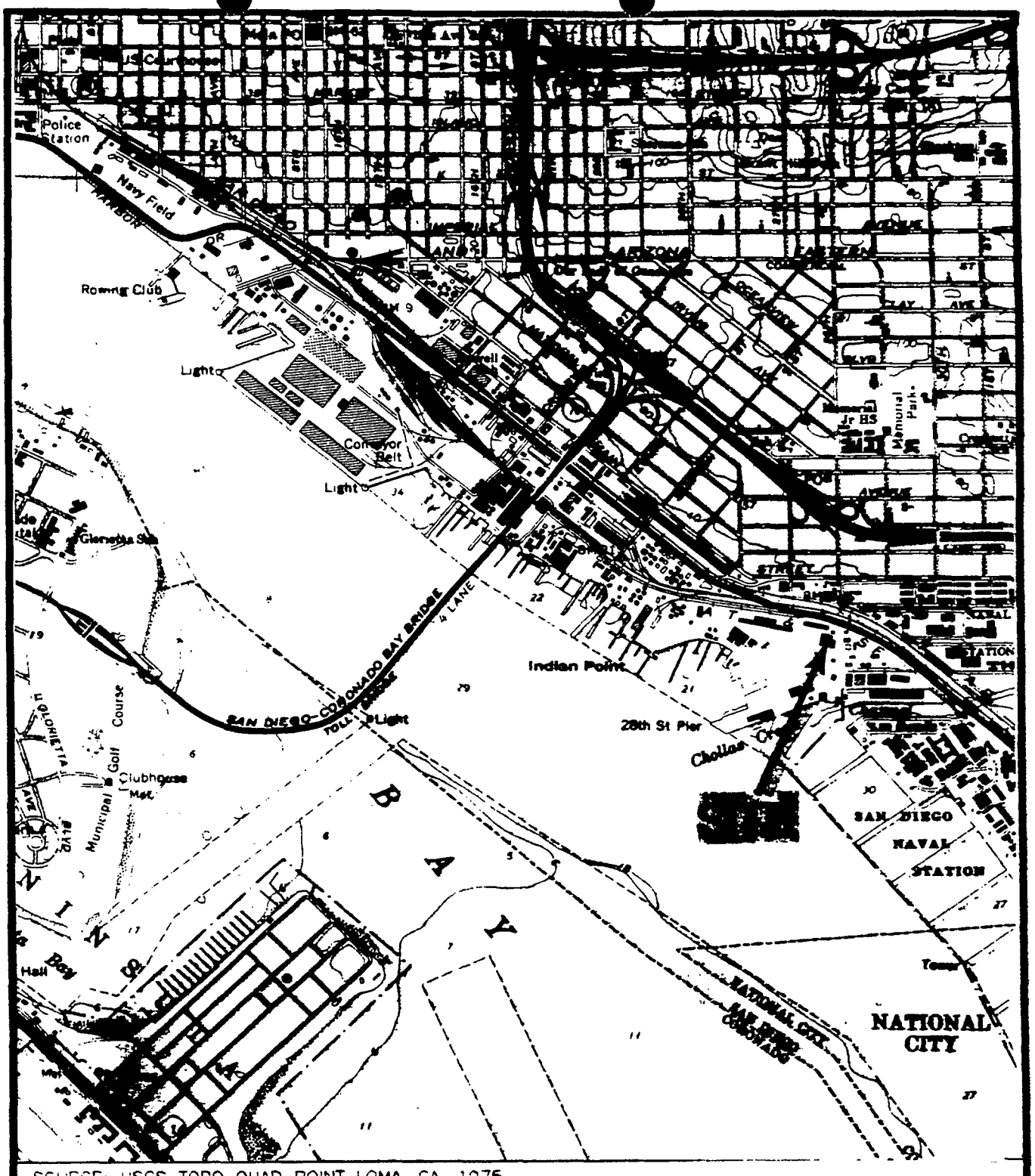
5.0 REFERENCES

Groundwater Technology, Inc., August 1990; Site investigation report, National Steel & Shipbuilding Company, Building 6. Unpublished report.

Groundwater Technology, Inc., March 1992; Preliminary report, CPT investigation and water sampling, Nassco Building 6. Unpublished report.

Groundwater Technology, Inc., February, 1993; Additional assessment report, National Steel and Shipbuilding Company, Building 6 sump. Unpublished report.

Woodward-Clyde Consultants, 1989; Soil sampling and excavation report, Building No. 6 sump, Harbor Drive and 28th Street, San Diego, CA. Unpublished report.



SOURCE: USGS TOPO QUAD POINT LOMA, CA. 1975.

0 2000 4000

APPROX SCALE IN FEET

GROUNDWATER TECHNOLOGY, INC.

1055-BOR

N

DRAFTED 03/12/92

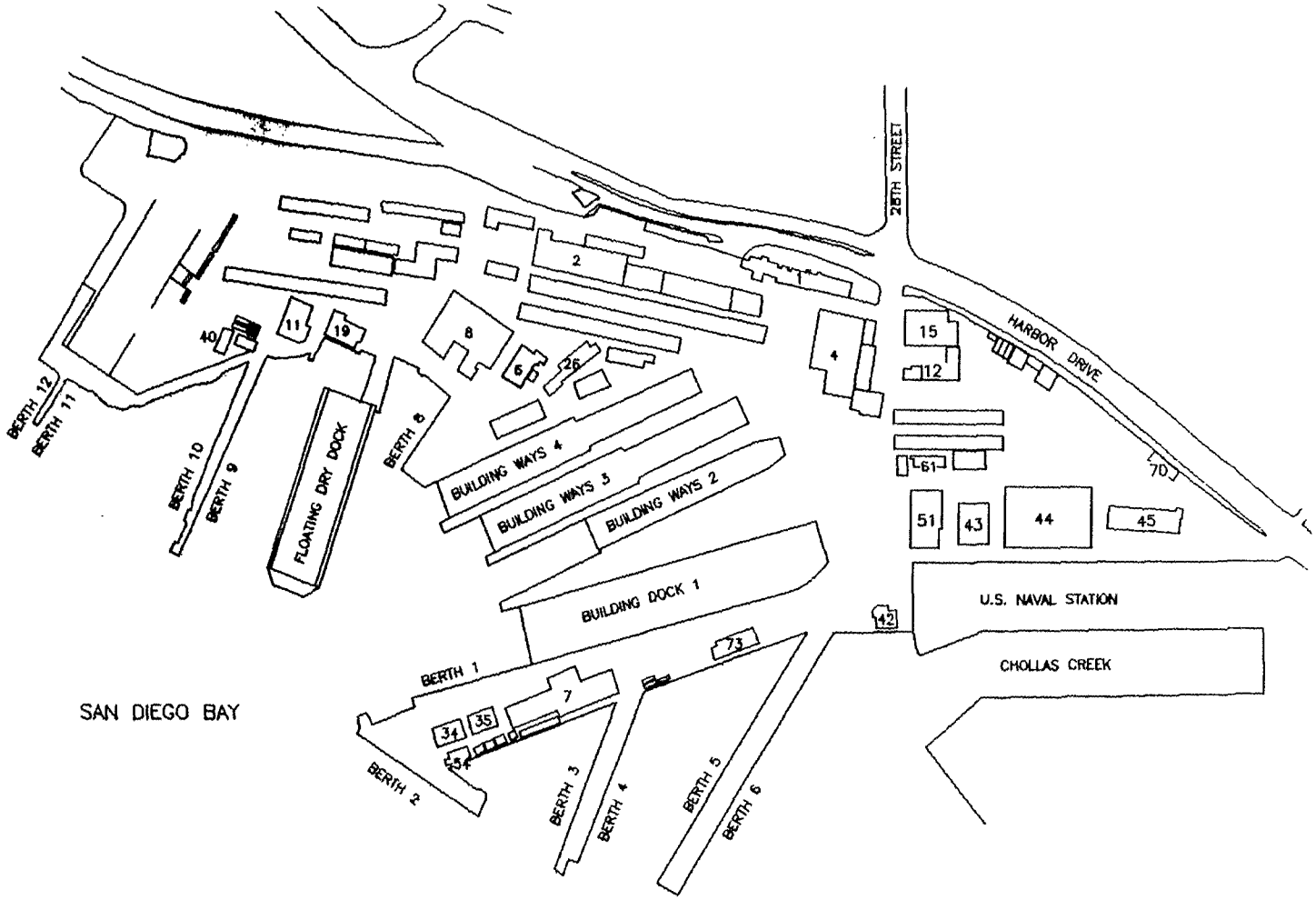
NASSCO/BLDG. 6

HARBOR DRIVE & 28TH STREET

SAN DIEGO, CA

SITE LOCATION MAP

FIGURE 1



DRAFTED 02/04/93

NASSCO/BLDG. 6

HARBOR DRIVE & 28TH STREET
SAN DIEGO, CA
023404024.01

GROUNDWATER TECHNOLOGY, INC.

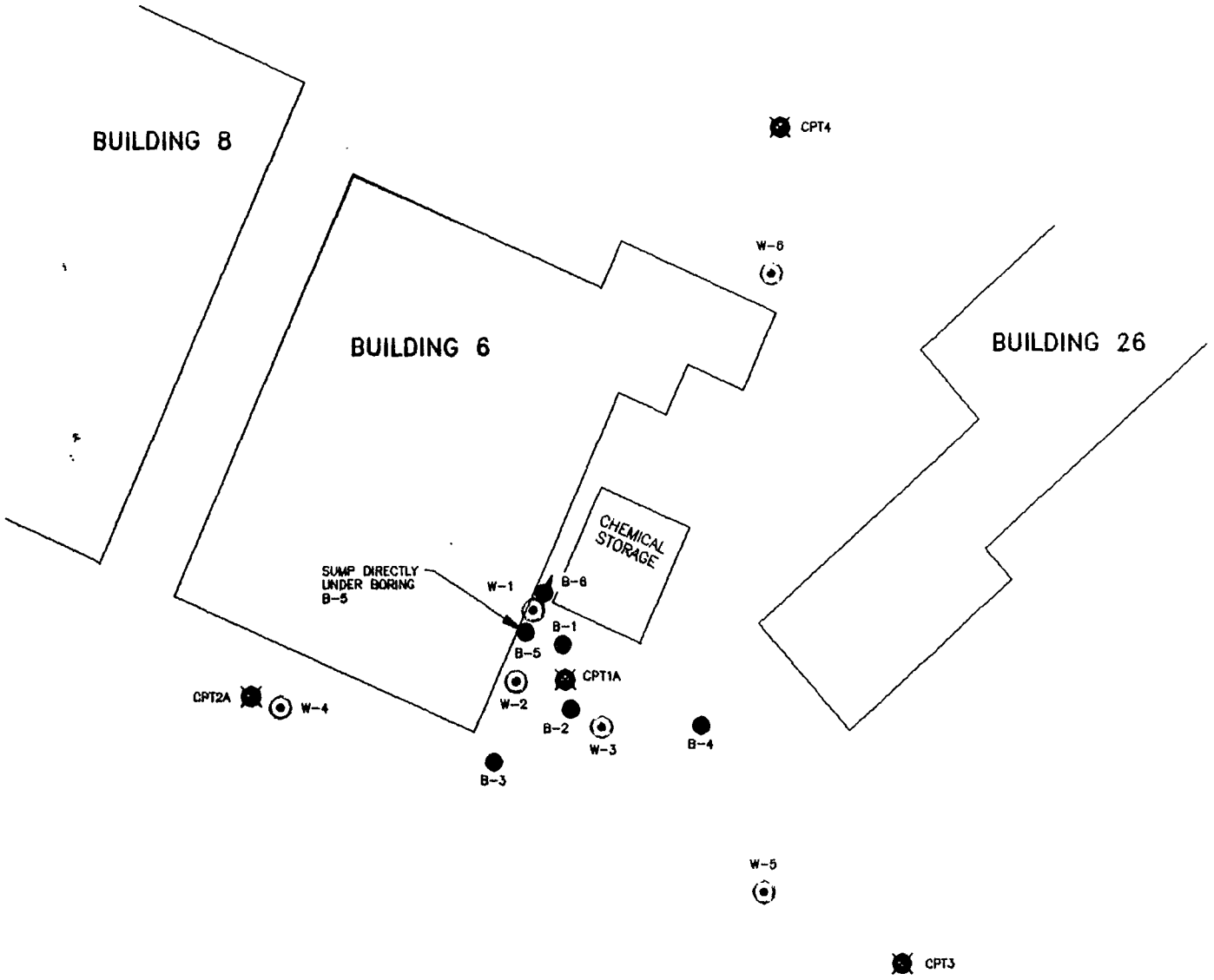
1055–AFA

500 0 500 1000

APPROX SCALE IN FEET

FACILITY PLAN

FIGURE 2



LEGEND

- WELL LOCATION
- BORING LOCATION
- CPT LOCATION

0 40 80

APPROX. SCALE IN FEET

GROUNDWATER TECHNOLOGY, INC.

