1 BMP PROGRAM INTRODUCTION AND BASIS

1.1 Facility Name and Description

Continental Maritime of San Diego (CMSD) operates a full service ship repair facility on approximately 14 acres of land and 17.8 acres of water. The facility is located between Cesar E. Chavez Parkway and Belt Streets in the San Diego Industrial Bay Front, located near Harbor Dr. and the Coronado Bridge. The facility includes 350,625 square feet of office, warehouse, and manufacturing building area, 679 parking spaces, and six piers ranging from 175 feet to 700 feet in length. Figure 1, which is supplied as an attachment, displays a facility plot plan that identifies CMSD's location relative to the surrounding community.

The surrounding land is occupied by marine related industrial facilities. To the South of CMSD are Kelco and BAE; to the North are the Cesar E. Chavez Parkway Park, and the Port of San Diego, 10th Avenue Marine Terminal. Directly adjacent to the East Side of CMSD, are several railroad tracks and the Santa Fe Railroad switchyard on Cesar E. Chavez Parkway. The Restaurant Supply Depot and C.P. Kelco facility is also on the other side of the railroad tracks. To the West of CMSD is San Diego Bay. Figure 2, which is provided as an attachment, displays the facility boundaries and property line.

CMSD provides a variety of ship repair services, including structural fabrication and repair, sheetmetal fabrication, surface preparation, painting, electrical component repair and replacement, machinery overhaul and repair, piping and boiler repair, and lagging and insulation removal and installation, and water tight door manufacturing. The facility is mainly designed for pier-side repair and maintenance for most all types of deep draft, U.S. Naval, and commercial vessels.

1.2 Policy and Objectives

CMSD is committed to maintaining and preserving the quality of our environment. This is exhibited by CMSD's policy to strictly comply with local, State, and Federal environmental law, rules and regulations. CMSD's approach toward this policy includes compliance with both the letter and the spirit of the regulations. To ensure protection of San Diego Bay, and in accordance with CMSD's National Pollutant Discharge Elimination System (NPDES) permit; CMSD has developed this Best Management Practices (BMP) Program. The program is designed to control potential discharge of any pollutant to the San Diego Bay. A fundamental concept of the CMSD BMP Program is the identification of potential pathways for all pollutants to reach receiving waters and the use of appropriate measures to control these pathways. The Facility Storm Water Pollution Prevention Plan is also

implemented in the shipyard, although, the BMP Program Manual is the most comprehensive document.

1.3 The BMP Program has two primary objectives:

To identify and evaluate sources of wastes and pollutants associated with ship construction, modification, repair, and maintenance facilities and activities that may affect the quality of San Diego Bay.

To identify and implement site-specific structural and nonstructural Best Management Practices (BMP) to reduce or prevent the discharge of wastes and pollutants to San Diego Bay

The CMSD BMP Program combines a conscientious management approach with innovative engineering controls to form a comprehensive and effective program. The CMSD BMP Program represents the most current, practical and cost-effective pollutant control techniques used in the shipbuilding/repair industry throughout the nation. CMSD intends to implement this BMP Program as a means for promoting environmental quality, commerce, and general community well being.

1.4 BMP Committee (Pollution Prevention and Control Personnel)

CMSD's BMP Program is administered by the Best Management Practices Committee (BMPC). The BMPC is responsible for approving the BMP Program and assisting CMSD's management in its implementation, periodic evaluation and updating. The BMPC has the following responsibilities:

- Set forward standard operating procedures for the implementation of general and specific BMP.
- Review procedures for record-keeping and reporting of BMP related incidents.
- Review the BMP training programs for effectiveness in preventing BMP related incidents.
- Evaluate the effectiveness of environmental response, cleanup, and regulatory agency notification of BMP related incidents.
- Recommend improvements in methods and programs to prevent potential discharges to San Diego Bay.

The BMPC is composed of representatives from CMSD's Environmental, Safety, Production, and Facilities Departments. These Departments are responsible for compliance with laws and regulations, environmental programs, fire protection, safety, industrial hygiene, production and facilities design, and acquisition of goods, services and materials. This array of responsibilities assures a full spectrum of concerns may be addressed and affected by the BMPC. The BMPC meets periodically to discuss BMP related incidents, BMP Program effectiveness, BMP training, record-keeping and reporting, and overall compliance with CMSD's NPDES Permit. A current list of BMPC members is presented in the following table:

Table 1 CMSD BMP Committee

Name	Title
April McGinley	Environmental Health & Safety Supervisor
Bob Montreuil	Manager, Facilites
Trevor Jones	Facility Security Officer
Edgardo Favela	Tank Leadman
Dewey Youngerman	Manager, EH&S
Designated Rep.	Quality Assurance

BMP incidents and incident reports are reviewed by the BMPC at the periodic committee meeting. Recommendations are submitted and reviewed by the BMPC to facilitate prevention of similar incidents. The Environmental Health and Safety Department maintains BMP incident reports. Records are retained for a period of at least three years after the occurrence of the incident. Following a detailed investigation, corrective action is taken, as appropriate. Each incident report received is reviewed at the next BMP Committee meeting to analyze and develop possible modifications to procedures.

1.5 Risk Identification and Assessment

CMSD uses a variety of materials that must be managed with respect to the potential risk for pollution. CMSD operations and production processes are continually examined to identify potential pollutant risk sources and possible discharge pathways to San Diego Bay. All areas within the facility where toxic or hazardous substances are stored, or generated, are evaluated in terms of discharge risk potential. Discharge risk potential is evaluated by application of best engineering judgment to the specifics of each source/pathway. Factors such as container volume, material toxicity or hazard, pollutant phase, distance from receiving waters, spill response capabilities, and presence of structural controls are considered in determining discharge risk potential.

CMSD has developed ranking criteria that identifies risk using EMS-14002. The highest risk processes are conducted by contractors/sub-contractors. CMSD has developed several forms ECF-006, ECF-007, ECF-018, and ECF-019 to monitor and control high risk operations. These forms are used to increase contractor controls in the CMSD facility.

For the development of this BMP Program, CMSD facilities and operations were examined to identify potential pollutant sources and possible discharge pathways. All areas within the facility where toxic/hazardous substances are stored, generated, or transported, were evaluated in terms of discharge risk potential. Chemical, toxicological, and health information is also on file for all toxic/hazardous materials used within the CMSD facility. Figure 4, which is provided as an attachment, displays the CMSD facility storm drains, rainwater flow directions and associated outfall locations.

When characterizing actual and potential pollutant sources, CMSD has identified areas within the facility where hazardous materials are stored and used, and where hazardous wastes are generated. These areas are identified and BMPs are developed as control measures to prevent releases to receiving waters. The areas are defined as Non-Industrial, Industrial Areas and High-Risk Industrial Areas. The area types are discussed in more detail in following sections.

When identifying and assessing the risk potential of pollutant releases, this BMP Plan draws upon the information in CMSD's pollution control documents outlined below:

- The Spill Prevention Control and Countermeasure (SPCC) Plan, which establishes procedures and other requirements to prevent the release of oil into the waters of San Diego Bay.
- The Storm Water Pollution Prevention Plan (SWPPP) and the Storm Water Monitoring Program (SWMP) which establish procedures for monitoring and eliminating pollutants in storm water discharges.
- The Operations Manual, which sets forth the procedures and practices for safe transfer of oil and other petroleum products over water. This manual is required by the US Coast Guard.
- The CMSD Mobile Oil Spill Contingency Plan, which describes spill prevention measures, spill response procedures, on-water containment and recovery, notification procedures, storage practices and emergency response drills and training.
- The CMSD Business Plan for Hazardous Materials and Emergency Response, which outlines CMSD's procedures for hazardous emergency readiness, coordination and notification.

CMSD also uses its' Hazardous Communication Program to assist in evaluating potential pollutants based on the hazards they present to human health and the environment. The Hazardous Communication Program is designed to control and reduce hazardous and toxic materials used at CMSD. The main purpose of the Hazardous Communication Program is to inform our employees of chemical hazards in the workplace and their potential impact on the environment. The methods used to inform employees of workplace hazards and environmental impacts are through education, training, and chemical identification. Before any toxic or hazardous material can be used at CMSD, it is evaluated for its safety and environmental impacts. CMSD also has several ongoing monitoring programs that evaluate pollutants and the environmental effects to receiving waters, bay sediment, and storm water runoff.

1.6 Reporting and Response to BMP Incidents

The CMSD BMP incident reporting procedure outlines communications during environmental incident response activities. Adherence to the procedures enables CMSD to effectively respond to environmental and BMP related incidents and to comply with mandatory Federal, State and local regulatory reporting requirements. The sequence of events and communication requirements for Environmental Incidents at CMSD are described in the reporting procedure along

with departmental responsibilities and duties related to environmental and BMP incident communications.

An environmental or BMP incident is any occurrence involving the actual or potential release, spill, discharge, or other loss of control of a hazardous material, or any other material, that may be harmful to public health and welfare or the environment. CMSD's Spill Prevention Control and Countermeasure (SPCC) Plan was implemented to establish procedures, methods, and equipment to prevent the discharge of oil from non-transportation related onshore and offshore facilities into or upon the navigable waters or adjoining shoreline of San Diego Bay. The reporting requirements and response procedures are described in detail in the facility SPCC Plan.

CMSD maintains an Open Line for environmental incidents. This Open Line is posted in all conspicuous locations throughout the facility. Individuals witnessing or suspecting the discharge or potential discharge of pollutants directly into San Diego Bay or storm drains are instructed to contact the Security or Environmental Health and Safety Department. Once a report is received, a response sequence and an investigation is conducted. The Security Department maintains a listing of key personnel to be contacted when a BMP incident is reported. This list includes the Environmental Health and Safety Department and the On-Site Emergency Response Coordinator. The Emergency Response Coordinator and an alternate are trained in proper response techniques. General emergency communications are achieved through the use of an outdoor public address system and, if needed, bull horns. In addition, security, fire, and safety personnel carry two-way radios for continuous communication.

The CMSD BMP incident response procedure is outlined as follows: Any employee who becomes aware of an Environmental or BMP related incident within or adjacent to the shipyard is instructed to report the information to CMSD Security, Front Gate Command Post or Environmental Health and Safety at extension 218 or 236 immediately. The Security Officer at the Front Gate will immediately communicate incident information to the On-Site Emergency Response Coordinator and Environmental Health and Safety. The On-Site Response Coordinator has the responsibility to respond to hazardous material incidents, including spills and discharges. The initial response, if it is not a life-threatening situation, is to contain the material and limit its spread into the environment. This can be achieved through a number of methods, depending upon the circumstances, such as turning a valve, plugging a hole, diking or absorbing the material, or surrounding with an oil boom if the material is on water. Once the material is contained, clean-up procedures can be followed. The On-Site Response Coordinator maintains an on-site vehicle and Spill Response Locker equipped with the proper items to achieve these response goals.

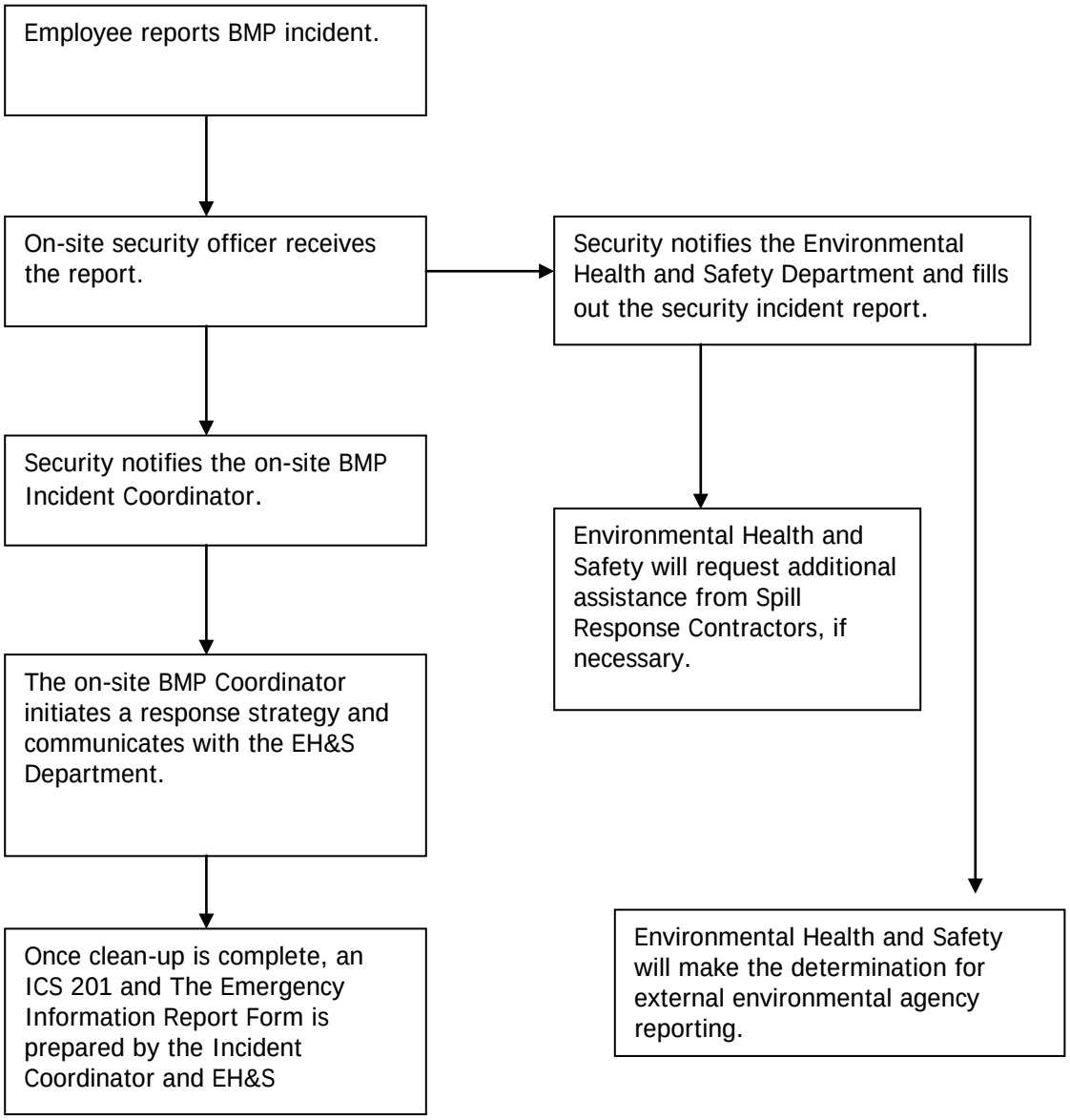
In those situations where the spill or discharge appears to be beyond the capabilities of the on-site CMSD personnel, outside emergency contractors or agencies, properly trained and equipped and under contract, will be called to respond. CMSD is under a continuous contract with the OSRO MSRC (Marine Spill

Response Corporation). To perform all spill response activities beyond the CMSD on-site capabilities. MSRC (Marine Spill Response Corporation) will respond immediately when contacted by CMSD.

Environmental Health and Safety will make all external notifications to local, State and Federal agencies. For example, if the reportable quantity (RQ) of a chemical is exceeded in a discharge or spill, a number of public agencies are to be notified as per CMSD's SPCC Plan and Mobile Oil Spill Contingency Plan. CMSD Security and the On-Site Response Coordinator must complete the ICS 201 Form and The Emergency Information Report Form found in the Oil Spill Contingency Plan, file it with the Environmental Health and Safety Department, for further investigation and reporting. The Emergency Information Report Form includes the following information:

- Time and date of the incident
- Caller's Name/Dept./Badge/Phone
- Incident Location
- Incident Description
- Duty Officer's Name/Badge
- Material(s) involved and estimated volume
- Description of cause of incident
- What clean-up procedures were followed?
- What public agencies were notified?
- Did material move off property?
    - The physical extent of problem area
    - Corrective Actions
    - Communications, on-site response coordinator/Environmental Health and Safety/Others

The following is a graphical representation of how the reporting procedure flows at CMSD:



BMP incidents and incident reports are reviewed by the BMPC at the periodic committee meeting. Recommendations are submitted and reviewed by the BMPC to facilitate prevention of similar incidents. The Environmental Health and Safety Department maintains ICS 201 and The Emergency Information Report Forms. Records are retained for a period of at least three years after the occurrence of the incident. Following a detailed investigation, corrective action is taken, as appropriate. Each incident report received is reviewed at the next BMP Committee meeting to analyze and develop possible modifications to procedures.

1.7 Materials Compatibility

CMSD has developed BMP's that address hazardous materials compatibility with an emphasis on three aspects: compatibility of chemicals upon mixing in the container; compatibility of the container materials with their contents; and compatibility of the container with its environment. Operations conducted at CMSD related to ship repair maintenance are not chemically intensive and do not provide many opportunities for introducing or mixing of incompatible materials. However, due to the severity of accidents when incompatibles are mixed, employees must understand this important principal.

Procedures and training are in-place at CMSD to ensure that incompatible wastes or materials are never placed within the same container at CMSD. It is also against CMSD policy to place hazardous waste into an unwashed container that previously held an incompatible waste or material. Similarly, any storage container holding a hazardous waste that is incompatible with any waste or materials stored nearby in other containers, must be separated from the other materials or protected by means of a dike, berm, wall, or secondary containment device. A distance of not less than 10 feet will segregate incompatible materials at CMSD. CMSD BMPs also require that incompatible materials not be stored within the same locker or cabinet.

1.8 Good Housekeeping

CMSD has good housekeeping practices and procedures in place to help ensure that no material/substance/waste or miscellaneous debris enters San Diego Bay. CMSD uses good housekeeping procedures to help control potential loses of hazardous substances to receiving waters due to equipment failure (e.g., spills or leaks), natural conditions (e.g., plant site runoff or wind action), or other circumstances (e.g., improper material storage or waste handling). CMSD requires that all process areas that have materials with the potential for contaminating storm water runoff or being transferred to the bay by wind action, is managed in a manner that minimizes the potential for pollutants to enter San Diego Bay.

The basic strategy for good housekeeping and pollutant control involves the following:

A. Elimination of the deliberate discharge of any waste category directly into San Diego Bay (e.g., No Dumping or Direct Discharge)

B. Regular removal of all waste in order to preclude their discharge into San Diego Bay incidental to rainfall, wind action, or storm events.

C. Separation and removal of all waste from water streams which discharge into San Diego Bay such as storm drains.

D. Periodic removal from San Diego Bay of floating debris discharged from sources other than CMSD.

Examples of good housekeeping include neat and orderly storage of materials; prompt clean-up of spilled liquids, sweeping and vacuuming, or other cleanup, as

necessary to prevent discharge to receiving waters. Organization is another key to good housekeeping. An organized work area has a decreased likelihood for spills and other BMP incidents. For example, provisions are also made for storage of containers or drums that keep them from protruding into open walkways or motor vehicle pathways. Moreover, employees are instructed to pick up all oil sorbing materials by the close of business and/or before it rains. Employees are also required to check and clean as necessary all storm drains/pier scuppers in an employee's particular production area.

