- Mercury ranking = 13 of 66 polygons
- HPAH ranking = 36 of 66 polygons
- PCB ranking = 20 of 66 polygons
- TBT ranking = 36 of 66 polygons

Chemistry is below conservative biological benchmarks:

- No exceedances of 60% LAETs
- SS-MEQ = 0.72 (less than 0.90 benchmark)

No direct evidence of impacts to benthic community:

- Non-Triad Station in Phase 2
- Triad Station in 2009: "Possible" benthic impacts
- DTR chemistry score = moderate
  SQGQ1 is less than 1.0. Only one chemical exceeds both DTR SQG and UPL.
- DTR toxicity score = low
  Amphipod, and urchin tests both scored above reference LPL.
- DTR benthic disturbance score = moderate
  The total abundance is below that found in the reference condition. However, the other three indicators show no sign of disturbance. BRI is below the reference UPL. Number of taxa and diversity index are above reference LPL. The relatively low abundance is likely the result of physical disturbance in this area, due to dry dock operations.
- No SPI data

Attachment A, Exponent Critique, at 23-25; Attachment F, Exponent, Summary of Need to Remediate NASSCO Stations, REVISED (June 23, 2011).

[NASSCO Comment No. 384, TCAO, at ¶ 32, 33, DTR, at 32, 33, Appendices 32, 33]

Port Comment No. 22 (Exhibit No. 4, Declaration of Expert Ying Poon, ¶ 6): I evaluated the assertions made in the Exponent Report that Chollas Creek is a source of toxic discharges to the Shipyard Sediment Site (the "Site"). The Exponent Report assertion is based on the Schiff Report which showed the spreading of fresh water and suspended sediment plumes over the Site during two monitored rain events. The Exponent Report assertion assumes that suspended sediments traveling with the fresh water plume will deposit to the shipyard beds even though the Schiff Report did not show any measurement of where the suspended sediments would have been settled during the two rain events.

The Port has not yet provided the Regional Board or the Designated Parties with Dr. Poon's hydrodynamic and water quality numerical model (the Bay Model), summarized in his declaration. While he has applied a well known hydrodynamic and water quality model, he provides no description of the model grid and the limited description of the data used to set up the model and the data used to calibrate and verify the model is well below standard modeling practice. Accordingly, it is impossible to verify his conclusions. A model cannot be properly

evaluated unless there is a demonstration that the model input data were representative and that the model calibration and validation results were a reasonable representation of actual field data.

It is notable, however, that Dr. Poon concludes that sediment is transported by Chollas Creek storm water flows to the Site. Attachment A, Exponent Critique, at 26.

[NASSCO Comment No. 385, TCAO, at ¶ 30, 32, 33, DTR, at 30, 32, 33, Appendices 32, 33]

Port Comment No. 23 (Exhibit No. 4, Declaration of Expert Ying Poon, ¶ 12): The Bay Model shows that, during a 1-year flood event and a 100-year flood, the clay and silt deposition patterns differ from the transport patterns of salinity and suspended sediment. The fresh water plume extends throughout the Site, showing a northward transport. The suspended sediment plume is visible in the Site, but the clay deposition pattern shows that most of the clays will settle elsewhere in the bay. The silt mainly deposited near the creek mouth, with some deposited in the shipyard areas and further north. The clay and silt deposition patterns determined from the Bay Model were consistent with the other sediment transport studies conducted by the U.S. Navy for Chollas Creek.

Dr. Poon's conclusions are not credible. As stated above, while he has applied a well known hydrodynamic and water quality model, he provides no description of important data used to set up the model and the data used to calibrate and verify the model. For example, there is no mention in Dr. Poon affidavit of the distribution of particle sizes that he assumed for Chollas Creek runoff. This is a critical issue, because if the distribution is too coarse, the particles settle out too soon and if too fine, the particles settle out too slowly or not at all.

Another critical problem with Dr. Poon's declaration is that he relies on the model's portrayal of the deposition of clay and silt size particles based on his characterization of inflow from Chollas Creek and ignores sediment data which indicates where clay and silt size particles derived from Chollas Creek actually do settle out. For example, Figures A-3 through A-5 of SCWRP, 2005, Sediment Assessment Study for the Mouths of Chollas and Paleta Creek, San Diego Phase I Report (SCCWRP and U.S. Navy, 2005): Appendix A – F, clearly shows deposition of not only silt, but also clay even within the mouth of Chollas Creek, as shown in Figure 2 below. For this reason, Dr. Poon's statement that fine-grained particles settle out in the mouth of Chollas Creek and that clay-size particle are dispersed throughout the Bay with very minimal deposition in the SY should not be considered.