1055-AS5

DRAFTED 04/26/93

NASSCO/BLDG. 6

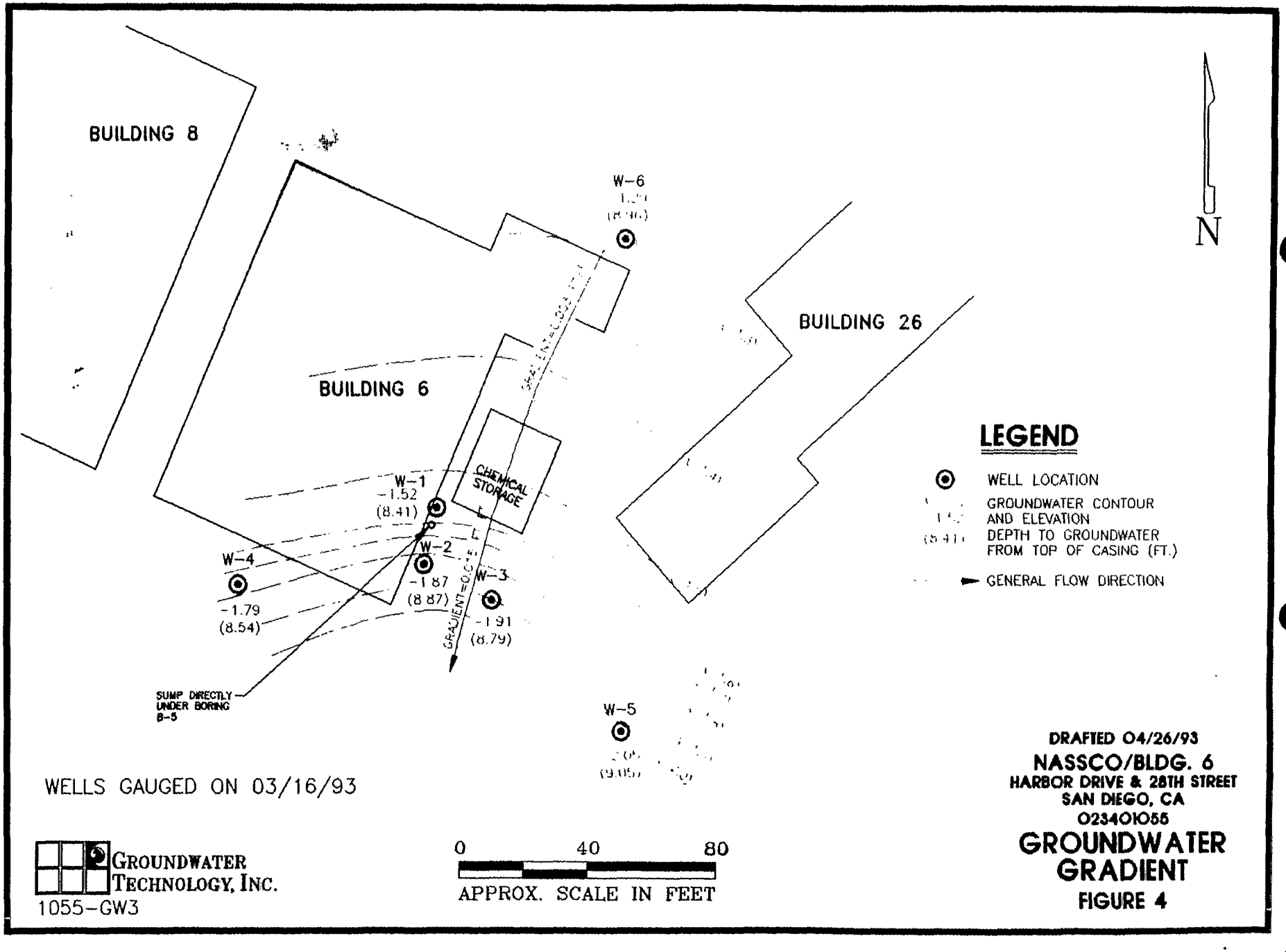
HARBOR DRIVE & 28TH STREET

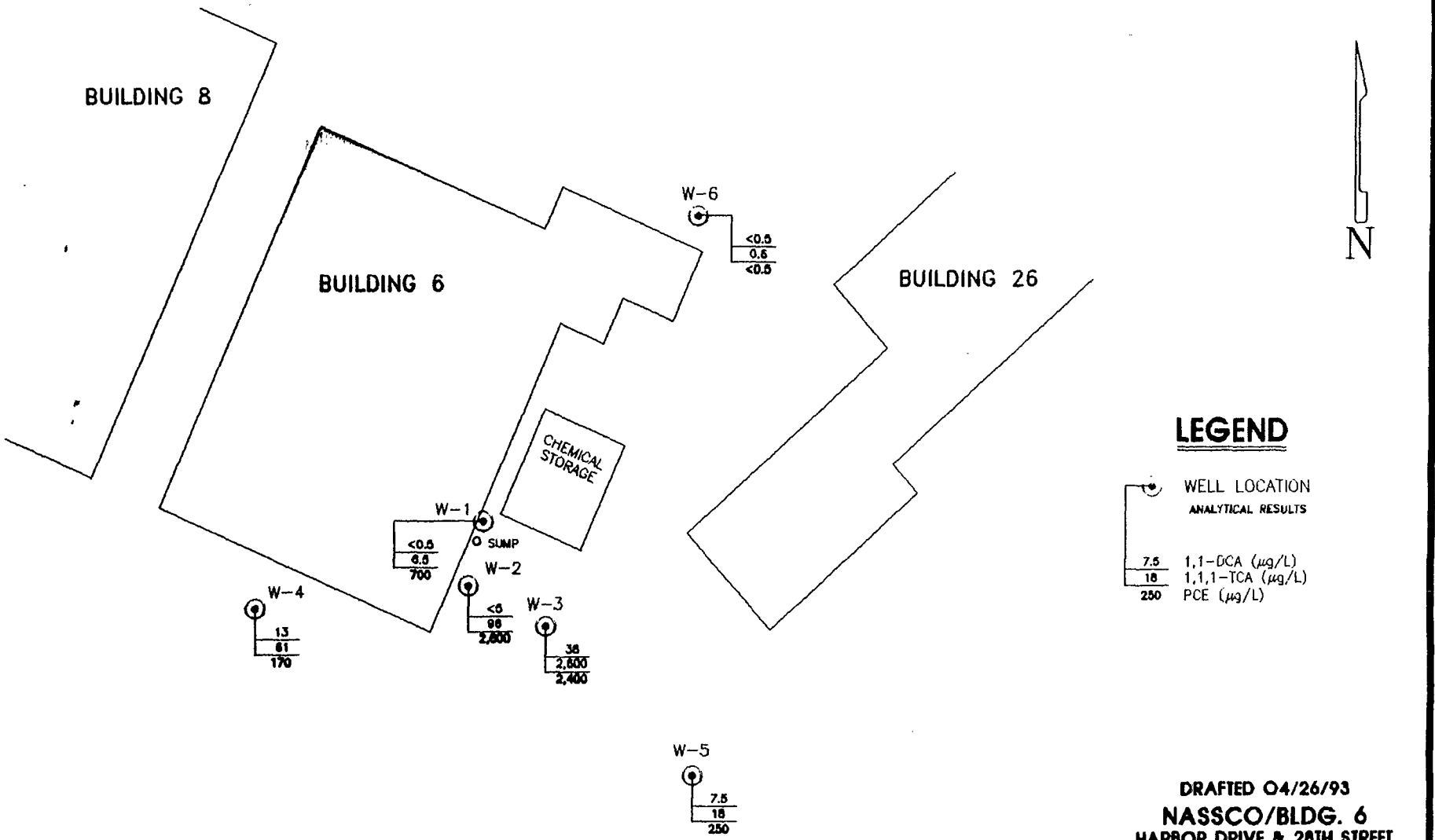
SAN DIEGO, CA

023401055

BORING AND WELL LOCATION MAP

FIGURE 3


BUILDING 8
BUILDING 6
BUILDING 26
CHEMICAL STORAGE
W-1
-1.52
(8.41)
W-2
-1.87
(8.87)
W-3
-1.91
(8.79)
W-4
-1.79
(8.54)
W-5
W-6
GRADIENT=0.0
SUMP DIRECTLY UNDER BORING B-5
N
LEGEND
WELL LOCATION
GROUNDWATER CONTOUR AND ELEVATION
DEPTH TO GROUNDWATER FROM TOP OF CASING (FT.)
GENERAL FLOW DIRECTION
WELLS GAUGED ON 03/16/93
GROUNDWATER TECHNOLOGY, INC.
1055-GW3
0
40
80
APPROX. SCALE IN FEET
DRAFTED 04/26/93
NASSCO/BLDG. 6
HARBOR DRIVE & 28TH STREET
SAN DIEGO, CA
023401055
GROUNDWATER GRADIENT
FIGURE 4



GROUNDWATER TECHNOLOGY, INC.
1055-HG1

DRAFTED 04/26/93
NASSCO/BLDG. 6
HARBOR DRIVE & 28TH STREET
SAN DIEGO, CA
023401055

HYDROCARBON CONCENTRATIONS IN GROUNDWATER

FIGURE 5

TABLE 1. MONITORING DATA, NASSCO BUILDING 6 SUMP, GAUGED MARCH 16, 1993

Well No.	DTW	DTH	HT	SWE	ELEV-W	ELEV-H	DTB	COMMENTS
W-1	8.41			6.89	-1.52		15.34	
W-2	8.87			7.00	-1.87		15.33	
W-3	8.79			6.88	-1.91		14.88	
W-4	8.54			6.75	-1.79		14.45	
W-5	9.05			7.00	-2.05		15.30	
W-6	8.96			7.67	-1.29		15.02	

Abbreviations:

DTW = Depth to water
DTH = Depth to hydrocarbons
HT = Hydrocarbon thickness
DTB = Depth to bottom
SWE = Surveyed well head elevation
ELEV-W = Elevation of water
ELEV-H = Elevation of hydrocarbons

Notes:

1) All depths and thicknesses are in feet
2) All depths are measured from a reference mark on the top-of-casing
3) All elevations relative to mean sea level

TABLE 2. GROUNDWATER ANALYTICAL RESULTS, NASSCO BUILDING 6 SUMP, SAMPLED MARCH 16, 1993

Analyte	TB*	W-1	W-2	W-3	W-4	W-5	W-6
TPH as gasoline	NA	NA	<100	<100	<100	NA	NA
TPH as mineral spirits	NA	NA	<100	<100	<100	NA	NA
TPH as jet fuel	NA	NA	<100	<100	<100	NA	NA
TPH as kerosene	NA	NA	<100	<100	<100	NA	NA
TPH as diesel	NA	NA	<100	<100	<100	NA	NA
TPH as lube oil	NA	NA	<100	<100	<100	NA	NA
Benzene	NA	NA	<5	<5	<5	NA	NA
1,3-Dichlorobenzene	<0.5	23	<5	<5	<5	<0.5	<0.5
1,1-Dichloroethane	<0.5	<0.5	<5	38	13	7.5	<0.5
1,2-Dichloroethane	<0.5	<0.5	<5	<5	<5	4.4	<0.5
1,1-Dichloroethene	<0.2	<0.2	<5	28	<5	<0.2	<0.2
1,2-Dichloroethene (total)	NA	NA	45	18	53	NA	NA
trans-1,2-Dichloroethene	<0.5	<0.5	NA	NA	NA	2.9	<0.5
1,1,1-Trichloroethane (TCA)	<0.5	6.5	96	2600	61	18	0.6
Trichloroethene (TCE)	<0.5	5.8	<5	8	48	34	3.1
Tetrachloroethene (PCE)	<0.5	700	2600	2400	170	250	<0.5

Notes:

1) Results are reported in µg/L
2) TPH = Total petroleum hydrocarbons
3) TB* = Trip blank, mislabeled as W-1, GTEL sample number 03189-1
4) NA = Not analyzed for analyte indicated
5) < Number = Analyte not detected at or above reported detection limit
6) Samples analyzed using EPA Methods Modified 8015, 601 and 8240
7) For the complete analysis see Appendix 4

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GROUNDWATER TECHNOLOGY

GROUNDWATER MONITORING, PURGING AND SAMPLING TECHNIQUES QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

MONITORING

Liquid levels were measured in all wells with an ORS Interface Probe™, capable of measuring depth to phase-separated hydrocarbons and depth to water to within 0.01 feet. Depth measurements were referenced to a survey mark located on the top-of-casing of each well. Liquid from each well was visually inspected for the presence of phase-separated hydrocarbons using an acrylic bailer.

PURGING

A hand-bailer was used to purge three bore hole volumes (fast recharging) or one bore hole volume (slow recharging) of groundwater from each well.

SAMPLING

A decontaminated Teflon™ bailer was used to collect groundwater samples which were poured into pre-cleaned 40-mL VOA vials. As required, each sample was preserved by the appropriate method. Trip blanks supplied by the laboratory were included for analysis with the groundwater samples. The vials were sealed using a lid with a Teflon™ septum, labeled, and placed on ice in an ice chest and delivered over-night to a State-certified laboratory. A chain of custody, which accompanied the samples to the laboratory, was filled out as each sample was collected. Samples were only collected from wells with no observable phase-separated hydrocarbons.

DECONTAMINATION PROCEDURES

To prevent cross-contamination between samples, the Teflon™ surface sampler was washed prior to each sampling using the "three bucket" wash system. The surface sampler was:

1. Washed in a Simple Green™ and water solution,
2. Double rinsed in tap water, and
3. Double rinsed in distilled water.

All water samples are refrigerated and stored at the laboratory for 30 days in case subsequent analyses are needed.

SITE NAME: NASSCO Bldg 6

DATE: 3/16/93

MONITORING AND PURGING DATA SHEET

DATA RECORDED BY: F Lassig

Well Number	Casing Diameter (inches)	DTP (feet)	DTW (feet)	DTB (feet)	SZ (feet)	VR Fast (gallons)	VR Slow (gallons)	Time Purging Ended	Elapsed Time to Second Gauging (hours)	DTW (After Purging) (feet)	Percent Recharge	Well Class (Slow or Fast)	AVR (gallons)	How Volume Measured	Time Sampled
W-1	4		8.41	15.34	6.93	31.18		2:15	1.5	8.41	100	Fast	32	bucket	3:45
W-2	4		8.87	15.33	6.46	29.07		1:45	1.75	8.89	100	Fast	30	bucket	3:30
W-3	4		8.79	14.88	6.09	27.41		1:10	2.0	8.81	100	Fast	30	bucket	3:10
W-4	4		8.54	14.45	5.91	26.60		12:50	2.0	8.55	100	Fast	30	bucket	2:50
W-5	4		9.05	15.30	6.25	28.13		12:30	1.9	9.07	100	Fast	30	bucket	2:30
W-6	4	—	8.96	15.02	6.06	27.27		10:55	2.0	9.03	99	Fast	30	bucket	12:58

LEGEND

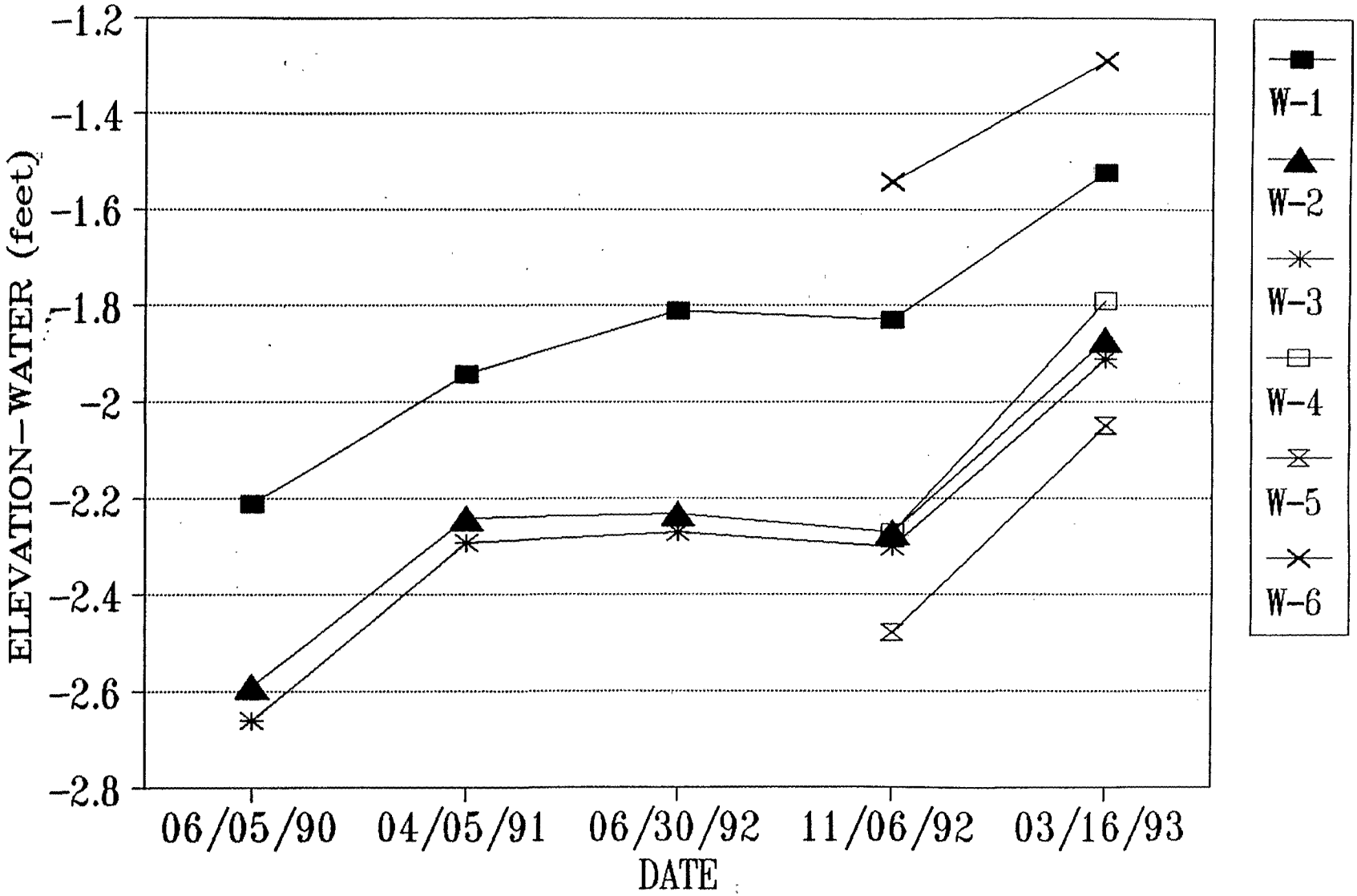
DTP = Depth to product
DTW = Depth to water } (from top of casing)
DTB = Depth to bottom of well
SZ = Length of saturated zone = DTB - DTW
VR Fast/Slow = Volume of water to be removed (purged) for fast/slow recharging well
AVR = Actual volume of water purged from well

R 06/21/92

COMMENTS: No product tone anywhere in the water column - All wells Inspected samples from an acrylic bailer. (prior to purging) from the top & bottom of the H_2O column in each well. No Product seen Slight odor in W-1, others no odor W-1, W-2, W-3 small amount of apparent bio/silt suspended material (orange brown finely dispersed particles) [illegible] bio material as above in lower part of well

Silt/ Bio fouling Material heaviest in bottom of W-2

NASSCO - BUILDING 6 SUMP
HYDROGRAPH



GROUNDWATER TECHNOLOGY

GTEL
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LABORATORIES, INC.

Southwest Region
20000 / 300 Mariner Drive
Torrance, CA 90503
(310) 371-1044
(800) 727-GTEL
Fax (310) 371-8720

GTEL Client Number: 023401055
Project I.D.: NASSCO
Work Order Number: T303189

April 1, 1993

APR - 5 1993

Ms. Vijay Radics
Groundwater Technology, Inc.
9940 Mesa Rim Road, Suite B
San Diego, CA 92121

Dear Ms. Radics,

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 3-18-93 under chain-of-custody record 16733.

A formal Quality Assurance/Quality Control (QA/QC) program, which is designed to meet or exceed the EPA requirements, is maintained by GTEL. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes.

GTEL is certified by the state of California under Certification #1123.

If you have any questions concerning this analysis or if we can be of further assistance, please call one of our Customer Service Representatives.

Sincerely,

GTEL Environmental Laboratories, Inc.

Joan Greenwood
Laboratory Director

GTEL Client Number: 023401055
Project I.D.: NASSCO
Work Order Number: T303189

ANALYTICAL RESULTS

Hydrocarbon Screen of Water
EPA Method Modified 8015[a]

GTEL Sample Number		Lab Blank	03189-2	03189-4	03189-6
Client Identification		--	W-2	W-3	W-4
Date Sampled		--	3-16-93	3-16-93	3-16-93
Date Extracted		3-19-93	3-19-93	3-19-93	3-19-93
Date Analyzed		3-23-93	3-23-93	3-23-93	3-23-93
Analyte	Reporting Limit, ug/L	Concentration, ug/L			
TPH as gasoline	100	<100	<100	<100	<100
TPH as mineral spirits	100	<100	<100	<100	<100
TPH as jet fuel	100	<100	<100	<100	<100
TPH as kerosene	100	<100	<100	<100	<100
TPH as diesel	100	<100	<100	<100	<100
TPH as lube oil	100	<100	<100	<100	<100
Dilution Multiplier[b]		1	1	1	1
o-Terphenyl surrogate[c], % recovery		100	83.0	154	100

a. Test Methods for Evaluating Solid Waste,SW-846, Third Edition, Revision O, US EPA November 1986. Extraction by EPA Method 3510 (liquid-liquid extraction). Modification for TPH as per California State Water Resources Board LUFT Manual protocols.

b. Indicates the adjustments made for sample dilution.

c. o-Terphenyl surrogate recovery acceptability limits of 67.0-109 % are derived from the 99% confidence interval of all samples during the previous quarter. Expected surrogate value is 500 ug/L.

