

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN DIEGO REGION**

**CLEANUP AND ABATEMENT ORDER NO. R9-2015-0018**

**AN ORDER DIRECTING TDY INDUSTRIES, LLC, TDY HOLDINGS, LLC, AND  
TELEDYNE RYAN AERONAUTICAL COMPANY TO CLEANUP AND ABATE  
THE EFFECTS OF WASTE DISCHARGED FROM THE FORMER FACILITY  
AT 2701 NORTH HARBOR DRIVE TO THE LAUREL HAWTHORN  
EMBAYMENT OF SAN DIEGO BAY, SAN DIEGO, CALIFORNIA**

The California Regional Water Quality Control Board, San Diego Region (hereinafter San Diego Water Board) finds that:

1. **Legal and Regulatory Authority.** This Order conforms to and implements policies and requirements of the Porter-Cologne Water Quality Control Act (Division 7, commencing with Water Code section 13000) including (1) sections 13267 and 13304; (2) applicable State and federal regulations; (3) all applicable provisions of statewide Water Quality Control Plans adopted by the State Water Resources Control Board (State Water Board) and the Water Quality Control Plan for the San Diego Basin (Basin Plan) adopted by the San Diego Water Board including beneficial uses, water quality objectives, and implementation plans; (4) State Water Board policies and regulations, including State Water Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California, Resolution No. 92-49, Policies and Procedures for Investigation, and Cleanup and Abatement of Discharges under Water Code Section 13304; the Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality; California Code of Regulations (CCR) Title 23, Chapter 16, Article 11; CCR Title 23, section 3890 et. seq.; and (5) relevant standards, criteria, and advisories adopted by other State and federal agencies.
2. **Waste Discharges.** Between the early 1940's and mid-1999, Ryan Aeronautical Company and its successors (Teledyne Ryan Aeronautical Company, Teledyne Industries, Inc. [now known as TDY Industries, LLC], and TDY Holdings, LLC), hereinafter collectively referred to as "the Dischargers," conducted aerospace component manufacturing operations at a facility on 44 acres of land at 2701 North Harbor Drive in San Diego. The land was leased from the City of San Diego and, subsequently, from the San Diego Unified Port District and is located between Lindbergh Field and San Diego Bay. The Dischargers used polychlorinated biphenyls (PCBs) in its manufacturing operations at the facility. PCBs are manufactured chemicals previously used in electrical transformers, lubricating oils, and plastics. PCBs can cause cancer and other health effects in humans. The Dischargers caused PCB wastes, originating from the 2701 North Harbor Drive facility (the Site), to be deposited in the catch basins and collection

sumps associated with the storm water conveyance systems (SWCS) at the site. These wastes were subsequently discharged from the SWCS outfalls to San Diego Bay.

A 30-inch storm water conveyance system historically drained a portion of the Dischargers' 2701 North Harbor Drive facility, Lindbergh Field, and the nearby Coast Guard facilities and discharged to the portion of San Diego Bay that forms a small embayment between Laurel Street and Hawthorn Street as shown in Figure 1. Bay sediment sampling near the 30-inch SWCS outfall was conducted by TDY Industries, LLC in June 2012 to quantify the extent and concentration of constituents of potential concern (COPCs) in bay sediment. The sampling results indicated that total PCBs are present in bay sediment in concentrations as high as 12.2 milligrams per kilogram (mg/kg) in the immediate vicinity of the outfall, but that concentrations attenuate rapidly with distance from the outfall location. In contrast, two sediment quality investigations in San Diego Bay used a background sediment quality for total PCBs of 0.084 mg/kg.<sup>1,2</sup> Additional sampling conducted in 2013 indicated that the impacts to sediment chemistry from waste discharges from the 30-inch SWCS were distinct and separable from the impacts associated with discharges from other SWCS with outfalls in the Laurel Hawthorn Embayment (LHE).

3. **Persons Responsible for the Waste Discharges.** In 1999, TDY Holdings, LLC assumed certain liabilities of Teledyne, Inc. and Teledyne Industries, Inc. and changed its name to TDY Industries, Inc. TDY Industries, Inc. subsequently changed its name to TDY Industries, LLC (TDY). Teledyne Ryan Aeronautical Company, Teledyne Industries, Inc., and TDY ceased its manufacturing operations in 1999 when the majority assets of Ryan Aeronautical Company, excluding some equipment and all of the buildings, were sold to Northrop Grumman Corporation, who relocated the assets from the Site. TDY retained responsibility for the Site, including maintenance of the buildings and other structures, until the Site was vacated on October 31, 2002. As such, TDY is responsible for the discharge of PCB wastes from the 30-inch SWCS to the LHE.
4. **Water Quality Standards.** The *Basin Plan* and the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality* (Bays and Estuaries Plan) designate the following beneficial uses for San Diego Bay that apply to the LHE. These uses could be impacted by contaminants discharged from the former facility to bay sediments via the 30-inch SWCS:
  - a. **Human Health**
    - i. Commercial and Sport Fishing

<sup>1</sup> Sediment Assessment for the Mouths of Chollas and Paleta Creek, San Diego, Phase 1 Final Report. California Coastal Water Research Project, and U.S. Navy, May 2005.

<sup>2</sup> NASSCO and Southwest Marine Detailed Sediment Investigation Volumes I, II, and III. Prepared for NASSCO and Southwest Marine by Exponent, Bellevue, WA. October 2003.

- ii. Shellfish Harvesting
- b. **Aquatic Life - Benthic Community**
  - i. Estuarine Habitat
  - ii. Marine Habitat
- c. **Aquatic-Dependent Wildlife**
  - i. Wildlife Habitat
  - ii. Rare, Threatened, or Endangered Species

The Bays and Estuaries Plan contains the following sediment quality objectives that support the human health and aquatic life-benthic community beneficial uses.

**Human Health.** Pollutants shall not be present in sediments at levels that will bioaccumulate in aquatic life to levels that are harmful to human health in bays and estuaries of California.

**Aquatic Life – Benthic Community Protection.** Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities in bays and estuaries of California.

The Basin Plan contains the following toxicity objective that supports the aquatic dependent wildlife beneficial uses.

**Toxicity.** All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.

5. **Human Health Impairment.** San Diego Bay is listed in the 2010 Integrated Report<sup>3</sup> as impaired for PCBs in fish tissue. The listing is based on 11 out of 11 fish tissue samples from the bay exceeding the Office of Environmental Health Hazard Assessment's screening value of 20 nanograms per gram. Furthermore, the Office of Environmental Health Hazard Assessment published a health advisory and guidelines for fish consumption from San Diego Bay in 2013 warning of unhealthy levels of PCBs in fish tissue from San Diego Bay.<sup>4</sup> Some of the highest concentrations of total PCBs found in San Diego Bay sediment have been found adjacent to the 30-inch SWCS outfall that drains a portion of the former TDY facility. PCB-laden sediment discharged from the former TDY facility through the 30-inch SWCS outfall to the LHE is likely one of the sources of the PCBs found in fish tissue in San Diego Bay.

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<sup>3</sup> 2010 Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report).

[http://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2010.shtml](http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml)

<sup>4</sup> Office of Environmental Health Hazard Assessment, Health Advisory and Guidelines for Eating Fish from San Diego Bay (San Diego County), October 2013.

Typically, an ecological risk assessment, a human health risk assessment, and a benthic triad analyses are performed for a contaminated sediment site such as this to determine conclusively if a beneficial use is impaired. In this case, however, based on the high concentration of total PCBs in sediment at the 30-inch SWCS outfall and on the relatively limited extent of the contamination, the Dischargers elected to forgo these studies and instead develop a remedial design and footprint for the site. This approach will save both the Dischargers and the State time and resources, while ensuring an effective cleanup in a shorter time period.

6. **Basis for Cleanup and Abatement Order.** Water Code section 13304 contains the authority for the San Diego Water Board to require cleanup and/or abatement of pollution caused by discharges of wastes. Water Code section 13304 requires a person to clean up waste or abate the effects of the waste discharge if so ordered by a regional water board in the event there has been a discharge in violation of waste discharge requirements, or if a person has caused or permitted waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the State and creates or threatens to create a condition of pollution or nuisance. Therefore, based on the findings in this Cleanup and Abatement Order (CAO) the San Diego Water Board is authorized to order the Dischargers to cleanup and/or abate the effects of the waste discharged.
7. **Basis for Requiring Technical and Monitoring Reports.** Water Code section 13267 provides that the San Diego Water Board may require dischargers, past dischargers, or suspected dischargers to furnish those technical or monitoring reports as the San Diego Water Board may specify, provided that the burden, including costs, of these reports bears a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring the reports, the San Diego Water Board must provide the person with a written explanation with regard to the need for the reports, and identify the evidence that supports requiring that person to provide the reports.