CMSD standard repair housekeeping procedures have been developed to supplement the BMP Program that specifically address repair activities necessary for the protection of San Diego Bay. Responsible CMSD personnel are assigned the duty of training personnel reporting to them, conducting routine inspections of their respective areas and advising the Environmental Health and Safety Department of any problems. They may also make recommendations or suggestions for improving the BMP Program to minimize and prevent pollution of the Bay.

1.9 Preventive Maintenance

CMSD has implemented and maintains a preventive maintenance (PM) program that establishes specific procedures and requirements to prevent breakdowns and failures of equipment. CMSD's PM program revolves around inspections, testing of plant equipment, and includes a record-keeping program. This record-keeping program helps to ensure scheduling of tests, inspections, test results, and corrective action.

CMSD's PM program includes all equipment and plant areas having potential for discharge. Inspection areas in the PM program include: storage facilities, transfer pipelines, loading and unloading areas, pipes, pumps and valves, tank corrosion (internal and external), tank supports or foundation deterioration, primary and secondary containment, housekeeping, tank drain valves and integrity of storm water collection systems.

Only qualified personnel are designated to inspect equipment and plant areas. These individuals work in production and facilities related departments and have been trained to perform frequent visual inspections of their respective systems and equipment. Many routine inspections, combined with general yard clean up are conducted frequently at CMSD, and thus aid in the overall effectiveness of the PM program.

1.10 Inspections and Records

Inspections and records required by the BMP Program are frequently performed in conjunction with the PM program. Inspections and record-keeping are designed to detect actual or potential BMP incidents. CMSD's inspections and record system includes written instructions and procedures regarding both appropriate time intervals and evaluation criteria. CMSD's records show the completion date and the results of each inspection. These results, in turn, are always signed by the

appropriate supervisor and maintained for a minimum of three years. Furthermore, CMSD routinely examines its many logs/records for needed improvements, corrections, or overall redesign.

CMSD areas to be inspected include: material storage areas, liquid storage areas, in-plant transfer and materials handling, shipping/receiving areas, storm drains, high-risk areas and general plant runoff grounds. Other procedures and inspection criteria are considered on a site-specific basis. Moreover, CMSD has instituted various procedures that ensure immediate response and corrective actions are taken when inspections reveal deficiencies. An inspection that results in an identified problem that requires more resources than the immediate supervisor, will be reviewed by the BMPC or a representative, for problem resolution.

1.11 Security

CMSD maintains an around-the-clock, in-house security force and associated procedures. The security system is designed with the intention of preventing accidental or intentional entry to the facility, which might result in vandalism, theft, sabotage, or other improper or illegal use of CMSD facilities. This helps to prevent the possibility of BMP related incidents caused by untrained or unauthorized individuals at the facility.

CMSD's security system has many components. The site perimeter is completely surrounded by chain-link fencing and its entrance is limited to three access gates. All open gates are manned by security officer's 24 hours a day, and gates are locked when the on-site security officer is not present. Access to CMSD's facility is limited to CMSD employees with picture ID badges, Ship's Force personnel with military ID cards; subcontractors/vendors on approved security lists with state driver license or identification card, approved federal identification card, and authorized visitors. Security violations, whether potential or actual, are always documented and reported to the Facility Security Officer (FSO), who investigates each incident. Lastly, outside assistance, if required, is provided by San Diego Harbor Police who are available to respond within minutes to aid CMSD's security force.

Internal plant security officers operate under standard operating procedures that involve roving the facility for potential BMP problems. These officers have been instructed to observe all facets of the facility, including leaking valves, tanks, etc. In the case of an emergency during non-working hours, response plans are in effect to address this issue. The SPCC and the Mobile Oil Spill Contingency Plan addresses this issue in more detail.

1.12 Employee BMP Training

CMSD has implemented a BMP training program to educate employees about controlling and minimizing the potential for discharges to San Diego Bay. All CMSD employees have the responsibility to comply with all environmental laws, rules, and regulations. The responsibility extends to the point that employees should educate themselves and fellow workers in the area of environmental pollution

prevention. Training at CMSD for the prevention of BMP related incidents is conducted for all active employees and new hire employees.

All new employees at CMSD are initially indoctrinated into the risks of working with pollutants and hazardous materials and how they relate to CMSD's BMP Program. All employees are made aware of CMSD's BMP objectives, shipyard processes and materials, safety hazards, practices for preventing discharges, and procedures for responding properly and rapidly to toxic and HazMat incidents in the shipyard. Additional specialized training is conducted for personnel directly involved with CMSD's SPCC Plan.

In addition to initial Environmental Health and Safety issues related to chemical usage, the Hazardous Communications Program includes items associated with the prevention of BMP incidents, and what to do if incidents occur. Weekly meetings of small groups of employees related to specific job classifications, called "Gangbox Meetings," are held to augment and reinforce topics related to hazardous materials. Topics of these meetings include pollution prevention, hazard communications, ventilation, respiratory protection, personal protective equipment, etc. Input from management regarding past incidents, their cause, and methods of prevention are used to strengthen employee awareness.

The on-site BMP Emergency Coordinator has the responsibility and training to respond to BMP incidents. Training of on-site response coordinator personnel for BMP related incidents takes place annually in the form of the HAZWOPER 8 Hour Refresher. It consists of topics such as: spill containment and control, use of absorbents for containment and cleanup, use of response manuals, protective clothing and personnel safety equipment, evacuation, and others.

To facilitate additional instruction with handling of hazardous and toxic material emergencies, on-site response coordinators attend off-site seminars for in-plant emergency response. In addition, table top drills are conducted annually to familiarize personnel with the type of emergencies that might be encountered. Drills involving spills, containment, and procedures will be conducted by the Environmental Health and Safety Manager and critiqued by the BMP committee. Critiques will be designed to improve CMSD's overall ability to respond effectively to BMP incidents. Lastly, all records of training including the name and position of employee, lesson plan, subject material covered, and instructors' names and positions, are kept on file in the CMSD Safety Department. This includes training of all on-site personnel whose actions, or lack thereof, could result in the discharge of pollutants. Such personnel include employees of CMSD as well as other on-site personnel, such as personnel associated with subcontractors, customers (e.g., US Navy, MSC), and others. This also includes training of personnel who are responsible for the following:

A. Implementing the BMP Program,

B. Conducting inspections, sampling, and visual observations, and

C. Managing the site drainage system

1.13 Subcontractor, Third Party and SIMA Personnel

All third party personnel must receive guidance on applicable Federal, State, and local, environmental procedures while working within the CMSD facility. Production and repair activities should not commence until such guidance has been administered. This training guidance is provided to subcontractors and customers at the arrival, and/or pre-arrival, conferences. The operations of primary concern are those that present a potential to discharge pollutants to San Diego Bay. All third party personnel must conduct production and repair operations in compliance with CMSD's National Pollutant Discharge Elimination System (NPDES) Permit, General Industrial Storm Water Permit, and the Metropolitan Industrial Waste Program (MIWP) Industrial Users Permit. Third Parties have restricted operations in the CMSD facility. Details are established in EC-013 Air Pollution Management.

1.14 Discharge Prohibitions

CMSD's NPDES permit states that no hazardous material/substance/waste or miscellaneous debris shall be allowed to enter San Diego Bay. It is CMSD's position that a violation of these prohibitions and/or specifications will be cause for immediate shutdown of any operation at cause. Furthermore, under CMSD's BMPs governing storm water, it is required that all materials/areas that have potential for contaminating storm water runoff must be managed in such a way that prohibits, and/or minimizes, contaminates from entering CMSD's storm water conveyance system.

1.15 Site Maps (Attachment #1) – See Section 4

The BMP Program Manual includes several site maps that are designed to enhance the overall utility of this program. All of the site maps are clear and understandable to ensure that they effectively convey their information. The required information for the BMP Program is shown on multiple site maps and the following information is included:

- The site boundaries and vicinity location (Figure 1 and 2.)
- Structural control measures that affect site runoff and run-on. Examples of structural control measures are storm drain inlets, catch basins, berms, detention ponds, pumps, secondary containment, oil/water separators, diversion barriers, etc. (Figure 3.)
- Storm water segregation into Industrial Areas, Non-Industrial Areas, and High-Risk Areas, Catch Control Basins and Water Flow. (Figure 3 & 4)
- Storm Water Segregation into "Industrial Storm Water Control Areas" (Figure 5.)

1.16 List of Significant Materials

This section is designed to provide a list of significant materials handled and stored at CMSD, which are potential pollutants. Materials include raw stock, intermediate products, final or finished products, recycled materials, and waste or disposed materials. Each material on the list and the locations where the material is stored, received, shipped, and handled, as well as the typical quantities and frequency, are described in the following Table 2.

Table 2. Potential Pollutants and Usage Locations

Potential Pollutant	Use Location	Receiving/ Storage Area	Typical Quantities	Frequency of Use
Paints (epoxy, primer, vinyl ester, antifoulant, etc.) Solvents (surface prep and degreasing)	Paint and Blast Area, On-Board Ships, Working Pontoons	Paint Storage Area	1, 5, and 55 gallon cont. 500 gal max	Daily
Acids and Caustics (boiler repair)	On-Board Ships	Acid Storage Area	1, 5, and 55 gallon cont. 120 gal max	Monthly
Oil, lubricants and other petroleum based products	Most Shipyard Locations	Warehouse, Maintenance, Machine Shop	1, 5, and 55 containers 220 gal max	Daily
Fiberglass and lagging work	On-Board Ships,	Paint Storage,	80 to 400 lb.	Daily
Grit Blasting Media (copper slag, garnet, steel grit, etc.)	Paint and Blast Area, Onboard Ships	Blast Area	1,000 lb.	Daily
Oily Water (bilge water, ballast water, collected storm water etc.)	Portable Tanks and Piping System, Storage Tanks, Piers	Piers 4 & 6	20,000 to 160,000 gallons	Daily
Oil Water Separator	Steam pit & head of piers	Steam Pit & Contractor Lay down Areas	2,000 gallons	Daily

Table 3. Summarizes process areas and potential pollutant sources and discharge pathways identified within the CMSD facility. Potential pollutant sources considered to be of BMP significance are presented in order of risk potential. Potential pollutant sources and discharge pathways identified as posing low risk for an incident with receiving water consequences are listed at the bottom of the table. Shipyard areas are displayed in Figure 3, 4 and 5.

Table 3. Process Area Description and Associated Risk

Location	Description and Source	Potential Pathway and Risk
Grit Blast and Paint Area	Shore-side blasting and painting area paint and grit overspray.	Wind may cause pollutants to enter the Bay. This area has controlled runoff and BMPs to protect the Bay from storm water discharge.
Production Piers 4 and 6	Surface preparation, painting, grinding, and several other activities are performed on ships repaired at piers 4 and 6.	Wind rainfall may cause pollutants to enter the Bay. Containment shrouding is used extensively to eliminate pollutant discharge via air pathways. A storm water control system is in place to ensure that pollutants are not discharged with storm water. BMPs are also in-place to eliminate or minimize potential pollutant sources.
Portable Tanks On Piers	Portable tanks are used throughout the shipyard for storage of oil, fuel, working fluids, and waste water.	Portable tanks are usually located with close proximity to the Bay. Containment systems are used to minimize potential spills. Wind transport of potential pollutants is highly unlikely. The tanks will be located in Storm Water Control Areas and will therefore be secondarily/tertiary protected from the Bay.
Hazardous Materials Storage Areas	Small yard-wide storage cabinets, racks and flammable lockers	These areas have small quantities and the potential for pollution is considered to be low. Wind transport of potential pollutants is not possible. All storage areas are located within Storm Water Control Areas.
Hazardous Waste Accumulation Area	Bermed area for central waste accumulation	The central accumulation area is completely bermed and covered. The risk for pollution from this area is considered low. Wind transport of potential pollutants is highly unlikely. The area is located within a Storm Water Control Area.

Table 3. Process Area Description and Associated Risk, Continued

Location	Description and Source	Potential Pathway and Risk
Paint Storage Area	Bermed and covered area for paint storage	The Paint Storage Area is completely bermed and risk for pollution from this area is considered low. The area is covered and is also located in a Storm Water Control Area. Wind transport of potential pollutants is not possible.
Approach Aprons	Wood pier structures that are used for office space	These areas present a direct discharge to the bay. The risk for pollution from these areas is moderate due to the lack of pollutants and processes. Wind transport of potential pollutants is highly unlikely due to lack of operation. CMSD has procedures in place to ensure that hazardous materials and other potential pollutants are not discharged from these locations.
Steam Cleaning Pit Area	Steam cleaning in a controlled and bermed area	This area is completely bermed and therefore the risk for pollution is low. Wind transport of potential pollutants is highly unlikely. This area is also located in a Storm Water Control Area and overflow will be pumped into a tank for treatment and sewer disposal.
Maintenance Area	All vehicle maintenance is performed including oil, coolant, hydraulic fluids and other working fluid changes.	The vehicle maintenance area is bermed and in a Storm Water Control Area. One of the storm drains has a valve operation. The valve is always closed unless there is a pump failure and flooding of the building is at risk. The risk for pollution in this area is moderate. Wind transport of potential pollutants is highly unlikely.
Outdoor Structural Area	Fabrication of ferrous and nonferrous structures includes cutting, welding and grinding.	Wind is not a threat to pollution from this area. This area has a limited amount of production operations and risk for pollution is considered to be low. Outdoor structural is located in a Storm Water Control Area.

1.17 Description of Potential Pollutant Sources

The BMPs identified in this program manual include a narrative description of the industrial activities and areas at CMSD. The following items related to industrial activities at CMSD are addressed in this BMP Program Manual:

Industrial Processes:

CMSD has several industrial processes including grit blasting, painting, metal fabrication, and tank cleaning and associated waste handling. A description of each of the activities related to the process is described in each BMP area. Areas protected by containment structures and the corresponding containment capacity are also described in each individual BMP.

Material Handling and Storage Areas:

CMSD handling and storage areas are described in the individual BMPs. The BMPs address spill and leak prevention and response procedures as well as containment structures and the corresponding containment capacity.

Dust and Particulate Generating Activities:

Painting and blasting activities generate dust and/or particulate. Their associated locations, the characteristics of dust and particulate pollutants, the approximate quantity of dust and particulate pollutants generated, and the primary locations where dust and particulate pollutants would settle is identified in individual BMPs for blasting and painting.

Significant Spills and Leaks:

No materials have spilled or leaked in significant quantities since April 17, 1994, including toxic chemicals (listed in 40 CFR 302), and oil and hazardous substances in excess of reportable quantities (see 40 CFR 120, 127, and 302).

Discharges:

CMSD has investigated its site to identify all discharges and their sources. As part of this investigation, all drains (inlets and outlets) were evaluated to identify whether or not they connect to an on-site or municipal storm drain system or otherwise empty into San Diego Bay. All discharges are described, which include the source, quantity, frequency, and characteristics of the discharges and associated drainage area. The BMP Program Manual includes BMPs to prevent, or minimize the potential for, contact of water with significant materials and equipment.

Soil Erosion:

There are no locations where soil erosion of any significant quantity occurs at CMSD.

1.18 Annual Comprehensive Site Compliance Evaluations

CMSD will conduct at least one comprehensive site compliance evaluation in each reporting period between July 1 and June 30. Evaluations shall be conducted not less than 8 or more than 16 months apart. The BMP Program, shall be revised, as appropriate, and the revisions will be implemented within 90 days of the evaluation.

Evaluations shall include the following:

- A review of all visual observation records, inspections, sampling and analysis results.
- A visual inspection of all potential pollutant sources for evidence of, or the potential for, the discharge of pollutants.
- A review and evaluation of all BMPs to determine if BMPs are adequate, properly implemented and maintained, and whether or not additional BMPs are needed. A visual inspection of equipment needed to implement the BMP Program, such as spill response equipment, shall be included.
- An evaluation report that includes,
  - identification of personnel performing the evaluation,
  - the date(s) of the evaluation,
  - necessary BMP Program revisions,
  - schedule for implementing BMP Program revisions,
  - any incidents of non-compliance and the corrective actions taken, and
  - a certification that CMSD is in compliance.

1.19 Record-Keeping and Internal Reporting

Record-keeping at CMSD is very important for overall environmental compliance. Record-keeping includes procedures to ensure that all records of inspections, spills, maintenance activities, corrective actions, visual observations and other functions are developed, retained, and available as necessary. Record-keeping serves as the basis for documenting compliance and potential problem areas. Internal reporting procedures also serve as a prime method for ensuring compliance and prevention pollution.

1.20 Quality Assurance

Ensuring that a quality program is in effect is one of the main goals of the BMP Committee. This includes procedures to ensure that the BMP Program is adequate and that all elements of the BMP Program and Monitoring and Reporting Program are completely implemented. Implementation is a process of continuous improvement and dedication minimizing the potential for pollution.

1.21 CMSD Best Management Practices (BMPs)

As previously described the CMSD BMP Program includes a narrative description of the BMPs to be implemented at the site for each pollutant and its potential sources identified. The BMPs are developed and implemented to prevent, or minimize the potential for discharge of pollutants. Each pollutant and its potential sources may require one or more BMPs. Some BMPs may be appropriate for multiple pollutants and/or multiple potential sources, while other BMPs may be appropriate for only a single pollutant and/or only a single potential source.

CMSD gives highest priority to development and implementation of "Preventive BMPs," which are measures to reduce or eliminate the generation of pollutants and waste, such as waste minimization and Pollution Prevention.

In addition, CMSD has developed and implemented "Control BMPs," in high risk areas to control or manage pollutants and waste after they are generated and before they come into contact with water, including measures to prevent leaks, spills, and other releases. Control BMPs generally include the addition of berming and other secondary containment facilities. The shipyard has been divided into 11 Storm Water Control Areas. The Control BMPs are described in Section 1.21 and Section 3.0 of this Program Manual.