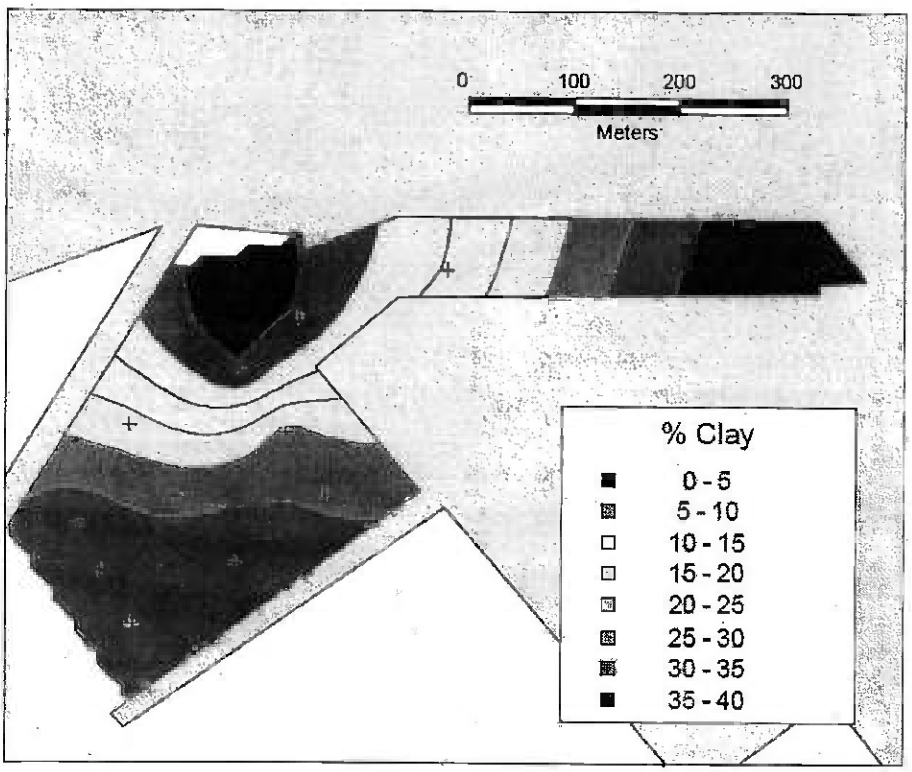


Figure 2. Shown is Figure A-4 from SCCWRP (2005) depicting the distribution of clay a Chollas Creek.

Attachment A, Exponent Critique, at 26-28.

[NASSCO Comment No. 386, TCAO, at ¶ 30, 32, 33, DTR, at 30, 32, 33]

Port Comment No. 24 (Exhibit No. 4, Declaration of Expert Ying Poon, ¶ 13): Based on the Bay Model simulation results, the Exponent Report overestimates Chollas Creek as a source of toxics to the Site based on the results shown in the Schiff Report. This is because:

a. **Transport of the fresh water flows from Chollas Creek moves northward during ebb tides and southward during flood tides;**

b. **A snapshot of the fresh water plume does not necessarily reflect the corresponding sediment deposition patterns;**

c. **Clay-sized particles from Chollas Creek are predominantly transported throughout the entire San Diego Bay; and**

d. **Silt-sized particles from Chollas Creek tend to deposit shortly after entering the bay near the creek mouth.**

Dr. Poon's conclusions are not credible for the reasons set forth NASSCO's Comment Nos. 385 - 386, Replying to Port Comment No. 22-23.
[NASSCO Comment No. 387, TCAO, at ¶ 30, 32, 33, DTR, at 30, 32, 33, Appendices 32, 33]

Port Comment No. 25 (Exhibit No. 4, Declaration of Expert Ying Poon, ¶ 14): Consequently, for a 100-year rain event, the predicted clay deposition thicknesses at the Site are less than .04 mm and the predicted silt deposition thickness is less than 1 mm. For the more typical 1-year rain event, the predicted clay deposition thickness at the Site is .002 mm and the predicted silt deposition thicknesses are less than .05 mm.