Technical and Monitoring reports are needed to provide information to the San Diego Water Board regarding (a) the nature and extent of the discharge, (b) the nature and extent of pollution conditions in State waters created by the discharge, and (c) appropriate cleanup and abatement measures. The reports will enable the San Diego Water Board to determine the vertical and lateral extent of the discharge, describe appropriate cleanup and abatement measures for the site, and provide technical information to determine if those cleanup and abatement measures have brought the Site into compliance with applicable water quality standards. Based on the nature and possible consequences of the discharges, the burden of providing the required reports, including the costs, bears a reasonable relationship to the need for the reports, and the benefits to be obtained from the reports.

8. **Cleanup Levels.** State Water Board Resolution No. 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under California Water Code Section 13304*, sets forth the policies and procedures to be used during an investigation, or cleanup and abatement of a discharge of waste, and requires that cleanup levels be consistent with State Water Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California*. Resolution No. 92-49 applies to the cleanup and abatement of the effects of waste discharges at the Site.

Resolution No. 92-49 requires that dischargers clean up and abate the effects of discharges in a manner which promotes the attainment of background water quality, or the best water quality which is reasonable if background water quality cannot be restored, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible. Any alternative cleanup level greater than background must (1) be consistent with the maximum benefit to the people of the State; (2) not unreasonably affect present and anticipated beneficial use of waters of the State; and (3) not result in water quality less than that prescribed in the Basin Plan and applicable Water Quality Control Plans and Policies of the State Water Board.

9. **Economic and Technical Feasibility of Cleanup and Abatement to Background Levels.** The San Diego Water Board derived a total PCB sediment chemistry background level for use in evaluating the feasibility of cleanup to background sediment quality conditions at the site using reference stations from two independent sediment quality investigations. Those investigations were the 2001 Mouth of Chollas Creek and Mouth of Paleta Creek Total Maximum Daily Load studies<sup>5</sup> and the 2001 San Diego Bay Shipyards Detailed Sediment Investigation.<sup>6</sup> The cleanup and abatement order for the Shipyard Sediment Site in San Diego Bay<sup>7</sup> utilized the same reference stations to establish background sediment chemistry conditions.

The nine reference stations were used again in this evaluation because the stations had low levels of anthropogenic pollutant concentrations; the locations are remote from pollution sources, adequate sample size for statistical analysis, and sediment quality data comparability. The background sediment chemistry level for total PCBs based on these nine reference stations is 0.084 mg/kg. This value is equal to the 95% upper predictive limit of the mean of the total PCB concentrations at the nine reference stations. The total PCB concentrations for

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<sup>5</sup> Sediment Assessment for the Mouths of Chollas and Paleta Creek, San Diego, Phase 1 Final Report. California Coastal Water Research Project, and U.S. Navy, May 2005.

<sup>6</sup> NASSCO and Southwest Marine Detailed Sediment Investigation Volumes I, II, and III. Prepared for NASSCO and Southwest Marine by Exponent, Bellevue, WA. October 2003.

<sup>7</sup> Cleanup and Abatement Order No. R9-2012-0024, National Steel and Shipbuilding Company, BAE Systems San Diego Ship Repair, Inc., City of San Diego, Campbell Industries, San Diego Gas and Electric, United States Navy, San Diego Unified Port District, Shipyard Sediment Site, San Diego Bay, San Diego, California.

each of the nine reference stations are equal to the sum of 41 of the 209 PCB congeners.<sup>8</sup> The 41 congeners were compiled in consideration of their potential toxicity and the occurrence of the congeners in the common Aroclors 1242, 1248, 1254, and 1260.

Summing these 41 PCB congeners to obtain a total PCB concentration is a standard approach utilized in the Southern California Bight Regional Monitoring Program, the Regional Harbors Monitoring Program, and by the Southern California Coastal Waters Research Project. Using this approach to determine total PCB concentrations at the site will produce data directly comparable to other studies in San Diego Bay.

Based on the Dischargers' proposed remedial footprint and remedial design, it is economically feasible to remediate the Site to a surface-area weighted average concentration (SWAC) of total PCBs equivalent to a biologically available concentration of 0.084 mg/kg, which is the background concentration for this feasibility analysis.<sup>9</sup> Cleanup to the total PCBs background concentration is also technologically feasible at the site based on the Dischargers' proposed remedial footprint and design described in Finding 10.

10. **Proposed Remedial Footprint and Remedial Design.** The Dischargers proposed a remedy for the site, which will combine a cleanup action with an abatement action to achieve a biologically available SWAC for total PCBs of 0.084 mg/kg. The cleanup action involves direct removal of sediment from the most contaminated portion of the site. The abatement action involves placement of an enhanced monitored natural recovery (EMNR) layer with activated carbon addition for the middle portion of the site. Figure 2 shows a diagram of the remedial footprint. The direct removal area (polygons 1 through 3) is approximately 0.06 acres. The EMNR area (polygons 1 through 17) is approximately 1 acre. No actions are proposed for the remainder of the site (polygons 18 through 26) which will be left to recover naturally as sediment and organic detritus are eventually deposited over time. The natural recovery area is approximately 1.44 acres. The remedial footprint and design is described in detail in the Dischargers' Technical Memorandum dated July 16, 2014.<sup>10</sup> The remedial design and footprint is expected to achieve a biologically available SWAC for total PCBs at the site equivalent to the background concentration of 0.084 mg/kg. Important aspects of the remedial footprint and design are summarized below.

- a. **Surface-Area Weighted Average Concentrations.** Due to the spatial heterogeneity of sediment chemistry concentrations at the site, and the

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<sup>8</sup> Congeners 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206.

<sup>9</sup> Geosyntec Consultants. 2014. Evaluation of a Sediment Remedial Option Demonstration Project for the 30-Inch SWCS Outfall in the Western Portion of the Laurel to Hawthorn Embayment, Technical Memorandum. July 16, 2014.

<sup>10</sup> Ibid.

mobility of aquatic-dependent wildlife and angler-targeted game species such as fish and lobster, an abatement level based on a SWAC is appropriate at this site. These species have foraging ranges many times larger than the site. Fish and lobster do not limit their movement to the small area represented by a single sediment sample, but range among a much larger area, exposing them to sediments of varying chemical concentrations throughout the site and greater San Diego Bay. Based on this, a SWAC for sediment is a more appropriate method for evaluating the exposure to chemicals that fish and lobsters incur during foraging. In turn, this approach allows a much more accurate and realistic estimation of the bioaccumulation of chemicals from site sediments and prey items.

To calculate post-remedial SWACs for the site, the Thiessen polygon geospatial technique will be used to delineate the area of the site represented by each of the 26 sediment samples to be taken at the site. This technique is well established and in use throughout a broad range of sciences, and is being used at many nationally known sediment remedial sites including the Hudson River, Portland Harbor, Duwamish River, Lower Passaic River and Fort Ord cleanups.

- b. **Remedial Footprint.** Figure 3 shows the site divided into 26 Thiessen polygons, and PCB concentration gradients for the site. Sediment in polygons 1, 2, and 3 will be dredged to a depth of 3 feet and replaced with 3 feet of sand.<sup>11</sup> The total excavated volume is expected to be between 350 to 400 cubic yards. Following this action, polygons 1 through 17 will be covered with the EMNR layer consisting of an average of 6 inches of sand with activated carbon added. This layer will incorporate into the contaminated sediment through settlement and bioturbation providing a cleaner habitat for benthic invertebrates. Additional reduction in bioavailability of residual PCBs will be achieved through the incorporation of the activated carbon addition into the sand.
- c. **Reduction in Bioavailability of PCBs.** Placement of sand in the EMNR area is expected to reduce the residual total PCBs concentrations by 75% from pre-remediation levels. The activated carbon within the EMNR layer is expected to further reduce the relative bioaccumulation potential of the residual PCBs by greater than 75% based on several recent studies in activated carbon treatment of total PCBs in sediment.<sup>12,13</sup> A pre-

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<sup>11</sup> All imported sand will be sourced from a local quarry. The sand material will be documented to be freshly quarried, non-recycled, clean material.

<sup>12</sup> Milward, R.N., Bridges, T.S., Ghosh, U., Zimmerman, J.R., and Luthy, R.G., 2005. Addition of Activated Carbon to Sediments to Reduce PCB Bioaccumulation by a Polychaete (*Neanthes arenaceodentata*) and an Amphipod (*Leptocheirus plumulosus*). *Environmental Science and Technology*. 2005. Vol. 39, No 8, pp. 2880-2887.