GTEL Client Number: 023401055
Project I.D.: NASSCO
Work Order Number: T303189

ANALYTICAL RESULTS

Volatile Organics in Water
EPA Method 601[a]

	GTEL Sample Number	Blank	03189-1	03189-8	03189-9
	Client Identification	--	W-1	W-5	W-6
	Date Sampled	--	3-16-93	3-16-93	3-16-93
	Date Analyzed	3-30-93	3-30-93	3-30-93	3-30-93
Analyte	Reporting Limit, ug/L	Concentration, ug/L			
Bromodichloromethane	0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.5	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	0.5	<0.5	<0.5	<0.5	<0.5
2-Chloroethylvinyl ether	1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	0.5	<0.5	<0.5	<0.5	<0.5
Chloromethane	0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	0.5	<0.5	<0.5	7.5	<0.5
1,2-Dichloroethane	0.5	<0.5	<0.5	4.4	<0.5
1,1-Dichloroethene	0.2	<0.2	<0.2	<0.2	<0.2
trans-1,2-Dichloroethene	0.5	<0.5	<0.5	2.9	<0.5
1,2-Dichloropropane	0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5

Table continued on next page

GTEL Client Number: 023401055
Project I.D.: NASSCO
Work Order Number: T303189

ANALYTICAL RESULTS

Volatile Organics in Water
EPA Method 601[a]

GTEL Sample Number		Blank	03189-1	03189-8	03189-9
Client Identification		--	W-1	W-5	W-6
Date Sampled		--	3-16-93	3-16-93	3-16-93
Date Analyzed		3-30-93	3-30-93	3-30-93	3-30-93
Analyte	Reporting Limit, ug/L	Concentration, ug/L			
Methylene chloride	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	0.5	<0.5	<0.5	250	<0.5
1,1,1-Trichloroethane	0.5	<0.5	<0.5	18	0.6
1,1,2-Trichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	0.5	<0.5	<0.5	34	3.1
Trichlorofluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
Vinyl Chloride	1.0	<1.0	<1.0	<1.0	<1.0
Dilution Multiplier[b]		1	1	1	1
1,4-Dichlorobutane surrogate[c], % recovery		100	86.7	103	81.4

a Federal Register, Vol. 49, October 26, 1984.

b Indicates the adjustments made for samples dilution.

c 1,4-Dichlorobutane surrogate recovery acceptability limits of 83.9-108% are derived from the 99% confidence interval of all samples during the previous quarter. Expected surrogate value is 100 ug/L.

GTEL Client Number: 023401055
Project I.D.: NASSCO
Work Order Number: T303189

ANALYTICAL RESULTS

Volatile Organics in Water
Modified EPA Method 8240[a]

GTEL Sample Number		Blank	03189-3	03189-5	03189-7
Client Identification		--	W-2	W-3	W-4
Date Sampled		--	3-16-93	3-16-93	3-16-93
Date Analyzed		3-22-93	3-22-93	3-22-93	3-22-93
Analyte	Reporting Limit, ug/L	Concentration, ug/L			
Chloromethane	10	<10	<10	<10	<10
Bromomethane	10	<10	<10	<10	<10
Vinyl Chloride	10	<10	<10	<10	<10
Chloroethane	10	<10	<10	<10	<10
Methylene Chloride	5	<5	<5	<5	<5
Acetone	100	<100	<100	<100	<100
Carbon Disulfide	5	<5	<5	<5	<5
1,1-Dichloroethene	5	<5	<5	28	<5
1,1-Dichloroethane	5	<5	<5	38	13
1,2-Dichloroethene (total)	10	<10	45	18	53
Chloroform	5	<5	<5	<5	<5
1,2-Dichloroethane	5	<5	<5	<5	<5
2-Butanone	100	<100	<100	<5	<5
1,1,1-Trichloroethane	5	<5	96	2600	61
Carbon Tetrachloride	5	<5	<5	<5	<5
Vinyl Acetate	50	<50	<50	<50	<50
Bromodichloromethane	5	<5	<5	<5	<5
1,2-Dichloropropane	5	<5	<5	<5	<5
cis-1,3-Dichloropropene	5	<5	<5	<5	<5
Trichloroethene	5	<5	<5	8	48
Dibromochloromethane	5	<5	<5	<5	<5
1,1,2-Trichloroethane	5	<5	<5	<5	<5
Benzene	5	<5	<5	<5	<5
trans-1,3-Dichloropropene	5	<5	<5	<5	<5

Table continued on next page

GTEL Client Number: 023401055
Project I.D.: NASSCO
Work Order Number: T303189

ANALYTICAL RESULTS

Volatile Organics in Water
Modified EPA Method 8240[a]

GTEL Sample Number		Blank	03189-3	03189-5	03189-7
Client Identification		--	W-2	W-3	W-4
Date Sampled		--	3-16-93	3-16-93	3-16-93
Date Analyzed		3-22-93	3-22-93	3-22-93	3-22-93
Analyte	Reporting Limit, ug/L	Concentration, ug/L			
2-Chloroethylvinylether	10	<10	<10	<10	<10
Bromoform	5	<5	<5	<5	<5
4-Methyl-2-Pentanone	50	<50	<50	<50	<50
2-Hexanone	50	<50	<50	<50	<50
Tetrachloroethene	5	<5	2600	2400	170
1,1,2,2-Tetrachloroethane	5	<5	<5	<5	<5
Toluene	5	<5	<5	<5	<5
Chlorobenzene	5	<5	<5	<5	<5
Ethylbenzene	5	<5	<5	<5	<5
Styrene	5	<5	<5	<5	<5
1,2-Dichlorobenzene	5	<5	<5	<5	<5
1,3-Dichlorobenzene	5	<5	<5	<5	<5
1,4-Dichlorobenzene	5	<5	<5	<5	<5
Xylene (total)	10	<10	<10	<10	<10
Trichlorofluoromethane	5	<5	<5	<5	<5
Dilution Multiplier[b]		1	1	1	1
1,2-Dichloroethane-d4 surrogate[c]	% recovery	116	70.3	84.4	83.0
Toluene-d8 surrogate[c]	% recovery	114	71.7	82.6	83.6
Bromofluorobenzene surrogate[c]	% recovery	114	71.8	82.8	82.8

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Extraction by EPA Method 5030 (purge and trap).

b. Indicates the adjustments made for sample dilution.

c. Surrogate expected results = 50 ug/L. Recovery Acceptability limits are derived from US EPA Contract Laboratory Program (CLP) requirements.
1,2-Dichloroethane-d4 = 70-121%, Toluene-d8 = 81-117%, Bromofluorobenzene = 74-121%. Source = Ultra Scientific Lot #C0466.

GTEL Client Number: 023401055
Project I.D.: NASSCO
Work Order Number: T303189

ANALYTICAL RESULTS

Volatile Organics in Water
EPA Method 601[a]

GTEL Sample Number		03189-1C*			
Client Identification		W-1			
Date Sampled		3-16-93			
Date Analyzed		4-2-93			
Analyte	Reporting Limit, ug/L	Concentration, ug/L			
Bromodichloromethane	0.5	<0.5			
Bromoform	0.5	<0.5			
Bromomethane	0.5	<0.5			
Carbon tetrachloride	0.5	<0.5			
Chlorobenzene	0.5	<0.5			
Chloroethane	0.5	<0.5			
2-Chloroethylvinyl ether	1.0	<1.0			
Chloroform	0.5	<0.5			
Chloromethane	0.5	<0.5			
Dibromochloromethane	0.5	<0.5			
1,2-Dichlorobenzene	0.5	<0.5			
1,3-Dichlorobenzene	0.5	23			
1,4-Dichlorobenzene	0.5	<0.5			
Dichlorodifluoromethane	0.5	<0.5			
1,1-Dichloroethane	0.5	<0.5			
1,2-Dichloroethane	0.5	<0.5			
1,1-Dichloroethene	0.2	<0.2			
trans-1,2-Dichloroethene	0.5	<0.5			
1,2-Dichloropropane	0.5	<0.5			
cis-1,3-Dichloropropene	0.5	<0.5			
trans-1,3-Dichloropropene	0.5	<0.5			

Table continued on next page

GTEL Client Number: 023401055
Project I.D.: NASSCO
Work Order Number: T303189

ANALYTICAL RESULTS

Volatile Organics in Water
EPA Method 601[a]

	GTEL Sample Number	03189-1C*			
	Client Identification	W-1			
	Date Sampled	3-16-93			
	Date Analyzed	4-2-93			
Analyte	Reporting Limit, ug/L	Concentration, ug/L			
Methylene chloride	0.5	<0.5			
1,1,2,2-Tetrachloroethane	0.5	<0.5			
Tetrachloroethene	0.5	700			
1,1,1-Trichloroethane	0.5	6.5			
1,1,2-Trichloroethane	0.5	<0.5			
Trichloroethene	0.5	5.8			
Trichlorofluoromethane	0.5	<0.5			
Vinyl Chloride	1.0	<1.0			
Dilution Multiplier[b]		1			
1,4-Dichlorobutane surrogate[c], % recovery		94.8			

a Federal Register, Vol. 49, October 26, 1984.

b Indicates the adjustments made for samples dilution.

c 1,4-Dichlorobutane surrogate recovery acceptability limits of 83.9-108% are derived from the 99% confidence interval of all samples during the previous quarter. Expected surrogate value is 100 ug/L.

* Ran 3 days past holding time.

GTEL Client Number: 023401055
Project I.D.: NASSCO
Work Order Number: T303189

CONFORMANCE/NONCONFORMANCE SUMMARY

Abbreviations:

X = Requirements Met
VOA = Volatiles
* = See Comments
SV = Semi Volatiles
NA = Not Applicable
ND = Not Detected
- = Test Not Required

#	Conformance Item	VOA GC	VOA GC/MS	SV GC	SV GC/MS	Metals	Wet Chem
1	Holding Time	X	X	X			
2	Method Accuracy	X	X	X			
3	Method Precision	X	X	X			
4	Surrogate Recovery	X	X	X			
5	Blank	ND	ND	ND			

Comments:

GTEL Client Number: 023401055
Project I.D.: NASSCO
Work Order Number: T303189

QC Check Sample Results

Matrix: Water

Analyte	Source	Date of Analysis	Expected Value	Units	Recovery[a], %
GC:					
Diesel	Chevron	3-23-93	1000	mg/L	141 (80-120)
Chlorobenzene	Supelco	4-1-93	25.0	ug/L	82.4 (72-128)
Chloroform	Supelco	4-1-93	25.0	ug/L	109 (75-125)
1,2-Dichloroethane	Supelco	4-1-93	25.0	ug/L	103 (71.5-129)
1,1-Dichloroethene	Supelco	4-1-93	25.0	ug/L	85.2 (84-116)
Trichloroethene	Supelco	4-1-93	25.0	ug/L	100 (77-123)
Tetrachloroethene	Supelco	4-1-93	25.0	ug/L	102 (70-130)
GC/MS:					
Trichloroethene	Ultra Scientific	11-9-92	100	ug/L	94.4 (71-157)
Carbon Tetrachloride	Ultra Scientific	11-9-92	100	ug/L	99.7 (70-140)
Chloroform	Ultra Scientific	11-9-92	100	ug/L	107 (51-138)
1,2-Dichloroethane	Ultra Scientific	11-9-92	100	ug/L	112 (49-155)
Benzene	Ultra Scientific	11-9-92	100	ug/L	101 (37-151)
1,1-Dichloroethene	Ultra Scientific	11-9-92	100	ug/L	85.8 (D-234)
1,4-Dichlorobenzene	Ultra Scientific	11-9-92	100	ug/L	111 (18-190)

a. Acceptability limits are in parentheses.
D. Detected, results must be greater than zero.

GTEL Client Number: 023401055
Project I.D.: NASSCO
Work Order Number: T303189

Matrix Spike and Duplicate Spike Results

Matrix: Water

Analyte	Sample ID	Date of Analysis	Sample Amount	Spike Amount	Units	Reco-very. %	Duplicate Recovery[a] %	RPD[a], %
GC:								
Diesel	T303189	3-23-93	<100	3830	mg/L	156	178 (60-140)	13.2 (30)
Chlorobenzene	T303189	4-1-93	<0.5	25.0	ug/L	82.4	78.4 (38-150)	4.98 (30)
Chloroform	T303189	4-1-93	<0.5	25.0	ug/L	109	107 (49-113)	1.85 (30)
1,2-Dichloroethane	T303189	4-1-93	<0.5	25.0	ug/L	103	105 (51-147)	1.92 (30)
1,1-Dichloroethene	T303189	4-1-93	<0.5	25.0	ug/L	85.2	106 (47-132)	21.8 (30)
Trichloroethene	T303189	4-1-93	<0.5	25.0	ug/L	100	100 (35-146)	0 (30)
Tetrachloroethene	T303189	4-1-93	<0.5	25.0	ug/L	102	102 (26-162)	0 (30)
GC/MS:								
1,1-Dichloroethene	T303152-12	3-22-93	<5	50	ug/L	76.2	70.6 (61-145)	7.63 (14)
Benzene	T303152-12	3-22-93	<5	50	ug/L	92.0	87.2 (76-127)	5.36 (11)
Trichloroethene	T303152-12	3-22-93	<5	50	ug/L	88.4	84.4 (71-120)	4.63 (14)
Toluene	T303152-12	3-22-93	<5	50	ug/L	88.6	85.2 (76-125)	3.91 (13)
Chlorobenzene	T303152-12	3-22-93	<5	50	ug/L	91.2	87.6 (76-130)	4.03 (13)

a. Acceptability limits are in parentheses.

ENVIRONMENTAL LABORATORIES, INC.

(3[illegible]) 671-1[illegible]
(800) 727-GTEL

mpany Name: Groundwater Technology Inc
Phone #: 619 453 8415
FAX #: 619 453 2688
mpany Address: 140 Mesa Rim Rd San Diego, CA
Site location: Harbor Drive & 28th San Diego, CA
ject Manager: Vijay Radics
Client Project ID: (#) 02340105 5
(NAME) NASSCO
est that the proper field sampling cedures were used during the collection hese samples.
Sampler Name (Print): Fred Essig

ANALYSIS REQUEST

Field Sample ID	GTEL Lab # (Lab use only)	# Containers	Matrix: WATER	SOIL	AIR	SLUDGE	PRODUCT	OTHER	Method Preserved: HCl	HNO_3	H_2SO_4	ICE	UNPRESERVED	OTHER SPECIFY	Sampling: DATE	TIME	BTEX/602 ☐ 8020 ☐ with MTBE ☐	BTEX/Gas Hydrocarbons PID/FID ☐ with MTBE ☐	Hydrocarbons GC/FID Gas ☐ Diesel ☐ Screen ☐	Hydrocarbon Profile (SIMDIS) ☐	Oil and Grease 413.1 ☐ 413.2 ☐ SM 503 ☐	TPH/IR 418.1 ☐ SM 503 ☐	EDB by 504 ☐ DBCP by 504 ☐	EPA 503.1 ☐ EPA 502.2 ☐	EPA 601 ☐ EPA 8010 ☐ Purgeable Halocarbons	EPA 602 ☐ EPA 8020 ☐	EPA 608 ☐ 8080 ☐ PCB only ☐	EPA 624/PPL ☐ 8240/TAL ☐ NBS (+15) ☐ Vacuum Volatiles	EPA 625/PPL ☐ 8270/TAL ☐ NBS (+25) ☐	EPA 610 ☐ 8310 ☐	EP TOX Metals ☐ Pesticides ☐ Herbicides ☐	TCLP Metals ☐ VOA ☐ Semi-VOA ☐ Pest ☐ Herb ☐	EPA Metals - Priority Pollutant ☐ TAL ☐ RCRA ☐	CAM Metals TTLC ☐ STLC ☐	Lead 239.2 ☐ 200.7 ☐ 7420 ☐ 7421 ☐ 6010 ☐	Organic Lead ☐	Corrosivity ☐ Flash Point ☐ Reactivity ☐	OTHER: TPH/H-C screen DHS Method
W-1		4	X									X			3/16	3:45									X													
W-2		1														3:30																					X	
W-2		2							X							3:30												X										
W-3		1														3:10																					X	
W-3		2							X							3:10												X										
W-4		1														2:40																					X	
W-4		2							X							2:30												X										
W-5		2														2:30									X													
W-6		2														12:58									X													