Dr. Poon's conclusions are not credible for the reasons set forth NASSCO's Comment Nos. 385 - 386, Replying to Port Comment No. 22-23.
[NASSCO Comment No. 388, TCAO, at ¶ 30, 32, 33, DTR, at 30, 32, 33, Appendices 32, 33]

Port Comment No. 26 (Exhibit No. 4, Declaration of Expert Ying Poon, ¶ 15): Given these results, it is unlikely that Chollas Creek would be a major source of contaminants that bind with fine sediments to the NASSCO and BAE shipyards. Even under are 100-year event, sediment deposition at the Site was predicted to be insignificant compared to the proposed remedial dredge depths. Based on the remedial footprints and dredged volumes specified in Tentative Cleanup and Abatement Order No. R9-2011-0001, the remedial dredge depths for BAE and NASSCO were estimated to be approximately 1.4 m and 1.9 m, respectively. The Bay Model results show that it would take thousands of 100-year rain events for sediment discharging from Chollas Creek to have accumulated to similar thicknesses at the remedial dredge depths.

Dr. Poon's conclusions are not credible for the reasons set forth NASSCO's Comment Nos. 385 - 386, Replying to Port Comment No. 22-23.

[NASSCO Comment No. 389, TCAO, at ¶ 30, 32, 33, DTR, at 30, 32, 33, Appendices 32, 33]

LATHAM & WATKINS LLP
Robert M. Howard (SB No. 145870)
Kelly E. Richardson (SB No. 210511)
Jeffrey P. Carlin (SB No. 227539)
Ryan R. Waterman (SB No. 229485)
Jennifer P. Casler-Goncalves (SB No. 259438)
600 West Broadway, Suite 1800
San Diego, California 92101-3375
Telephone: (619) 236-1234
Facsimile: (619) 696-7419

Attorneys for Designated Party
National Steel and Shipbuilding Company

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN DIEGO REGION

IN THE MATTER OF TENTATIVE CLEANUP AND ABATEMENT ORDER NO. R9-2011-0001 (SHIPYARD SEDIMENT CLEANUP)	**DECLARATION OF SERVICE**

PROOF OF SERVICE

I am employed in the County of San Diego, State of California. I am over the age of 18 years and not a party to this action. My business address is Latham & Watkins LLP, 600 West Broadway, Suite 1800, San Diego, CA 92101-3375.

On **June 23, 2011**, I served the following document described as:

1. **NASSCO'S REPLY COMMENTS ON THE SAN DIEGO REGIONAL WATER BOARD CLEANUP TEAM'S SEPTEMBER 15, 2010 TENTATIVE CLEANUP AND ABATEMENT ORDER NO. R9-2011-0001, DRAFT TECHNICAL REPORT, AND SHIPYARD ADMINISTRATIVE RECORD**

2. **ATTACHMENTS TO NASSCO'S REPLY COMMENTS (CD)**

by serving a true copy of the above-described document in the following manner:

BY ELECTRONIC MAIL (REPLY COMMENTS)

Upon written agreement by the parties, the above-described document was transmitted via electronic mail to the parties noted below on **June 23, 2011**.

BY OVERNIGHT MAIL DELIVERY (ATTACHMENTS TO REPLY COMMENTS)

I am familiar with the office practice of Latham & Watkins LLP for collecting and processing documents for overnight mail delivery by Express Mail or other express service carrier. Under that practice, documents are deposited with the Latham & Watkins LLP personnel responsible for depositing documents in a post office, mailbox, subpost office, substation, mail chute, or other like facility regularly maintained for receipt of overnight mail by Express Mail or other express service carrier; such documents are delivered for overnight mail delivery by Express Mail or other express service carrier on that same day in the ordinary course of business, with delivery fees thereon fully prepaid and/or provided for. I deposited in Latham & Watkins LLP' interoffice mail a sealed envelope or package containing the above-described document and addressed as set forth below in accordance with the office practice of Latham & Watkins LLP for collecting and processing documents for ovemight mail delivery by Express Mail or other express service carrier:

Raymond Parra Senior Counsel BAE Systems Ship Repair Inc. PO Box 13308 San Diego, CA 92170-3308 raymond.parra@baesystems.com Telephone: (619) 238-1000+2030 Fax: (619) 239-1751	Michael McDonough Counsel Bingham McCutchen LLP 355 South Grand Avenue, Suite 4400 Los Angeles, CA 90071-3106 michael.mcdonough@bingham.com Telephone: (213) 680-6600 Fax: (213) 680-6499
Christopher McNevin Attorney at Law Pillsbury Winthrop Shaw Pittman LLP 725 South Figueroa Street, Suite 2800 Los Angeles, CA 90017-5406 chrismcnevin@pillsburylaw.com Telephone: (213) 488-7507 Fax: (213) 629-1033	Brian Ledger Kristin Reyna Kara Persson Gordon & Rees LLP 101 West Broadway, Suite 1600 San Diego, CA 92101 bledger@gordonrees.com kreyna@gordonrees.com kpersson@gordonrees.com Telephone: (619) 230-7729 Fax: (619) 696-7124