<sup>13</sup> Janssen, E. M-L., Croteau, M-N., Luoma, S.N., Luthy, R.G., 2009. Measurement and modeling of polychlorinated biphenyl bioaccumulation from sediment for the marine polychaete *Neanthes*

remediation bench scale study is needed to evaluate the actual achievable reduction in bioavailability and to refine the remedial approach to ensure it is capable of achieving the post-remediation biologically available SWAC of 0.084 mg/kg for total PCBs. An in-situ pore water study is needed to evaluate the reduction in PCB bioavailability achieved at the site. Because of the uncertainty concerning detrimental effects, if any, of activated carbon on benthic community biodiversity and the relatively small aerial extent of impacts, this project will provide an opportunity to evaluate this issue as a demonstration project.

- d. **Polycyclic Aromatic Hydrocarbons.** Sediment sampling also revealed the presence of polycyclic aromatic hydrocarbons (PAHs) in sediment at the site. PAHs were not chemicals associated with the former TDY facility and likely are from a different source. Nonetheless, the proposed remedial footprint and design should reduce the SWAC for PAHs to a concentration of 0.31mg/kg, a level 47% below the background concentration of 0.663 mg/kg as discussed in the Dischargers' Technical Memorandum.<sup>14</sup>
11. **Shoreline Riprap Stabilization.** The remedy also includes shoreline riprap stabilization to prevent recontamination of the site from PCB contaminated sediment within the riprap. TDY's sampling of finer grained materials at the 30-inch SWCS outfall indicated that PCB contaminated sediment was deposited within portions of the riprap. Without the shoreline riprap stabilization component, this sediment will be a potential source of recontamination following remedial actions.
12. **Benthic Community Protection.** The residual concentrations of total PCBs in site sediment following remedial actions are not expected to have an unreasonable impact on the benthic community. Since benthic triad analyses were not done at the site, effects range median (ERM) values were compared to predicted residual total PCBs concentrations post-remedial actions as a conservative estimate of the potential for adverse chemically induced effects on the benthic community.

The ERM is a concentration above which effects are frequently or always observed among most species of biota for sediment effect concentrations used to evaluate sediment concentrations of trace elements and synthetic organic compounds. Furthermore, residual concentrations of biologically available total PCBs in the active remediation areas are expected to be well below the ERM concentration of 0.180 mg/kg. In the natural recovery area, where pre- and post-

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arenaceodontata and response to sorbent amendment. Environmental Science and Technology. 2009. Vol. 44, No.8, pp. 2857-2863.

<sup>14</sup> Geosyntec Consultants. 2014. Evaluation of a Sediment Remedial Option Demonstration Project for the 30-Inch SWCS Outfall in the Western Portion of the Laurel to Hawthorn Embayment, Technical Memorandum. July 16, 2014.

remediation concentrations are not expected to change, residual concentrations of total PCBs exceed the ERM at only three stations. Although this indicates a potential for adverse effects on the benthic community in less than 0.4 acres at the site, such an affect would not be unreasonable in light of the very limited extent of any adverse effect and the improvement to overall conditions at the site and because conditions at these and all stations are expected to improve as sediment and organic detritus are naturally deposited at the site over time.

13. **Monitoring Programs.** Pre-remediation, remediation, and post-remediation verification monitoring programs are needed to ensure that the background abatement concentration of total PCBs of 0.084 mg/kg is achieved at the site, and if the activated carbon has any adverse effects on the benthic community.
  - a. **Pre-Remediation Monitoring.** This monitoring is needed to collect data for the benthic biodiversity demonstration project, the bioavailability reduction bench scale study, the in-situ pore-water study, and for geotechnical analysis of the bay floor for support of the EMNR layer. Characterization of the benthic community is needed to provide information on the natural variability of the benthic community. This information will be used for comparison against post-remediation benthic community characterization to support the parallel evaluation of the potential effect of activated carbon on benthic biodiversity. The bench scale study is needed to determine the appropriate carbon addition rate to achieve the post-remediation biologically available SWAC of 0.084 mg/kg for total PCBs across the site. In-situ PCB pore water concentrations, sediment chemistry, grain size and sediment organic content data are needed to provide a baseline for comparison to post-remediation pore water concentrations to evaluate the reduction in PCB bioavailability achieved at the site. Geotechnical samples are needed to assess the potential for the EMNR material to significantly settle through or displace the contaminated sediment.
  - b. **Remediation Monitoring.** Monitoring during contaminated sediment removal is needed to ensure and document that remedial actions have not caused water quality standards to be violated outside of the sediment removal footprint. Monitoring immediately after the placement of the EMNR layer is also needed to ensure that the correct thickness has been achieved across the EMNR area.
  - c. **Post-Remediation Monitoring.** This monitoring is needed to verify that the post-remediation biologically available SWAC of 0.084 mg/kg for PCBs has been achieved and maintained following integration of the EMNR layer into underlying sediment. In-situ PCB pore water concentrations, sediment chemistry, grain size and sediment organic content data are needed to compare to baseline data to evaluate the reduction in PCB bioavailability achieved at the site. In addition, post-remediation monitoring

should include benthic community condition assessments to evaluate the overall impact of remediation on the benthic community re-colonization activities.

Sediment chemistry data has natural variability, which does not represent a true difference from expected average values. Therefore, if post-remedial monitoring SWAC results are within an acceptable range of the expected outcome, the remedial action will be considered successful.

14. **California Environmental Quality Act Compliance.** In many cases, an enforcement action such as this could be exempt from the provisions of the California Environmental Quality Act (CEQA); Public Resources Code, section 21000 et seq., because it would fall within Classes 7, 8, and 21 of the categorical exemptions for projects that would have been determined not to have a significant effect on the environment under section 21084 of CEQA. In this matter, the San Diego Water Board has determined that because mitigation measures will be utilized to render the effects of the project insignificant on the environment, the tentative CAO is not exempt from CEQA and an initial study and corresponding mitigated negative declaration was prepared.

As the lead agency for the tentative CAO, the San Diego Water Board prepared the initial study and corresponding mitigated negative declaration. The San Diego Water Board has reviewed and considered the information in the initial study and mitigated negative declaration and has adopted a statement accepting the findings and determinations in the mitigated negative declaration.

15. **Public Notice.** The San Diego Water Board has notified all known interested persons and the public of its intent to adopt this CAO, and has provided them with an opportunity to submit written comments, evidence, testimony, and recommendations.
16. **Cost Recovery.** Pursuant to Water Code section 13304, and consistent with other statutory and regulatory requirements, including but not limited to Water Code section 13365, the San Diego Water Board is entitled to, and will seek reimbursement for, all reasonable costs actually incurred by the San Diego Water Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this CAO.
17. **Qualified Professionals.** The Dischargers' reliance on qualified professionals promotes proper planning, implementation, and long-term cost effectiveness of investigation, and cleanup and abatement activities. Professionals should be qualified, licensed where applicable, and competent and proficient in the fields pertinent to the required activities. Business and Professions Code sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under the direction of licensed professionals.

**IT IS HEREBY ORDERED** that, pursuant to sections 13267 and 13304 of the Water Code, the Dischargers shall comply with the following directives:

**A. CLEANUP AND ABATE THE EFFECTS OF PCBs DISCHARGE.** The Dischargers shall take all corrective actions necessary to cleanup and abate the effects of sediments contaminated with PCBs in the Laurel Hawthorn Embayment of San Diego Bay adjacent to the 30-inch SWCS as described below.

1. **Abatement Level.** The Dischargers shall abate the effects of PCBs in sediments at the site to a biologically available SWAC of 0.084 mg/kg for total PCBs (abatement level). For all analyses associated with this project, total PCBs concentrations shall be expressed as the sum of the following 41 congeners.

*Congeners 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206.*

2. **Sediment Removal Area.** The Dischargers shall remove and properly dispose of the near-shore sediment in the area encompassing Polygons 1, 2, and 3 as shown on Figure 2 to a depth of 3 feet below the current bathymetric surface. The Dischargers shall backfill this area to the pre-existing bathymetric surface with sand.<sup>15</sup>
3. **Enhanced Monitored Natural Recovery Area (EMNR).** The Dischargers shall place a minimum of 4 inches (10 centimeters) with an average EMNR thickness of 6 inches (15 centimeters) of sand, amended with activated carbon in the amounts determined by the bench-scale assessment required in Directive B.1., over the areas of Polygons 1 through 17 and portions of adjacent polygons, as shown in Figure 3, encompassing an area of approximately 1 acre.
4. **Natural Recovery Area.** Active remediation is not required in the areas outside of the EMNR layer; however, the Dischargers shall include this area in the post remediation monitoring to determine achievement of the abatement level for the site.
5. **Shoreline Riprap Stabilization.** The Dischargers shall stabilize the shoreline riprap to prevent recontamination of the site from sediment contaminated with PCBs within the shoreline riprap adjacent to the site. The Dischargers shall install panels of articulated concrete mat over an

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<sup>15</sup> All imported sand will be sourced from a local quarry. The sand material will be documented to be freshly quarried, non-recycled, clean material.

underlayment consisting of a gravel sub-base covered by a geotextile. The panels must extend from the top of the existing riprap to the bay floor and must be anchored at the top of the slope.