TAT
ority (24 hr) ☐
pedited (48 hr) ☐
Business Days ☐
her
siness Days 10 ☒

Special Handling
GTEL Contact
Quote/Contract # T209
Confirmation #
PO #

QA / QC LEVEL
UE ☐ CLP ☐ OTHER

SPECIAL DETECTION LIMITS

SPECIAL REPORTING REQUIREMENTS
FAX ☒

REMARKS Elaine - Should show up fax

Lab Use Only Lot #
Storage Location:
Work Order # T303189

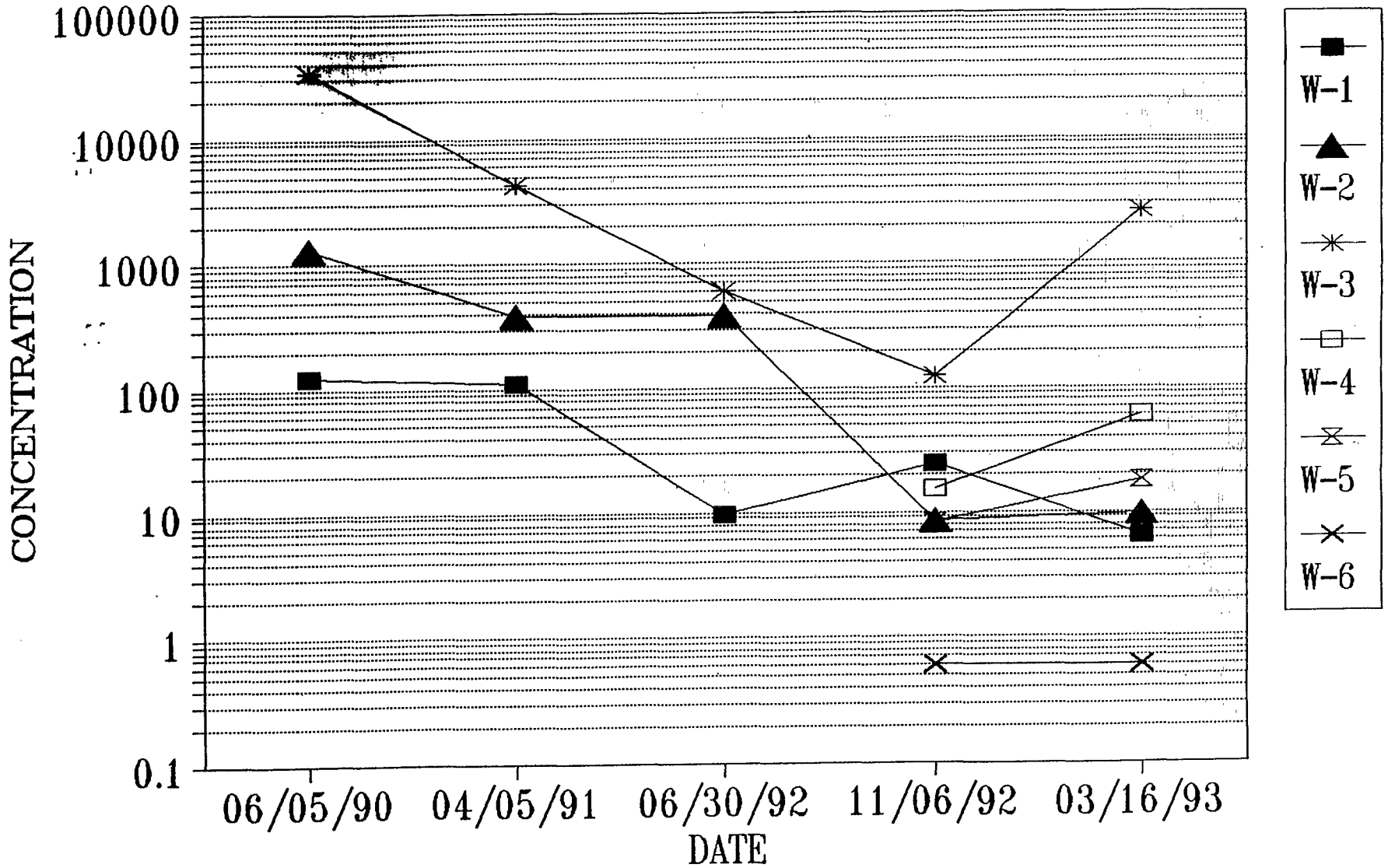
CUSTODY RECORD

Relinquished by Sampler:	Date	Time	Received by:
Fred Essig	3/16/93	5:00	Air EX 719 972 4711
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:
Air Ex # 719 972 4711	3/18/93	9:15am	Waybill # [signature]

7/91

NASSCO – BUILDING 6 SUMP

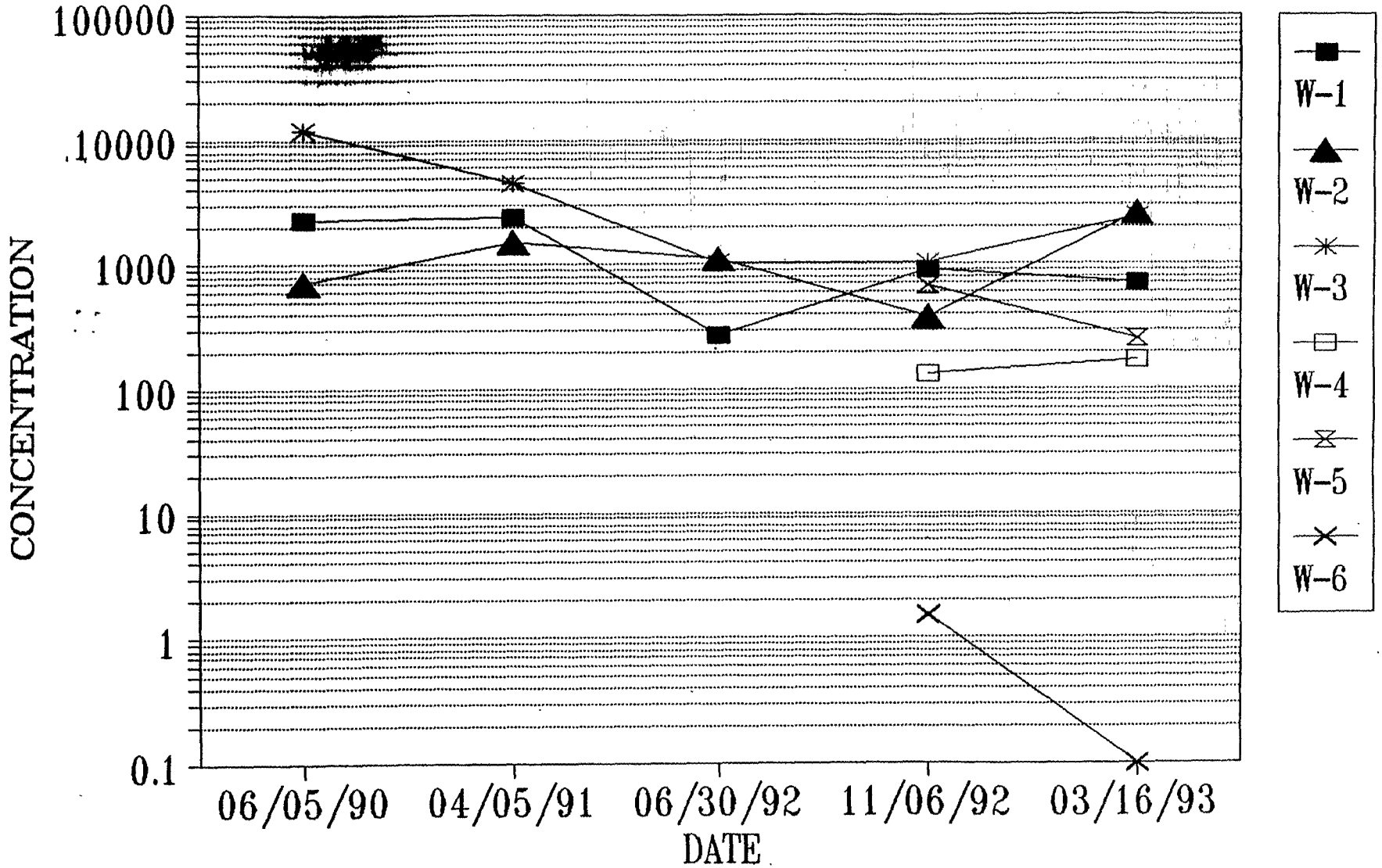
TCA CONCENTRATIONS WITH TIME



GROUNDWATER TECHNOLOGY

NASSCO – BUILDING 6 SUMP

PCE CONCENTRATIONS WITH TIME



GROUNDWATER TECHNOLOGY

REFERENCE 10

ECO SYSTEMS
MANAGEMENT ASSOCIATES, INC.
2270 CAMINO VIDA ROBLE, SUITE L, CARLSBAD, CA 92009 •(619) 438-8682

NATIONAL STEEL AND SHIPBUILDING COMPANY

NPDES PERMIT

MARINE SEDIMENT MONITORING AND REPORTING

SECOND SEMI-ANNUAL REPORT

JUNE 1993

Volume 2

NATIONAL STEEL AND SHIPBUILDING COMPANY

NPDES PERMIT

MARINE SEDIMENT MONITORING AND REPORTING

SECOND SEMI-ANNUAL REPORT

JUNE 1993

Volume 2

REPORT PREPARED FOR NATIONAL STEEL AND SHIPBUILDING BY:

ECOSYSTEMS MGT. ASSOC. INC.
2270 CAMINO VIDA ROBLE #L
CARLSBAD CA 92009

This volume contains data compiled in historical format both as listings and as plots.

NASSCO
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE		June 30,1993 VALUE
	[illegible]					
NSS-01	ARSENIC	DRY	MG	685		5.42
		WET		514		3.91
NSS-01	CADMIUM	DRY	MG	0.557	<	0.269
		WET		514	<	0.194
NSS-01	CHROMIUM	DRY	MG	43.2		17.9
		WET		32.4		12.9
NSS-01	COPPER	DRY	MG	177		109
		WET		133		78.5
NSS-01	LEAD	DRY	MG	74		21.3
		WET		55.5		15.4
NSS-01	MERCURY	DRY	MG	0.693	<	0.693
		WET		0.52	<	0.5
NSS-01	NICKEL	DRY	MG	7.08		7.56
		WET		5.31		5.46
NSS-01	SILVER	DRY	MG	0.696	<	0.554
		WET		0.522	<	0.4
NSS-01	TBT	DRY	UG	7.15		14.5
		WET		5.36		10.5
NSS-01	ZINC	DRY	MG	232		183
		WET		174		132
	PAH					
NSS-01	PAH-%SOLID	DRY	UG	75		72.2
		WET		.		.
NSS-01	PAH-ACENAPHTHENE	DRY	UG	92		ND
		WET		69		ND
NSS-01	PAH-ACENAPHTHYLENE	DRY	UG	333		80.2
		WET		250		57.9
NSS-01	PAH-ANTHRACENE	DRY	UG	800		ND
		WET		600		ND
NSS-01	PAH-BENZO(A)ANTHRACENE	DRY	UG	1613		374

NASSCO
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
		WET		1210	270
NSS-01	PAH-BENZO(A)PYRENE	DRY	UG	3547	658
		WET		2600	475
NSS-01	PAH-BENZO(B)FLUORANTHENE	DRY	UG	5093	ND
		WET		3820	ND
NSS-01	PAH-BENZO(GHI)PERYLENE	DRY	UG	1213	ND
		WET		910	ND
NSS-01	PAH-BENZO(K)FLUORANTHENE	DRY	UG	1720	ND
		WET		1290	ND
NSS-01	PAH-CHRYSENE	DRY	UG	2547	981
		WET		1910	708
NSS-01	PAH-DIBENZO(A,H)ANTHRACENE	DRY	UG	693	ND
		WET		520	ND
NSS-01	PAH-FLUORANTHENE	DRY	UG	2467	848
		WET		1850	612
NSS-01	PAH-FLUORENE	DRY	UG	139	ND
		WET		104	ND
NSS-01	PAH-INDENO(1,2,3-CD)PYRENE	DRY	UG	1360	ND
		WET		1020	ND
NSS-01	PAH-NAPHTHALENE	DRY	UG	ND	ND
		WET		ND	ND
NSS-01	PAH-PHENANTHRENE	DRY	UG	605	ND
		WET		454	ND
NSS-01	PAH-PYRENE	DRY	UG	3560	1070
		WET		2670	773
NSS-01	TPH (ALIPHATIC)	DRY	MG	74.9	1.9
		WET		56.2	1.4
NSS-01	TPH (AROMATIC)	DRY	MG	21.3	6.4
		WET		16	4.6
NSS-01	TPH (TOTAL)	DRY	MG	96.3	8.3
		WET		72.2	6

NASSCO
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
NSS-01	PCB	DRY	UG	576	139
		WET		432	100
NSS-01	PCT	DRY	MG	< 6.67	< 6.9
		WET		< 5	< 5
	[illegible]				
NSS-02	ARSENIC	DRY	MG	4.4	6.83
		WET		2.99	3.3
NSS-02	CADMIUM	DRY	MG	0.224	< 0.41
		WET		2.99	< 0.198
NSS-02	CHROMIUM	DRY	MG	36.5	48.9
		WET		24.8	23.6
NSS-02	COPPER	DRY	MG	96.6	145
		WET		65	70.1
NSS-02	LEAD	DRY	MG	48.2	50.9
		WET		32.8	24.6
NSS-02	MERCURY	DRY	MG	0.412	1.04
		WET		0.28	0.5
NSS-02	NICKEL	DRY	MG	6.03	13.4
		WET		4.1	6.48
NSS-02	SILVER	DRY	MG	0.369	0.957
		WET		0.251	0.462
NSS-02	TBT	DRY	UG		< 2.1
		WET			< 1
NSS-02	ZINC	DRY	MG	175	222
		WET		119	107
	[illegible]				
NSS-03	ARSENIC	DRY	MG	9.37	9.01
		WET		4.87	3.17
NSS-03	CADMIUM	DRY	MG	9.37	1.28
		WET		4.87	0.451
NSS-03	CHROMIUM	DRY	MG	128	71.9

NASSCO
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
		WET		66.7	25.3
NSS-03	COPPER	DRY	MG	535	426
		WET		278	150
NSS-03	LEAD	DRY	MG	279	133
		WET		145	46.7
NSS-03	MERCURY	DRY	MG	4.15	1.42
		WET		1.42	0.5
NSS-03	NICKEL	DRY	MG	16	24
		WET		8.3	8.44
NSS-03	SILVER	DRY	MG	1.12	< 1.14
		WET		0.582	< 0.4
NSS-03	TBT	DRY			136
		WET			48
NSS-03	ZINC	DRY	MG	731	426
		WET		380	150
	TRACE METALS				
NSS-04	ARSENIC	DRY	MG	10.3	10.6
		WET		3.51	3.41
NSS-04	CADMIUM	DRY	MG	10.3	< 0.611
		WET		3.51	< 0.196
NSS-04	CHROMIUM	DRY	MG	84.4	75.7
		WET		28.7	24.3
NSS-04	COPPER	DRY	MG	794	607
		WET		270	195
NSS-04	LEAD	DRY	MG	194	131
		WET		66.1	42.1
NSS-04	MERCURY	DRY	MG	1.76	< 1.3
		WET		2.16	< 0.417
NSS-04	NICKEL	DRY	MG	21.6	25.5
		WET		7.35	8.18
NSS-04	SILVER	DRY	MG	1.46	1.26
		WET		0.496	0.406

NASSCO
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
NSS-04	TBT	DRY			292
		WET			93.8
NSS-04	ZINC	DRY	MG	526	486
		WET		179	156
	[illegible]				
NSS-05	ARSENIC	DRY	MG	11.2	11.2
		WET		3.71	3.65
NSS-05	CADMIUM	DRY	MG	11.2	< 0.601
		WET		3.71	< 0.196
NSS-05	CHROMIUM	DRY	MG	78.8	76.4
		WET		26	24.9
NSS-05	COPPER	DRY	MG	788	837
		WET		260	273
NSS-05	LEAD	DRY	MG	131	101
		WET		43.1	33
NSS-05	MERCURY	DRY	MG	1.58	< 1.53
		WET		0.6	< 0.5
NSS-05	NICKEL	DRY	MG	21.1	21.3
		WET		6.95	6.96
NSS-05	SILVER	DRY	MG	1.95	2.04
		WET		0.644	0.664
NSS-05	TBT	DRY	UG	218	356
		WET		71.9	116
NSS-05	ZINC	DRY	MG	2097	610
		WET		692	199
	[illegible]				
NSS-05	PAH-%SOLID	DRY	UG	33	32.6
		WET		.	.
NSS-05	PAH-ACENAPHTHENE	DRY	UG	ND	ND
		WET		ND	ND
NSS-05	PAH-ACENAPHTHYLENE	DRY	UG	ND	ND

NASSCO
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
		WET		ND	ND
NSS-05	PAH-ANTHRACENE	DRY	UG	254	ND
		WET		83.8	ND
NSS-05	PAH-BENZO(A)ANTHRACENE	DRY	UG	ND	237
		WET		ND	77.3
NSS-05	PAH-BENZO(A)PYRENE	DRY	UG	1258	ND
		WET		415	ND
NSS-05	PAH-BENZO(B)FLUORANTHENE	DRY	UG	1727	ND
		WET		570	ND
NSS-05	PAH-BENZO(GHI)PERYLENE	DRY	UG	558	ND
		WET		184	ND
NSS-05	PAH-BENZO(K)FLUORANTHENE	DRY	UG	1000	ND
		WET		330	ND
NSS-05	PAH-CHRYSENE	DRY	UG	727	ND
		WET		240	ND
NSS-05	PAH-DIBENZO(A,H)ANTHRACENE	DRY	UG	273	ND
		WET		90	ND
NSS-05	PAH-FLUORANTHENE	DRY	UG	268	475
		WET		88.3	155
NSS-05	PAH-FLUORENE	DRY	UG	ND	ND
		WET		ND	ND
NSS-05	PAH-INDENO(1,2,3-CD)PYRENE	DRY	UG	576	ND
		WET		190	ND
NSS-05	PAH-NAPHTHALENE	DRY	UG	ND	ND
		WET		ND	ND
NSS-05	PAH-PHENANTHRENE	DRY	UG	ND	ND
		WET		ND	ND
NSS-05	PAH-PYRENE	DRY	UG	667	583
		WET		220	190
NSS-05	TPH (ALIPHATIC)	DRY	MG	20.3	42.3
		WET		6.7	13.8
NSS-05	TPH (AROMATIC)	DRY	MG	< 3.03	2.5
		WET		< 1	0.8

NASSCO
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
NSS-05	TPH (TOTAL)	DRY	MG	20.3	44.8
		WET		6.7	14.6
	[illegible]				
NSS-05	PCB	DRY	UG	200	89
		WET		66	29
NSS-05	PCT	DRY	MG	< 15.2	< 15.3
		WET		< 5	< 5
	[illegible]				
NSS-06	ARSENIC	DRY	MG	13.5	8.57
		WET		5.28	2.94
NSS-06	CADMIUM	DRY	MG	13.5	< 0.571
		WET		5.28	< 0.196
NSS-06	CHROMIUM	DRY	MG	75.1	67.1
		WET		29.3	23
NSS-06	COPPER	DRY	MG	695	344
		WET		271	118
NSS-06	LEAD	DRY	MG	121	82.8
		WET		47.3	28.4
NSS-06	MERCURY	DRY	MG	1.92	< 1.17
		WET		0.52	< 0.4
NSS-06	NICKEL	DRY	MG	20.4	18.2
		WET		7.95	6.25
NSS-06	SILVER	DRY	MG	1.96	1.29
		WET		0.771	0.441
NSS-06	TBT	DRY			67.1
		WET			23
NSS-06	ZINC	DRY	MG	523	362
		WET		204	131
	[illegible]				
NSS-07	ARSENIC	DRY	MG	11.3	7.42