Finally, CMSD has developed and implemented, as necessary "Response BMPs," which are procedures to respond to leaks, spills, and other releases with containment, control, and cleanup to prevent, or minimize the potential for, the discharge of pollutants and to minimize the adverse effects of such discharges. The CMSD BMP Program adequately addresses the items in the following Table 4:

Table 4 Minimum issues to be addressed in the BMP Program Manual

Minimum Issues Addressed By CMSD's BMP Program
(1) Control of large solid materials
(2) Abrasive blasting
(3) Oil, grease, and fuel transfers
(4) Paint and solvent use
(5) Dust and overspray
(6) Over water activities
(7) Storm drain inlet protection
(8) Hose, piping, and fitting use and maintenance
(9) Segregation of unpolluted waters from pollutants and from water containing pollutants
(10) Segregation of water from debris
(11) Hydroblasting (NA)
(12) Material (including waste) storage
(13) Sewage (black water) disposal
(14) Gray water disposal
(15) Oily bilge and ballast water disposal
(16) Floating dry dock, graving dock, marine railway cleanup
(17) Sally port protection (NA)
(18) Discharges resulting from wind, tidal action, and site runoff
(19) Leaks and spills
(20) Waste (including sludge) disposal
(21) Recovery of ship launch grease / wax (NA)
(22) Other activities with potential to result in discharges of pollutants to US waters.

CMSD has implemented thirty BMPs that are designed to prevent or substantially minimize the potential for pollution of San Diego Bay from shipyard operations and facilities. The BMPs are implemented in shipyard areas (i.e. steam cleaning area) and for shipyard processes (i.e. pipe testing and flushing operations). The following Table 5 presents CMSD BMP titles and the associated potential pollutants that are controlled by the BMP.

Table 5 CMSD Best Management Practices (BMPs) and Associated Pollutants Controlled

Section and Page #	Best Management Practice Title	Pollutants Controlled
2.1	HazMat Accumulation and Storage Area	Paints, acids, caustics, oils, fuel, aerosols, solvents, etc.
2.2	Steam Cleaning Area	Oily water, grease, solvents, and other petroleum based sludge and grime.
2.3	Baker Tanks and Tank Trucks	Oily bilge waters, contaminated ballast waters, working fluids, contaminated storm waters, and other shipyard waste waters.
2.4	Operational Piers (Pier 4 and 6)	Oil, oily water, black water, gray water, abrasive grit, paints, general debris, caustics, acids, fuels, hydraulic fluid, coolants, hazardous waste and nearly all hazardous materials and wastes in the shipyard.
2.5	Non-Operational Piers, Approach Aprons and the Shoreline	Sanitary wastes, oil leaks, marine organism growth and waste, and general shipyard debris.
2.6	Maintenance Area (Building 11 an 14)	Oils, hydraulic fluids, waste waters, storm water, solvents, paints, degreasers, coolants, fuel and other maintenance related materials and wastes.
2.7	General Trash Collection Area	General debris and contaminated storm water.
2.8	Recyclable Materials Collection Area	Ferrous and nonferrous metals and associated cutting oil remnants.
2.9	Paint Storage Area	Paint and solvent materials.
2.10	Roadways and Shipping/Receiving Areas	All materials used in the shipyard are transported and received.
2.11	Outdoor Structural Fabrication Area	General trash, grinding dust, welding residues, and equipment working fluid leaks on roadways.
2.12	Hazardous Material and Waste Storage Areas	Solvents, paints, coolants, acids, lubricants, abrasives, caustics, cleaners, adhesives, oils and other working fluids.
2.13	Grit Blasting and Outside Paint Area (High Risk Area)	Contaminated storm water, abrasive grit, paint overspray, and paint spills.

Section and Page #	Best Management Practice Title	Pollutants Controlled
2.14	Shipboard Blasting and Painting	Paint overspray, general trash, and fugitive abrasive blast .
2.15	Shipboard Oil and Fuel Transfer	Oil, oily water, fuel, hydraulic fluids, etc.
2.16	Bilge and Contaminated Ballast Water	Contaminated bilge and ballast waters.
2.17	Shipboard Black and Grey Water Control	Black water (raw sewage) and gray water (shower water, sinks, etc.)
2.18	Pipe System Testing and Flushing Operations	Contaminated shipboard flush and testing waters.
2.19	Barge Dry-Docking Small Projects	Paints, solvents, paint overspray and waste blasting materials, fugitive emissions, grinding and sanding dust, and marine organisms.
2.20	Over Water Activities	Paints, solvents, paint overspray and waste, fugitive emissions, grinding and sanding dust, and marine organisms.
2.21	Storm Drain Protection	Contaminated storm water, floating debris and other solids washed to the drains during rain. Also protection from spills for paints, solvents, wastewater and other liquids that could cause pollution.
2.22	Pier Scuppers and Drains	Contaminated storm water, floating debris and other solids washed to the drains during rain. Also protection from spills for paints, solvents, wastewater and other liquids that could cause pollution.
2.23	CMSD Saltwater Fire System	Contaminated saltwater fire system water.
2.24	Saltbox Discharges	Contaminated saltbox water discharge.
2.25	CMSD Storm Water Segregation Areas	Prevent contamination run-off and run-on from Industrial Areas to Non-Industrial areas and from identified High-Risk Areas.
2.26	Off-Site Graving Dock and Floating Dry-Dock Clean Up	General construction trash, abrasive grit, paint, paint overspray, contaminated wash water, waste water and other production related potential pollutants.
2.27	Mixing of Paints and Other Hazardous Materials	Paints, adhesives, epoxies, oils, wastewater, and other liquids.
2.28	On-Site and Off-Site Emergency Spill Response	Nearly all materials utilized by the shipyard have the potential to be spilled and a quick response can prevent or minimize the impact on San Diego Bay.
2.29	CMSD Hazardous Waste Management	All hazardous wastes in the shipyard must be managed to prevent pollution.

1.1 CMSD Storm Water Control and Diversion Areas

Storm water pollution prevention is a priority at CMSD. Storm water is controlled at CMSD in a number of ways to minimize the potential for pollutants to be washed to San Diego Bay. One of the most important aspects is storm water segregation and control. Storm water segregation includes facilities that are designed to separate storm water flows (run-on and run-off) from parking lot non-industrial areas, high-risk industrial areas, light industrial areas, and off-site sources of storm water flow. This shipyard is now divided into three major types of areas as follows:

A. Non-Industrial Parking Lot and Rooftop Areas

B. Storm Water Control Area (Areas 1 through 12)

C. No Industrial Activity

Figure 4 and 5, which are provided as attachments, describes the storm water segregation facilities and segregated areas at CMSD. The following three sections outline storm water segregation at CMSD:

Non-Industrial Parking Lot and Rooftop Areas:

CMSD parking lots have no industrial activity and are separated from CMSD industrial areas and neighboring facilities by berms and natural contour of the facility. CMSD has two large contiguous parking lots located on the South side of the facility. Storm drains to Non-Industrial Areas are provided with absorbent socks to capture oil related materials. This non-industrial area includes the office buildings located on the facility. To the East, the area is segregated from run-on from the neighboring rail road tracks by a berm that extends along the property line. There are storm drains positioned along the building to collect roof drain waters. To the south of CMSD is the Kelco processing plant. CMSD is segregated from Kelco by a continuous berm that extends from the CMSD front gate entrance to the Electric gate entrance. To the west, the Non-Industrial Area is separated from the Steam Pit, Haz-Mat Area, and the Maintenance Area by a berming system. To the North, a parking lot that accommodates 287 parking spaces. There are storm drains positioned along the parking lot. The area is segregated from run-off from the rail road tracks and Cesar Chavez Park by a berming system. See figure 4, which is provided as an attachment.

Table 6.0 Non-Industrial Storm Water Areas at CMSD

CMSD Storm Drains	Area Type
SD-1, SD-2, SD-3, SD-4, SD-5, & SD-21	Non-Industrial parking lot drains and office building run-off. Run-on is from the railroad tracks are protected by means of a berming system.
6, 7, 8, 9, 13, 13A, 14, 15, 16, 17, 18, 19, & 20	Non-Industrial parking lot drains and office building runoff. This area is protected from run-on and run-on from the maintenance area, Kelco, the hazardous waste storage area, Steam Pit and other industrial areas.

Industrial Storm Water Control Areas:

CMSD has industrial areas where storm water is segregated from non-industrial areas by berms. The water contained within the bermed area is collected, stored, gravity separated, and disposed to the local POTW. These areas include the 11 Storm Water Control areas.

For system design and analysis, the entire production area is divided into eleven (11) storm water control areas. The storm water management areas are displayed visually on the attached diagram. The following is a list of all Structural – Storm Water Diversion System's that are either in place or will be in place by October 1, 2001. The listing includes each area with associated variables including area, storage capacity and specific events that can be captured.

Table 7. Storm Water Control Areas at CMSD

Structural BMP – Storm Water Diversion Areas	Area (Sq. Ft)	Storm Water Storage Tank Capacity (gal)	"Maximum" Storm Event Contained
AREA 1) Pier 6 Diversion	31,300	25,000	2.3" Rainfall in 24 hr. 5-Year Event
AREA 2) Pier 4 Diversion	20,300	25,000	2.7" Rainfall in 24 hr. 5-Year Event
AREA 3) Pier 7 Apron Area	6,700	Included with Pier 6 Tank	2.3" Rainfall in 24 hr. 5-Year Event
AREA 4) Paint and Blast Area	18,600	20,000	2.6" Rainfall in 24 hr. 5-Year Event
AREA 5) Outdoor Structural Area	23,700	25,000	2.6" Rainfall in 24 hr. 5-Year Event
Area 6) Storm Water Diversion Area	7,100	300,000	2.3" Rainfall in 24 hr. 5-Year Event
AREA 7) Building 9 Bulkhead Area	8,150	Storm Water Diversion Tanks(300,000 gal)	2.3" Rainfall in 24 hr. 5-Year Event
AREA 8) Maintenance Area	24,800	Storm Water Diversion Tanks (300,000 gal)	2.3" Rainfall in 24 hr. 5-Year Event
AREA 9) Entrance Production Roadway Area	32,000	Storm Water Diversion Tanks (300,000 gal)	2.3" Rainfall in 24 hr. 5-Year Event
AREA 10) Main Yard Storm Drain Area	145,000	Storm Water Diversion Tanks (300,000 gal)	2.3" Rainfall in 24 hr. 5-Year Event
AREA 12) Area 12 Pump Out Area	4,730	Storm Water Diversion Tanks(300,000 gal)	2.3" Rainfall in 24 hr. 5-Year Event

See figure 3, which is provided as an attachment, for identification of the four major High-Risk Areas, Non-Industrial Area, and the remaining Industrial Areas.

CMSD – Storm Water Control Areas	Control Catch Basins	Storm Drains	Overflow Outfalls
AREA 1) Pier 6 Diversion	CCB-1.1 CCB-1.2 Pump Station	NA	Outfall 004
AREA 2) Pier 4 Diversion	CCB-2.1 Pump Station		Outfall 005
AREA 3) South Tank Area	CCB-3.1	NA	Outfall 003
AREA 4) Paint and Blast Area	CCB-4.1	NA	NA
AREA 5) Outdoor Structural Area	CCB-5.1 Pump Station CCB-5.2 CCB-5.3	SD-5.1 Valved To Bay	Outfall 009
AREA 7)West of North Parking Lot	CCB-7.1 CCB-7.2	NA	Outfall 007
AREA 9) Production Roadways and Roof-Tops	CCB-9.1	NA	NA
AREA 8) Maintenance Area	CCB-8.1 CCB-8.2	NA	Outfall 010
AREA 10) Main Yard Storm Drain Area	CCB-10.1 CCB-10.2	NA	Outfall 005
AREA 12) Area 12, Pump Out Area	CCB-12.1	NA	NA

The following Table 9 lists Old Storm Drain Numbers and associated new Storm Water Control Numbers. The table also provides a brief description of the drain and controls in place.

Table 9 CMSD Comparison of Old Storm Drain #'s and New Control Catch Basin #'s

Old Storm Drain #	New Storm Drain #	Description
01 – 09	01 – 09	Designated non-industrial Parking Lot
10	CCB-8.1 Pumped to Tanks Valved to bay Outfall #012	Permanently diverted to collection tanks by means of automatic sump pump as of November 2000. The pump fills two 1500 gallon tanks and then the water is transferred to the storm water diversion tanks. The drain also has an overflow valve that could be released if flooding occurs.
11	CCB-8.2 Pumped to Storm Water Diversion Tanks	Permanently blocked and diverted to collection storm water tanks by means of automatic sump pump as of February 2001.
12 – 13, 13A	12 – 13, 13A	Designated non-industrial Parking Lot

Old Storm Drain #	New Storm Drain #	Description
14	CCB-10.2 Pumped to CCB-10.1	Drain is permanent blocked and diverted. The sump has an automatic sump pump to divert water to CCB-10.1, which is the main water collection and control point for Control Area #10.
15	Eliminated Completely	Completely eliminated – storm water flows to storm drain CCB-8.1 for diversion to collection tanks.
16	CCB-8.1 Pumped to Storm Water Diversion Tank	This is the main storm water control sump for Storm Water Control Area #10. The existing drain was capped off and several pumps remove water from this sump. An overflow valve is also attached to the drain and this potential overflow outfall is referred to as Outfall #006.
17	CCB-4.1 Pumped to Tanks	A drain to the bay no longer exists. This was blocked in early 90's to capture storm water in the paint and blast area. This is Storm Water Control Area #4.
18	CCB-11.1	Drain closed – discharge is pumped to shipping and receiving area for collection and diversion Storm Water Control Area #10.
19	NA	No longer exists. Paved over as part of high-risk containment in paint area. This area is collected and diverted by paint area sump pump.
20	NA	No longer exists. Paved over as part of high-risk containment in paint area. This area is collected and diverted by paint area sump pump.
21	21	Designated non-industrial. Office bldg. and courtyard area on Cesar E. Chavez Parkway.
22	CCB-12.1	Drain closed – discharge is pumped to alley for collection and diversion to Storm Water Control Area #10.
23 – 25	CCB-5.1 Pump CCB-5.2 CCB-5.3	Permanent automatic sump pump and collection tank installed in February 2000 to collect storm water from the structural/sheetmetal area.
26	CCB-9.1	Storm drain blocked and pumped to the Storm Water Diversion Tanks. This is in Storm Water Control Area #9. Permanent diversion to be completed prior to October 1, 2001.
Pier 4 Direct Release	CCB-1.1 CCB-1.2 Pump Stations	Permanent diversion system was completed and will be fully implemented prior to October 1, 2001. This represents Storm Water Control Area #1.
Pier 6 Direct Release	CCB-2.1 Pump Station	Permanent diversion system was completed and will be fully implemented prior to October 1, 2001. This represents Storm Water Control Area #1.
Lot 4	Lot 4	Designated non-industrial.

CMSD has 9 outfalls where storm water may exit the facility and flow directly to the San Diego Bay. The following Table 10 identifies and describes each of the outfalls at CMSD:

Table 10 CMSD Outfalls

Outfall #	Description
OF-1	Eliminated discharge.
OF-2	Eliminated discharge.
OF-3	Outfall 003 – Storm Water Control Area #3 – south of Steam Pit Area-Pier 7 apron.
OF-4	Outfall 004 – Storm Water Control Area #1 – Pier 6-gutter overflow.
OF-5	Outfall 005 – Storm Water Control Area #2, #4, #6, #9, #10.
OF-6	Outfall 006 – Storm Water Control Area #2 (new portion of pier-west end).
OF-7	Outfall 007 – Storm Water Control Area #7 – West of North Parking Lot.
OF-8	Outfall 008 Municipal Storm Drain – between train tracks and Building #1A-used as background. Storm Water control area 13
OF-9	Outfall 009 – Storm Water Control Area #5 – Outdoor structural area east of Building #13.
OF-10	Outfall 010 – Storm Water Control Area #8 – Vehicle maintenance area.
OF-11	Eliminated during North Parking Lot construction.
OF-12	Outfall 012 – Storm Water Control Area #8 – Maintenance area.

2 MANAGEMENT AND POLLUTION PREVENTION BMPS

This section describes 29 management and pollution prevention BMPs that are implemented at CMSD. Also, some structural and Area BMPs are included. The major Structural Storm Water Diversion BMPs are described and presented in SECTION 3: STRUCTURAL BMPs - STORM WATER DIVERSION SYSTEM." The complete storm water diversion BMPs were implemented on October 1st 2001.

The BMPs presented in Section 2 have been implemented and the Structural Storm Water Control BMPs are designed to complement existing BMPs to minimize the accumulation of pollutants and minimize the potential for contact between rainwater and potential pollutants.

Section 2 BMPs are divided into areas, management practices, procedures, and facilities. They describe pollutant sources, potential pollutants, and specific BMPs designed to minimize the potential for pollution. The following BMPs are included in Section 2:

2.1 HazMat Accumulation and Storage Area
2.2 Steam Cleaning Area
2.3 Baker Tanks and Tank Trucks
2.4 Operational Piers (Pier 4 and 6)
2.5 Non-Operational Piers, Approach Aprons and the Shoreline
2.6 Maintenance Area (Building 11 an 14)
2.7 General Trash Collection Area
2.8 Recyclable Materials Collection Area
2.9 Paint Storage Area

2.10 Roadways and Shipping/Receiving Areas
2.11 Outdoor Structural Fabrication Area
2.12 Hazardous Material and Waste Storage Areas
2.13 Grit Blasting and Outside Paint Area (High Risk Area)
2.14 Shipboard Blasting and Painting
2.15 Shipboard Oil and Fuel Transfer
2.16 Bilge and Contaminated Ballast Water
2.17 Shipboard Black and Grey Water Control
2.18 Pipe System Testing and Flushing Operations
2.19 Barge Dry-Docking Small Projects
2.20 Over Water Activities
2.21 Storm Drain Protection
2.22 Pier Scuppers and Drains
2.23 CMSD Saltwater Fire System
2.24 Saltbox Discharges
2.25 Area Storm Water Segregation
2.26 Off-Site Graving Dock and Floating Dry-Dock Clean Up
2.27 Mixing of Paints and Other Hazardous Materials
2.28 On-Site and Off-Site Emergency Spill Response
2.29 CMSD Hazardous Waste Management

2.1 HazMat Accumulation and Storage Area

The HazMat Accumulation and Storage Area is located directly adjacent to the Steam Pit and the Main Parking Lot. This area is utilized for Central Accumulation of wastes such as paints, solvents, acids, and other regulated hazardous substances. The area receives waste from satellite accumulation points throughout the shipyard. Workers in this area properly commingle and package the waste for off-site transportation, treatment, and disposal. The following table displays the BMPs employed in this area.