The Dischargers shall install the articulated concrete mat in a manner that will allow groundwater flux across tidal cycles, encourage the development of shoreline habitat, be consistent with San Diego Unified Port District initiatives, protect the area from future scouring, transition the surrounding riprap grade, and minimize potential under scouring of the articulated concrete mat. The Dischargers shall extend the 30-inch SWCS outfall pipe to the face of the proposed overlying articulated concrete mat.

6. **Mitigation Measures.** The Dischargers shall perform the following mitigation measures to ensure that the project will not have a significant environmental impact.
  - a. **Eelgrass:** Conduct an eelgrass survey prior to any implementation of the project and manage, as necessary, in accordance with the Clean Water Act (CWA), which requires permitting from the Army Corps of Engineers. This survey will be completed in accordance with the Southern California Eelgrass Mitigation Policy (SCEMP) by a qualified biologist and will include both aerial and density characterization of the beds. In the event eelgrass is found during the pre-construction survey, a post-construction survey will be performed by a qualified biologist **within 30 calendar days** following project completion to qualify any unanticipated losses to eelgrass habitat. All mitigation will be done in accordance with SCEMP and the performance standards required under the CWA Section 404 and Water Quality Certification by the State under CWA Section 401.
  - b. **Silt Curtains:** The Dischargers will deploy and maintain silt curtains to contain suspended sediments or turbidity that may become suspended as a result of the remedial activity. The bottom of the silt curtain must be weighted with ballast weights or rods affixed to the base of the fabric to resist the natural buoyancy and lessen its tendency to move in response to currents. Where feasible and applicable, the floating silt curtains must be anchored and deployed from the surface of the water to just above the substrate. The silt curtain must be monitored for damage, dislocation or gaps and must be immediately repaired where it is no longer continuous or where it has loosened. The silt curtain must restrict any surface visible turbidity plume and must control and contain the mitigation of re-suspended sediments at the water surface and depth. All mitigation performed under this section must also adhere to the performance standards required under CWA

Section 404 and Water Quality Certification by the State under CWA Section 401.

- c. **Secondary Containment:** The Dischargers will utilize secondary containment measures to prevent the discharge of pollutants into the Bay from excavated sediments temporarily staged on the barge and during the dewatering and transportation of sediments for off-site disposal. This will mitigate the impacts to water quality to less than significant. All mitigation efforts must adhere to the performance standards required under CWA Section 404 and Water Quality Certification by the State under CWA Section 401.

7. **Permitting.** The Dischargers shall file all applicable permit applications necessary to implement/complete work, directed by this CAO, to the appropriate agencies **within 180 calendar days after adoption of the CAO.**

The corrective actions described in Directives A.2, A.3 and A.5 shall be completed **within 3 months** of approval of all required workplans and permits, if work can be completed outside of the Least Tern nesting season (typically April 1<sup>st</sup> through September 30<sup>th</sup>). If, upon approval of reports and permits, work cannot be completed due to the Least Tern nesting season, corrective actions shall be completed within one month following the end of the current nesting season.

- B. **PRE-REMEDIAL WORKPLAN AND IMPLEMENTATION.** The Dischargers shall submit a Pre-Remediation Workplan to the San Diego Water Board on or before **October 30, 2015**. The Workplan shall include, but is not limited to, the following:

1. **Bench Scale Activated Carbon Bioavailability Reduction Assessment.** The purpose of this bench scale assessment is to evaluate the efficacy of the remedial design to reduce the bioavailability of PCBs in sediment to the abatement level of 0.084 mg/kg. The bench scale evaluation must be adequate to determine the appropriate carbon addition rate to the EMNR layer needed to achieve the abatement level. The study must be adequate to evaluate the expected reduction in pore water total PCBs concentrations, provide a comparison of carbon amended microcosms to baseline samples, and determine the expected reduction in bioavailability induced by the addition of activated carbon. The study must include at least 5 microcosms from sediment collected from polygons 1, 2, and 3 where total PCB concentrations are highest.
2. **Geotechnical Evaluation.** The geotechnical evaluation of the site sediment must be adequate to determine if the sediment floor will be able to support the proposed placement of the approximately 6-inch EMNR

cover, and evaluate the potential for the EMNR material to significantly settle through or displace the underlying contaminated sediment.

3. **Pre-Remediation Benthic Community and Pore-Water Monitoring Study.** The purpose of the benthic community study is to sample and characterize the pre-remediation benthic community at the site to provide a baseline for comparison with post-remediation benthic community data to determine the impact, if any, of the activated carbon on the benthic community. Sediment samples shall be collected from the mid-range concentration station areas to reduce potential confounding factors (e.g. grain size, total organic carbon content, and differences in total PCB concentrations) and from a station outside of the EMNR area at or below the total PCBs background sediment quality concentration of 0.084 mg/kg. The study must include sorting, enumerating, taxonomically identifying, and evaluating macroinvertebrates for benthic community condition assessment using the four benthic indices required in the Bays and Estuaries Plan for assessment of benthic community conditions.<sup>16</sup>

The purpose of the pore-water study is to analyze in-situ pre-remediation pore-water concentrations for comparison with post-remediation in-situ pore-water concentrations to evaluate the reduction in PCB bioavailability achieved at the site. This study will also evaluate the relationships among sediment PCB concentrations, sediment grain size, and sediment organic content because these factors can affect bioavailability.

4. **Activities Completion Schedule.** The schedule must detail the sequence of activities and timeframe for each activity based on the shortest practicable time required to complete each activity.

Upon approval of the Pre-Remediation Workplan by the San Diego Water Board, the Dischargers shall implement the Workplan in accordance with the activities completion schedule in the approved Workplan.

### C. REMEDIAL ACTION PLAN AND IMPLEMENTATION.

1. **Remedial Action Plan.** The Dischargers shall prepare and submit to the San Diego Water Board a Remedial Action Plan (RAP). Submit the RAP to the San Diego Water Board **within 180 calendar days after adoption of the CAO**. The RAP must describe the activities needed to achieve a post-remediation SWAC equal to or less than the abatement level (Directive A.1) of 0.084 mg/kg for total PCBs at the site. At a minimum, the RAP must contain the following information:

- a. **Introduction.** A brief description of the Site and Site history.

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<sup>16</sup> State Water Resources Control Board. 2009. Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality. August 25, 2009.

- b. **Selected Remedy.** A detailed description of all of the remedial activities selected to attain a post remediation SWAC equal to or less than the abatement level.
- c. **Health and Safety Plan.** A Health and Safety Plan that includes employee training, protective equipment, medical surveillance requirements, standard operating procedures, and contingency plans.
- d. **Community Relations Plan.** A Community Relations Plan informing the public about (i) activities related to the final remedial design, (ii) the schedule for the remedial action, (iii) the activities to be expected during construction and remediation, (iv) provisions for responding to emergency releases and spills during remediation, and (v) any potential inconveniences such as excess traffic and noise that may affect the community during the remedial action.
- e. **Quality Assurance Project Plan.** A Quality Assurance Project Plan (QAPP) describing the project objectives and organization, functional activities, and quality assurance/quality control protocols as they relate to the remedial action. With regard to sampling and analysis, the QAPP must describe the goals of the sampling, the data needs and assessment, responsible individuals, quality assurance plan, quality control measures, and reporting deadlines. The QAPP must be consistent with State Water Board guidance resources.<sup>17</sup>
- f. **Sampling and Analysis Plan.** A Sampling and Analysis Plan defining (i) sample and data collection methods to be used for the project, (ii) a description of the media and parameters to be monitored or sampled during the remedial action, and (iii) a description of the analytical methods to be utilized and an appropriate reference for each.
- g. **Wastes Generated.** A description of the plans for management, treatment, storage, and disposal of all wastes generated by the remedial action.
- h. **Pre-Remediation Workplan Results.** The results of the Pre-Remediation Workplan studies described in Directive B, or other data collected to optimize the remedial design.
- i. **Design Criteria Report.** A Design Criteria Report that defines in detail the technical parameters upon which the remedial design will

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<sup>17</sup> [http://www.waterboards.ca.gov/water\\_issues/programs/quality\\_assurance/qapp.shtml](http://www.waterboards.ca.gov/water_issues/programs/quality_assurance/qapp.shtml)

be based. Specifically, the Design Criteria Report shall include the preliminary design assumptions and parameters, including (i) waste characterization; (ii) volume of sediment requiring removal, abatement, or containment; (iii) removal, abatement, or containment schemes and rates; (iv) required qualities of waste streams (i.e., input and output rates to stockpiles, influent and effluent qualities of any liquid waste streams such as dredge spoil return water, potential air emissions, and so forth); (v) performance standards; (vi) compliance with applicable local, State and federal regulations; and (vii) technical factors of importance to the design, construction, and implementation of the selected remedy including use of currently accepted environmental control measures, constructability of the design, and use of currently acceptable construction practices and techniques.