NASSCO
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE		June 30,1993 VALUE
		WET		3.39		3.6
NSS-07	CADMIUM	DRY	MG	11.3	<	0.404
		WET		3.39	<	0.196
NSS-07	CHROMIUM	DRY	MG	73.3		52.6
		WET		22		25.5
NSS-07	COPPER	DRY	MG	613		414
		WET		184		201
NSS-07	LEAD	DRY	MG	147		102
		WET		44		49.3
NSS-07	MERCURY	DRY	MG	1.27	<	1.03
		WET		0.75	<	0.5
NSS-07	NICKEL	DRY	MG	19.9		17.1
		WET		5.98		8.3
NSS-07	SILVER	DRY	MG	1.12	<	0.825
		WET		0.335	<	0.4
NSS-07	TBT	DRY				34.4
		WET				16.7
NSS-07	ZINC	DRY	MG	487		346
		WET		146		168
	[illegible]					
NSS-08	ARSENIC	DRY	MG	25.4		20.5
		WET		8.88		6.23
NSS-08	CADMIUM	DRY	MG	25.4		2.53
		WET		8.88		0.77
NSS-08	CHROMIUM	DRY	MG	135		102
		WET		47.18		31.1
NSS-08	COPPER	DRY	MG	1186		967
		WET		415.08		294
NSS-08	LEAD	DRY	MG	215		197
		WET		75.28		59.8
NSS-08	MERCURY	DRY	MG	1.09	<	1.5
		WET		0.38	<	0.455

NASSCO
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE		June 30,1993 VALUE
NSS-08	NICKEL	DRY	MG	25.8		31.1
		WET		9.02		9.46
NSS-08	SILVER	DRY	MG	1.62		2.38
		WET		0.566		0.723
NSS-08	TBT	DRY				188
		WET				57
NSS-08	ZINC	DRY	MG	929		901
		WET		325		274
	[illegible]					
NSS-09	ARSENIC	DRY	MG	16.3		19
		WET		10.3		10.7
NSS-09	CADMIUM	DRY	MG	16.3		0.585
		WET		10.3		0.33
NSS-09	CHROMIUM	DRY	MG	29.4		66
		WET		18.5		37.2
NSS-09	COPPER	DRY	MG	267		340
		WET		181		192
NSS-09	LEAD	DRY	MG	83.5		86.9
		WET		52.6		49
NSS-09	MERCURY	DRY	MG	0.286	<	0.771
		WET		0.18	<	0.435
NSS-09	NICKEL	DRY	MG	9.1		12.7
		WET		5.73		7.18
NSS-09	SILVER	DRY	MG	0.54	<	0.709
		WET		0.34	<	0.4
NSS-09	TBT	DRY				7.69
		WET				4.45
NSS-09	ZINC	DRY	MG	503		732
		WET		317		413
	[illegible]					
NSS-10	ARSENIC	DRY	MG	29.9		15.2

NASSCO
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
		WET		11.7	4.76
NSS-10	CADMIUM	DRY	MG	29.9	0.334
		WET		11.7	0.105
NSS-10	CHROMIUM	DRY	MG	90.8	68.2
		WET		35.4	21.4
NSS-10	COPPER	DRY	MG	949	561
		WET		370	176
NSS-10	LEAD	DRY	MG	75.6	82.2
		WET		29.5	25.8
NSS-10	MERCURY	DRY	MG	0.487	< 1.52
		WET		0.19	< 0.476
NSS-10	NICKEL	DRY	MG	118	21.1
		WET		46	6.63
NSS-10	SILVER	DRY	MG	1.1	< 1.27
		WET		0.428	< 0.4
NSS-10	TBT	DRY	UG	20.7	3.22
		WET		8.07	1.01
NSS-10	ZINC	DRY	MG	577	459
		WET		225	144
	[illegible]				
NSS-10	PAH-%SOLID	DRY	UG	39	31.4
		WET		.	.
NSS-10	PAH-ACENAPHTHENE	DRY	UG	ND	ND
		WET		ND	ND
NSS-10	PAH-ACENAPHTHYLENE	DRY	UG	ND	ND
		WET		ND	ND
NSS-10	PAH-ANTHRACENE	DRY	UG	155	ND
		WET		60.5	ND
NSS-10	PAH-BENZO(A)ANTHRACENE	DRY	UG	462	156
		WET		180	49
NSS-10	PAH-BENZO(A)PYRENE	DRY	UG	718	ND
		WET		280	ND

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Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
NSS-10	PAH-BEN[redacted]FLUORANTHENE	DRY	UG	821	ND
		WET		320	ND
NSS-10	PAH-BENZO(GHI)PERYLENE	DRY	UG	385	ND
		WET		150	ND
NSS-10	PAH-BENZO(K)FLUORANTHENE	DRY	UG	821	ND
		WET		320	ND
NSS-10	PAH-CHRYSENE	DRY	UG	718	300
		WET		280	94.2
NSS-10	PAH-DIBENZO(A,H)ANTHRACENE	DRY	UG	205	ND
		WET		80	ND
NSS-10	PAH-FLUORANTHENE	DRY	UG	949	220
		WET		370	69
NSS-10	PAH-FLUORENE	DRY	UG	ND	ND
		WET		ND	ND
NSS-10	PAH-INDENO(1,2,3-CD)PYRENE	DRY	UG	372	ND
		WET		145	ND
NSS-10	PAH-NAPHTHALENE	DRY	UG	ND	ND
		WET		ND	ND
NSS-10	PAH-PHENANTHRENE	DRY	UG	615	ND
		WET		240	ND
NSS-10	PAH-PYRENE	DRY	UG	795	205
		WET		310	64.3
NSS-10	TPH (ALIPHATIC)	DRY	MG	72.6	12.7
		WET		28.3	4
NSS-10	TPH (AROMATIC)	DRY	MG	< 2.56	5.4
		WET		< 1	1.7
NSS-10	TPH (TOTAL)	DRY	MG	72.6	18.2
		WET		28.3	5.7
	[redacted]				
NSS-10	PCB	DRY	UG	151	329
		WET		59	123
NSS-10	PCT	DRY	MG	< 12.6	< 15.9

NASSCO
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
		WET		< 5	< 5
	TRACE METALS				
NSS-11	ARSENIC	DRY	MG	21.3	16.2
		WET		9.37	4.85
NSS-11	CADMIUM	DRY	MG	21.3	< 0.64
		WET		9.37	< 0.192
NSS-11	CHROMIUM	DRY	MG	61.4	73
		WET		27	21.9
NSS-11	COPPER	DRY	MG	602	647
		WET		265	194
NSS-11	LEAD	DRY	MG	95.2	111
		WET		41.9	33.3
NSS-11	MERCURY	DRY	MG	0.977	< 1.39
		WET		0.43	< 0.417
NSS-11	NICKEL	DRY	MG	30	25.6
		WET		13.2	7.69
NSS-11	SILVER	DRY	MG	0.993	< 1.33
		WET		0.437	< 0.4
NSS-11	TBT	DRY			68.3
		WET			20.5
NSS-11	ZINC	DRY	MG	718	1040
		WET		316	311
	TRACE METALS				
NSS-12	ARSENIC	DRY	MG	16.2	16.3
		WET		10.2	5.64
NSS-12	CADMIUM	DRY	MG	16.2	0.664
		WET		10.2	0.229
NSS-12	CHROMIUM	DRY	MG	34.4	100
		WET		21.7	34.5
NSS-12	COPPER	DRY	MG	890	1600
		WET		561	553

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Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
NSS-12	LEAD	DRY	MG	71.6	137
		WET		45.1	47.2
NSS-12	MERCURY	DRY	MG	0.206	< 1.38
		WET		0.13	< 0.476
NSS-12	NICKEL	DRY	MG	13.9	38.8
		WET		8.74	13.4
NSS-12	SILVER	DRY	MG	0.59	< 1.16
		WET		0.372	< 0.4
NSS-12	TBT	DRY			279
		WET			96.4
NSS-12	ZINC	DRY	MG	538	930
		WET		339	321
	[illegible]				
NSS-13	ARSENIC	DRY	MG	47.2	33.5
		WET		18.9	12.7
NSS-13	CADMIUM	DRY	MG	47.2	3.83
		WET		18.9	1.45
NSS-13	CHROMIUM	DRY	MG	104	120
		WET		41.4	45.3
NSS-13	COPPER	DRY	MG	1105	1080
		WET		442	411
NSS-13	LEAD	DRY	MG	300	154
		WET		120	58.2
NSS-13	MERCURY	DRY	MG	0.825	< 1.32
		WET		0.33	< 0.5
NSS-13	NICKEL	DRY	MG	17.8	50.1
		WET		7.11	19
NSS-13	SILVER	DRY	MG	1.55	1.14
		WET		0.618	0.432
NSS-13	TBT	DRY	UG	99.5	130
		WET		39.8	49.2
NSS-13	ZINC	DRY	MG	2335.8	1580

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Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
		WET		934	600
	[redacted]				
NSS-13	PAH-%SOLID	DRY	UG	40	37.9
		WET		.	.
NSS-13	PAH-ACENAPHTHENE	DRY	UG	ND	ND
		WET		ND	ND
NSS-13	PAH-ACENAPHTHYLENE	DRY	UG	ND	ND
		WET		ND	ND
NSS-13	PAH-ANTHRACENE	DRY	UG	205	ND
		WET		81.8	ND
NSS-13	PAH-BENZO(A)ANTHRACENE	DRY	UG	ND	143
		WET		ND	54.3
NSS-13	PAH-BENZO(A)PYRENE	DRY	UG	575	ND
		WET		230	ND
NSS-13	PAH-BENZO(B)FLUORANTHENE	DRY	UG	700	ND
		WET		280	ND
NSS-13	PAH-BENZO(GHI)PERYLENE	DRY	UG	325	ND
		WET		130	ND
NSS-13	PAH-BENZO(K)FLUORANTHENE	DRY	UG	660	ND
		WET		264	ND
NSS-13	PAH-CHRYSENE	DRY	UG	450	ND
		WET		180	ND
NSS-13	PAH-DIBENZO(A,H)ANTHRACENE	DRY	UG	ND	ND
		WET		ND	ND
NSS-13	PAH-FLUORANTHENE	DRY	UG	675	228
		WET		270	86.6
NSS-13	PAH-FLUORENE	DRY	UG	ND	ND
		WET		ND	ND
NSS-13	PAH-INDENO(1,2,3-CD)PYRENE	DRY	UG	275	ND
		WET		110	ND
NSS-13	PAH-NAPHTHALENE	DRY	UG	ND	ND
		WET		ND	ND

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Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
NSS-13	PAH-PHENANTHRENE	DRY	UG	ND	91.3
		WET		ND	34.6
NSS-13	PAH-PYRENE	DRY	UG	750	319
		WET		300	121
NSS-13	TPH (ALIPHATIC)	DRY	MG	11.8	7.7
		WET		4.7	2.9
NSS-13	TPH (AROMATIC)	DRY	MG	< 2.5	2.6
		WET		< 1	1
NSS-13	TPH (TOTAL)	DRY	MG	11.8	10.3
		WET		4.7	3.9
	PCBS				
NSS-13	PCB	DRY	UG	308	251
		WET		123	95
NSS-13	PCT	DRY	MG	< 12.5	< 13.2
		WET		< 5	< 5
	TRACE METALS				
NSS-14	ARSENIC	DRY	MG	8.11	5.05
		WET		4.95	3.36
NSS-14	CADMIUM	DRY	MG	8.11	0.884
		WET		4.95	0.588
NSS-14	CHROMIUM	DRY	MG	76.2	80.9
		WET		46.5	53.8
NSS-14	COPPER	DRY	MG	170	266
		WET		104	177
NSS-14	LEAD	DRY	MG	98.7	74.9
		WET		60.2	49.8
NSS-14	MERCURY	DRY	MG	0.246	< 0.602
		WET		0.15	< 0.4
NSS-14	NICKEL	DRY	MG	13.5	26.9
		WET		8.25	17.9
NSS-14	SILVER	DRY	MG	0.433	< 0.602

NASSCO
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
		WET		0.264	< 0.4
NSS-14	TBT	DRY			2.3
		WET			1.5
NSS-14	ZINC	DRY	MG	482	735
		WET		294	489
	[illegible]				
NSS-15	ARSENIC	DRY	MG	82.7	20.3
		WET		36.4	12.8
NSS-15	CADMIUM	DRY	MG	82.7	0.807
		WET		36.4	0.51
NSS-15	CHROMIUM	DRY	MG	98.4	40.3
		WET		43.3	25.5
NSS-15	COPPER	DRY	MG	1416	707
		WET		623	447
NSS-15	LEAD	DRY	MG	280	99.1
		WET		123	62.6
NSS-15	MERCURY	DRY	MG	0.682	0.38
		WET		0.3	0.24
NSS-15	NICKEL	DRY	MG	18.9	11.4
		WET		8.33	7.21
NSS-15	SILVER	DRY	MG	1.63	0.497
		WET		0.716	0.314
NSS-15	TBT	DRY			2.64
		WET			1.67
NSS-15	ZINC	DRY	MG	3205	986
		WET		1410	623
	[illegible]				
NSS-16	ARSENIC	DRY	MG	8.71	5.64
		WET		4.79	3.06
NSS-16	CADMIUM	DRY	MG	8.71	0.446
		WET		4.79	0.242

NASSCO
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE		June 30,1993 VALUE
NSS-16	CHROMIUM	DRY	MG	33.6		23.2
		WET		18.5		12.6
NSS-16	COPPER	DRY	MG	141		96.7
		WET		77.5		52.5
NSS-16	LEAD	DRY	MG	109		60.6
		WET		59.7		32.9
NSS-16	MERCURY	DRY	MG	0.364	<	0.737
		WET		0.2	<	0.4
NSS-16	NICKEL	DRY	MG	10.1		10.4
		WET		5.55		5.65
NSS-16	SILVER	DRY	MG	0.675	<	0.737
		WET		0.371	<	0.4
NSS-16	TBT	DRY				7.4
		WET				4
NSS-16	ZINC	DRY	MG	340		195
		WET		187		106
	TRACE METALS					
NSS-17	ARSENIC	DRY	MG	4.21		1.96
		WET		2.23		1.82
NSS-17	CADMIUM	DRY	MG	4.21		0.524
		WET		2.23		0.433
NSS-17	CHROMIUM	DRY	MG	55.3		4.59
		WET		29.3		3.79
NSS-17	COPPER	DRY	MG	111		45
		WET		58.8		37.2
NSS-17	LEAD	DRY	MG	194		26
		WET		103		21.5
NSS-17	MERCURY	DRY	MG	0.264	<	0.527
		WET		0.14	<	0.435
NSS-17	NICKEL	DRY	MG	19.6		5.68
		WET		10.4		4.69
NSS-17	SILVER	DRY	MG	0.274	<	0.484

NASSCO
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
		WET		0.145	< 0.4
NSS-17	TBT	DRY	UG		2.07
		WET			1.71
NSS-17	ZINC	DRY	MG	804	3890
		WET		426	3210
	TRACE METALS				
NSS-STD-01	ARSENIC	DRY	MG	3.41	2.13
		WET		2.32	1.53
NSS-STD-01	CADMIUM	DRY	MG	3.41	< 0.275
		WET		2.32	< 0.198
NSS-STD-01	CHROMIUM	DRY	MG	18.7	12.3
		WET		12.7	8.85
NSS-STD-01	COPPER	DRY	MG	53.4	22.6
		WET		36.3	16.3
NSS-STD-01	LEAD	DRY	MG	56.9	32.1
		WET		38.7	23.1
NSS-STD-01	MERCURY	DRY	MG	0.085	< 0.604
		WET		0.058	< 0.435
NSS-STD-01	NICKEL	DRY	MG	6.99	6.33
		WET		4.75	4.56
NSS-STD-01	SILVER	DRY	MG	0.182	< 0.556
		WET		0.124	< 0.4
NSS-STD-01	TBT	DRY	UG	3.56	< 1.4
		WET		2.42	< 1
NSS-STD-01	ZINC	DRY	MG	154	67.1
		WET		105	48.3
	PAHS				
NSS-STD-01	PAH-%SOLID	DRY	UG	68	72
		WET		.	.
NSS-STD-01	PAH-ACENAPHTHENE	DRY	UG	ND	ND
		WET		ND	ND

NASSCO
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
NSS-STD-01	PAH-ACENAPHTHYLENE	DRY	UG	ND	ND
		WET		ND	ND
NSS-STD-01	PAH-ANTHRACENE	DRY	UG	135	ND
		WET		91.5	ND
NSS-STD-01	PAH-BENZO(A)ANTHRACENE	DRY	UG	265	107
		WET		180	77.3
NSS-STD-01	PAH-BENZO(A)PYRENE	DRY	UG	462	ND
		WET		314	ND
NSS-STD-01	PAH-BENZO(B)FLUORANTHENE	DRY	UG	632	ND
		WET		430	ND
NSS-STD-01	PAH-BENZO(GHI)PERYLENE	DRY	UG	176	ND
		WET		120	ND
NSS-STD-01	PAH-BENZO(K)FLUORANTHENE	DRY	UG	632	ND
		WET		430	ND
NSS-STD-01	PAH-CHRYSENE	DRY	UG	456	ND
		WET		310	ND
NSS-STD-01	PAH-DIBENZO(A,H)ANTHRACENE	DRY	UG	ND	ND
		WET		ND	ND
NSS-STD-01	PAH-FLUORANTHENE	DRY	UG	735	ND
		WET		500	ND
NSS-STD-01	PAH-FLUORENE	DRY	UG	ND	ND
		WET		ND	ND
NSS-STD-01	PAH-INDENO(1,2,3-CD)PYRENE	DRY	UG	166	ND
		WET		113	ND
NSS-STD-01	PAH-NAPHTHALENE	DRY	UG	ND	ND
		WET		ND	ND
NSS-STD-01	PAH-PHENANTHRENE	DRY	UG	179	249
		WET		122	180
NSS-STD-01	PAH-PYRENE	DRY	UG	941	ND
		WET		640	ND
NSS-STD-01	TPH (ALIPHATIC)	DRY	MG	4.71	6
		WET		3.2	4.3
NSS-STD-01	TPH (AROMATIC)	DRY	MG	7.21	12.6