Area	Potential Sources	Potential Pollutant	Best Management Practices
HazMat Accumulation and Storage Area	Spills during transfer Insufficient secondary containment Incompatibility reactions	Paints Acids Caustics Oils Gases	The entire storage area is surrounded by curbs and berms that serve as secondary containment, which provide sufficient volume in case of spills and leaks. The surface area of the waste storage area is free from cracks and gaps, and impervious to contain leaks and spills until they can be pumped and cleaned out. When the containment area or individual containment areas accumulate rainwater, the

Area	Potential Sources	Potential Pollutant	Best Management Practices
	Seepage of spilled materials Insufficient clean-up of spills Puncturing aerosol cans	Etc.	Tank Department is contacted to pump out residual water and discharge into the treatment system. Incompatible materials (e.g., ignitable, corrosive, reactive, toxic) are handled as necessary to preclude chemical/physical reactions. Frequent area inspections will help certify that secondary containment berms are in proper condition before work begins. CMSD will employ frequent housekeeping practices such as broom sweeping, spill/leak clean-up, area organization, and other specific functions. All leaks in primary or secondary containment must be reported internally and repaired immediately. The area is covered to minimize pollutant contact with rain water. All hazardous waste workers are properly trained in Hazardous Communications, BMPs and other spill prevention control practices. Aerosol cans punctured in a carbon filtered can puncturing system. This area is located in the Structural BMP Storm Water Control Area #9 (See Section 3)

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.2 Steam Cleaning Area

It is frequently necessary to steam clean various parts and equipment for ship repair and shipyard facility maintenance. The steam cleaning process can pose a threat of polluting surface water, if not managed properly. Materials removed during the steam cleaning process primarily include grease and oily grime. The steam cleaning area has a full containment berm, a sump, pump, and an oil/water separator. The wastewater generated by the steam cleaning area is later processed through the oil water separator system. The following table displays the BMPs employed in this area.

Area	Potential Sources	Potential Pollutant	Best Management Practices
Steam Cleaning Area	Leaks in the containment walls can lead to storm drains Overspray may deposit grime outside of the bermed area Excessive spills may overflow the bermed area Rainfall may cause containment overflow if not managed properly (i.e. pump not operated) Oil Water Separator	Oily water Grease Solvents Other petroleum products Grime	The steam cleaning area is fully contained by an impervious surface and berms capable of containing process waters. Any leaks or deficiencies in the secondary containment must be reported and repaired immediately. Frequent area inspections will help certify that secondary containment berms are in proper condition before work begins. The area will employ frequent housekeeping practices such as broom sweeping, spill/leak clean-up, area organization, and other specific functions. The containment area is of sufficient volume to capture a minimum of 1/2 inch of rain at any one time and discharge the rainwater to the Storm Water Diversion Tanks. Individuals in the area are trained to minimize overspray caused by the high-pressure sprayer. If objects are large and there is a high likelihood that overspray will exit the contained area, tarps and other facilities are put in place to prevent overspray from projecting outside the bermed area. When a secondary containment area or container accumulates rainwater, the Tank Department shall be contacted to pump out residual water and discharge into a holding tank. The bermed area is sufficient in size to contain any spills inside the contained area. If detergents and/or solvents are used in the steam-cleaning units, they must first be approved by Environmental Health and Safety. Oil water separator tank double walled. This area is located in the Structural BMP Storm Water Control Area #6 (See Section 3)

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.3 Baker Tanks, Tank Trucks and Oil Storage Tanks

Large quantities of oil and oily water are collected, pumped, transported, and stored within the shipyard. Fuel oil, bilge water, and tank cleaning wastes from vessels are the primary sources of oil. Baker tanks and other large portable equipment are used throughout the shipyard. Baker tanks range in size from 10,000

to 22,000 gallons in capacity. They are used for a variety of bilge water, gray water and other process water and oil storage. Tanks provide temporary storage prior to sampling on-site treatment or transport for off-site disposal. The CMSD Industrial User Discharge (IUD) Permit allows direct baker tank discharges when properly documented. Tanks are generally positioned on one of the two operational piers or at the foot of the pier. Tanks and associated hose assemblies must be in a secondary containment area. Generally, individuals who operate the Baker Tanks are trained in shipyard Person-In-Charge (PIC) as required by the US Coast Guard. The following table displays the BMPs employed in areas that contain Baker tanks and other oil storage situations:

Area	Potential Sources	Potential Pollutant	Best Management Practices
Baker Tanks, Tank Trucks, and Oil Storage Tanks	Spills related to noncompliance with the Operational Manual Procedures Equipment Failure Leaking Equipment	Oily bilge waters Ballast waters Working fluids Abrasive materials	The storage tanks must be surrounded by a curb, dike, berm, or some other secondary containment system that provides sufficient volume to contain possible spills. Secondary containment is always in place when making or breaking hose connections. Drip pans shall be utilized as temporary containment when any leaks are discovered. Inspections of operational hoses, tanks, containment and associated equipment are routinely conducted. Appropriate amount of emergency spill response equipment including oil absorbent materials and oil containment booms must be provided for containment and cleanup. Tanks placed in the vicinity of storm drains or on piers must have sufficient secondary containment. All leaks in primary or secondary containment must be reported and repaired. When a secondary containment area or container accumulates rainwater, CMSD shall pump out residual water and dispose through on-site treatment system. The area will employ frequent housekeeping practices such as broom sweeping, spill/leak clean-up, area organization, and other specific functions. Tanks are always located in the Structural BMP Storm Water Control Area (See Section 3)

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.4 Operational Piers (Pier 4 and 6)

CMSD has two major categories of piers, which include operational and non-operational. The two main piers are considered to be operational piers, in that they are used continuously for repair activities. On the other hand, CMSD has several piers that are considered non-operational, because these piers are not used for repair operations. Non-operational piers are used primarily for some material storage, some temporary docking and barge storage. Operational piers 4 and 6 are of main concern with respect to potential pollution of the Bay. The following table displays the BMPs employed on the operational piers.

Area	Potential Sources	Potential Pollutant	Best Management Practices
Operational Piers (Pier 4 and 6)	Spills on the piers during storage Spills during transportation Contaminated storm water run off Wind conveyance of general trash and grit Oil Water Separator	Oil Oily water Grit Paint General debris Caustics Fuel Hydraulic Oil Hazardous waste Etc.	The operational piers are cleaned on a regular basis in order to minimize the loss of accumulated debris (e.g., general trash) to adjacent waters. Housekeeping practices such as broom sweeping, spill/leak clean up, and area organization is standard. All grit blast media on the piers is swept up and stored for disposal at the end of work each shift or immediately, if rain is imminent. Secondary containment is in place before production processes occur that use materials that require secondary containment. When a secondary containment area or container accumulates rainwater, CMSD Tank Department shall be contacted to pump out residual water. When breaking hose connections, secondary containment is always in place. Drip pans are used as temporary containment. All liquid and materials handling is to be performed furthest from scuppers on the pier. There shall be no staging of materials and equipment in front of scuppers. Scupper screens are to be in-place and cleaned periodically and all refuse disposed of properly. Scuppers shall be closed with visqueen and sandbags when performing high-risk operations. Oil water separator monitored by CMSD tank personnel only and effluent tested prior to discharge. Spills of oils, paint, solvents and saturated soils are immediately cleaned up and disposed of properly.

Area	Potential Sources	Potential Pollutant	Best Management Practices
			This area is located in the Structural BMP Storm Water Control Area #1 and #2 (See Section 3)

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.5 Non-Operational Piers, Approach Aprons and the CMSD Shoreline

CMSD has two major categories of piers, which include Operational and Non-Operational. The majority of piers at CMSD are considered Non-Operational, because these piers are not used for repair operations. These piers are used mainly for material storage, temporary docking and barge storage. Non-Operational piers 1, 2, 3, and 5 are not of primary concern with respect to potential pollution of the Bay. Included with this area of concern, are the CMSD shoreline and approach aprons. The CMSD approach aprons are very similar to non-operational piers in that they are wood structures, over water, with no industrial activity actually occurs at these locations. Approach aprons are generally used for office space and some material storage. The shoreline is included in the inspection of non-operational piers and approach aprons. The shoreline accumulates debris that floats in from the bay and CMSD frequently removes this material from the shoreline. The following table displays the BMPs employed on the Non-Operational piers and the Shoreline.

Area	Potential Sources	Potential Pollutant	Best Management Practices
Non-Operational Piers, Approach Aprons and the CMSD Shoreline	Spills that leak directly into the bay Equipment failure (piping system failures) Tidal action can cause discharge Wind action	Sanitary wastes Oil leaks Marine organisms General debris	The entire yard, including non-operational piers and approach aprons that are not used for repair operations are inspected on a regular basis to minimize the loss of accumulated debris (e.g., general trash) to adjacent waters. All refuse including but not limited to: paper, cans, bottles, wood, steel, and other fabrication and construction materials are to be removed from the piers and properly disposed. When equipment is placed for operation or storage on “non-operational piers”, and have the potential for leakage, fluid containment pans must be used. All piping systems on the non-operational piers are inspected on a routine basis to ensure there are no leaks or other potential discharges.

Area	Potential Sources	Potential Pollutant	Best Management Practices
	Storm water flows		All leaks and potential problems are reported to the BMPC and rectified as soon as possible. CMSD cleans up and removes debris that has accumulated along the shoreline from the bay on a routine basis. Accumulated waste on the shoreline is disposed of properly. The areas will employ frequent housekeeping practices such as broom sweeping, spill/leak clean-up, area organization, and other specific functions. Office space and material storage on non-operational piers and approach aprons will not include hazardous material storage or hazardous waste accumulation unless approved by the Environmental Health and Safety Department.

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.6 Maintenance Area (Buildings 11 and 14)

The CMSD maintenance area is where all production support equipment repairs are performed. Repairs can include total engine rebuilding, tune-ups, working fluid changes, parts degreasing, painting, and a wide assortment of maintenance activities. The maintenance area has two storm drains directly associated with the work area. A manual valve controls storm drain #10, which is positioned in a potential spill area. The valve is to remain closed to prevent accidental spill from leaking into the storm drain system. The area is also bermed to ensure that rainwater from the maintenance area does not flow into the non-industrial parking lot areas. The following table displays the BMPs employed in the CMSD maintenance area.

Area	Potential Sources	Potential Pollutant	Best Management Practices
Maintenance Area	Accidental spills Spills not cleaned up properly Improper	Oils Hydraulic fluids Waste water Solvent	CMSD has established procedures and practices to ensure that general clean up practices occur in the maintenance areas on a regular basis. The area will employ frequent housekeeping practices such as broom sweeping, spill/leak clean-up, area organization, and other specific functions. Spills of oils, paints, solvents and other

Area	Potential Sources	Potential Pollutant	Best Management Practices
	labeling or storage Incompatible material reactions Storm water overflow the containment system	Paints Coolants Fuel Contaminated storm water	potential pollutants are immediately cleaned up. To ensure that pollutants are not transferred to the storm drains in the event of rainfall, a valve is installed on maintenance storm drain #10. The storage of toxic, corrosive, reactive or ignitable materials and wastes will comply with fire codes and environmental regulations. Incompatible materials are handled as necessary to preclude chemical or physical reactions. All maintenance areas are free of cracks and gaps, and impervious to contain leaks and spills until they can be cleaned up. All used oil filters; used oil and other wastes are accumulated, stored, and transferred in an approved container. All waste accumulated in the area must be labeled properly (e.g., “drained used oil filters,” “hazardous waste”, etc.). When the secondary containment area accumulates rainwater, the CMSD Tank Department shall be contacted to pump water into the treatment system. This area is located in the Structural BMP Storm Water Control Area #8 (See Section 3)

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.7 General Trash Collection Area

The general trash collection area is located directly on the bay side of the steel structural and Machinery Shop #12. This area includes three drag-on boxes approximate 30 feet in length. The boxes are located on a sloped concrete foundation. The foundation has a slope designed to collect all of the rainwater in sumps at the end of the foundation. Accumulated rainwater is collected and treated on-site prior to disposal to local POTW. The following table displays the BMPs employed in the general trash collection area.

Area	Potential Sources	Potential Pollutant	Best Management Practices
General Trash Collection Area	Wind may blow trash into the bay Storm water may wash trash into the bay	General trash Plastic Wood Paper Styrofoam Contaminated rain water	The general trash area is cleaned up on a regular basis with yard-wide clean-up practices. During extremely windy conditions, trash containers are covered, roped or the debris is compacted to keep the control of the waste. Storm water accumulated in this area is directed through a sloped surface to a sump that is pumped out after rainfall. The accumulated storm water is transported to a Storm Water Diversion Tank. The area will employ frequent inspections and housekeeping practices such as spill/leak clean up, area organization, and other related functions. Material control practices are in place to ensure that debris is not lost during the transfer process. The area is cleaned up immediately following transfer processes to ensure good housekeeping. This area is located in the Structural BMP Storm Water Control Area #10 (See Section 3)

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.8 Recyclable Materials Collection Area

This area is located directly to the North of the Steel Structural Building #13. This area is where all ferrous and nonferrous materials are collected for recycling. The area has a roof installed to ensure that rainwater does not mix with the recyclable material. This area is also contained in an area that is sloped to ensure that storm water is not commingled with recyclable material that may be on the ground. The following table displays the BMPs employed in the recyclable materials collection area.

Area	Potential Sources	Potential Pollutant	Best Management Practices
Recyclable Materials Collection Area	Storm water wash down of materials to the bay Wind may	Ferrous metals Nonferrous metals including aluminum	The area will employ frequent housekeeping practices such as broom sweeping, spill/leak clean-up, area organization, and other specific functions. Rainwater is diverted from the containers and the immediate area by means of a sloped roof and a berming system.

Area	Potential Sources	Potential Pollutant	Best Management Practices
	blow materials into the bay	copper and tin Associated cutting oils and greases	housekeeping. This area is located in the Structural BMP Storm Water Control Area #10 (See Section 3) Containers and the area will have lids or other means of containment when required to ensure that wind does not carry potential pollutants to the grounds or the bay. Practices are in place to ensure that debris is not lost during the transfer process. The area is cleaned up immediately following transfer processes to ensure good

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.9 Paint Storage Area

The Paint Storage Area is located directly behind the Blast and Paint High-Risk Area. The paint storage area is completely bermed, caged and has a roof system. New paint and solvent materials are brought to this area and stored for later distribution and usage. In this area, materials are stored in 1gallon, 2.5 gallon, 5 gallon or 55 gallon containers. Some material transfer operations may be conducted in this area, although the area is mainly used for shipping, storage, and receiving. The following table displays the BMPs employed in the paint storage are:

Area	Potential Sources	Potential Pollutant	Best Management Practices
Paint Storage Area	Spilled paint during shipping and receiving Leaking containers Spilled paint during transfer	Paints Solvents	A curb and berm surrounds the paint storage area that provides sufficient volume to contain spills and leaks. The storage area is kept free of cracks and gaps, and impervious to contain leaks and spills until they can be cleaned up. The paint storage area also has a roof system in place to prevent direct rainfall on containers and in the containment area. The paint storage area is fenced in and locked when the area is not in use. Incompatible materials are not stored in this storage area as a standard practice. Paint materials transported to and from the storage

Area	Potential Sources	Potential Pollutant	Best Management Practices
			area shall be packaged correctly to ensure that they do not tip over during transportation, shipping or receiving operations. All leaks in the primary or secondary containment system must be reported and repaired immediately. When the secondary containment area accumulates rainwater, the CMSD Tank Department is contacted to pump out residual water and discharge into CMSD Storm Water Diversion Tanks. This area is located in the Structural BMP Storm Water Control Area.

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.10 Roadways and Shipping/Receiving Areas

There are numerous roadways throughout the shipyard where hazardous materials are transported. Transportation equipment consists of forklifts, trailers, trucks, cranes, mule trains and others. In many cases, the surface of the roadways can vary throughout the shipyard and spills can occur if the loads are not properly secured. The risk for spills is minimal if materials are packaged correctly and drivers observe standard driving practices. The majority of CMSD roadways are smooth and do not present spill hazards although storm drain #16, located in a high traffic area has a valve to prevent potential spill discharges. The valve remains closed during normal business operations and is opened during storm events. Practices are in place at shipping and receiving areas to minimize potential spills and to package materials properly for transportation in the shipyard. The following table displays the BMPs employed on CMSD roadways and at shipping and receiving areas.

Area	Potential Sources	Potential Pollutant	Best Management Practices
Roadways, and Shipping and Receiving Areas	Spills during transportation caused by an unsecured load Spill in shipping and receiving due to improper handling	All materials used in the shipyard are transported and received	In order to minimize the potential for spills during transportation, hazardous materials and wastes are to be secured to transportation pallets with cellophane wrap, nylon strap/rope, or another method that helps to prevent spills from occurring. Wastes and materials are not transported unless the containers are properly closed. This may include secured lids, plugged bungs, etc. Materials being transported on the same pallet will always be compatible with one another.

Area	Potential Sources	Potential Pollutant	Best Management Practices
	Spills caused by unsealed containers Spills caused by overloading Spills that occur near storm drains		Loads are kept to a reasonable size during transportation in the CMSD facility. All hazardous waste and materials being transported in the shipyard must be labeled in accordance with local, State and Federal labeling requirements. The MSDS must be readily available for transportation employees to understand the hazards associated with the materials they are handling. Transportation department employees are trained in proper loading techniques as well as driving practices to minimize spills and other accidents. All transportation department employees at CMSD are made aware of the risks associated with spilling hazardous materials and waste and the contents of the BMP program. Roadway areas are located in several Structural BMP Storm Water Control Areas (See Section 3.0)

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.11 Outdoors Structural Fabrication Area

The CMSD Outdoor Structural Fabrication area is located directly east of the structural building #13. This area is used mainly for steel structure and material storage although; production operations are periodically conducted in this area. The operations include grinding, cutting, welding, and other structural fabrication operations. This area contains three storm drains. The drains are in transportation pathways that are smooth, which minimizes the potential for spills. This area is segregated from the parking lot storm waters by means of a berming system. The following table displays the BMPs employed in the outdoor structural fabrication area.

Area	Potential Sources	Potential Pollutant	Best Management Practices
Outdoor Structural Fabrication Area	Storm water flows through the industrial area	General trash Grinding dust	CMSD has established procedures and practices to ensure that adequate clean-up occurs in this work area, which includes broom sweeping and trash removal. All refuse including but not limited to paper,

Area	Potential Sources	Potential Pollutant	Best Management Practices
	Spills from stationary equipment Spills from transportation of hazardous materials Process water discharge	Welding residues Equipment working fluids	cans, bottles, wood, steel, and other fabrication and construction materials are to be removed from the area and properly disposed. Spills of oils, hydraulic fluid, coolant and other working fluids are immediately cleaned up and disposed of properly. This will ensure that pollutants are not transferred to the bay in the event of rainfall. Secondary containment is used when storing materials in this area that have the potential for spillage or leakage. Transportation employees are trained in spill prevention, which minimizes the likelihood for an accident near storm drains. All process waters in the structural area are not discharged to the storm drain system. All process waters in the area are controlled and managed properly. This area is located in the Structural BMP Storm Water Control Area #5 (See Section 3

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.12 Hazardous Materials and Waste Storage Areas

There are several areas throughout CMSD where hazardous materials and wastes are stored. It is a standard practice to provide storage areas for hazardous materials and hazardous wastes such as oils, paints, gases, solvents, grit blast media, and others, in a location that reduces the probability that spillage does not enter pathways leading to San Diego Bay. The following table displays the BMPs employed by CMSD to prevent pollution caused by hazardous materials and wastes stored throughout the facility.