- j. **Regulatory Permits and Approvals.** A list of required federal, State and local permits or approvals to conduct the remedial action.
  - k. **Remediation Monitoring Plan.** A Remediation Monitoring Plan consisting of (i) sediment monitoring and (ii) disposal monitoring. The water quality monitoring must be sufficient to demonstrate that implementation of the selected remedial activities do not result in violations of water quality standards outside the construction area. The sediment monitoring must be sufficient to confirm that the selected remedial activities have achieved target cleanup levels within the remedial footprint specified in Directive D.4. The disposal monitoring must be sufficient to characterize the dredged sediments in order to identify appropriate disposal options.
  - l. **Site Map.** A site map showing the location of buildings, roads, property boundaries, remedial equipment locations, and other information pertinent to the remedial action.
  - m. **Contingencies.** A description of any additional items necessary to complete the RAP.
  - n. **Remediation Schedule.** A schedule detailing the sequence of events and timeframe for each activity based on the shortest practicable time required to complete each activity.
2. **Remedial Action Plan Implementation.** In the interest of promoting prompt cleanup, the Dischargers may undertake activities described in the RAP **60 calendar days** after submittal to the San Diego Water Board, unless otherwise directed in writing by the San Diego Water Board. The Dischargers shall complete the activities described in the RAP based on

the remediation schedule in the RAP. Before beginning to implement the RAP, the Dischargers shall:

- a. Notify the San Diego Water Board at least **14 calendar days** prior to beginning cleanup and abatement activities; and
- b. Comply with any conditions set by the San Diego Water Board, including mitigation of adverse consequences from cleanup and abatement activities.

The Dischargers shall modify or suspend cleanup and/or abatement activities when directed to do so by the San Diego Water Board.

**D. POST REMEDIATION PLANS AND REPORTS.** For convenience, post remediation plans and reports in this Directive may be submitted in a single document along with the RAP or as separate documents.

1. **Post Remediation Performance Report.** The Dischargers shall prepare and submit to the San Diego Water Board a Post Remediation Performance Report **within 90 calendar days** of completion of remediation activities documenting removal of contaminated sediment, the placement of the EMNR layer, and the shoreline riprap stabilized as specified in the remediation design. The report shall include visual observations by divers and results from sediment profile imaging from several areas across the EMNR layer area.
2. **Post Remediation Monitoring Plan.** The Dischargers shall prepare and submit a Post Remediation Monitoring Plan to the San Diego Water Board **within 180 calendar days after adoption of the CAO**. The Monitoring Plan shall include the following elements:
  - a. **Quality Assurance Project Plan.** A QAPP describing the project objectives and organization, functional activities, and quality assurance/quality control protocols for the post remediation monitoring.
  - b. **Sampling and Analysis Plan.** A Sampling and Analysis Plan defining (i) sample and data collection methods to be used for monitoring, (ii) a description of the media and parameters to be monitored or sampled, and (iii) a description of the analytical methods to be utilized and an appropriate reference for each.
  - c. **Sediment Chemistry.** The collection of surface sediment grab samples at the 26 stations sampled in the Dischargers' initial delineation of the site for the purpose of calculating the post-remediation biologically available SWAC for total PCBs. To

calculate the post-remediation SWAC, the total PCBs sediment sample concentrations from stations in the EMNR layer area shall be reduced by the percent reduction in bioavailability determined in the Bench Scale Activated Carbon Bioavailability Reduction Assessment.

- d. **Activities Completion Schedule.** A schedule detailing the sequence of events and timeframe for each activity based on the shortest practicable time required to complete each activity.

Upon approval of the plan by the San Diego Water Board, implement the Post-Remediation Monitoring Plan according to the activities completion schedule in the approved plan.

3. **Post Remediation Benthic Community and Pore-Water Monitoring Plan and Report**

- a. **Monitoring Plan.** The Dischargers shall submit a Post-Remediation Benthic Community and Pore-Water Monitoring Plan. The Plan must include activities and analyses capable of characterizing the post-remediation benthic community at the site to determine the health and recovery of the benthic community, and the impact, if any, of the activated carbon in the EMNR layer on the benthic community. The timeframe for this monitoring shall not be less than one year after completion of the remedial activities. The Plan must include activities and analyses capable of producing pore-water and related data for comparison to the pre-remediation pore-water and related data. Submit the Plan to the San Diego Water Board **within 180 calendar days after adoption of the CAO**. At a minimum, the Monitoring Plan shall include the following elements:

- i. Sediment samples shall be collected from the mid-range concentration station areas to reduce potential confounding factors (e.g. grain size, total organic carbon content, and differences in total PCB concentrations) and from a station outside of the EMNR area at or below the total PCBs background sediment quality concentration of 0.084 mg/kg.
- ii. Sorting, enumerating, taxonomically identifying, and evaluating macroinvertebrates for benthic community condition assessment using the four benthic indices required in the Bays and Estuaries Plan for assessment of benthic community conditions.<sup>18</sup>

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<sup>18</sup> State Water Resources Control Board. 2009. Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality. August 25, 2009.

- iii. In-situ pore-water and sediment samples shall be collected from the mid-range concentration station areas to evaluate the reduction in the bioavailability of PCBs in the EMNR area using pore-water, and the relationships among sediment PCB concentrations, sediment grain size, sediment organic content, and pore-water PCB concentrations post-remediation.
- iv. An activities completion schedule detailing the sequence of events and timeframe for each activity based on the shortest practicable time required to complete each activity.

Upon approval of the plan by the San Diego Water Board, implement the Post-Remediation Benthic Community Monitoring Plan according to the activities completion schedule in the approved plan.

- b. **Monitoring Report.** The Dischargers shall submit a Post-Remediation Benthic Community and Pore-Water Monitoring Report documenting the results, conclusions, and recommendations from implementation of the Post-Remediation Benthic Community and Pore-Water Monitoring Plan. Submit the report to the San Diego Water Board **within 90 calendar days** after completion of activities in the Post-Remediation Benthic Community and Pore-Water Monitoring Plan. The report shall contain, but not be limited to, the following information:
  - i. A comparison of the ranges of pre- and post-remediation benthic index rankings to provide information on the impact of the activated carbon in the EMNR layer area;
  - ii. An evaluation, interpretation and tabulation of monitoring data including interpretations and conclusions regarding the potential presence and chemical characteristics of any newly deposited sediment within the cleanup areas, and interpretations and conclusions regarding the health and recovery of the benthic communities;
  - iii. An evaluation of the reduction in PCB bioavailability in the EMNR area based on the in-situ pore water study data; and
  - iv. The locations, type, and number of samples identified and shown on a site map.

4. **Post-Remediation Monitoring Report/ Final Cleanup and Abatement Completion Report.** The Dischargers shall submit a Post-Remediation Monitoring Report to the San Diego Water Board **within 90 calendar days** after completion activities in the Post-Remediation Monitoring Plan. The report must describe the results of the post remediation monitoring and must include a calculation of the post-remediation SWAC for total PCBs. To calculate the post-remediation SWAC, the total PCBs sediment sample concentrations from polygons in the EMNR layer area shall be reduced by the percent reduction in bioavailability determined in the Bench Scale Activated Carbon Bioavailability Reduction Assessment. The report must include recommendations for additional monitoring, if warranted. The report must contain a statement verifying all mitigation measures contained in Directive A.6 were performed and completed.

To account for natural variability in sediment concentration, the project goals will have been met if the post-remediation SWAC is less than or equal to 0.092 mg/kg (110% of the abatement level).

If project goals have been achieved, this report will serve as the Final Cleanup and Abatement Completion Report, verifying completion of the RAP and the post-remediation monitoring and reporting activities. The report shall provide a demonstration, based on a sound technical analysis, that the sediment quality abatement level of 0.084 mg/kg for total PCBs has been achieved at the site.

If project goals have not been achieved, this will be an interim Cleanup and Abatement Report. An Exceedance Investigation and Characterization Workplan will then be required as described in Directive E.

- E. **EXCEEDANCE INVESTIGATION AND CHARACTERIZATION WORKPLAN.** If the measured post-remediation SWAC exceeds 0.092 mg/kg, the Dischargers shall conduct an Exceedance Investigation and Characterization Workplan to determine the causes of the exceedance. There are several lines of investigation that may be pursued, individually or in combination, depending on the scope and scale of the exceedance and site-specific conditions. These include, but are not limited to:

1. Identification of specific samples or a specific subarea that caused the excursion using surrounding post remediation monitoring data and historical data as appropriate.
2. Resampling to refine the SWAC grid and recalculation of the post-remediation SWAC.

3. Evaluation of changes in site conditions as a result of disturbances since the previous sampling event from spills, major storm events, construction activities, newly discovered pollutant sources, or other causes.