NASSCO
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
NSS-STD-01	TPH (TOTAL)	WET	MG	4.9	9.1
		DRY		11.9	18.6
		WET		8.1	13.4
	[illegible]				
NSS-STD-01	PCB	DRY	UG	< 29.4	< 30
		WET		< 20	< 20
NSS-STD-01	PCT	DRY	MG	< 7.35	< 6.9
		WET		< 5	< 5

REFERENCE STATION LISTING

Reference Stations
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
	[illegible]				
REF-01	ARSENIC	DRY	MG	4.69	3.76
		WET		1.97	2.16
REF-01	CADMIUM	DRY	MG	0.348	0.188
		WET		0.146	0.108
REF-01	CHROMIUM	DRY	MG	21.9	19
		WET		9.2	10.9
REF-01	COPPER	DRY	MG	49.3	36.9
		WET		20.7	21.2
REF-01	LEAD	DRY	MG	25.7	9.36
		WET		10.8	5.37
REF-01	MERCURY	DRY	MG	0.176	< 0.726
		WET		0.074	< 0.417
REF-01	NICKEL	DRY	MG	9.21	8.47
		WET		3.87	4.86
REF-01	SILVER	DRY	MG	0.526	< 0.697
		WET		0.221	< 0.4
REF-01	TBT	DRY	UG	16.6	2.28
		WET		6.97	1.31
REF-01	ZINC	DRY	MG	99	92.2
		WET		41.6	52.9
	[illegible]				
REF-01	PAH-%SOLID	DRY	UG	42	57
		WET		.	.
REF-01	PAH-ACENAPHTHENE	DRY	UG	ND	ND
		WET		ND	ND
REF-01	PAH-ACENAPHTHYLENE	DRY	UG	ND	ND
		WET		ND	ND
REF-01	PAH-ANTHRACENE	DRY	UG	500	ND
		WET		210	ND
REF-01	PAH-BENZO(A)ANTHRACENE	DRY	UG	810	ND

Reference Stations
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE		June 30,1993 VALUE
REF-01	PAH-BENZO(A)PYRENE	WET	UG	340		ND
		DRY		857		ND
REF-01	PAH-BENZO(B)FLUORANTHENE	WET	UG	360		ND
		DRY		976		ND
REF-01	PAH-BENZO(GHI)PERYLENE	WET	UG	410		ND
		DRY		267		ND
REF-01	PAH-BENZO(K)FLUORANTHENE	WET	UG	112		ND
		DRY		905		ND
REF-01	PAH-CHRYSENE	WET	UG	380		ND
		DRY		1214		ND
REF-01	PAH-DIBENZO(A,H)ANTHRACENE	WET	UG	510		ND
		DRY		171		ND
REF-01	PAH-FLUORANTHENE	WET	UG	71.8		ND
		DRY		1786		ND
REF-01	PAH-FLUORENE	WET	UG	750		ND
		DRY		ND		ND
REF-01	PAH-INDENO(1,2,3-CD)PYRENE	WET	UG	ND		ND
		DRY		286		ND
REF-01	PAH-NAPHTHALENE	WET	UG	120		ND
		DRY		ND		ND
REF-01	PAH-PHENANTHRENE	WET	UG	ND		ND
		DRY		857		ND
REF-01	PAH-PYRENE	WET	UG	360		ND
		DRY		1333		ND
REF-01	TPH(ALIPHATIC)	WET	MG	560		ND
		DRY		6.67	<	1.7
REF-01	TPH(AROMATIC)	WET	MG	2.8	<	1
		DRY		3.57	<	1.7
REF-01	TPH(TOTAL)	WET	MG	1.5	<	1
		DRY		10.2	<	1.7
	PCBS	WET		4.3	<	1

Reference Stations
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
REF-01	PCB	DRY	UG	< 47.6	< 40
		WET		< 20	< 20
REF-01	PCT	DRY	UG	< 11.9	< 8.7
		WET		< 5	< 5
	[illegible]				
REF-02	ARSENIC	DRY	MG	5.65	4.07
		WET		2.6	2.13
REF-02	CADMIUM	DRY	MG	0.196	< 0.178
		WET		0.09	< 0.093
REF-02	CHROMIUM	DRY	MG	56.3	43.2
		WET		25.9	22.6
REF-02	COPPER	DRY	MG	174	147
		WET		79.9	77.1
REF-02	LEAD	DRY	MG	43.3	27.5
		WET		19.9	14.4
REF-02	MERCURY	DRY	MG	0.296	< 0.797
		WET		0.136	< 0.417
REF-02	NICKEL	DRY	MG	14.5	11
		WET		6.67	5.73
REF-02	SILVER	DRY	MG	0.824	< 0.765
		WET		0.379	< 0.4
REF-02	TBT	DRY	UG	5.3	< 1.9
		WET		2.44	< 1
REF-02	ZINC	DRY	MG	199	170
		WET		91.6	88.7
	[illegible]				
REF-02	PAH-%SOLID	DRY	UG	46	52
		WET		.	.
REF-02	PAH-ACENAPHTHENE	DRY	UG	ND	ND
		WET		ND	ND
REF-02	PAH-ACENAPHTHYLENE	DRY	UG	ND	ND

Reference Stations
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
		WET		ND	ND
REF-02	PAH-ANTHRACENE	DRY	UG	ND	ND
		WET		ND	ND
REF-02	PAH-BENZO(A)ANTHRACENE	DRY	UG	ND	ND
		WET		ND	ND
REF-02	PAH-BENZO(A)PYRENE	DRY	UG	ND	ND
		WET		ND	ND
REF-02	PAH-BENZO(B)FLUORANTHENE	DRY	UG	ND	ND
		WET		ND	ND
REF-02	PAH-BENZO(GHI)PERYLENE	DRY	UG	ND	ND
		WET		ND	ND
REF-02	PAH-BENZO(K)FLUORANTHENE	DRY	UG	ND	ND
		WET		ND	ND
REF-02	PAH-CHRYSENE	DRY	UG	ND	ND
		WET		ND	ND
REF-02	PAH-DIBENZO(A,H)ANTHRACENE	DRY	UG	ND	ND
		WET		ND	ND
REF-02	PAH-FLUORANTHENE	DRY	UG	ND	ND
		WET		ND	ND
REF-02	PAH-FLUORENE	DRY	UG	ND	ND
		WET		ND	ND
REF-02	PAH-INDENO(1,2,3-CD)PYRENE	DRY	UG	ND	ND
		WET		ND	ND
REF-02	PAH-NAPHTHALENE	DRY	UG	ND	ND
		WET		ND	ND
REF-02	PAH-PHENANTHRENE	DRY	UG	ND	ND
		WET		ND	ND
REF-02	PAH-PYRENE	DRY	UG	ND	ND
		WET		ND	ND
REF-02	TPH(ALIPHATIC)	DRY	MG	< 2.17	< 1.9
		WET		< 1	< 1
REF-02	TPH(AROMATIC)	DRY	MG	< 2.17	< 1.9
		WET		< 1	< 1

Reference Stations
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
REF-02	TPH(TOTAL)	DRY	MG	< 2.17	< 1.9
		WET		< 1	< 1
	[illegible]				
REF-02	PCB	DRY	UG	< 43.5	< 40
		WET		< 20	< 20
REF-02	PCT	DRY	UG	< 10.9	< 9.5
		WET		< 5	< 5
	[illegible]				
REF-03	ARSENIC	DRY	MG	6.06	4.09
		WET		2.91	2.25
REF-03	CADMIUM	DRY	MG	0.298	0.207
		WET		0.143	0.114
REF-03	CHROMIUM	DRY	MG	49.4	28.7
		WET		23.7	15.8
REF-03	COPPER	DRY	MG	106	71.5
		WET		50.9	39.3
REF-03	LEAD	DRY	MG	49.2	28.5
		WET		23.6	15.7
REF-03	MERCURY	DRY	MG	0.335	< 0.909
		WET		0.161	< 0.5
REF-03	NICKEL	DRY	MG	11.1	12.9
		WET		5.34	7.12
REF-03	SILVER	DRY	MG	1.31	< 0.727
		WET		0.63	< 0.4
REF-03	TBT	DRY	UG	9.77	4.5
		WET		4.69	2.5
REF-03	ZINC	DRY	MG	169	191
		WET		81	105
	PAHS				
REF-03	PAH-%SOLID	DRY	UG	48	55

Reference Stations
Historical Data Tabulation

STATION	ANALYSIS		UNITS	Dec 30,1992 VALUE	June 30,1993 VALUE
		WET		.	.
REF-03	PAH-ACENAPHTHENE	DRY	UG	161	ND
		WET		77.5	ND
REF-03	PAH-ACENAPHTHYLENE	DRY	UG	ND	ND
		WET		ND	ND
REF-03	PAH-ANTHRACENE	DRY	UG	3250	306
		WET		1560	170
REF-03	PAH-BENZO(A)ANTHRACENE	DRY	UG	1792	372
		WET		860	204
REF-03	PAH-BENZO(A)PYRENE	DRY	UG	1979	337
		WET		950	185
REF-03	PAH-BENZO(B)FLUORANTHENE	DRY	UG	3000	276
		WET		1440	152
REF-03	PAH-BENZO(GHI)PERYLENE	DRY	UG	667	ND
		WET		320	ND
REF-03	PAH-BENZO(K)FLUORANTHENE	DRY	UG	1467	ND
		WET		704	ND
REF-03	PAH-CHRYSENE	DRY	UG	2542	699
		WET		1220	385
REF-03	PAH-DIBENZO(A,H)ANTHRACENE	DRY	UG	313	ND
		WET		150	ND
REF-03	PAH-FLUORANTHENE	DRY	UG	5021	836
		WET		2410	460
REF-03	PAH-FLUORENE	DRY	UG	938	ND
		WET		450	ND
REF-03	PAH-INDENO(1,2,3-CD)PYRENE	DRY	UG	694	ND
		WET		333	ND
REF-03	PAH-NAPHTHALENE	DRY	UG	ND	ND
		WET		ND	ND
REF-03	PAH-PHENANTHRENE	DRY	UG	2500	252
		WET		1200	139
REF-03	PAH-PYRENE	DRY	UG	4000	659
		WET		1920	362

Reference Stations
Historical Data Tabulation

				Dec 30,1992		June 30,1993	
STATION	ANALYSIS		UNITS		VALUE		VALUE
REF-03	TPH(ALIPHATIC)	DRY	MG		2.71	<	1.7
		WET			1.3		1.2
REF-03	TPH(AROMATIC)	DRY	MG		8.54	<	1.7
		WET			4.1	<	1
REF-03	TPH(TOTAL)	DRY	MG		11.3	<	1.7
		WET			5.4		1.8
	[illegible]						
REF-03	PCB	DRY	UG		79.2	<	350
		WET			38	<	20
REF-03	PCT	DRY	UG	<	10.4	<	8.7
		WET		<	5	<	5

FACILITY NAME/ RCRA ID		CONTACT NAME	TELEPHONE	NOTIF DATE	CAL DIST/ COUNTY	FACILITY TYPE TSD	GEN	TRN	BBL	RCY
NATIONAL STL SHIPBUILDING CO#		E. MANAGER	(714)232-4011	08/13/80	4	-	LQG	-	-	-
CAD009158932	HARBOR DR AT 28TH ST		SAN DIEGO	CA 92138	SAN DIEGO					
FEI MICROWAVE INC		E. MANAGER	(408)732-0880	08/18/80	2	-	LQG	-	-	-
CAD009159088	825 STEWART DR		SUNNYVALE	CA 94086	SANTA CLARA					
CHEM & PIGMENT CO A DIV OF ESI CHEM		E. MANAGER	(415)689-2030	08/18/80	2	-	LQG	-	-	-
CAD009159476	600 NICHOLS RD		PITTSBURG	CA 94565	CONTRA COSTA					
PACIFIC INTERNATIONAL RICE MILLS		S. MALIN	(916)666-1691	03/02/93		-	SQG	-	-	-
CAD009159658	845 KENTUCKY AVE		WOODLAND	CA 95695	YOLO					
SIMPSON D J CO		E. MANAGER	(415)873-5990	07/31/80	2	-	LQG	-	-	-
CAD009159781	111 S MAPLE AVE		SOUTH SAN FRANCIS	CA 94080	SAN MATEO					
HARDY HARVESTER		E. MANAGER	(916)476-2626	07/16/80	1	-	LQG	-	-	-
CAD009160284	MAIN & TULE RDS.		COLLEGE CITY	CA 95931	COLUSA					
BETTS SPRING CO		E. MANAGER	(415)352-0111	10/30/80	2	-	LQG	-	-	-
CAD009161233	2100 WILLIAMS ST		SAN LEANDRO	CA 94577	ALAMEDA					
AMERICAN CAN PACKAGING INC		E. MANAGER	(415)536-2400	08/14/80	2	@ TSD	LQG	-	-	-
CAD009162116	3801 E 8TH ST		OAKLAND	CA 94604	ALAMEDA					
CAMPBELL CHAIN DIV MCGRAW-EDISON CO		E. MANAGER	(415)489-6000	07/07/80	2	@ -	LQG	-	-	-
CAD009162223	30070 UNION CITY BLVD		UNION CITY	CA 94587	ALAMEDA					
AMERICAN ELECTROFINISHING CO		E. MANAGER	(415)533-6831	08/26/80	2	-	LQG	-	-	-
CAD009162603	4933 SAN LEANDRO ST		OAKLAND	CA 94601	ALAMEDA					
AMERICAN POLY-THERM COMPANY		E. MANAGER	(916)929-2400	07/31/86	1	-	SQG	-	-	-
CAD009162637	1636 KATHLEEN AVENUE		SACRAMENTO	CA 95815	SACRAMENTO					
SHELL OIL CO MARTINEZ MFG COMPLEX		E. MANAGER	(415)228-6161	10/05/90	2	@ TSD	LQG	-	-	-
CAD009164021	MARINA VISTA AND SHELL AVE		MARTINEZ	CA 94553	CONTRA COSTA					
SAN JOSE PLATING WORKS INC		E. MANAGER	(408)294-6383	07/24/80	2	@ -	LQG	-	-	-
CAD009164682	1575 TERMINAL AVE		SAN JOSE	CA 95112	SANTA CLARA					
TRESCO PAINT CO INC		E. MANAGER	(408)294-7627	06/25/80	2	-	LQG	-	-	-
CAD009164708	1677 LITTLE ORCHARD		SAN JOSE	CA 95125	SANTA CLARA					
SOILSERV INC		E. MANAGER	(408)422-6473	08/18/80	2	@ -	LQG	TRN	-	-
CAD009165325	1427 ABBOTT ST		SALINAS	CA 93901	MONTEREY					
DEL MONTE CORPORATION		E. MANAGER	(415)532-4236	08/15/80	2	-	LQG	-	-	-
CAD009165796	3100 E 9TH ST		OAKLAND	CA 94601	ALAMEDA					

REFERENCE 11

REFERENCE 12

STATE OF CALIFORNIA GEORG

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

9771 Clairemont Mesa Blvd., Ste. B
San Diego, California 92124-1331
Telephone: (619) 265-5114

May 24, 1989

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

P 116 722 312

Michael Chee
Senior Plant Engineer
National Steel and Shipbuilding Company
P.O. Box 85278
San Diego, California 92138

Dear Mr. Chee:

STIPULATION AND ORDER NO. 89-42

Enclosed is a copy of Stipulation and Order No. 89-42 wherein you have agreed to remit $10,000.00 to the State Water Resources Control Board as settlement for Complaint No. 89-42. Please make the check payable to the State Water Resources Control Board and deliver it to the address on this letterhead no later than June 2, 1989.

If you have any questions, please call Mr. Lance McMahan at the above number.

Very truly yours,

David J Barker
for

LADIN H. DELANEY
Executive Officer

LKM:psr

Enclosure

cc: Jeremy Johnstone
Water Management Division
Compliance Branch (W-4)
U.S. Environmental Protection Agency
215 Fremont Street
San Francisco, CA 94105

STATE OF CALIFORNIA

REGIONAL WATER QUALITY CONTROL BOARD

SAN DIEGO REGION

In the matter of	)	STIPULATION AND ORDER
	)	
NATIONAL STEEL & SHIPBUILDING CO.	)	NO. 89-42
	)	
	)	

National Steel & Shipbuilding Co. ("NASSCO") and the Regional Water Quality Control Board, San Diego Region (Regional Board), based upon the facts recited below, hereby stipulate as follows:

RECITALS

1. The Executive Officer issued Complaint No. 89-42 on May 8, 1989 pursuant to Section 13323 of the Water Code, alleging that NASSCO had discharged waste to San Diego Bay in violation of Prohibition A.2, Discharge Specification B.3, and Receiving Water Limitation C.6 of Order No. 85-05, NPDES Permit No. CA0107671.

2. The Executive Officer further alleged therein that NASSCO had violated provisions of law, or orders of the Regional Board, for which the Regional Board may impose civil liability under Water Code Section 13323 as provided in Water Code Section 13385.

3. A hearing on this matter was scheduled before the Regional Board for May 22, 1989 in San Diego, California. NASSCO elected to waive a hearing on the matter.

4. NASSCO accepts liability for the following violations of Order No. 85-05:

    a. the discharge of cooling water contaminated with wastes from the hull and freeboard abrasive blasting operations to San Diego Bay on February 27, 1989;

    b. failing to prevent miscellaneous water flows from coming in contact with sand blast residue in the graving dock as noted by Regional Board staff on February 27, 1989; and

c. the discharge of slurry blast wastes to San Diego Bay on February 27 and 28, 1989.