Area	Potential Sources	Potential Pollutant	Best Management Practices
Hazardous Materials and Waste Storage Areas	Spilled materials Improper material use	Solvents Paints Coolants Acids	Hazardous material/waste storage areas must be adequately posted/placarded or otherwise made distinguishable in order to maximize visibility. Hazardous material must be stored in appropriate storage cabinets when not in use. Containers will have lids and bungs in place when they are not in use.

Area	Potential Sources	Potential Pollutant	Best Management Practices
	Unidentified materials Fires and Explosions	Lubricants Abrasives Caustics Cleaners Adhesives Oils and other working fluids	Secondary containment systems shall be used when storing hazardous materials/wastes. Containers holding hazardous materials/wastes shall be in good condition with no visible signs of server rust or with any apparent structural defects. Incompatible hazardous substances shall not be stored next to one another. All containers must be handled in a manner as to prevent ruptures to containers or cause leaks. Hazardous material labels must be visible for inspection on each container. Satellite 90-day waste accumulation labels must be properly completed for waste storage in production buildings. Waste accumulation areas must also have secondary containment in place. CMSD will inspect containment system and other equipment regularly to minimize the potential for spills. All employees are trained in Hazardous Communications and review all MSDS' prior to using hazardous materials. CMSD personnel shall not remove or intentionally deface existing labels on hazardous material containers. All unlabeled products that are unable to be identified must be disposed immediately with guidance from the Environmental Health and Safety Department. All CMSD developed labels must be written legible and in permanent marker. Hazardous Material and Waste Storage areas are located in several Structural BMP Storm Water Control Areas (See Section 3.0)

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.13 The Outside Grit Blasting and Paint Area

The majority of CMSD shore-side grit blasting and painting is performed outdoors in an area that is designated as high-risk for storm water pollution. When storm water comes into contact with this area, it will come into contact with contaminants that remain on the ground. The first flush of rainwater has the highest potential for storm water contamination and is therefore not discharged to San Diego Bay. This area, as with all industrial areas, is controlled with a system of

berms in combination with a sump, pump and tank system to collect all rainwater and process water in the area. The tank has sufficient volume to contain in excess of 2 inches of rain. All storm water is collected and diverted to the POTW. Paint and blast overspray containment structures are erected over products being processed. The following table displays the BMPs employed in the grit blasting and outside paint area.

Area	Potential Sources	Potential Pollutant	Best Management Practices
The Outside Grit Blasting and Paint Area (High Risk Area)	Paint overspray Fugitive grit blast materials Spills in the area. Run-on and run-off from process areas	Abrasive materials Painting materials Solvents	This area has full surface containment. The area is bermed and all rain is collected, treated and discharged to the POTW. All spills are cleaned up immediately When mixing paint, open containers must be under observation at all times and not left unattended. During painting and blasting operations, a full enclosure is assembled to eliminate paint overspray and fugitive grit blast emissions, from exiting the bermed area. Enclosure structures include scaffolding used in conjunction with shrouding materials like eagle screen and shrink-wrap. The enclosure must be large enough to adequately enclose or segregate the blasting and painting emissions from areas outside the surface containment area. Abrasive blast materials and paint overspray is swept up daily to prevent it from escaping through wind action or material drag out. Used grit and overspray is disposed properly. Used grit will never be commingled with general trash. Immediate area sweeping is conducted after any processing activities such as painting or grit blasting are conducted that create a potential for storm water contamination. This areas is also defined as Structural BMP Storm Water Control Areas #4 (See Section 3)

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.14 Ship Repair Blasting and Painting

Abrasives blasting and painting are important tasks performed when a vessel is docked for repairs and maintenance. The process typically involves blasting vessel parts, upper decks and interior compartments and tanks, with copper slag, or steel shot, to prepare the surface for new paint. During the blasting process,

spent abrasive is generated and must be cleaned up and contained on a regular basis. Painting operations are performed after the blasting process is complete. Paint materials and waste are handled in such a manor to minimize the potential for spills and releases to the bay. In order to minimize the potential for discharges to San Diego Bay, either directly or by surface runoff, shrouding is installed around all blasting and painting operations. Shrouding not only reduces the scattering effects of wind but also minimize the potential area of contamination. The following table displays the BMPs employed by CMSD for shipboard blasting and painting operations:

Area	Potential Sources	Potential Pollutant	Best Management Practices
Ship Repair Blasting and Painting	Fugitive abrasive material directly discharged into the bay Fugitive abrasive washed into the bay Improper disposal of grit waste Fugitive paint overspray discharge directly into the bay Paint spills	Paint materials, overspray and waste Blasting materials, fugitive emissions and waste	CMSD will transport and store abrasive blast grit material in a manner that prevents contact with process water and/or exposure to rainwater. Grit will not be stored near high-risk areas (e.g., storm drains, scuppers etc.). All containers used to store spent abrasive blast material shall be labeled "Excluded Recyclable Material, Grit Blast Only, No Trash". CMSD always segregates general refuse from abrasive blast grit material. This is frequently accomplished by means of a screening process, which typically occurs prior to disposal. Containment such as tarpaulins, shrouds or portable structures are utilized wherever possible to control airborne paint and blast particles. This is performed on vessel superstructures and in the blast area. Scattered abrasive material is swept up daily to prevent it from escaping into the bay. Shipboard and pier-side scuppers shall be closed off when there is high potential for spills. All paint mixing operations are conducted in a secondary containment area. Oil spill containment booms are placed around all ships berthed during painting and blasting operations. On-site reserve boom equipment is ready to deploy for spills requiring additional containment. Procedures are developed for deployment and cleanup

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.15 Shipboard Oil, Oily Water and Fuel Transfer

CMSD transfers several fluids over water during ship repair and maintenance. Due to the proximity to the bay, these processes are considered to be very risky for water pollution. The US Coast Guard regulates the process of transferring these materials over water from ship to shore. CMSD's Operations Manual identifies all procedures and practices associated with proper transfer operations. CMSD and subcontractors are qualified to perform these operations in compliance with the Operations Manual. Qualified individuals are trained and designated as Persons-In-Charge (PIC). The following table displays the some of the BMPs employed at CMSD for oil and fuel transfer operations.

Area	Potential Sources	Potential Pollutant	Best Management Practices
Shipboard Oil and Fuel Transfer	Spills due to equipment failure Spills due to human error Spills due to lack of containment	Fuel Oil Oily water Bilge water Ballast water Hydraulic Fluids Other working fluids	All persons involved with transfers over water must be trained in the shipyard Person in Charge (PIC) program and the BMP program. All individuals involved must follow the procedures for transfers outlined in the Operations Manual. Subcontractors performing this activity must also have adequate training and evidence of this training. Equipment is inspected sufficiently before transfer begins as described in the shipyard Operations Manual. All hose connections shall be positioned in a secondary containment area on-board and pier-side. Oil containment booms are positioned around all ships during transfer operations. Reserve booms are available on-site, and ready to deploy for spills requiring additional containment. Procedures for the deployment and subsequent cleanup are prepared. All personnel responsible for the deployment of oil booms are also made aware of outfall locations. Any breaks observed on booms surrounding ships are repaired immediately. CMSD shall remove liquids in holding tanks positioned on the pier, as soon as practicable, to minimize accidental discharge or mixing with another materials.

Area	Potential Sources	Potential Pollutant	Best Management Practices
			All pumping, valves, metering, coupling equipment must be water-tight, and all leaks must be immediately repaired when discovered. Bilge water and contaminated ballast water discharge ports must be connected to a land-based collection system or an approved temporary holding vessel or tank. Secondary containment must be in place around all storage tanks and all drums.

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.16 Bilge and Contaminated Ballast Water

Vessels berthed for repairs generally are carrying bilge and ballast water that must be disposed of properly. Ballast water is typically seawater that has been pumped into the ship's ballast tanks to provide stability. Ballast water can become contaminated if it comes into contact with oils, solvents or other contaminants. On the other hand, bilge water collects in the lower compartments of the ship and is most often contaminated with solvents, oils, and heavy lubricants caused by leaking, pipes, valves, pumps, and fittings. Bilge water and contaminated ballast water discharge ports must be connected to a land-based receptacle or a storage tank. The bilge and contaminated ballast water may need treatment to remove potential pollutants prior to discharge to the local POTW. The objective of this BMP is to prevent the discharge of bilge and contaminated ballast water to the Bay and also unauthorized discharges to the sewer. The following table displays the BMPs employed for bilge and contaminated ballast waters:

Area	Potential Sources	Potential Pollutant	Best Management Practices
Bilge and Contaminated Ballast Water	Spills during transfer Insufficient Containment Equipment Failure Human error	Oily water Bilge water Grease Other petroleum products	Bilge and ballast waters are always tested to ensure proper treatment and disposal. Individuals involved with the transfer process are trained as Shipyard PICs. Transfer procedures and pollution prevention associated with the facility Operations Manual must be followed when transferring contaminated bilge and ballast waters. Bilge and contaminated ballast water shall not be discharged to the Bay or to storm drains. All piping, hoses, pumps and equipment must be inspected routinely for leaks. Repair all

Area	Potential Sources	Potential Pollutant	Best Management Practices
			defective equipment immediately when discovered. Contaminated bilge and ballast water is removed, as soon as practical, to minimize accidental discharge or mixing of the waste with another materials. Sufficient site storage must be made available to contain the volumes of bilge and contaminated ballast water on a daily basis. Secondary containment must be in place around all storage tanks. Booms shall be placed around all berthed vessels and barges to maximize containment of potential spills. This process is usually conducted on piers and Structural BMP Storm Water Control Area #1 and #2 minimize the potential for storm water pollution (See Section 3)

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.17 Shipboard Black and Grey Water Control

Ships under maintenance and repair at CMSD may produce grey water and black water. Grey water is wastewater, generated from within a vessel, and includes non-contact cooling water, shower water, lavatory water, or laundry detergent water. Black water includes raw sewage generated by shipboard lavatories. Both sanitary wastewater and gray water are taken from vessels docked at CMSD and pumped directly to the sewer or in some cases, to baker tanks positioned on the pier or at the foot of the pier. When collected in baker tanks the wastewater is off-loaded and transported to the nearest available POTW discharge point. The following table displays the BMPs employed at CMSD for black and grey water control.

Area	Potential Sources	Potential Pollutant	Best Management Practices
Shipboard Black, Grey and Flush Water Control	Spills and leaks for tanks and pumps Spills	Black water (raw sewage) Grey water (shower	Sanitary wastewater and gray water discharge ports from ships berthed at CMSD must be connected to a land-based collection system or an approved temporary holding vessel or tank. All discharge ports that are not connected to a land-based facility are closed with bungs or other

Area	Potential Sources	Potential Pollutant	Best Management Practices
	caused by equipment failure Spills or leaks at coupling and connections	water, sinks, etc.) Flush water Test water	type of capping mechanism. All sanitary waste discharged into holding tanks are discharged to the sewer, as soon as practicable, to minimize accidental discharge. All pumping, valves, metering, coupling equipment must be watertight, and all leaks shall be immediately repaired when discovered. Sufficient on-site storage must be made available to contain the volumes of sanitary water collected on a daily basis. Containment berms and secondary containment are in place around all black, grey, and flush water storage tanks and drums. Placement of the booms shall be installed to maximize containment of potential spills. CMSD has developed and follows specific procedures that explain how flush and test waters are recycled, treated, and/or disposed. Test and flush waters are handled in the same manner as black water for pollution prevention. All test and flush waters discharged to the local POTW in compliance with the CMSD IUD permit. This process is usually conducted on piers and Structural BMP Storm Water Control Area #1 and #2 minimize the potential for storm water pollution (See Section 3)

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.18 Pipe System Testing and Flushing Operations

CMSD often repairs piping systems on board ships that must be repaired or maintained. Many times, these systems need to be flushed and/or pressure (Hydro) tested with salt or freshwater. It is often necessary to flush or pressure test piping systems during ship repair operations. Some systems are cleaned and flushed with water that has chemical additives. CMSD must ensure that flush and test waters are not discharged directly to the bay or storm drains unless they are approved in the CMSD National Pollutant Discharge Elimination System (NPDES) permit. Similarly, all contaminated flush waters are handled safely, treated and disposed as necessary. The following table illustrates the BMP applied at CMSD system testing and flushing waters:

Area	Potential Sources	Potential Pollutant	Best Management Practices
Pipe System Testing and Flushing Operations	Improper discharge Spills	Caustic waters Contaminated flush water	All procedures associated with over-water transfer and grey and black water control are followed with respect to pipe system flush waters. Flush and test waters not identified on the NPDES permit shall not be discharged to the bay or storm drains. Flush and test waters not identified on the IUD Permit shall not be discharged to the sewer system, without approval from the Environmental Health and Safety Department. All chemical additives that are used in flush/test water must be approved by the Environmental Health and Safety Department, prior to use.

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.19 Barge Dry-Docking Small Projects

CMSD occasionally uses floating barges, or a pontoon, to dry-dock relatively small structures, to perform blasting and painting operations. Those products that may be repaired on production barges include anchors, anchor chains, floats, small boats, buoys, and other items that may be exposed to underwater organisms. Blasting, scraping, sanding and other types of surface preparation involve removing fouling organisms and old paint from surfaces. Marine fouling organisms and old paint are not to be introduced back into the bay. The organisms that are scraped off underwater surfaces may have paint attached to them and are therefore potentially toxic. During the removal operations, all waste including grit and fouling organisms must be contained in order to prevent discharge into the bay. The following table displays the BMPs employed at CMSD for barge dry-docking small projects.

Area	Potential Sources	Potential Pollutant	Best Management Practices
Barge Dry-Docking Small Projects	Fugitive abrasive material directly discharged into the bay Fugitive abrasive washed into the bay	Paint materials, overspray and waste Blasting materials, fugitive	See BMPs for Shipboard Blasting and Painting Operations because shrouding and control are very similar. Shrouding is used for both blasting and painting operations. It shall be large enough to enclose or segregate the blasting and painting emissions from the water.

Area	Potential Sources	Potential Pollutant	Best Management Practices
	Improper disposal of grit waste Fugitive paint overspray discharge directly to the bay Paint spilled into the bay Marine organisms discharged to the bay	emissions and waste Marine Organisms	Abrasive blast material and waste is stored in a manner that prevents contact with process water and/or exposure to rainwater. Scattered abrasive and paint dust may be blown and trapped under the shroud and at the base of the shrouding. This material is swept up daily to prevent it from escaping into the bay. Pontoons and work barges will have secondary containment around the item being repaired. Items repaired include small boats, barges, anchors, etc. Pontoon scuppers and free ports shall be closed off when there is high potential for spills. All marine organism scrapings are lab tested, and manifested as non-hazardous waste and disposed in appropriate landfill. All paint-mixing operations are conducted in

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.20 Over Water Activities

The repair of vessels is often performed while the ship is berthed at piers. Work on the outer side of the ship is usually performed with the use of floats, lighters, pontoons or other working barges. The floats are the same as those used for small project dry-docking except the work is performed on the ships outer hull over water. These floats are used while performing abrasive blasting, chipping, grinding, spray painting, welding/burning and other related hull repair operations. Much of this work generates trash and pollutants, which potentially may fall into the bay. The main objective is to provide a surface and shrouding to catch pollutants when work is performed on berthed vessels when there is the potential for pollutants to enter the surface water. The following table displays the BMPs used in this area:

Area	Potential Sources	Potential Pollutant	Best Management Practices
Over Water Activities	Fugitive abrasive material directly	Paint materials, overspray and waste	See BMPs for Shipboard Blasting and Painting Operations and Barge Dry-Docking Small Projects. Pontoons and work barges will have secondary containment in-place around the item being

Area	Potential Sources	Potential Pollutant	Best Management Practices
	discharged into the bay Fugitive abrasive washed into the bay Improper disposal of grit waste Fugitive paint overspray discharged directly into the bay Paint spilled or washed into the bay Marine organisms scraping	Blasting materials, fugitive emissions and waste Marine Organisms	repaired. Pontoon scuppers shall be closed off when there is high potential for spills. Shrouding used for both blasting and painting operations shall be large enough to enclose or segregate the potential emissions from the water. Abrasive blast material and waste is stored in a manner that prevents contact with process water and/or exposure to rainwater. Scattered abrasive and paint dust may be blown and trapped under the shroud and at the base of the shrouding. This material is swept up daily to prevent it from escaping into the water surface. Contaminated shrouding material and equipment is cleaned and/or disposed of properly. All paint mixing operations are conducted in the secondary containment area. Oil spill containment booms are placed around all ships berthed at CMSD that present a possibility for discharges while berthed at the facility. Especially during painting and blasting operations. Tarpaulins and shrink-wrap must be positioned adjacent to the vessel hull prior to work being performed. Effective shrouding must be properly designed, constructed, positioned and erected. Special attention shall be given to existing wind and weather conditions in order to further minimize discharges to San Diego Bay

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.21 Storm Drain Protection

Storm water runoff is the flow of surface water resulting from rainfall. In most cases, storm water runoff is directed to storm drain inlets that are present throughout the shipyard. The majority of storm drains have been redirected at this facility. They have been diverted to tanks on site and the water is later discharged to the local sewer. In some cases, storm drain area have overflows due to malfunctioning pumps or extreme volumes. See Structural BMP Storm Water Control Areas that eliminate storm drains in the shipyard (See Section 3.0). The following table displays the BMPs employed in the shipyard for storm drain overflow protection.