If an Exceedance Investigation and Characterization Workplan is necessary, the Dischargers shall consult with the San Diego Water Board, and submit a Workplan **within 60 calendar days** of reporting the exceedance in the Post-Remediation Monitoring Report. Upon approval of the plan by the San Diego Water Board, the Dischargers shall implement the approved plan.

- F. EXCEEDANCE INVESTIGATION AND CHARACTERIZATION REPORT.** If an Exceedance Investigation and Characterization Workplan is implemented, the Dischargers shall prepare and submit to the San Diego Water Board an adequate Exceedance Investigation and Characterization Report describing the final results of the Exceedance Investigation and Characterization Workplan. Submit the Report to the San Diego Water Board **within 90 calendar days** of the implementation of the Exceedance Investigation Workplan, or as otherwise directed by the San Diego Water Board. If the exceedance is found to be representative of site sediment chemistry, the report shall include:

1. A workplan describing an approach, or combination of approaches, for addressing the exceedance by additional sampling of the affected area, additional removal of contaminated sediment, additional placement of EMNR material, natural recovery, or other appropriate methods.
2. An activities completion schedule. The schedule must detail the sequence of activities and timeframe for each activity based on the shortest practicable time required to complete each activity.

Upon approval of the Workplan by the San Diego Water Board, implement the Workplan in accordance with the activities completion schedule in the approved Workplan.

- G. REPORTS AND WORKPLANS.** The Dischargers shall prepare and submit all required plans and reports described in Directives B, C, D, E, and F of this CAO to the San Diego Water Board for review and approval. The San Diego Water Board intends to make these plans/reports available to the public for review and will consider public comments prior to approving any plan or report.
- H. NO FURTHER ACTION.** Upon approval by the San Diego Water Board of the Post Remediation Monitoring Reports/Final Cleanup and Abatement Completion Report (Directive D.4) remedial actions and monitoring will be complete and compliance with this CAO will be achieved. At that time, the San Diego Water Board will inform the Dischargers and other interested persons in writing that, based on available information, no further remedial work is required.

**I. PROVISIONS.**

1. **Cost Recovery.** The Dischargers shall reimburse the State of California for all reasonable costs actually incurred by the San Diego Water Board and State Water Board to investigate, oversee, and monitor cleanup and abatement actions required by this CAO, including the cost to prepare CEQA documents according to billing statements prepared from time to time by the State Water Board.
2. **Waste Management.** The Dischargers shall properly manage, store, treat, and dispose of contaminated marine sediment and associated wastes in accordance with applicable federal, State, and local laws and regulations. The storage, handling, treatment, or disposal of contaminated marine sediment and associated waste shall not create conditions of pollution, contamination, or nuisance as defined in Water Code section 13050. The Dischargers shall, as required by the San Diego Water Board, obtain, or apply for coverage under, waste discharge requirements or a conditional waiver of waste discharge requirements for the removal of waste from the immediate place of release and discharge of the waste to (a) land for treatment, storage, or disposal or (b) waters of the State. No waste discharge requirements or conditional waiver of waste discharge requirements shall be required for disposal of marine sediment and associated waste in a landfill regulated under existing waste discharge requirements.
3. **Request to Provide Information.** The Dischargers may present characterization data, preliminary interpretations, and conclusions as they become available, rather than waiting until a final report is prepared. This type of on-going interaction will facilitate problem solving, and technical dispute resolution between the Dischargers and the San Diego Water Board. Furthermore, this approach will likely reduce the time needed by the Board to grant regulatory approval.
4. **Waste Constituent Analysis.** Unless otherwise permitted by the San Diego Water Board, conduct all analyses at a laboratory certified for such analyses by the State Water Resources Control Board, Division of Drinking Water. Identify all specific methods used for analyses. If the Dischargers proposes to use methods or test procedures other than those included in the most current version of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846" (U.S. Environmental Protection Agency) or 40 CFR 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification," the exact methodology must be submitted for review and must be approved by the San Diego Water Board prior to use. The director of the laboratory whose name appears on the certification shall

supervise all analytical work in his/her laboratory and shall sign all reports submitted to the San Diego Water Board.

Any report presenting new analytical data is required to include the complete Laboratory Analytical Report(s). The Laboratory Analytical Report(s) must be signed by the laboratory director and contain:

- a. A complete sample analytical report.
- b. A complete laboratory quality assurance/quality control (QA/QC) report.
- c. A discussion of the sample and QA/QC data.
- d. A transmittal letter that must indicate whether or not all the analytical work was supervised by the director of the laboratory, and contain the following statement:

“All analyses were conducted at a laboratory certified for such analyses by the State Water Resources Control Board’s Division of Drinking Water in accordance with current USEPA procedures.”

5. **Duty to Operate and Maintain.** The Dischargers shall, at all times, properly operate and maintain all facilities and systems of treatment, control, storage, disposal, and monitoring (and related appurtenances) which are installed or used by the Dischargers to achieve compliance with this CAO. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities, which are installed by the Dischargers only when the operation is necessary to achieve compliance the conditions of this CAO.
6. **Field Work Notice.** The Dischargers shall give the San Diego Water Board at least **14 calendar days** advance notice of all field work or field activities to be performed by the Dischargers pursuant to this CAO; provided, however, that in a given instance, if it is impossible for the Dischargers to provide such notice, the Dischargers shall provide notice to the San Diego Water Board of all such field work or activities as far in advance of such work as is possible. In any event, any notification pursuant to this Provision shall be given at least 48 hours prior to the given field activities, unless the San Diego Water Board agrees otherwise.
7. **Duty to Use Registered Professionals.** The Dischargers shall provide documentation that plans and reports, required under this CAO, are prepared under the direction of appropriately qualified professionals. Business and Professions Code sections 6735, 7835, and 7835.1 require

that engineering and geologic evaluations and judgments be performed by or under the direction of licensed professionals. A statement of qualifications and license numbers of the responsible lead professionals shall be included in all plans and reports submitted by the Dischargers. The lead professional shall sign and affix their license stamp to the report, plan, or document.

8. **Duty to Submit Other Information.** When the Dischargers become aware that it failed to submit any relevant facts in any report required under this CAO, or submitted incorrect information in any such report, the Dischargers shall promptly submit in writing such facts or information to the San Diego Water Board.
9. **Corporate Signatory Requirements.** All reports required under this CAO shall be signed and certified by a responsible corporate officer of the Dischargers described in paragraph a of this provision or by a duly authorized representative of that person as described in paragraph b of this provision.
  - a. **Responsible Corporate Officer(s).** For the purposes of this provision, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
  - b. **Duly Authorized Representative.** A person is a duly authorized representative only if:
    1. The authorization is made in writing by a person described in paragraph a of Provision 9;
    2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant

manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual (a duly authorized representative may thus be either a named individual or any individual occupying a named position); and

3. A written authorization is submitted to the San Diego Water Board.
  - c. **Changes to Authorization.** If an authorization under paragraph b of this provision is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph b of this provision must be submitted to the San Diego Water Board prior to or together with any reports or information to be signed by an authorized representative.
10. **Penalty of Perjury Statement.** All reports must be signed by the Dischargers' responsible corporate officer or its duly authorized representative, and must include the following statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."
  11. **Amendment.** This CAO in no way limits the authority of the San Diego Water Board to institute additional enforcement actions or to require additional investigation and cleanup consistent with the Water Code. The San Diego Water Board may revise this CAO as additional information becomes available.
  12. **Time Extensions.** If, for any reason, the Dischargers are unable to perform any activity or submit any documentation in compliance with requirements in this CAO, including the RAP, or in compliance with associated implementation schedules, including the RAP implementation schedule, the Dischargers may request, in writing, an extension of time. The written extension request shall include justification for the delay and

shall be sent to the San Diego Water Board reasonably (**within 14 calendar days**) in advance of the deadline sought to be extended. An extension may be granted for good cause, in which case this CAO will be accordingly amended.

13. **Community Relations.** The Dischargers shall cooperate with the San Diego Water Board in providing information regarding the remediation of the Site to the public. If requested by the San Diego Water Board, the Dischargers shall participate in the preparation of such information for distribution to the public and in public meetings which may be held or sponsored by the San Diego Water Board to explain activities at/or relating to this cleanup.