Christian Carrigan Senior Staff Counsel Office of Enforcement, State Water Resources Control Board P.O. Box 100 Sacramento, CA 95812-0100 ccarrigan@waterboards.ca.gov Telephone: (916) 322-3626 Fax: (916) 341-5896	Marco Gonzalez Attorney at Law Coast Law Group LLP 1140 South Coast Highway 101 Encinitas, CA 92024 marco@coastlawgroup.com Telephone: (760) 942-8505 Fax: (760) 942-8515
James Handmacher Attorney at Law Morton McGoldrick, P.S. PO Box 1533 Tacoma, WA 98401 jvhandmacher@bvmm.com Telephone: (253) 627-8131 Fax: (253) 272-4338	Jill Tracy Senior Environmental Counsel Sempra Energy 101 Ash Street San Diego, CA 92101 jtracy@semprautilities.com Telephone: (619) 699-5112 Fax: (619) 699-5189
Sharon Cloward Executive Director San Diego Port Tenants Association 2390 Shelter Island Drive, Suite 210 San Diego, CA 92106 sharon@sdpta.com Telephone: (619) 226-6546 Fax: (619) 226-6557	Duane Bennett, Esq. Leslie FitzGerald, Esq. Ellen F. Gross, Esq. William D. McMinn, Esq. Office of the Port Attorney 3165 Pacific Highway San Diego, CA 92101 dbennett@portof sandiego.org lfitzgerald@portofsandiego.org egross@portofsandiego.org bmcminn@portofsandiego.org Telephone: 619-686-6200 Fax: 619-686-6444
Sandi Nichols Allen Matkins Three Embarcadero Center, 12th Floor San Francisco, CA 94111 snichols@allenmatkins.com Telephone: (415) 837-1515 Fax: (415) 837-1516	Laura Hunter Environmental Health Coalition 401 Mile of Cars Way, Suite 310 National City, CA 91950 laurah@environmentalhealth.org Telephone: (619) 474-0220 Fax: (619) 474-1210
Gabe Solmer Jill Witkowski San Diego Coastkeeper 2825 Dewey Road, Suite 200 San Diego, CA 92106 gabe@sdcoastkeeper.org jill@sdcoastkeeper.org Telephone: (619) 758-7743 Fax: (619) 223-3676	Mike Tracy Matthew Dart DLA Piper LLP US 401 B Street, Suite 1700 San Diego, California 92101-4297 mike.tracy@dlapiper.com matthew.dart@dlapiper.com Telephone: (619) 699-3620 Fax: (619) 764-6620

William D. Brown Brown & Winters 120 Birmingham Drive, #110 Cardiff By The Sea, CA 92007 bbrown@brownandwinters.com Telephone: (760) 633-4485 Fax: (760) 633-4427	Nate Cushman Associate Counsel U.S. Navy SW Div, Naval Facilities Engineering Command 1220 Pacific Hwy San Diego, CA 92132-5189 nate.cushman@navy.mil Telephone: (619) 532-2511 Fax: (619) 532-1663
Sarah R. Brite Evans Schwartz Semerdjian Ballard & Cauley 101 West Broadway, Suite 810 San Diego, CA 92101 sarah@ssbclaw.com Telephone (619) 236-8821 Fax: (619) 236-8827	Roslyn Tobe Senior Environmental Litigation Attorney U.S. Navy 720 Kennon Street, #36, Room 233 Washington Navy Yard, DC 20374-5013 roslyn.tobe@navy.mil Telephone: (202) 685-7026 Fax: (202) 685-7036
C. Scott Spear U.S. Department of Justice, Environmental Defense Section P.O. Box 23986 Washington, D.C. 20026-3986 scott.spear@usdoj.gov Telephone: (202) 305-1593 Fax: (202) 514-8865	Suzanne Varco Opper & Varco LLP 225 Broadway, Suite 1900 San Diego, California 92101 svarco@envirolawyer.com

BY ELECTRONIC MAIL (REPLY COMMENTS)

Upon written agreement by the parties, the above-described document was transmitted via electronic mail to the parties noted below on **June 23, 2011**.