Area	Potential Sources	Potential Pollutant	Best Management Practices
Storm Drain Protection	Contaminated storm water Direct discharge of spills Process water discharges General shipyard debris	Abrasives Petroleum runoff Paints Solvents Nearly all hazardous materials on site	All storm drains are fitted with grate screens that help stop pollutants such as trash, and construction materials from entering into the storm drain system. All storm drains within the shipyard shall be cleaned periodically. Signs are painted on all storm drains that state “All Discharges Prohibited”. Storm drains are never utilized for disposal of paints, solvents, oils, trash, abrasive grit blast, wastewater, or any other substance, other than storm water. There is no storage of hazardous wastes or hazardous material near storm drains, unless the material or waste is held within a secondary containment system. Storm drain control valves are installed in four (3) storm drains where there is the potential for pollutants to enter the drain. If a spill of a hazardous pollutant occurs near a storm drain, absorbent material or pads are immediately used to construct a curb or berm to prevent the pollutant from entering the drain. Similarly, storm drain protection covers are also excellent emergency response materials to minimize spill losses to the bay. Note: Structural BMP Storm Water Control Areas have been implemented to eliminate direct discharge of storm drains from industrial areas at CMSD (See Section 3)

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.22 Pier and Shipboard Scuppers and Drains

Rainfall on piers discharges to a storm water control system (See Section 3.1 and Section 3.2. This system is intended to collect storm water associated with the pier areas. However, shipboard decks discharges to the San Diego Bay unless they are blocked or processes are control. Therefore, storm water BMPs are needed to prevent pollution from the piers and shipboard decks are required. The following table presents the BMPs designed to minimize the potential for pollution:

Area	Potential Sources	Potential Pollutant	Best Management Practices
Pier Scuppers and Drains	Contaminated storm water Direct discharge of spills Process water discharges	Abrasives Paints Waste Paint overspray Salts Grinding dust Etc.	Good housekeeping procedures are implemented. Areas will direct access to drains and scuppers should be broom cleaned on a periodic basis to ensure that storm water contamination is minimized. Contaminated piers and shipboard decks are cleaned immediately if rain is imminent. No liquid discharges are permitted to come into contact with pier or deck surfaces. For example, waters could come into contact will contaminants and discharge through scuppers and drains. Handling potential pollutants (i.e. paints, solvents, oils, etc.) shall be performed at the greatest point possible from scuppers and in a secondary containment area. All scuppers and drains are capped or otherwise plugged when high spill risk operations are conducted. A secondary containment area is in place for waste accumulation and chemical storage on the piers and onboard ships when necessary. Similarly, all large portable tanks will have sufficient secondary containment. All spills must be reported and cleaned up.

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.23 CMSD Saltwater Fire System

CMSD saltwater fire systems are designed to supply pressurized saltwater to vessels berthed at piers in the shipyard. Saltwater fire systems use saltwater pumped from the bay to the ships on-board fire protection system. Facility pumps distribute saltwater to vessels through piping systems at piers and along the shoreline. Saltwater is returned to the bay through discharge points on vessels and at the end of piers. The discharge of salt water back to the Bay from this process is authorized by the shipyards National Pollutant Discharge Elimination System (NPDES) Permit. A condition of the NPDES Permit is that the shipyard can only discharge water that is non-contact and free of pollutants. Non-contact water is defined as water that does not come in contact with any manufacturing processes or chemicals. To ensure that all discharges from saltwater fire systems are non-contact and free from pollutants, the following BMPs are implemented at CMSD.

Area	Potential Sources	Potential Pollutant	Best Management Practices
CMSD Saltwater Fire System	Improper contamination of fire system Fire water contact with potential pollutants	Chemical additives Machinery working fluids Scale and corrosion	No chemical additives such as chlorine are to be introduced into the saltwater fire systems. No saltwater fire system water shall come into contact with any external equipment, machinery, or manufacturing/repair processes. All saltwater fire systems (pumps and piping) are properly maintained to prevent the buildup of scale and corrosion.

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.24 Saltbox Discharges

Saltboxes are used to test the electrical conductance of components of vessels. The conductance tests are normally performed on-board the vessel at pier-side. These saltboxes can use large amounts of water during the test operation. This water is normally non-contact, in that it does not contact any potential pollutants and can be discharged back into the bay. However, CMSD has a policy to process all saltbox water through the Storm Water Diversion System and discharge the water to the POTW. This policy is implemented because; occasionally the saltbox water becomes contaminated with chemical additives or other potential pollutants, and therefore cannot be discharged back into the bay. Also, saltbox tests also raise the temperature of the water. Before saltbox water can be discharged to the bay, the water must be at ambient temperature. The BMPs implemented to prevent the discharge of contaminated or high temperature saltbox water to the Bay are listed in the following table:

Area	Potential Sources	Potential Pollutant	Best Management Practices
Saltbox Discharges	Discharge of contaminated water to the bay	Contaminated saltbox water High temperature saltbox water	All saltbox waters will be treated and disposed in the CMSD Storm Water Diversion system. Saltbox water must not be discharged directly to the ground or the ship's deck. Use piping or hoses to ensure that the water is not contaminated during the transfer process. If possible, do not add chemicals to the saltbox water.

Area	Potential Sources	Potential Pollutant	Best Management Practices
			Water from saltboxes cannot be discharged to the Bay or to storm drains. The water must not be allowed to become stagnant or exposed to contamination.

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.25 Area Storm Water Segregation

Storm water pollution prevention is a priority at CMSD. Storm water is controlled at CMSD in a number of ways to minimize the potential for pollutants to be washed to San Diego Bay. One of the most important aspects is storm water segregation. Storm water segregation includes facilities that are designed to separate storm water flows (run-on and run-off) from Parking Lot/Non-industrial Areas, High-Risk Areas, and Industrial Areas. See Structural BMP Storm Water Control Areas (Section 3.0) the following table outlines storm water segregation at CMSD:

Area	Potential Sources	Potential Pollutant	Best Management Practices
Area Storm Water Segregation	Run-on and runoff from process areas	Potential storm water contamination varies from one area to another (e.g., industrial areas and non-industrial areas) Contaminants may include grit paint overspray, metals and general refuse	Parking Lots/Non-Industrial Areas: CMSD parking lots have no industrial activity and are separated from CMSD industrial areas and neighboring facilities by berms and natural contour of the facility. Separation occurs by means of berms, walls, and natural storm water sheet-flow. CMSD Industrial Areas: CMSD Industrial Areas are identified as shipping/receiving areas, transportation routes, non-hazardous material storage, vehicle maintenance area, and other production areas. All areas in the shipyard that are not designated as Non-industrial or as High-Risk Areas are considered to be Industrial Areas. These areas have storm water control systems implemented in a similar manor as High Risk Areas. CMSD High-Risk Areas: CMSD has High Risk Areas where storm water is segregated by berms, treated, and disposed to the local POTW. These areas include the Steam Cleaning Pit, Hazardous Waste Accumulation Area, the Blast

Area	Potential Sources	Potential Pollutant	Best Management Practices
			and Paint Area, and other temporary secondary containment areas. Rain water entering all bermed areas that are designed to contain spills. The main area that is included in this high-risk area classification is the Paint and Blast Area. This is an outdoor area that is completely bermed and includes a sump, pump, and tank mechanism to collect storm water in the area. The system is designed to collect and treat all storm water from this area. See Section 3.0.

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.26 Off-Site Graving Dock and Floating Dry-Dock Clean Up

Vessel repair, overhaul and construction are often conducted at off-site San Diego naval facilities, which can include Point Loma Submarine Base, North Island, and 32nd Street. CMSD work at these facilities is generally accomplished in a floating dry-dock or a graving dock. CMSD follows all BMPs employed at each of the locations and has developed this BMP to address the issues. As discussed earlier, vessel maintenance and overhaul work generates numerous sources of pollutants such as blast abrasive, paint, paper, trash, discarded construction materials, sediment, marine growth, oil, sorbents and plastics. The possibility of these pollutants may be discharged on floating dry-docks and graving docks is similar to pier-side operations. In general, CMSD applies all BMPs that are performed on-site to off-site locations. Graving docks and floating dry-docks have unique situations that must be addressed. The dock floor must have regular cleanup of trash, blast abrasive, oil and other potential pollutants should occur frequently to prevent pollutants from escaping through sally ports or over the edge. CMSD applies the following BMPs to off-site graving docks and floating dry-docks in addition to the BMPs that are implemented at CMSD.

Area	Potential Sources	Potential Pollutant	Best Management Practices
Off-Site Graving Dock and Floating Dry-Dock	Spills Fugitive emissions Waste water runoff	General construction trash Abrasive grit Paint Paint	All BMPs employed by the hosting facility will be followed to ensure compliance with that facilities NPDES permit. For example, all hydro-blasting and hull washing procedures will be conducted properly to prevent improper discharges to San Diego Bay Cleanup of the dock floor will be complete before the dock is lowered or filled with water. All materials including straw bales, filters, grit and absorbent materials must be removed.

Area	Potential Sources	Potential Pollutant	Best Management Practices
Clean Up	Wind blown debris Paint chips	overspray	All discharges (grey water, black water, etc.) from dry-docked vessels must not come into contact with the dock floor. CMSD will cover all dock floor drains with tight fitting plywood, heavy tarpaulin or other similar devices after a vessel enters into the graving dock. Water will not be used to wash grit or other materials into the channels. Water wash-down will not be used for clean up. All floor channels and sediment traps will be checked and cleaned regularly to remove blast abrasive and other refuse. Records will be kept for each dock cleaning. All hydrostatic leaks and gate leakage is collected and diverted to dock channel drains. This water shall not contact contaminants present on the graving dock floor. Cleaning of the dock floor should be performed on a regular basis and especially if rain is imminent.

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.27 Mixing of Paints and Other Hazardous Materials

Mixing and transferring of liquid materials such as paint, thinner, oil, solvent, water and cleaners is a common practice at CMSD and thus poses the risk of accidental spillage. Providing secondary containment systems for transfer and mixing of liquids throughout the shipyard helps reduce the potential of paint spillage from reaching ground and surface waters. The following table illustrates the BMPs implemented at CMSD to for mixing paints and other hazardous materials.

Area	Potential Sources	Potential Pollutant	Best Management Practices
Mixing of Paints and Other Hazardous Materials	Spills that occur during the mixing operation Leaks in containers Improper management	Paints Epoxies Oil Waste water Solvents	Drip pans, secondary containment pallets, and areas that are paved and bermed are examples of material liquid transfer areas utilized at CMSD. All transfer or mixing of oils, paints, solvents and other liquid materials is performed in areas with secondary containment in place. CMSD has prepared and follows procedures that describe how material is to be transferred in a safe manner.

Area	Potential Sources	Potential Pollutant	Best Management Practices
	of containers	Cleaners Adhesives Etc.	Mixing areas at CMSD must provide adequate means for secondary containment of spillage: berms, curbs, drip containers, impervious ground cover, etc. Portables mixing equipment and related processes are designed to facilitate maximum productivity while minimizing the potential for accidental spillage. All materials must be mixed, dispensed or equipment cleaned in a skidpan with a 4-inch lip guard or another type of containment system with a minimum 4-inch guard and large enough to contain the volume of the material utilized. All materials at CMSD must be mixed away from heat, flame, sparks or other sources of ignition. When mixing paint, an open container must be under observation at all times and not left unattended. This means all persons mixing, dispensing, or cleaning equipment must be in the immediate area. At no time will CMSD tolerate thinning paint. This process is usually conducted in a Structural BMP Storm Water Control Area(See Section 3.0)

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.28 On-Site and Off-Site Emergency Spill Response

Emergency spill preparedness is an important aspect of San Diego Bay pollution prevention. A quick and well-planned response can significantly limit the damage caused by a spill incident. The CMSD Mobile Oil Spill Contingency Plan describes spill prevention measures, spill response procedures, on-water containment and recovery, notification procedures, storage practices and emergency response drills and training. CMSD also performs work off-site at other bay front naval facilities where the potential for accidental spills and equipment malfunction still pose reason for concern. Therefore, all staging and location of portable equipment involved in these off-site operations will be taken into consideration when making the necessary arrangements for an appropriate amount of spill containment materials to be in place at off-site locations. The following BMPs are implemented for on-site and off-site emergency response.

Area	Potential Sources	Potential Pollutant	Best Management Practices
On-Site and Off-Site Emergency Spill Response	Spill response must be conducted quickly and sufficiently to prevent further pollution.	Oils Waste water Paints Solvents Caustics Misc. welding activities Blast media Etc.	Emergency response operations are implemented as described in the Facility Oil Spill Response Plan. CMSD has a spill response equipment locker fully stocked at an easily accessible pier-side location. Shipyard workers are trained to utilize the spill response equipment. Spill response drills are performed periodically to ensure adequate response time and procedures. Advanced Cleanup Technologies Inc. is contracted with CMSD to perform emergency response that is beyond the capabilities of CMSD personnel and equipment. Patriot Environmental Services will respond to the CMSD facility as well as Naval facilities. A sufficient amount of emergency spill response equipment and material will be in place at off-site locations before production operations begin. The emergency equipment made available off-site will be adequate enough to handle most small to medium size spills. CMSD will position oil containment booms around all ships berthed that present a possibility for improper discharges while berthed at the facility. CMSD keeps reserve boom ready to deploy should a spill require additional containment. CMSD has developed procedures for the deployment and subsequent cleanup of oil containment booms. Procedures are also developed for cleanup inside the boomed area. Any breaks observed on booms surrounding ships berthed at CMSD will be repaired immediately.

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

2.29 CMSD Hazardous Waste Management

CMSD manages its hazardous waste in accordance with all local, state and federal ordinances, statutes, rules and regulations. Proper management helps to ensure the safety and welfare of workers and the environment, which includes San Diego Bay. CMSD also has a program in place to recycle and perform waste minimization techniques. The following table identifies the BMPs in place to ensure proper hazardous waste management at CMSD.

Area	Potential Sources	Potential Pollutant	Best Management Practices
CMSD Hazardous Waste Management	Incompatible material mixing Lack of secondary containment Improper labeling Poor container condition	Paints Solvents Acids Caustics Etc.	Hazardous Waste storage areas at CMSD provide secondary containment. A distance of at least 20 feet always separates incompatible wastes. Only containers made of materials that are compatible with the hazardous waste will be used at CMSD. All containers used to accumulate hazardous waste will be in good condition and not leaking. Containers will be kept closed except when adding or removing hazardous waste. All containers will be handled in a manner that prevents rupture or leakage. All containers will be inspected weekly for leaks, deterioration, proper labeling and an inspection log/record of these observations shall be maintained. Ignitable or reactive waste is stored at least 15 meters (50 feet) from the property line. All hazardous waste shall not be transported from off-site jobs back to CMSD. Containers will be properly labeled with: Date accumulation of waste begins, Date on which the 90-day period begins, The words "Hazardous Waste" Composition & physical state of the waste Hazardous properties of the waste (i.e., flammable, reactive), and The Name and address of the generator. All hazardous waste stored on-site must be identified using a 90-day accumulation label. Before transporting the waste off-site, an approved Department of Transportation (DOT) label must replace the 90-day accumulation label.

BMP Effectiveness: When implemented correctly, the BMPs presented above will significantly minimize or prevent potential pollution of San Diego Bay.

3 STRUCTURAL BMPS - STORM WATER DIVERSION SYSTEM

CMSD's Environmental Health and Safety Department is committed to eliminating discharges of contaminated storm water from Industrial Areas. CMSD will pursue an effort of continuous improvement that will identify pollutant sources and

control the source, however, collection of storm water and discharge to the POTW is a viable solution towards minimizing the potential for pollution. It is well documented that storm water pollution is reduced significantly after the first 0.25 inches of rainfall. This is due to the first flush effect were pollutants are washed away rapidly once flow is established on the surface.

CMSD currently collects, stores and discharges to the sewer storm water from all production areas and direct production building rooftops. Parking lots and non-production buildings are not contained and collected. This is to say that over 340,000 square feet of this facility is now being collected, stored and diverted to the industrial sewer system. The entire area is divided into eleven (11) storm water control areas, which together encompass the entire storm water diversion system. Each of the individual areas are designed and constructed utilizing internal pipe fitters, welders and a variety of other craftsmen. In many cases, the pumps that are utilized were selection on the basis of maintainability and durability. The following is a list of all Structural – Storm Water Diversion System BMP's that will be in place by October 1st 2001:

The following Structural BMP's – Storm Water Control Areas are included in Section 3:

3.1 Pier 6 Diversion
3.2 Pier 4 Diversion
3.3 Pier 7 Apron Area
3.4 Paint and Blast Area
3.5 Outdoor Structural Area
3.6 Storm Water Diversion Area
3.7 West of North Parking Lot
3.8 Maintenance Area
3.9 Entrance Production Roadway Area
3.10 Main Yard Production Roadways and Roof-Tops
3.11 Building 9 Entrance Pump Out Area
3.12 Building 4 Pump Out Area

Each of the Structural BMP Areas has a brief description of the area, a table describing the design variables associated with each area, and a description of the overflow outfall that are associate with each Structural BMP Area.

3.1 Structural BMP AREA #1 - Pier 6 Storm Water Diversion

Both piers have been extensively modified to collect, transport, and store storm water. The Pier 6 system consists of an array of gutters, pipes, berms, sumps and pumps. There are two main Control Catch Basins (CCBs) that are utilized to pump storm water to the storage tanks (CCB-1.1 and CCB-1.2). The system is designed to collect in excess of 2" of rainfall during any period of time. The holding capacity of the pier in combination with filters installed at each scupper port ensures that the system will not be overloaded when extreme downpours occur. At present,

pier 6 is pumped to a single 25,000 gallon tank, which allows for approximately 1.2" of rainfall. The pier itself has just over 20,000 gallons of capacity once the storage tank becomes full. CMSD has procedures to empty the tank and any surface storage after 24 hours. The pump capacity in combination with the pier retention time is currently sufficient to handle a 5-year, 1-hour storm event. The current capacity of the storage tank in combination with surface storage on the pier will contain a 5-year 24 hour event. The following table provides some of the basic design variables for this Structural BMP Area:

AREA #1 - Pier 6 Diversion System Variables	
Approximate Surface Area	31,300 Square Feet
Tank Capacity	25,000 gallons
Surface Area Storage	20,400 gallons
Total Capacity	45,400 gallons
Rainfall to Fill Tank	1.2 inches
Rainfall to Fill Total Capacity	2.3 inches
Pump Capacity Maximum	500 gpm
Pump Rate Required for a 5-year 1-Hour Storm (0.77"/hr)	250 gpm
Total Capacity for 5-Year 24-Hour Storm (2.26")	44,100 gallons
System Storm Event Rating	
Storage Capacity	5-Year
Pump Capacity	5-Year
Other Information	
Area Control Catch Basins	CCB-1.1 and CCB-1.2
Area Overflow Outfall	#004 low point on pier

Note: System design variables are approximate and may change as the system is modified.

Overflow Outfall #004:

The overflow outfall associated with Pier #6 is a low spot in the collection system on the pier. If extreme rainfall occurs and the area is beginning to flood, this is the point where an overflow will occur. At this point, the CMSD Environmental Health and Safety Department will take a sample of the storm water as it overflows. At present the system is designed to ensure this overflow will only be used during a rain event that represents a 5-Year storm. The other issue that could trigger an overflow is a storm water control system failure (i.e. pump failure or tank overflow). A system failure will also trigger the Environmental Health and Safety Department to take a sample at the overflow point.