NASSCO denies liability for all other violations alleged in Complaint No. 89-42.

5. NASSCO denies that it realized any cost savings by failing to properly dispose of spent abrasive waste. The Regional Board believes that NASSCO did realize some cost savings by discharging spent abrasive waste to San Diego Bay rather than disposing of the waste at an authorized disposal site. The Regional Board has not quantified the cost savings. Based on the available information, the cost savings do not appear to be significant.

6. The Regional Board agrees that hay bales may be effective in preventing the discharge of marine fouling organisms to San Diego Bay. However, the hay bales may not be effective in preventing the discharge of water soluble pollutants or other particulate matter.

7. The parties desire to enter into this Stipulation and Order for the purpose of avoiding the time, expense and uncertainty associated with protracted administrative and judicial proceedings in connection with this matter. The Regional Board has determined that it is in the public interest for the Regional Board to accept payment below as a reasonable civil penalty.

8. This enforcement action is taken for the protection of the environment and, as such, is exempt from provisions of the California Environmental Quality Act (Public Resources Code Section 21000, et seq.) in accordance with Section 15321, Chapter 2, Title 14, of the California Administrative Code.

STIPULATION

IT IS ACCORDINGLY STIPULATED as follows:

1. NASSCO agrees to pay a total civil penalty of $10,000 pursuant to Water Code Section 13385 to the State Water Resources Control Board on or before June 2, 1989;

2. This Stipulation and Order is entered into and made without adjudication of any fact or law, without determination of any liability or violation of law, and without constituting any evidence against or admission by NASSCO in connection with any of the matters set forth or alleged in said Complaint No. 89-42.

Dated: May 19, 1989

NATIONAL STEEL & SHIPBUILDING CO.

By Michael Lee

Its Sr. Plant Engr.

Date: 5/20/89

Ladin H. Delaney

LADIN H. DELANEY
Executive Officer

Date: 5/20/89

ORDER

GOOD CAUSE APPEARING THEREFOR, it is so ordered this 22 day of May, 1989.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN DIEGO REGION

By Ladin H. Delaney

LADIN H. DELANEY
Executive Officer

REFERENCE 13

GROUNDWATER TECHNOLOGY

Groundwater Technology, Inc.
9940 Mesa Rim Road, Suite B. San Diego, CA 92121
Tel: (619) 453-8415

ADDITIONAL ASSESSMENT REPORT
NATIONAL STEEL AND SHIPBUILDING COMPANY
BUILDING 6 SUMP
HARBOR DRIVE AND 28th STREET
SAN DIEGO, CA 92186-5278

JDE # 023401055

February 4, 1993
Revised April 5, 1993

Prepared for:
Mr. Tom Snider
National Steel and Shipbuilding Company
P.O. Box 85278
San Diego, CA 92186-5278

Groundwater Technology, Inc.
Written/Submitted by

Vijayalakshmi Radics
Project Manager

Groundwater Technology, Inc.
Reviewed/Approved by

Kyle Rheubottom
Senior Geologist
RG 5100

REGISTERED GEOLOGIST
KYLE RHEUBOTTOM
No. 5100
STATE OF CALIFORNIA

023401055
1055R-03.31/Main #3

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1.0 INTRODUCTION

This report presents the results of additional site assessment activities conducted by Groundwater Technology in November 1992 around Building 6 at the NASSCO shipyard in San Diego (Figures 1 and 2).

1.1 Site Identification

Site Address:	Harbor Drive and 28th Street, San Diego, CA 92186-5278
Company name:	National Steel and Shipbuilding Company (NASSCO)
APN:	538-812-16
Contact Person:	Mr. Tom Snider NASSCO P.O. Box 85278 San Diego, CA 92186-5278 (619) 544-7780

1.2 Background

The study area is around a sump located at the eastern end of Building 6. The sump used to receive roof drainage from a machine shop located within the Building. In 1989, NASSCO employees noted solvent-like odors when preparing to excavate soil from the sump. Woodward-Clyde Consultants analyzed samples of soil removed from the sump, and detected chlorinated hydrocarbon compounds such as 1,1-trichloroethane (TCA) and tetrachloroethene (PCE). Soil samples were also analyzed for metals, which were not detected above TTLC values.

During subsequent assessments, Groundwater Technology personnel collected soil and/or groundwater samples from one boring, three monitoring wells and three cone-penetrometer locations (Figure 3). The analytical data indicated the presence of 1,1,1-TCA, PCE, and other volatile organic compounds in both the soil and the groundwater. Groundwater was encountered at approximately 9 feet below grade, and the cone-penetrometer investigation detected a silty/clayey zone at approximately 15 feet below grade. It was concluded that this zone may act as a barrier to any significant downward migration of chlorinated hydrocarbons, in which case contamination would be largely restricted to the upper 15 feet of soil and groundwater.

1.3 Scope of Work

The objective of the most recent phase of work was to obtain additional information regarding both the concentrations and the lateral extent of the hydrocarbons in and around the former sump in order to formulate a remedial plan for the site. The field work included the following:

- Drilling and sampling of five additional borings, using a limited-access rig, to evaluate the extent of hydrocarbon impact within the soil in and around the former sump.
- Drilling, sampling and installation of three additional groundwater monitoring wells to 15 feet below grade to evaluate the lateral extent of hydrocarbons within the upper aquifer
- Sampling of the groundwater in the three pre-existing and three newly-installed groundwater monitoring wells to evaluate the concentrations of dissolved halogenated hydrocarbons.

2.0 GEOLOGY AND HYDROGEOLOGY

The local geology consists of fill over alluvium and colluvium, which in turn overlie sands of the Pleistocene Bay Point Formation. The fill materials consist of 5 to 15 feet of red brown dense sandy clay and clayey sand. The alluvium and colluvium consist of approximately 5 to 10 feet of tan to gray dense silty sand, while the Bay Point Formation is a reddish brown to gray brown well-graded sandstone. The site geology is presented in cross-section in Figures 4 and 5.

The site is located within the Chollas Hydrologic Sub Area (HSA 8.22), which is designated as non-beneficial by the Regional Water Quality Control Board. However, action levels for sites adjacent to San Diego Bay are typically established on a case-by-case basis.

Groundwater was encountered at approximately nine feet during drilling. Due to its proximity to San Diego Bay, it is expected that the groundwater at this site is subject to tidal influences.

3.0 FIELD INVESTIGATIONS

3.1 Health and Safety

Before beginning fieldwork, the site-specific Health and Safety Plan was reviewed and signed by all field personnel. Since the contaminants of concern were chlorinated hydrocarbons, a photo-ionization detector (PID) and detector tubes calibrated for chlorinated hydrocarbons were used to periodically monitor the ambient air quality. The air quality data, and all materials pertaining to the Health and Safety Plan, are kept on file at the Groundwater Technology San Diego office.

3.2 Permits

Prior to drilling, a well permit was obtained from the San Diego Hazardous Materials Management Division (HMMD). A copy of this permit is included in Appendix 1. As required by the conditions of this permit, a 30-day report was prepared and issued on December 4, 1992.

3.3 Drilling and Sampling

On November 2, 1992, Groundwater Technology geologists met NASSCO personnel at the site to determine the location of the proposed borings and wells relative to known underground utilities. Since one objective of this assessment was to delineate the extent of chlorinated hydrocarbons in the groundwater, data from previous assessments were used to locate the wells in areas of potentially clean soil and groundwater. The following day, three groundwater monitoring wells, W-4 through W-6, were drilled to 15 feet below grade using a truck-mounted CME-75 Hollow Stem Auger rig.

During drilling of the well borings, soil samples were collected at 5-foot intervals using a stainless steel split-spoon sampler with brass rings. The samples were used for lithological description, field screening, and laboratory analysis. The drill logs are presented in Appendix 2, while the sample collection and handling protocol is presented in Appendix 3. Soil samples were also collected from well W-4 for geotechnical analyses (Appendix 4).

All three wells were completed with 4-inch schedule 40 PVC well materials, with 10 feet of 0.020 slotted screen and 5 feet of blank casing. Following installation of the filter pack, the wells were developed using a surge block. After surging, the pack was sealed with bentonite, and each well was completed to the surface with a traffic-rated roadbox set in concrete.

On November 4, 1992, an attempt was made to drill five borings near the sump using a limited-access trailer-mounted Simco rig. However, due to auger refusal at 5 feet below grade at four locations, drilling had to be terminated at midday, and re-scheduled for November 5, 1992 with the larger CME-75 rig.

Five borings, B-2 through B-6, were drilled in and around the sump to 10 feet below grade on November 5, 1992.

> Borings B-2 through B-4 were drilled outside Building 6 to evaluate the extent of chlorinated hydrocarbon migration within the soil.
>
> Boring B-5 was drilled within the sump, which consists of a cylindrical excavation approximately 2 feet in diameter and 4 feet deep. The sump is unlined except for the top two feet, which is lined with concrete. Following the initial excavation, NASSCO personnel covered the sump with a lid that was caulked to the ground with a watertight seal to limit unauthorized access. The lid was removed before drilling by welding an eye to its upper surface and pulling it out, and was replaced after the boring had been backfilled with concrete.
>
> Boring B-6 was drilled in an alley between Building 6 and the Building 6 annex. Due to the limited access, this boring was drilled at an angle of 25 degrees to the vertical to collect soil samples for analysis.

An attempt was made to collect soil samples from each boring at approximately 5 and 9 feet below grade. After drilling, the borings were backfilled to within one foot of the surface with bentonite. The upper foot was backfilled with concrete.

3.4 Soil Disposal

Soil cuttings from the drilling operation were deposited into 55-gallon drums, which were labeled and stored on site for future disposal by NASSCO.

3.5 Groundwater Gauging and Sampling

The six groundwater monitoring wells, W-1 through W-6, were gauged and sampled on November 6, 1992. The depth to water was measured using an interface probe, which can be used to indicate phase-separated layers to within 0.01 feet. The wells were purged of three borehole volumes, and groundwater samples were collected in general accordance with the sampling protocol presented in Appendix 5.

3.6 Surveying

On November 15, 1992, the lateral and vertical co-ordinates of the six wells were surveyed by Land Technology under contract to Groundwater Technology. The lateral co-ordinates were transferred directly onto the figures. The wellhead elevation data are presented in Appendix 6.

4.0 RESULTS

4.1 Soil Laboratory Results

The soil samples collected during drilling were analyzed by an on-site mobile laboratory for volatile halogenated hydrocarbons via EPA Method 8010. The results are summarized in Table 1 and Figure 6. The soil sample with the highest concentration of volatile halogenated hydrocarbons, B-5-6, was analyzed by GTEL Environmental Laboratories for volatile organic compounds via EPA Method 8240. All soil sampling laboratory reports are included in Appendix 3.

The only volatile halogenated hydrocarbon compound detected in the soil samples via EPA Method 8010 was tetrachloroethylene (PCE). It was detected in four samples at concentrations ranging from 0.441 mg/kg in a sample collected at 9 feet from boring B-6 to 1,236 mg/kg in a sample collected at 6 feet from boring B-5. Another split of the sample collected at 6 feet from boring B-5 was analyzed via EPA Method 8240 and had less than 1 mg/kg concentrations of 1,1-trichloroethane, trichloroethene, toluene, ethylbenzene and xylenes. Tetrachloroethylene was detected in this sample at a concentration of 240 mg/kg using EPA Method 8240.

4.2 Groundwater Gauging

During gauging, the interface probe detected a change in electrical conductivity at the groundwater surface in wells MW-1, MW-3 and MW-4. This may indicate the presence of floating phase-separated liquids such as petroleum hydrocarbons. The presence of phase-separated liquids normally suggests that the contaminant has saturated the groundwater within the borehole and laboratory analysis of samples is not necessary. However, the suspected contaminants at this site, chlorinated hydrocarbons, are denser than water and would not be expected to float on the water surface. Additionally, the presence of petroleum hydrocarbons in the groundwater at the site has been tested and found to be non-detectable (Site Investigation Report, Groundwater Technology, Inc., August 1990). Therefore, samples from these wells were collected and analyzed for chlorinated hydrocarbons. The potential presence of floating phase-separated liquids will be further investigated during the next quarterly monitoring episode.

Depth to water in all six wells was found to range from 8.7 to 9.5 feet below grade (Table 2). As shown on the groundwater gradient map (Figure 7), the gradient was south-southwesterly, at approximately 0.006 ft/ft, when gauged on November 6, 1992. The potential presence of phase-separated liquids has been noted on the map because they may artificially depress the water surface in a well. Since the field data from well MW-1 appeared to be suspect, this well was not used in contouring.

4.3 Groundwater Quality

Groundwater samples from the six monitoring wells were analyzed for volatile halogenated hydrocarbons via EPA Method 601 by Transglobal Environmental Geochemistry laboratory. The results are summarized in Table 3 and Figure 8. A second vial of groundwater from the well with the highest concentration of chlorinated hydrocarbons was analyzed via EPA Method 8240 by GTEL Environmental Laboratories. All groundwater laboratory reports are included in Appendix 5.

Dissolved chlorinated hydrocarbons detected in the groundwater via EPA Method 601 included 1,1-dichloroethylene (DCE), 1,2-trans dichloroethylene, 1,1-dichloroethane (DCA), 1,2-cis dichloroethylene, 1,1-trichloroethane (TCA), trichloroethylene (TCE), and tetrachloroethylene (PCE). Of these, the highest concentrations detected were PCE at 886 μg/L and 1,044 μg/L in wells MW-1 and MW-3, respectively. A sample from MW-3 was also analyzed using EPA Method 8240, which detected 8,500 μg/L and 18,000 μg/L of 1,1,1-TCA and PCE, respectively.

The historical groundwater analytical results, presented in Table 4 and graphically in Appendix 7, show a decrease in the concentrations of PCE and TCA from June 1990 to November 1992.

5.0 SUMMARY AND CONCLUSIONS

Chlorinated hydrocarbon compounds have been detected in the soil and groundwater around the Building 6 sump. The soil data indicate that the hydrocarbon concentrations are localized to an area immediately surrounding the former sump, and that the lateral extent of hydrocarbons in the soil has been delineated. The hydrocarbon concentrations are highest at 6 to 7 feet below grade in the silty vadose zone sediment near the former sump, and decrease at approximately 10 feet below grade.

During the November 1992 monitoring episode, the groundwater gradient was found to be to the south-southwest at approximately 0.006 ft/ft. Although a zero-line has not been delineated, the low hydrocarbon concentrations in the groundwater samples from the newly drilled wells W-4 and W-6 suggests that these wells may lie close to the perimeter of the plume.

CONTACT REPORT

REFERENCE 14

AGENCY/AFFILIATION: Sweetwater Authority		
DEPARTMENT:		
ADDRESS: P.O. Box 2328	CITY: Chula Vista	
COUNTY: San Diego	STATE: CA	ZIP: 91912
CONTACT(S)	TITLE	PHONE
Paula Roberts	Public Information Officer	(619) 422-8395
BEI PERSON MAKING CONTACT: Sharron L. Reackhof SIR SM		DATE: 9-28-92
SUBJECT: Sweetwater Authority water distribution network.		
SITE NAME:	EPA ID: CAD	

DISCUSSION:

Ms. Roberts informed me that Sweetwater Authority utilizes three sources for drinking water within the distribution network. The sources are as follows:

Approximately 10 percent of the drinking water comes from two National City groundwater wells, located at Highway 805 and Division Street in National City. According to Ms. Roberts, the Sweetwater Authority is considering an additional groundwater well at this location, if the feasibility study supports the need for one. The water extracted from the groundwater wells is treated at the well and then pumped into one of the Authority's 24 above ground storage tanks. The water is pumped from the storage tanks into the Sweetwater Authority water distribution network as needed.

Approximately 10 percent of the drinking water utilized by the Sweetwater Authority is supplied by two local reservoirs, the Loveland Reservoir and the Sweetwater Reservoir. The Loveland Reservoir only captures water runoff and precipitation, with the collected water being transferred to the Sweetwater Reservoir as needed. Water collected at the Sweetwater Reservoir is pumped to a treatment plant located adjacent the reservoir, after treatment the water is pumped into ~~a~~ one of two clean well reservoirs (underground tank reservoirs). The water is pumped into the Sweetwater Authority drinking water distribution network as needed.

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CONTACT REPORT (Cont'd)

AGENCY/AFFILIATION: Sweetwater Authority		
CONTACT(S)	TITLE	PHONE
Paula Roberts	Public Information Officer	(619) 422-8395
SITE NAME:		EPA ID: CAD

DISCUSSION: Cont'd

Approximately 80 percent of the drinking water utilized by the Sweetwater Authority is purchased from the San Diego Water Authority. Upon receiving the water from the San Diego Water Authority, Sweetwater Authority pipes it to ~~one of~~ the storage tanks utilized by the Sweetwater Authority water distribution network.

According to Ms. Roberts, Sweetwater Authority serves 160,000 people, with 87 percent residential use, 13 percent commercial use, and two major agricultural users. The Sweetwater Authority supplies water to Chula Vista, National City, and Bonita.

CONTACT CONCURRENCE: P Roberts DATE: 10-21-92

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CONTACT REPORT

REFERENCE 15

AGENCY/AFFILIATION: San Diego Unified Port District		
DEPARTMENT: Environmental Management Department		
ADDRESS: P.O Box 488	CITY: San Diego	
COUNTY: San Diego	STATE: CA	ZIP: 92112
CONTACT(S)	TITLE	PHONE
Larry Eyre	Assistant Environmental Management Coordinator	(619) 686-6254
BEI PERSON MAKING CONTACT: Surjit Dhillon SSD		DATE: 4/23/93
SUBJECT: Use of surfacewater for drinking purposes		
SITE NAME: Proline Paint Store SITE NAME: Kelco Division of Merck & Co. Inc.	EPA ID: CAD 983658444 EPA ID: CAD 983658436	

DISCUSSION:

Mr. Eyre informed me that the San Diego Bay water is not used for drinking purposes. Most of the creeks in the area have been dewatered and channeled to stormwater drains. The water in Chollas Creek and the Seventh Street Channel is salty and is not used for drinking.