- J. **DOCUMENT SUBMITTALS.** Unless otherwise notified by the San Diego Water Board, the Dischargers shall submit one electronic, searchable Portable Document Format (PDF) copy of all technical reports, monitoring reports, progress reports, and plans required under this CAO to:

Executive Officer  
California Regional Water Quality Control Board, San Diego Region  
2375 Northside Drive, Suite 100  
San Diego, California 92108-2700  
Attn: Southern Cleanup Unit

Upload all documents in PDF format into the Geotracker database, as required by Provision K below. Larger documents shall be divided into separate files at logical places in the report to keep the file sizes under 150 megabytes. The Dischargers shall continue to provide a paper transmittal letter, a paper copy of all figures larger than 8.5 inches by 14 inches (legal size), and an electronic copy (on a CD or other appropriate media) of all documents to the San Diego Water Board. All correspondence and documents submitted to the San Diego Water Board shall include the following Geotracker Site ID in the header or subject line:

**T10000006060**

- K. **ELECTRONIC DATA SUBMITTALS.** The Electronic Reporting Regulations require electronic submission of any report or data required by a regulatory agency from a cleanup site after July 1, 2005.<sup>19</sup> All information submitted to the San Diego Water Board in compliance with this CAO is required to be submitted electronically via the Internet into the Geotracker database at <http://geotracker.waterboards.ca.gov/> (Geotracker Site ID **T10000006060**). The electronic data shall be uploaded on or prior to the regulatory due dates set forth in the CAO or addenda thereto. In addition, the Dischargers shall upload analytical results and sample location information into the California Environmental Data Exchange Network (CEDEN), which is a central

<sup>19</sup> California Code of Regulations title 23 division 3 chapter 30, and title 27 division 3.

location/database to find and share information about California's water bodies, including streams, lakes, rivers, and the coastal ocean.<sup>20</sup> To comply with these requirements, the Dischargers shall upload to the Geotracker and CEDEN databases the following minimum information.

1. **Geotracker Database.**

- a. **Site Map.** Site map or maps, which display discharge locations, sampling locations for all sediment samples. The site map is a stand-alone document that may be submitted in various electronic formats. A site map must also be uploaded to show the extent of Site-related chemical impacts in sediment. An update to the site map may be uploaded at any time.
- b. **Electronic Report.** A complete copy (in searchable PDF format) of all workplans, assessment, cleanup, and monitoring reports including the signed transmittal letters, professional certifications, and all data presented in the reports.

2. **CEDEN Database.**

Submit study data in the appropriate format for upload into the California Environmental Data Exchange Network (CEDEN), or an alternative State database if directed by the Executive Officer.

Check the CEDEN website at <http://www.ceden.org/> for information on procedures for submitting data for upload into CEDEN.

**L. VIOLATION REPORTS.** If the Dischargers violate any requirement of this CAO, then the Dischargers must notify the San Diego Water Board office by telephone and electronic mail as soon as practicable once the Dischargers have knowledge of the violation. The San Diego Water Board may, depending on violation's severity, require the Dischargers to submit a separate technical report on the violation within five working days of telephone notification. In addition, a violation may subject the Dischargers to a future enforcement action.

**M. NOTIFICATIONS.**

1. **Enforcement Discretion.** The San Diego Water Board reserves its right to take any enforcement action authorized by law for violations of the terms and conditions of this CAO. In addition, as set forth in paragraph 10, Proposed Remedial Footprint and Remedial Design, the potential risk posed by contaminants at issue at the site will be addressed through partial removal and abatement. The San Diego Water Board reserves any

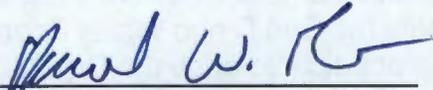
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<sup>20</sup> California Environmental Data Exchange Network (CEDEN) <http://www.ceden.org>.

and all of its rights with respect to any contaminants left at the site by the Discharger.

2. **All Applicable Permits.** This CAO does not relieve the Dischargers of the responsibility of obtaining permits or other entitlements to perform necessary corrective action. This includes, but is not limited to, actions that are subject to local, State, and/or federal discretionary review and permitting.
3. **Enforcement Notification.** Failure to comply with requirements of this CAO may subject the Dischargers to further enforcement action, including but not limited to administrative enforcement orders requiring you to cease and desist from violations, and imposition of administrative civil liability pursuant to Water Code sections 13268 and 13350. Failure to comply may also result in referral to the State Attorney General for injunctive relief and/or referral to the District Attorney for criminal prosecution.
4. **Requesting Administrative Review by the State Water Board.** Any person affected by this action of the San Diego Water Board may petition the State Water Board to review the action in accordance with section 13320 of the Water Code and CCR Title 23 section 2050. The State Water Board (Office of Chief Counsel, P.O. Box 100, Sacramento, California 95812) must receive the petition **within 30 calendar days of the date of this CAO**. Copies of the law and regulations applicable to filing petitions will be provided upon request.

Ordered by:

  
\_\_\_\_\_  
David W. Gibson  
Executive Officer

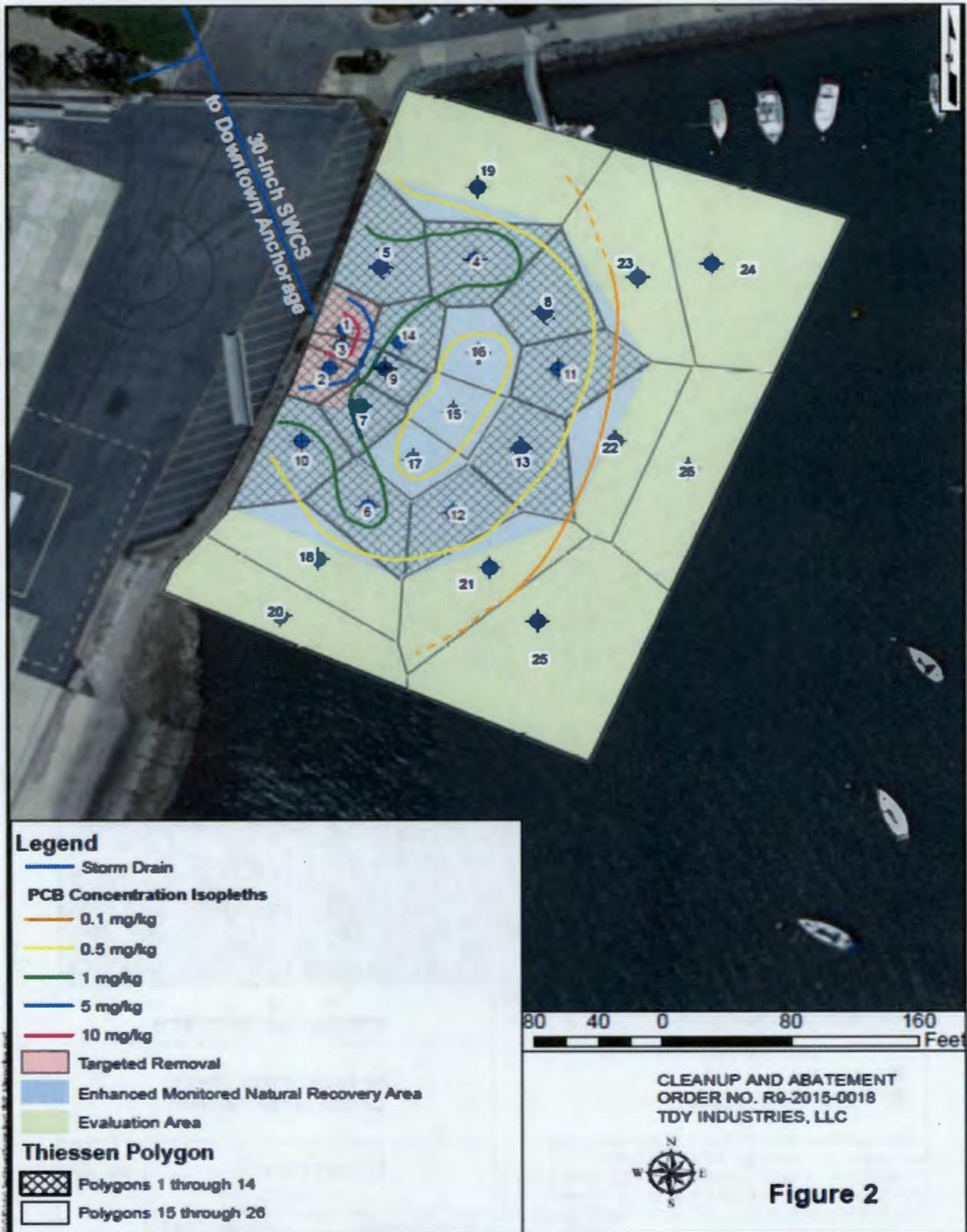
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Date