3.2 Structural BMP AREA #2 - Pier 4 Storm Water Diversion

Both piers have been extensively modified to collect and transport storm water. The system consists of an array of gutters, berms, pipes, sumps and pumps. Area #2 has one major control catch basin (CCB-2.1) that transports all of the storm water on the pier. Area #2 has one overflow outfall #005 to serve as sampling point. The Pier 4 storm water diversion and control system was designed to collect in excess of 2" of rainfall during any period of time. At present, the pier is pumped to a 25,000 gallon tank, which allows for approximately 2" of rainfall by itself. The holding capacity of the pier surface area is approximately 9,000 gallons, which brings the holding capacity up to 34,000 gallons, which translates into 2.7 inches of rain fall. The pump capacity in combination with the pier retention time is currently sufficient to handle a 5-year, 1-hour storm event. The current capacity of the storage tank in combination with surface storage on the pier will also contain a 5-year 24 hour event. The following table provides some of the basic design variables for this Structural BMP Area:

AREA #2 - Pier 4 Diversion System Variables	
Approximate Surface Area	20,300 Square Feet
Tank Capacity	25,000 gallons
Surface Area Storage	9,100 gallons
Total Capacity	34,100 gallons
Rainfall to Fill Tank	1.95 inches
Rainfall to Fill Total Capacity	2.7 inches
Pump Capacity Maximum	250 gpm
Pump Rate Required for a 5-year 1-Hour Storm (0.77"/hr)	162 gpm
Total Capacity for 5-Year 24-Hour Storm (2.26")	28,600 gallons
System Storm Event Rating	
Storage Capacity	5-Year
Pump Capacity	5-Year
Other Information	
Area Control Catch Basins	CCB-2.1 (Sump W/ Pump)
Area Overflow Outfall	#005 low point on pier

Note: System design variables are approximate and may change as the system is modified.

Overflow Outfall #005:

The overflow outfall associated with Pier #4 (Area 2) is a low spot in the collection system towards the foot of the pier. If extreme rainfall occurs and the area is beginning to flood, this is the point where an overflow will occur. It

represents a low point in the berming system. At this point, the CMSD Environmental Health and Safety Department will take a sample of the storm water as it overflows. At present the system is designed to ensure this overflow will only be used during a rain event that represents a 5-Year storm. The other issue that could trigger an overflow is a storm water control system failure (i.e. pump failure or tank overflow). A system failure will also trigger the Environmental Health and Safety Department to take a sample at the overflow point.

3.3 Structural BMP AREA #3 - Pier 7 Apron Area

Area #3 is the old Pier 7 Apron Area, which is as small surface area that drains back towards the Storm Water Diversion Tank for Pier #6. This area is mainly a production roadway and equipment storage area; however there are activities that occur in this area from time to time. The pump capacity in combination with the retention time is currently sufficient to handle a 5-year, 1-hour storm event. The current capacity of the storage tank in combination with surface storage on the pier will contain a 5-year 24 hour event. The following table provides some of the basic design variables for this Structural BMP Area:

AREA #3 - Pier 7 Apron Diversion System Variables	
Approximate Surface Area	6,700 Square Feet
Tank Capacity	Storm Water Diversion Tanks
Surface Area Storage	2,000 gallons
Total Capacity	Storm Water Diversion Tanks
Rainfall to Fill Tank	Storm Water Diversion Tanks
Rainfall to Fill Total Capacity	Storm Water Diversion Tanks
Pump Capacity Maximum	75 gpm
Pump Rate Required for a 5-year 1-Hour Storm (0.77”/hr)	54 gpm
Total Capacity for 5-Year 24-Hour Storm (2.26”)	9,500 gallons
System Storm Event Rating	
Storage Capacity	Storm Water Diversion Tanks
Pump Capacity	5-Year
Other Information	
Area Control Catch Basins	CCB-3.1 (Sump W/ Pump)
Area Overflow Outfall	#003 low point on pier

Note: System design variables are approximate and may change as the system is modified.

Overflow Analysis (Outfall #003):

The overflow outfall associated with the Area #3 Pier 7 Apron is a low spot in the collection system berm on the bulkhead. If extreme rainfall occurs and the area is beginning to flood, this is the point where an overflow will occur. It represents a low point in the berming system. At this point, the CMSD Environmental Health and Safety Department will take a sample of the storm water as it overflows. At present the system is designed to ensure this overflow will only be used during a rain event that represents a 5-Year storm. The other issue that could trigger an overflow is a storm water control system failure (i.e. pump failure or tank overflow). A system failure will also trigger the Environmental Health and Safety Department to take a sample at the overflow point.

3.4 Structural BMP AREA #4- Paint and Blast Area

This Area #4 is outlined by a system of berms and buildings and has one central collection point with a pump. This area has been a high-risk area and has been collected and treated for the several years. The pump transports the storm water to a single 20,000 gallon tank. The area is approximately 18,600 square feet and with the current tank capacity, a total of over 2 inches of rainfall can be collected and contained. The area capacity is estimated to be a minimum of 1" of rainfall. The pump capacity in combination with retention time in this area is currently sufficient to handle a 5-year, 1-hour storm event. The current capacity of the storage tank in combination with surface storage on the pier will contain a 5-year 24 hour event. The following table provides some of the basic design variables for this Structural BMP Area:

AREA #4 - Paint and Blast System Variables	
Approximate Surface Area	18,600 Square Feet
Tank Capacity	20,000 gallons
Surface Area Storage	23,000 gallons
Total Capacity	43,000 gallons
Rainfall to Fill Tank	1.65 inches
Rainfall to Fill Total Capacity	2.7 inches
Pump Capacity Maximum	125 gpm
Pump Rate Required for a 5-year 1-Hour Storm (0.77"/hr)	150 gpm
Total Capacity for 5-Year 24-Hour Storm (2.26")	26,200 gallons
System Storm Event Rating	
Storage Capacity	5-Year
Pump Capacity	5-Year
Other Information	
Area Control Catch Basins	CCB-4.1 (Sump W/ Pump)
Area Overflow Outfall	NA (overflow to Area #10)

Note: System design variables are approximate and may change as the system is modified.

Overflow Analysis:

The overflow associated with Area #4 - Blast and Paint area is represented by a low spot in the collection system. If extreme rainfall occurs and the area is beginning to flood, this is the point where an overflow will occur. The overflow point will drain into Area #10 and be commingled with storm water in this area. If an extreme event is occurring, the overflow outfall associated with Area #4 will be sampled with overflow at the Area #10 overflow outfall (i.e. Overflow Outfall #006).

3.5 Structural BMP AREA #5 - Outdoor Structural Area

Area #5 is a natural low-point that also has a system of concrete walls separating it from other areas. There is one central pump that collects the water from the entire area through a storm drain system. The pump transports the water to a single 25,000-gallon tank. The area is approximately 23,700 square feet and with the current tank capacity, just less than 2 inches of rainfall can be collected and contained in the storage tank. It is estimated that another inch of rain could be contained in this area before significant flooding problems would occur. Therefore, total capacity of Area #5 is approximately 2.6 inches. The pump capacity in combination with the retention time is currently sufficient to handle a 5-year, 1-hour storm event. The current capacity of the storage tank in combination with surface storage in the area will contain a 5-year 24 hour event. The following table provides some of the basic design variables for this Structural BMP Area:

AREA #5 - Outdoor Structural System Variables	
Approximate Surface Area	23,700 Square Feet
Tank Capacity	25,000 gallons
Surface Area Storage	14,700 gallons
Total Capacity	39,700 gallons
Rainfall to Fill Tank	1.7 inches
Rainfall to Fill Total Capacity	2.6 inches
Pump Capacity Maximum	125 gpm
Pump Rate Required for a 5-year 1-Hour Storm (0.77”/hr)	190 gpm (OK due to holding)
Total Capacity for 5-Year 24-Hour Storm (2.26”)	33,400 gallons
System Storm Event Rating	
Storage Capacity	5-Year
Pump Capacity	5-Year
Other Information	
Area Control Catch Basins	CCB-5.1 (Sump W/ Pump and Valve to bay) CCB-5.2 and CCB-5.3
Area Overflow Outfall	#009 Valve in CCB-5.1

Note: System design variables are approximate and may change as the system is modified.

Overflow Analysis (Outfall #009):

The overflow outfall associated with this area is a valve in storm drain (SD5-1). This is also referred to as Outfall #011. If extreme rainfall occurs and the area is beginning to flood into the Sheetmetal and Structural Shops, the valve will be opened to ensure that flooding does not cause facility damage. At present the system is designed to ensure this valve will only be opened during an extreme rain event (i.e. greater than 5-Year storms). The other issue that could trigger the valve to be opened prematurely is a storm water control system failure (i.e. pump failure). In either case, if the valve is opened and storm water is released, the Environmental Health and Safety Department will take a sample of the water.

3.6 Structural BMP AREA #6 - Storm Water Diversion Area

The steam cleaning area is isolated from the storm water diversion area. The storm water diversion tank containment area and the surrounding staging areas are all part of the storm water diversion system. Both areas span out across a total of 7,100 square feet. The area is contained in three separate bermed compartments the storm water diversion tanks, steam cleaning area and staging area. The tank storage area has a secondary containment wall that is over three feet high and rainwater is manually pumped from this area as needed. The steam cleaning storage area and the staging area are collected at one central pump. This central pump collects rainwater from the majority of the area and transfers this water to the storm water tanks. The pump capacity in combination with the retention time is currently sufficient to handle a 5-year, 1-hour storm event. The current capacity of the storage tank in combination with surface storage on the pier will contain a 5-year 24 hour event. The following table provides some of the basic design variables for this Structural BMP Area:

AREA #6 - Storm Water Diversion System Variables	
Approximate Surface Area	7,100 Square Feet
Tank Capacity	Storm Water Diversion Tanks
Surface Area Storage	2,200 gal
Total Capacity	Storm Water Diversion Tanks
Required Storage (5-24 minus area storage)	10,000 – 2,200 = 7,800 gal
Rainfall to Fill Total Capacity	Storm Water Tanks
Pump Capacity Maximum	60 gpm
Pump Rate Required for a 5-year 1-Hour Storm (0.77”/hr)	57 gpm
Total Capacity for 5-Year 24-Hour Storm (2.26”)	10,000 gal
System Storm Event Rating	
Storage Capacity	Storm Water Diversion Tanks
Pump Capacity	5-Year
Other Information	

AREA #6 - Storm Water Diversion System Variables	
Area Control Catch Basins	CCB-6.1 (Sump W/ Pump)
Area Overflow Outfall	NA (overflow to Area #10)

Note: System design variables are approximate and may change as the system is modified.

Overflow Analysis:

The overflow associated with the Area # 6 - Storm Water Diversion Area, is represented by a low point in the collection system next to CCB-6.1. If extreme rainfall occurs and the area is beginning to flood, this is the point where an overflow will occur. The overflow point will drain into Area #9 and/or Area #10 and be commingled with storm water in this area. If an extreme event is occurring, the overflow outfall associated with Area #6 will be sampled with at the Area #10 overflow outfall (i.e. Overflow Outfall #006).

3.7 Structural BMP AREA #7 – West of North Parking Lot

Area #7 is a small area on the bulkhead between the Bay and North Parking Lot located at the northwestern corner of the shipyard. This area includes some of North Parking Lot runoff as well as all of the surface area adjacent to the bay. There are very little production activities that take place in this area. It is mainly used for equipment storage and staging. The rain water collected is pumped to the Storm Water Diversion tanks. As with other areas, the pump capacity in combination with the berms and holding time is currently sufficient to handle a 5-year, 1-hour storm event. The current capacity of the storage tanks in combination with surface storage on the pier will contain a 5-year 24 hour event. The following table provides some of the basic design variables for this BMP Area:

AREA #7 - Bldg. 9 Bulkhead System Variables	
Approximate Surface Area	8,150 Square Feet
Tank Capacity	Storm Water Diversion Tanks
Surface Area Storage	1,000 gallons
Total Capacity	Storm Water Diversion Tanks
Required Storage (5-24 minus area storage)	16,500 – 1,000 = 15,500 gal
Rainfall to Fill Total Capacity	Storm Water Diversion Tanks
Pump Capacity Maximum	105 gpm
Pump Rate Required for a 5-year 1-Hour Storm (0.77”/hr)	94 gpm
Total Capacity for 5-Year 24-Hour Storm (2.26”)	16,500 gal
System Storm Event Rating	
Storage Capacity	(Storm Water Diversion Tanks)
Pump Capacity	5-Year
Other Information	
Area Control Catch Basins	CCB-7.1 & CCB-7.2(Sump W/ Pump)
Area Overflow Outfall	#007 (overflow directly from bulkhead to bay)

Note: System design variables are approximate and may change as the system is modified.

Overflow Analysis (Outfall #007):

The overflow outfall associated with Area #7- Building 9 Bulkhead is a low spot in the collection system. If extreme rainfall occurs and the area is beginning to flood, this is the point where an overflow will occur. It represents a low point in the berming system. At this point, the CMSD Environmental Health and Safety Department will take a sample of the storm water as it overflows. At present the system is designed to ensure this overflow will only be used during a rain event that represents a 5-Year storm. The other issue that could trigger an overflow is a storm water control system failure (i.e. pump failure). A system failure will also trigger the Environmental Health and Safety Department to take a sample at the overflow point.

3.8 Structural BMP AREA #8 - Maintenance Area

The Area #8 - Maintenance Area is outlined by a system of berms and building structures. The area collects some rooftop rainfall as well as the entire maintenance surface area. The area has two sumps and pumps that transport storm water (CCB-8.1 and CCB-8.2). The first pump in CCB-8.1 transports the water to two 1,500-gallon tanks. The water is then transferred to another pump in CCB-8.2, which transports the storm water to the storm water diversion tanks. The total collection area is approximately 24,800 square feet and with the current tank capacity, a total of 2.5 inches of rainfall can be collected and contained. If a 25 year, 1 hour event were to occur, a pump rate of 200 gpm is required. The area capacity is estimated to be a minimum of ½ inch rainfall. Therefore the area capacity is a maximum of 3 inches in any 24-hour storm event. The following table provides some of the basic design variables for this Structural BMP Area:

AREA #8 - Maintenance Area System Variables	
Approximate Surface Area	24,800 Square Feet
Tank Capacity	3,000 plus Storm Water Diversion Tanks
Surface Area Storage	7,700 gallons
Total Capacity	Storm Water Diversion Tanks
Required Storage (5-24 minus area storage)	35,000 – 10,700 = 24,300 gal
Rainfall to Fill Total Capacity	Storm Water Diversion Tanks
Pump Capacity Maximum	125 gpm
Pump Rate Required for a 5-year 1-Hour Storm (0.77”/hr)	198 gpm (This is OK due to storage and retention)
Total Capacity for 5-Year 24-Hour Storm (2.26”)	35,000 gal
System Storm Event Rating	
AREA #8 - Maintenance Area System Variables	

Storage Capacity	(Storm Water Diversion Tanks)
Pump Capacity	5-Year
Other Information	
Area Control Catch Basins	CCB-8.1 (Sump W/ Pump) CCB-8.2 (Sump W/ Pump)
Area Overflow Outfall	#012 (CCB-8.1 with valve to Bay)

Note: System design variables are approximate and may change as the system is modified.

Overflow Analysis (Outfall #012):

The overflow associated with this area can occur at two locations. The first location is a valve in storm drain (CCB-8.1). If extreme rainfall occurs and the area is beginning to flood into the Maintenance Shop, the valve will be opened to ensure that flooding does not occur. The second point were overflow could occur is at the wall between Area #8 and Area #10. At present the system is designed to ensure this valve will only be opened during a rain event the represents a 5-Year storm. The other issue that could trigger the valve to be opened is a storm water control system failure (i.e. pump failure or tank overflow). If overflow occurs and the valve is opened, the Environmental Health and Safety Department will pull a sample and have it analyzed.

3.9 Structural BMP AREA #9 - Entrance Production Roadway Area

Area #9 is a drainage area spans from in front of Pier 6 and includes a portion of driveway area next to building 14, which is adjacent to the parking lot. It also includes half of the roof runoff from building 14 and the roof runoff from the Hazardous Materials Storage area. There is one central pump that collects the water from the entire area, which is located in CCB-9.1. The pump transports the water to the Storm Water Diversion Tanks. The area is approximately 36,640 square feet and with the current tank capacity, just less than 2 inches of rainfall can be collected and contained in one storage tank. The area has no standing or surface capacity. The following table provides some of the basic design variables for this Structural BMP Area:

AREA #9 – Entrance Production Roadway Area	
Approximate Surface Area	36,640 Square Feet
Tank Capacity	Storm Water Diversion Tanks
Surface Area Storage	0 gallons
Total Capacity	Storm Water Diversion Tanks
Required Storage (5-24 minus area storage)	45,100 – 0 = 45,100 gallons
Rainfall to Fill Total Capacity	Storm Water Diversion Tanks
Pump Capacity Maximum	250 gpm (two pumps)
Pump Rate Required for a 5-year 1-Hour Storm (0.77”/hr)	256 gpm
AREA #9 – Entrance Production Roadway Area	

Total Capacity for 5-Year 24-Hour Storm (2.26")	45,100 gal
System Storm Event Rating	
Storage Capacity	Storm Water Diversion Tanks
Pump Capacity	5-Year
Other Information	
Area Control Catch Basins	CCB-9.1 (Sump W/ Pump)
Area Overflow Outfall	NA – Overflow to Area #10

Note: System design variables are approximate and may change as the system is modified.

Overflow Analysis:

The overflow associated with the Area #9 is represented by a continuous grade, which will direct overflow to Area #10. If there is too much volume caused by excessive rainfall or a control system failure, storm water will still be contained and flow to Area #10. The overflow will be commingled with storm water in this area. If an extreme event is occurring, the overflow outfall associated with Area #9 will be sampled with at the Area #10 overflow outfall (i.e. Overflow Outfall #006).

3.10 Structural BMP AREA #10 - Main Yard Production Roadways and Roof-Tops

This is the largest and most challenging area in the shipyard. This area consists of approximately 60,000 square feet of production roadways and 80,000 square feet of production rooftops. A 1.5" rainfall will require the storage of 135,000 gallons (approximately 7 tanks). The current design will handle a minimum 2-year storm event where the design criteria hinges on the pump rate keeping up with a 1-hour event of 0.51" of rainfall. Approximately 20,000 gallons of retention pounding and a pump capacity of 750pm are installed at the foot of pier 4. There is an overflow valve that discharges the storm water to the bay if the system is overloaded. If flooding of the machine shop is eminent, the overflow valve will be opened to protect against significant safety problems. The following table provides some of the basic design variables for this Structural BMP Area:

AREA #10 - Main Yard Storm Drain Area	
Approximate Surface Area	145,000 Square Feet
Tank Capacity	Storm Water Diversion Tanks
Surface Area Storage	15,000 gallons estimated
Total Capacity	Storm Water Diversion Tanks
Required Storage	197,500 – 15,000 = 182,500 gal
Rainfall to Fill Total Capacity	Storm Water Diversion Tanks
Pump Capacity Maximum	750 gpm (6 pumps at 125 gpm)
AREA #10 - Main Yard Storm Drain Area	

Pump Rate Required for a 5-year 1-Hour Storm (0.77"/hr)	1,100 gpm (theoretical)
Area #11 added flow	75 gpm
Area #12 added flow	105 gpm
Total Capacity for 5-Year 24-Hour Storm (2.26")	197,500 gal
System Storm Event Rating	
Storage Capacity	Storm Water Diversion Tanks
Pump Capacity	2-Year (Theoretical)
Other Information	
Area Control Catch Basins	CCB-10.1 (Sump W/ pump & Valve) CCB-10.2 (Sump W/ Pump)
Area Overflow Outfall	#005 – Overflow will be released through a valve in CCB-10.1

Note: System design variables are approximate and may change as the system is modified.