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CONTACT REPORT

REFERENCE 16

AGENCY/AFFILIATION: California Department of Fish and Game		
DEPARTMENT: MARINE RESOURCES DIVISION		
ADDRESS: 1350 Front Street, Room 2041	CITY: San Diego	
COUNTY: San Diego	STATE: CA	ZIP: 92101
CONTACT(S)	TITLE	PHONE
Bob Reed	Marine Biologist	(619) 525-4215
BEI PERSON MAKING CONTACT: Sharron L. Reackhoff SR		DATE: 4/13/93
SUBJECT: Fish catch data for the San Diego area		
SITE NAME: Not Applicable	EPA ID: Not Applicable	

DISCUSSION: Mr. Reed told me that fish catch data is no longer supplied according to the fish catch blocks. He said that the number of pounds of fish caught in the San Diego area is reported by the fishermen. According to Mr. Reed, the estimated total pounds of fish caught in the San Diego area last year was 0.50-0.75 million. Mr. Reed told me that there are no threatened or endangered species of fish in Mission Bay or San Diego Bay.

CONTACT CONCURRENCE: Robert B. Reed DATE: 4-19-93

Annual total pounds probably average around 1 million for all fishes in last decade... my initial guess is too pessimistic.

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TABLE 14 (PRELIMINARY)
MONTHLY LANDINGS IN POUNDS IN THE SAN DIEGO AREA DURING 1992

SPECIES	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
LANDINGS FROM:													
UNKNOWN													
FISHES:													
SHARK, BONITO	0	0	0	0	0	0	0	0	0	0	63	0	63
SHARK, COMMON THRESHER	0	0	0	0	0	0	0	0	0	0	93	0	93
TOTAL	0	0	0	0	0	0	0	0	0	0	156	0	156
CALIFORNIA WATERS													
UNIDENTIFIED GROUP:													
UNKNOWN	0	0	0	0	0	0	0	15	521	7	129	43	715
FISHES:													
ANCHOVY, NORTHERN	44,600	47,500	93,300	48,300	32,200	517	115	0	0	0	0	0	266,532
BARRACUDA, CALIFORNIA	47	0	132	144	400	8	43	1,101	51	32	0	0	1,958
BASS, GIANT SEA	161	161	25	133	361	485	470	501	229	0	0	11	2,532
BASS, KELP	0	0	0	0	0	96	0	0	0	0	0	0	96
BONEFISH	0	0	0	0	0	17	0	0	0	0	0	0	17
BONITO, PACIFIC	0	0	137	43	301	86	316	555	50	613	215	7	2,323
BUTTERFISH, PACIFIC	0	90	56	102	192	0	0	0	0	0	0	0	440
CABEZON	0	0	0	0	0	0	0	16	7	0	0	0	23
CABRILLA, SPOTTED	0	0	201	0	0	0	0	0	0	0	0	0	201
CROAKER, BLACK	0	0	0	0	409	81	184	0	1,929	1,265	297	101	4,266
CROAKER, SPOTFIN	0	0	0	0	0	0	0	123	0	0	0	0	123
CROAKER, UNSPECIFIED	0	0	0	0	77	0	0	0	0	0	0	0	77
CROAKER, WHITE	750	401	876	2,238	5,615	4,611	6,832	11,935	15,192	15,732	16,348	20,304	100,834
DOLPHINFISH	0	0	0	0	0	0	0	669	29	1,225	0	0	1,923
EEL	0	5	19	596	31	214	30	100	34	0	0	160	1,190
EEL, CALIFORNIA MORAY	56	0	0	437	0	81	180	172	126	0	0	0	1,052
GUITARFISH, SHOVELNOSE	50	85	28	194	637	143	299	63	0	0	0	0	1,499
HAGFISH	0	0	0	0	0	0	0	114	0	0	0	0	114

TABLE 14 (PRELIMINARY)
MONTHLY LANDINGS IN POUNDS IN THE SAN DIEGO AREA DURING 1992

SPECIES	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
LANDINGS FROM:													
CALIFORNIA WATERS													
FISHES:													
HALFMOON	241	0	0	55	66	76	0	0	122	0	159	34	753
HALIBUT, CALIFORNIA	3,221	2,748	1,592	5,044	8,394	6,024	4,053	4,228	1,066	567	163	662	31,762
HERRING, PACIFIC	0	0	0	0	0	13	0	0	0	0	0	0	13
JACKS, UNSPECIFIED	0	0	5	0	0	0	0	0	0	0	0	0	5
LINGCOD	142	204	159	240	306	500	92	204	13	10	0	0	1,878
LIZARDFISH, CALIFORNIA	0	0	0	0	0	0	0	0	36	14	0	0	50
LOUVAR	30	76	0	0	14	0	0	250	0	354	236	616	1,576
MACKEREL, UNSPECIFIED	1,431	1,100	1,058	3,552	2,450	6,247	2,464	2,962	3,788	5,675	3,482	3,696	36,904
MULLET, STRIPED	1,627	1,592	1,989	4,522	975	1,692	1,475	279	268	17	513	2,419	17,368
OPAH	295	0	0	0	2,474	732	4,322	3,586	2,023	3,773	2,924	14,982	35,111
OPALEYE	129	0	0	89	602	106	181	317	164	748	150	0	2,486
QUEENFISH	0	0	0	0	0	222	94	0	0	0	0	0	316
ROCKFISH, PACIFIC OCEAN PERCH	0	0	0	0	0	0	0	129	0	0	0	0	129
ROCKFISH, BANK	47	0	0	0	0	0	0	0	0	0	0	0	47
ROCKFISH, BLACK	0	0	0	0	0	0	0	94	0	0	0	0	94
ROCKFISH, BLACKGILL	20,632	7,672	3,665	11,808	16,266	8,293	2,840	6,746	1,784	1,064	1,254	16,629	95,442
ROCKFISH, BOCACCIO	1,371	982	500	9,638	3,993	1,388	524	7,580	328	427	265	1,472	28,450
ROCKFISH, CHILIPEPPER	41	0	0	118	598	93	1,128	0	0	0	0	0	1,978
ROCKFISH, COWCOD	730	1,474	2,799	1,750	2,295	1,560	73	0	0	0	0	0	10,681
ROCKFISH, GROUP RED	3,509	5,098	8,803	7,243	3,328	2,662	2,112	1,327	988	2,669	593	2,666	40,998
ROCKFISH, SPLITNOSE	129	0	0	0	377	0	0	0	0	0	0	0	506
ROCKFISH, UNSPECIFIED	6,798	17,887	10,913	45,821	42,815	30,935	21,938	23,130	2,189	13,262	4,937	4,391	285,000
ROCKFISH, VERMILION	0	0	0	0	0	0	0	0	52	0	0	0	52
ROCKFISH, YELLOWEYE	0	2,636	0	0	0	0	0	0	0	0	0	0	2,636
SABLEFISH	1,061	142	1,062	649	733	38	296	78	213	114	796	1,008	6,190
SANDDAB	67	0	0	100	21	43	23	0	19	99	106	92	585
SARDINE, PACIFIC	0	110	0	162	0	0	0	0	0	0	0	0	272
SARGO	219	0	0	20	0	0	5	37	0	135	50	0	466
SCULPIN, STAGHORN	1,298	807	1,390	1,210	742	439	16	929	1,432	1,676	1,173	2,723	13,889
SEABASS, WHITE	871	408	92	38	0	3,276	2,773	1,777	862	0	0	0	10,185

TABLE 14 (PRELIMINARY)

MONTHLY LANDINGS IN POUNDS IN THE SAN DIEGO AREA DURING 1992

SPECIES	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
LANDINGS FROM:													
CALIFORNIA WATERS													
FISHES:													
SHARK, PACIFIC ANGEL	764	174	312	750	1,265	485	449	137	0	102	0	62	4,500
SHARK, BIGEYE THRESHER	0	0	0	0	57	0	1,949	201	4,100	977	356	453	8,173
SHARK, BONITO	2,332	80	0	0	1,915	1,551	11,910	10,026	15,119	11,756	3,576	10,710	68,975
SHARK, BROWN SMOOTHHOUND	0	0	0	0	0	69	37	15	26	28	320	0	495
SHARK, COMMON THRESHER	2,472	0	0	397	19,269	4,151	7,785	2,045	10,196	1,196	206	5,397	53,014
SHARK, GRAY SMOOTHHOUND	0	0	0	0	0	26	0	0	0	0	0	0	26
SHARK, LEOPARD	737	59	419	946	883	430	1,390	868	620	144	15	214	6,724
SHARK, PELAGIC THRESHER	114	0	0	0	0	0	0	195	194	135	0	0	638
SHARK, SMOOTH HAMMERHEAD	0	0	0	0	0	0	0	0	1,027	638	0	0	1,665
SHARK, SOUPFIN	2,213	1,696	2,716	1,770	1,533	3,291	2,451	727	246	230	1,271	657	18,069
SHARK, SPINY DOGFISH	0	0	0	0	0	0	44	9	0	50	0	0	103
SHARK, UNSPECIFIED	96	139	84	0	0	0	95	22	19	0	0	119	568
SHARK, WHITE	0	0	0	0	0	0	0	0	111	0	0	0	111
SHEEPHEAD, CALIFORNIA	763	1,514	2,128	2,800	4,127	8,225	1,942	8,651	5,492	88	731	2,868	45,319
SKATE, UNSPECIFIED	101	0	0	17	27	0	0	0	0	0	36	374	635
SOLE, PETRALE	0	0	40	79	90	13	112	0	0	0	0	27	361
SOLE, UNSPECIFIED	71	43	4	31	57	68	104	38	89	7	0	0	512
SURFPERCH, BLACK	100	0	0	99	0	0	105	25	216	126	0	36	705
SURFPERCH, UNSPECIFIED	152	0	97	620	176	98	385	796	250	155	109	0	2,838
SURFPERCH, WALLEYE	0	0	0	0	0	0	0	168	118	210	0	0	496
SURFPERCH, WHITE	0	0	48	0	0	0	0	0	0	0	0	0	48
SWORDFISH	9,023	1,197	0	0	600	1,383	3,599	5,293	13,164	59,120	49,552	93,287	237,018
THORNYHEAD	61	0	0	0	0	0	0	0	88	0	0	0	139
TUNA, ALBACORE	0	0	21	0	0	410	1,150	2,375	2,010	0	136	36	6,138
TUNA, BIGEYE	0	260	0	0	0	0	0	0	0	950	0	0	1,210
TUNA, BLUEFIN	86	0	0	0	0	497	313	474	2,357	734	406	64	4,881
TUNA, SKIPJACK	0	0	0	0	0	0	40	961	315	683	4,034	0	6,033
TUNA, UNSPECIFIED	0	0	0	0	85	4,960	0	275	471	81	0	0	5,872
TUNA, YELLOWFIN	0	0	0	0	0	0	59	992	1,622	2,043	291,681	102	296,399
WHITEFISH, OCEAN	72	20	49	0	12	22	105	0	0	0	0	0	280

TABLE 14 (PRELIMINARY)

MONTHLY LANDINGS IN POUNDS IN THE SAN DIEGO AREA DURING 1992

SPECIES	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
LANDINGS FROM:													
CALIFORNIA WATERS													
FISHES:													
WOLF-EEL	0	0	0	0	0	13	0	0	0	0	0	0	13
YELLOWTAIL	0	72	187	192	66	504	1,118	3,376	629	100	0	10	6,254
ZEBRAPERCH	0	0	0	0	31	0	0	144	173	158	124	0	630
CRUSTACEANS:													
CRAB, CLAWS	850	0	0	634	0	0	170	153	0	0	3	102	1,912
CRAB, KING	0	0	0	0	0	15	0	0	0	0	5	0	20
CRAB, ROCK	6,103	6,704	10,402	8,252	6,399	7,077	3,909	3,003	1,610	1,429	2,219	2,277	58,546
CRAB, SAND	0	0	0	0	0	0	0	0	0	0	0	12	12
CRAB, SPIDER	0	20	343	432	817	297	12	40	0	23	0	233	2,229
LOBSTER, CALIFORNIA SPINY	13,297	6,129	2,815	0	0	0	0	0	137	118,507	48,989	19,732	209,516
PRAWN, RIDGEBACK	37	70	107	59	70	126	0	0	0	0	96	114	679
PRAWN, SPOT	1,039	1,744	1,643	1,143	985	1,895	1,152	1,269	1,329	262	907	3,322	17,490
SHRIMP, BRINE	0	0	0	0	0	820	1,700	1,600	650	384	12	0	5,166
SHRIMP, UNSPECIFIED	0	47	0	0	0	57	0	0	0	0	0	0	104
ECHINODERMS:													
CUCUMBER, SEA	0	0	0	0	0	0	0	300	325	0	0	160	785
URCHIN, PURPLE SEA	0	0	0	496	1,216	20	106	525	216	550	504	1,513	5,004
URCHIN, SEA	134,731	90,390	73,511	143,665	101,871	160,760	43,950	108,017	79,702	44,343	136,775	141,462	1,259,250
MOLLUSKS:													
ABALONE, BLACK	0	0	0	0	0	0	12	0	0	0	0	0	12
ABALONE, GREEN	0	0	169	0	17	0	423	0	81	79	2	264	1,025
ABALONE, PINK	0	0	186	0	69	0	1,216	0	410	200	118	167	2,294
ABALONE, RED	0	0	0	0	15	0	229	0	0	290	30	16	580
OCTOPUS, UNSPECIFIED	16	4	0	26	11	0	0	0	0	0	0	20	77
SNAIL, SEA	31	10	10	40	183	40	20	83	26	7	0	52	520
SQUID, MARKET	0	0	0	0	0	0	0	0	36,120	0	0	0	36,120
PLANTS:													
KELP	0	0	2,505	0	0	0	0	0	0	0	0	0	2,505

TABLE 14 (PRELIMINARY)
MONTHLY LANDINGS IN POUNDS IN THE SAN DIEGO AREA DURING 1992

SPECIES	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
LANDINGS FROM:													
CALIFORNIA WATERS													
PLANTS:													
TOTAL	266,486	200,549	286,577	306,708	267,507	266,933	146,919	220,950	212,877	294,583	576,693	354,754	3,401,540
WATERS SOUTH OF STATE													
UNIDENTIFIED GROUP:													
UNKNOWN	0	0	0	0	0	0	0	50	0	36	0	0	86
FISHES:													
ROCKFISH, BLACK	0	0	0	0	0	0	0	0	82	0	0	95	177
ROCKFISH, BLACKGILL	3,283	2,152	1,910	2,007	1,721	0	0	0	0	0	0	0	11,081
ROCKFISH, UNSPECIFIED	5,230	5,577	3,107	5,752	14,349	5,664	5,997	9,410	2,984	2,347	2,072	3,167	65,736
SABLEFISH	190	205	591	392	105	112	329	130	0	60	76	0	2,340
SHARK, UNSPECIFIED	0	0	0	70	0	0	0	0	0	0	0	0	70
TUNA, SKIPJACK	0	0	0	0	0	0	0	0	0	0	76,179	0	76,179
TUNA, YELLOWFIN	0	0	0	0	0	0	0	0	0	0	241,723	0	241,723
TOTAL	8,703	8,014	5,696	8,221	16,255	5,776	6,326	9,590	3,066	2,433	320,050	3,262	397,392
GRAND TOTAL	275,189	208,563	292,273	314,929	283,762	272,709	153,245	230,540	215,943	297,016	896,099	358,016	3,799,080

22-FEB-1993

TOTAL FISH LANDINGS: 1,797,670 pounds
exceptional El Niño conditions drove large catches of tunas and other pelagic fishes.

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CONTACT REPORT

AGENCY/AFFILIATION: California Department of Fish and Game		
DEPARTMENT:		
ADDRESS: 1350 Front Street, Room 2041	CITY: San Diego	
COUNTY: San Diego	STATE: CA	ZIP: 92101
CONTACT(S)	TITLE	PHONE
Tim Dillingham	Wildlife Biologist	(619) 525-4215
BEI PERSON MAKING CONTACT: Sharron L. Reackhof SLR		DATE: 4/13/93
SUBJECT: Endangered and threatened species in the Mission Bay and San Diego Bay		
SITE NAME: Not Applicable	EPA ID: Not Applicable	

DISCUSSION: Mr. Dillingham and I discussed the threatened and endangered species which may be present in the Mission Bay area as well as the San Diego Bay area. He told me that the various species present in the Mission Bay are similar to those in the San Diego Bay; however, there may be a few additional species associated with the San Diego Bay. Following is the list of threatened and endangered species associated with both bays:

- The California brown pelican (*Pelecanus occidentalis*), a federal and state endangered species.
- The California least tern (*Sterna antillarum browni)*, a federal and state endangered species.
- The salt marsh bird's-beak (*Cordylanthus maritimus ssp maritimus*), a federal and state endangered species.
- The light footed clapper rail (*Rallus longirostris levipes*), a federal and state endangered species.
- The California black rail (*Laterallus jamaicensis coturniculus*), a state threatened and federally endangered species.

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CONTACT REPORT (Cont'd)

AGENCY/AFFILIATION: California Department of Fish and Game		
CONTACT(S)	TITLE	PHONE
Tim Dillingham	Wildlife Biologist	(619) 525-4215
SITE NAME: Not Applicable		EPA ID: Not Applicable

DISCUSSION: Cont'd

- The beldings savannah sparrow (*Passerculus sandwichensis beldingi*), a state endangered species.

- The peregrine falcon (*falco peregrinus anatum*), a state threatened and federally endangered species.

CONTACT CONCURRENCE: Tim Dill DATE: 4/19/93

Information extracted from:

Bureau of the Census, 1980 Census, 1985 Population Projection.