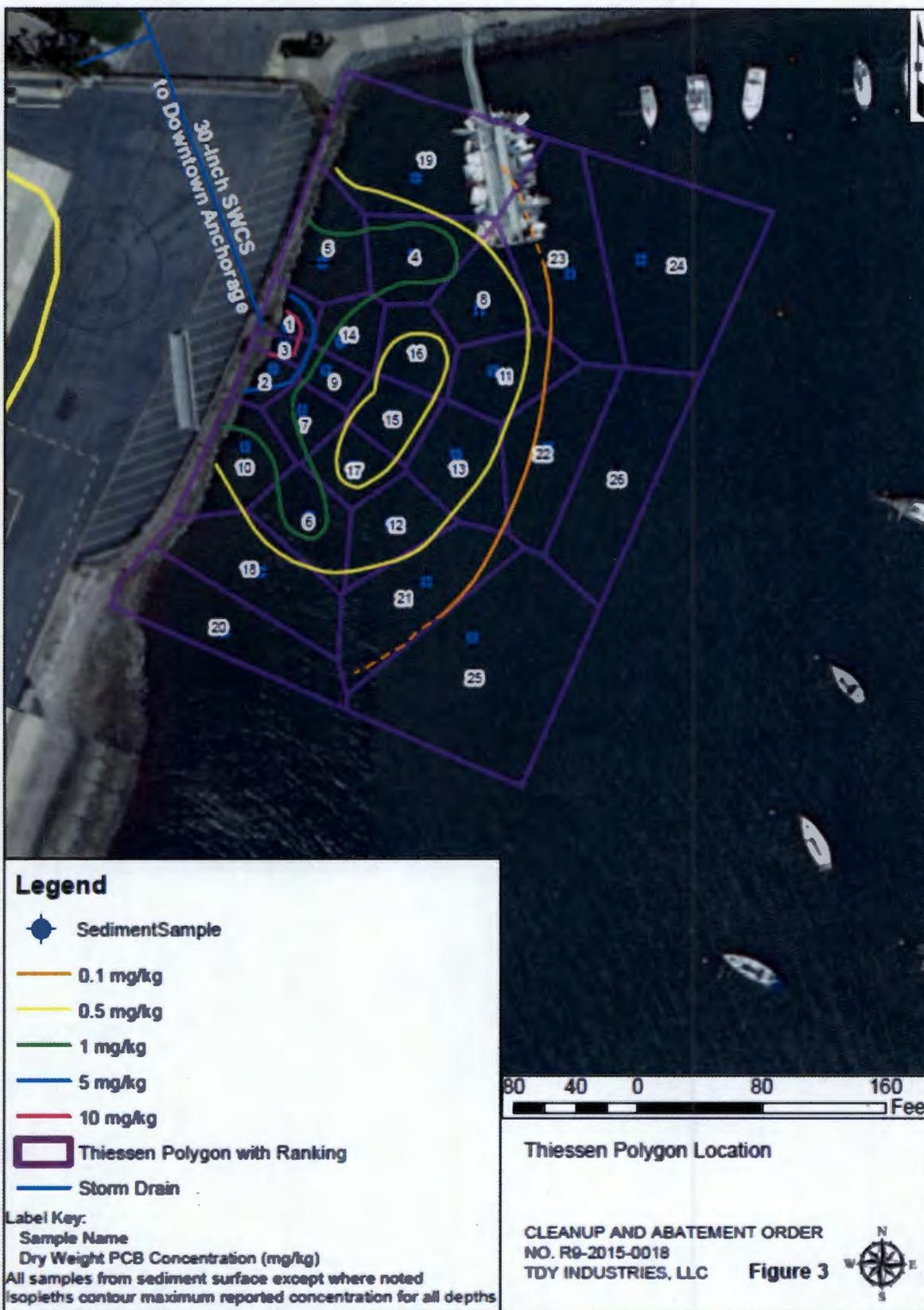
### Summary of Required Submittals and Their Due Dates

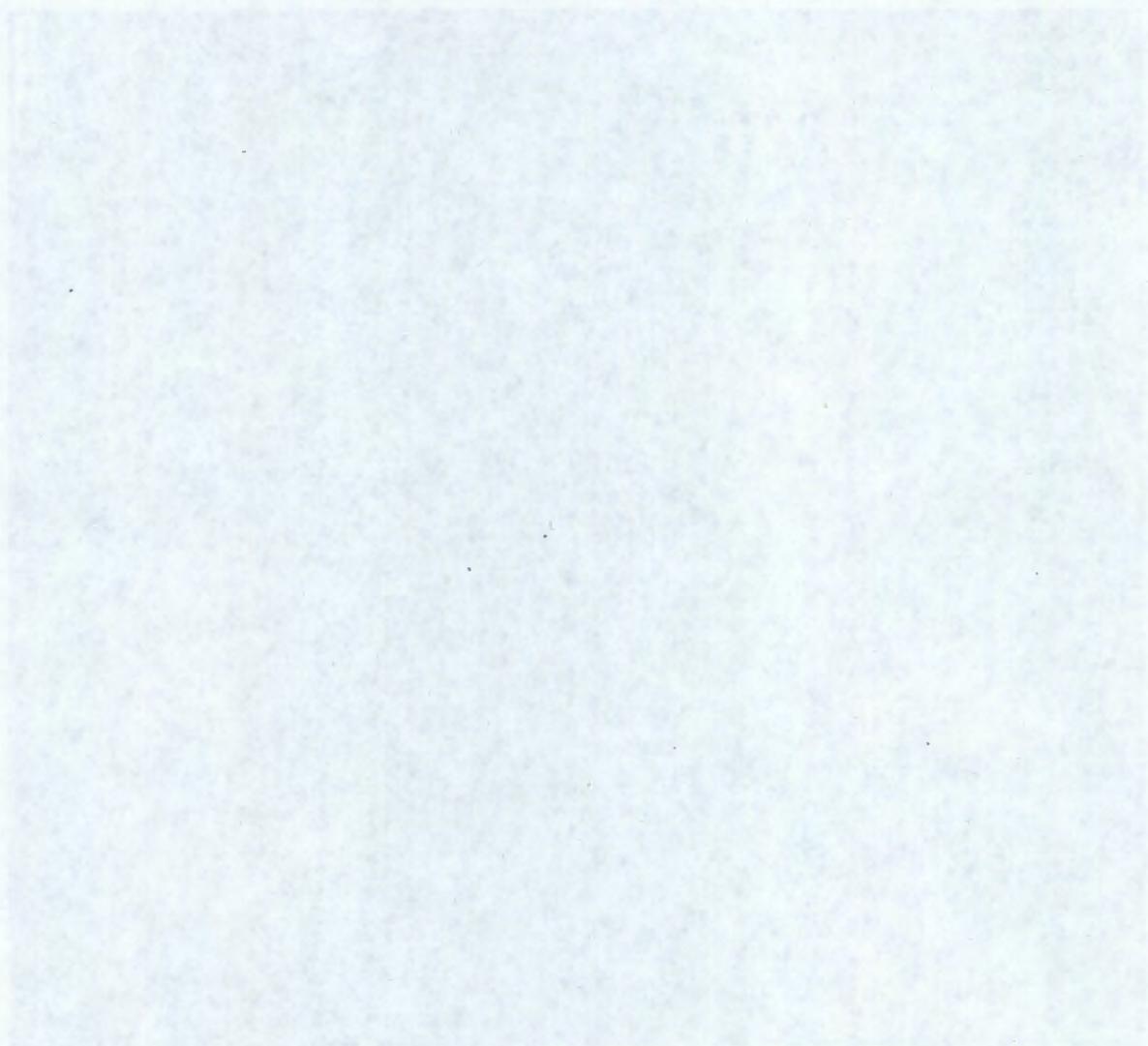
Directive	Document	Due Date
A.2., A.3., A.5.	Sediment Removal, EMNR Placement, Riprap Stabilization	Within 3 months of approval of all required workplans and permits, if work can be completed outside of the Least Tern nesting season (April through September). If, upon approval of reports and permits, work cannot be completed due to the Least Tern nesting season, corrective actions shall be completed within one month following the end of the current nesting season.
A.7.	File all applicable permits	Within 180 calendar days after adoption of the CAO
B	Pre-Remediation Workplan	October 30, 2015
C.1.	Remedial Action Plan (RAP)	Within 180 calendar days after adoption of the CAO
D.1.	Post Remediation Performance Report	Within 90 calendar days after completion of remediation activities
D.2.	Post Remediation Monitoring Plan	Within 180 calendar days after adoption of the CAO
D.3.a.	Post Remediation Benthic Community and Pore-Water Monitoring Plan	Within 180 calendar days after adoption of the CAO
D.3.b.	Post Remediation Benthic Community and Pore-Water Monitoring Report	Within 90 calendar days after completion of activities in the Post-Remediation Benthic Community and Pore-Water Monitoring Plan

D.4.	Post Remediation Monitoring Report	Within 90 calendar days after completion activities in the Post-Remediation Monitoring Plan
E.	Exceedance Investigation and Characterization Workplan (if required)	Within 60 calendar days after report of exceedance
F.	Exceedance Investigation and Characterization Report (if required)	Within 90 calendar days after implementation of Exceedance Investigation and Characterization Workplan









Date	Description