Overflow Analysis (Outfall #005):

The overflow outfall associated with this area is a valve in storm drain (CCB-10.1). If extreme rainfall occurs and the area is beginning to flood into the Machine Shop, the valve will be opened to ensure that flooding does not occur. This valve is located at the foot of Pier 4. At present the system is designed to ensure this valve will only be opened during an extreme rain event (i.e. a 2-Year storm event). The other issue that could trigger the valve to be opened is a storm water control system failure (i.e. pump failure or tank overflow).

3.11 Structural BMP AREA #12 - Building 4 Pump Out Area

Area #12 is another small localized area that includes storm water from building 6, building 4 and building 5. The runoff is also derived from roadways in the area. This area has a storm drain that has been closed and valved. A pump has been placed in a sump to remove accumulated rainwater from this area (CCB-12.1). The water is pump out of Area #12 and into Area #10. This water flows through a normal rainwater path down the roadway between building 6 and building 2. The storm water is managed in the Area #10 control system. This flow was taken into account when Area #10 was designed. The following table provides some of the basic design variables for this Structural BMP Area:

AREA #12 - Building 4 Pump Out Area	
Approximate Surface Area	4,730 Square Feet
Tank Capacity	Storm Water Diversion Tanks
Surface Area Storage	12,000 gallons
Total Capacity	Storm Water Diversion Tanks
AREA #12 - Building 4 Pump Out Area	

Required Storage (5-24 minus area storage)	27,500 – 12,000 = 15,500 gal
Rainfall to Fill Total Capacity	Storm Water Diversion Tanks
Pump Capacity Maximum	105 gpm
Pump Rate Required for a 5-year 1-Hour Storm (0.77"/hr)	105 gpm
Total Capacity for 5-Year 24-Hour Storm (2.26")	27,500 gal
System Storm Event Rating	
Storage Capacity	5-Year
Pump Capacity	5-Year
Other Information	
Area Control Catch Basins	CCB-12.1 (Sump W/ pump
Area Overflow Outfall	NA – Overflow will flow toward Area #10

Note: System design variables are approximate and may change as the system is modified.

Overflow Analysis:

The overflow associated with the Area #12 is represented by an overflow into buildings and eventually into warehouses. Area #12 does not have a control valve or another individual outfall. If there is too much volume caused by excessive rainfall or a control system failure, storm water will be contained and later flow to Area #10. The overflow will be commingled with storm water in this area. If an extreme event is occurring, the overflow outfall associated with Area #12 will be sampled with the Area #10 overflow outfall (i.e. Overflow Outfall #006).

4 RECORDS AND ATTACHMENTS

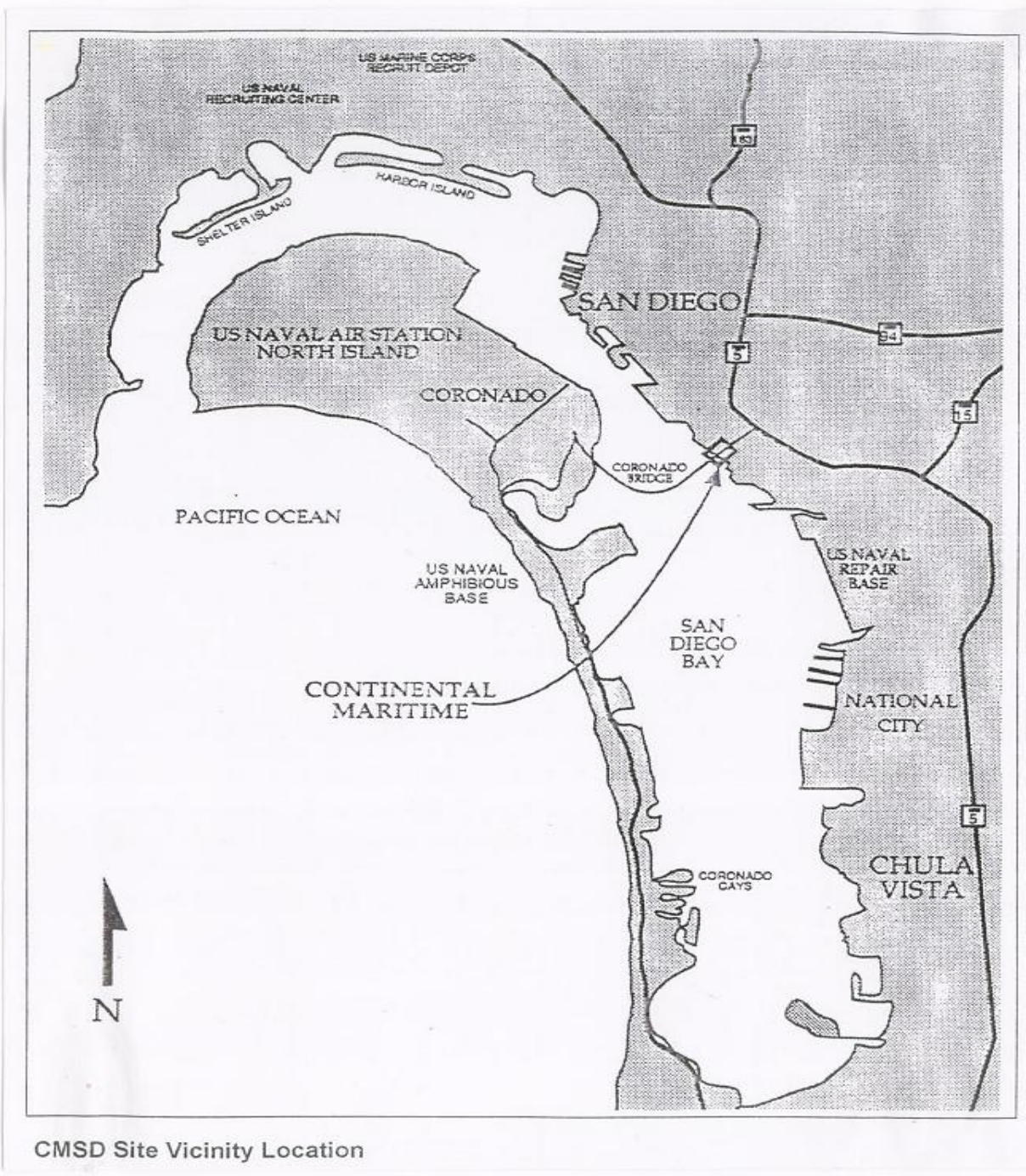
4.1 The following Records are required by this instruction:

A. Daily Best Management Practice Inspection Form ECF-008

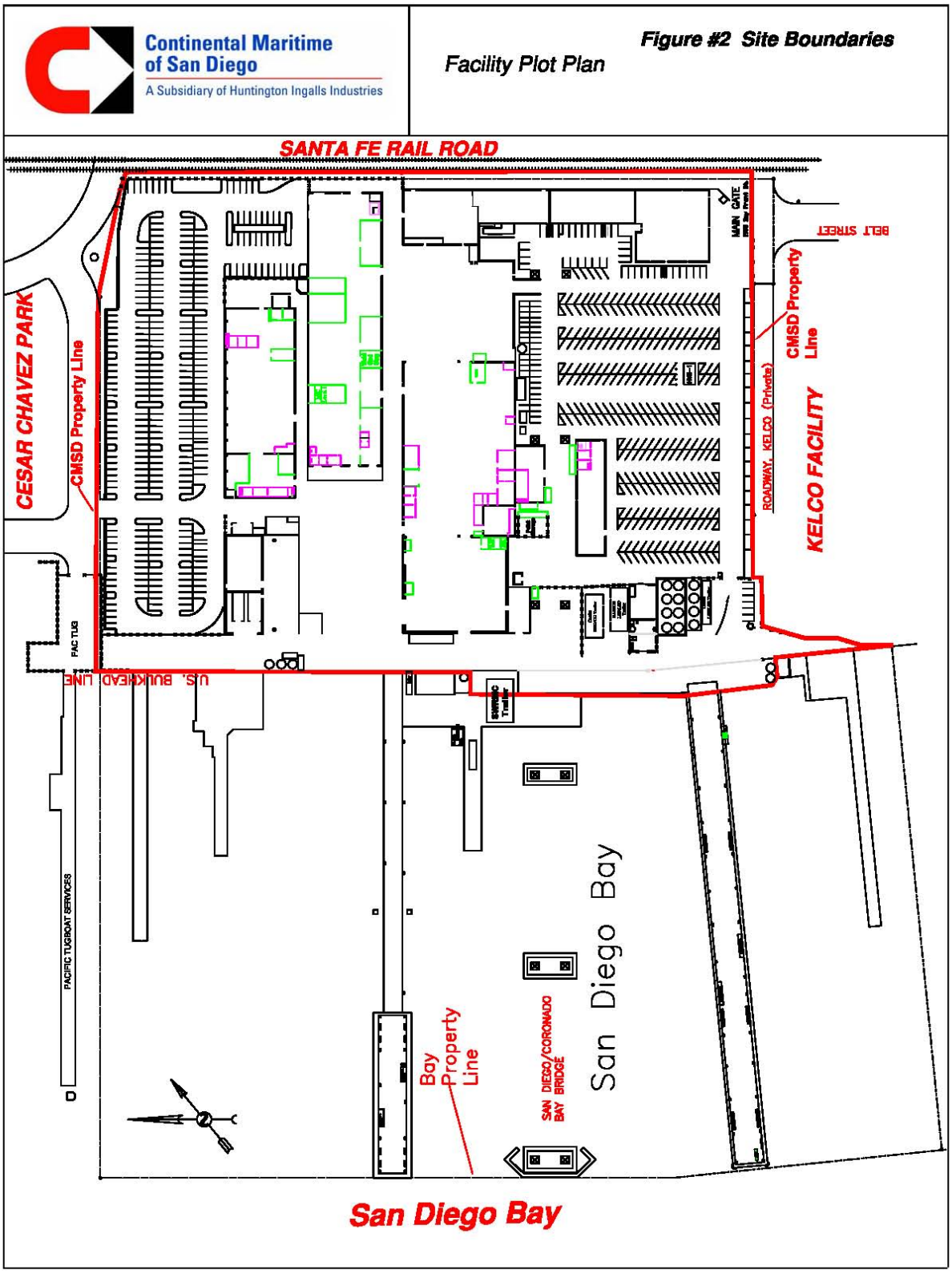
4.2 The following Attachments are incorporated as part of this instruction:

A. Site Map

B. Facility Plot Plan (Figure 2, 3, 4 and 5)



CMSD Site Vicinity Location



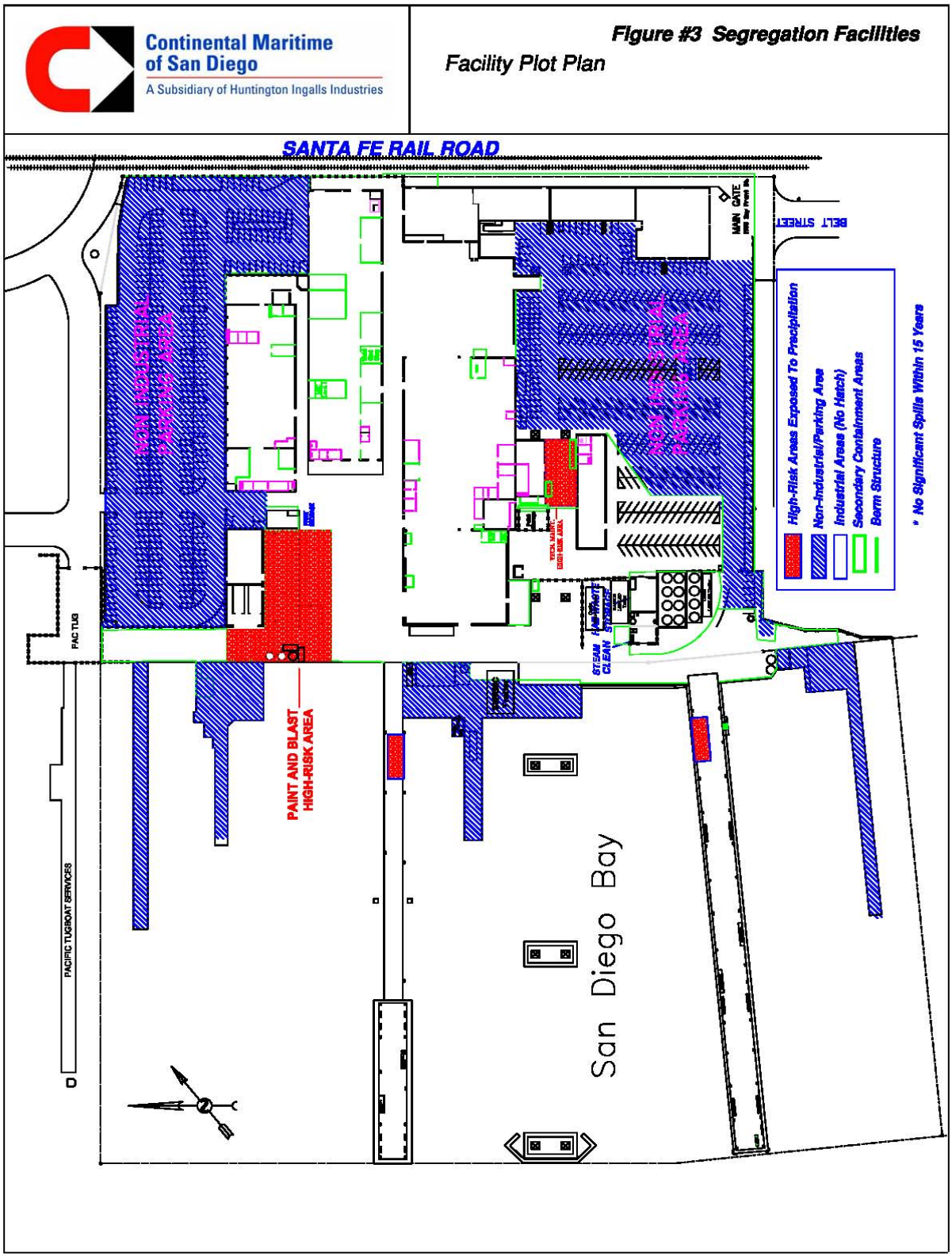


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Figure # 4 Control Catch Basins & Drainage Flow

Facility Plot Plan

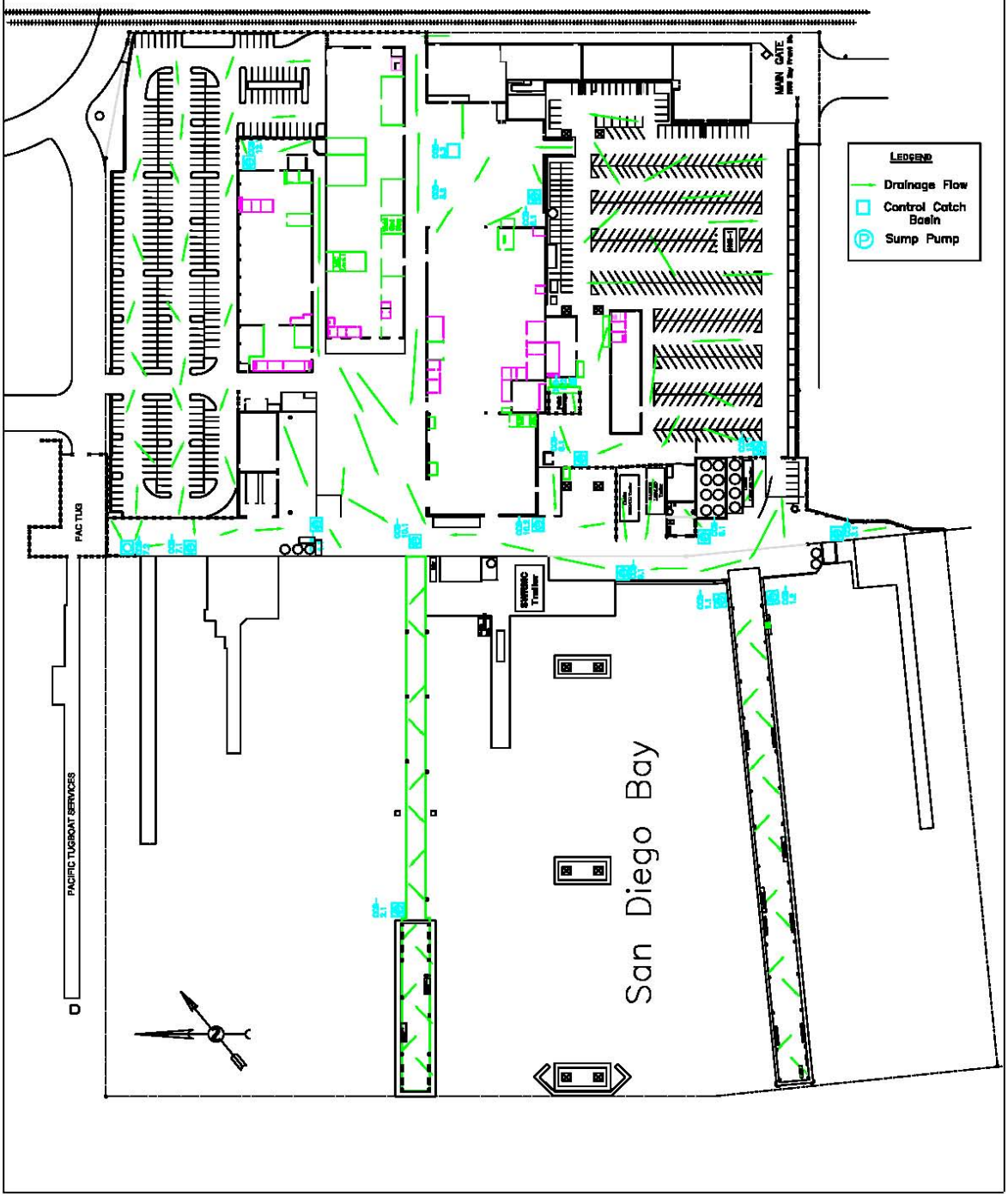

Figure 5. Outfalls

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Facility Plot Plan