BY HAND DELIVERY (REPLY COMMENTS AND ATTACHMENTS)

I am familiar with the office practice of Latham & Watkins LLP for collecting and processing documents for hand delivery by a messenger courier service or a registered process server. Under that practice, documents are deposited to the Latham & Watkins LLP personnel responsible for dispatching a messenger courier service or registered process server for the delivery of documents by hand in accordance with the instructions provided to the messenger courier service or registered process server; such documents are delivered to a messenger courier service or registered process server on that same day in the ordinary course of business. I caused a sealed envelope or package containing the above-described document and addressed as set forth below in accordance with the office practice of Latham & Watkins LLP for collecting and processing documents for hand delivery by a messenger courier service or a registered process server.

Frank Melbourn Catherine Hagan California Regional Water Quality Control Board San Diego Region 9174 Sky Park Court, Suite 100 San Diego, CA 92123-4340 fmelbourn@waterboards.ca.gov chagan@waterboards.ca.gov Telephone: (858) 467-2958 Fax: (858) 571-6972	

I declare that I am employed in the office of a member of the Bar of, or permitted to practice before, this Court at whose direction the service was made and declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

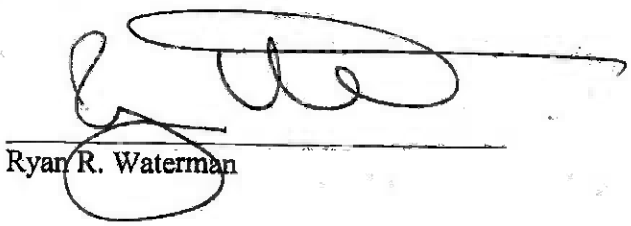
Executed on **June 23, 2011**, at San Diego, California.

Andrea Rasco

Certification of Authenticity of Electronic Submittal

I, Ryan R. Waterman, declare:

I am an associate at Latham & Watkins LLP, counsel of record for National Steel and Shipbuilding Company ("NASSCO") in the Matter of Tentative Cleanup and Abatement Order R9-2011-0001 before the San Diego Regional Water Quality Control Board ("Water Board"). I am licensed to practice law in the State of California and make this declaration as an authorized representative for NASSCO. I declare under penalty of perjury under the laws of the State of California that the electronic version of NASSCO's Reply Comments on the San Diego Regional Water Quality Control Board Cleanup Team's September 15, 2010 Tentative Cleanup and Abatement Order No. R9-2011-0001, Draft Technical Report, and Shipyard Administrative Record ("Reply Comments"), submitted to the Water Board and served on the Designated Parties by e-mail on June 23, 2011, is a true and accurate copy of the submitted signed original. Because several parties lack the technical capability to receive large files by e-mail, the Reply Comments submitted to the Water Board and served on all Designated Parties by e-mail did not include the attachments thereto. Disks containing true and accurate electronic copies of the Reply Comments with attachments were submitted to the Water Board concurrently with the required hard copies and served on all Designated Parties by overnight delivery. Executed this 23rd day of June 2011, in San Diego, California.



Ryan R. Waterman

Attachment D

Jeffrey P. Carlin
Direct Dial: (619) 238-2854
Jeff.Carlin@lw.com

600 West Broadway, Suite 1800
San Diego, California 92101-3375
Tel: +1.619.236.1234 Fax: +1.619.696.7419
www.lw.com

LATHAM & WATKINS LLP

File No. 048876-0011

August 1, 2011

VIA EMAIL AND OVERNIGHT MAIL

Mr. Vicente Rodriguez
California Regional Water Quality Control Board
San Diego Region
9174 Sky Park Court, Suite 100
San Diego, California 92123
vrodriguez@waterboards.ca.gov

Re: NASSCO's Comments on the Draft Environmental Impact Report for the Shipyard Sediment Remediation Project (SCH # 2009111098)

Dear Mr. Rodriguez:

Designated Party National Steel and Shipbuilding Company ("NASSCO") submits the following comments regarding the Draft Environmental Impact Report ("DEIR") for the Shipyard Sediment Remediation Project ("Project"), State Clearing House Number 2009111098, publicly released by the California Regional Water Quality Control Board, San Diego Region ("Regional Board") on June 16, 2011. NASSCO is also concurrently submitting under separate cover additional comments on the DEIR prepared by Rick Bodishbaugh, Tom Ginn and Gary Brugger of Exponent, and Michael Whelan and David Templeton of Anchor QEA, which are intended to supplement this letter.

Although we have numerous concerns with the analysis in the DEIR, NASSCO's key concerns are summarized as follows:

- **Monitored Natural Attenuation**: The DEIR fails to mention (much less evaluate) a monitored natural attenuation alternative to the Project, even though such an alternative was selected as the preferred remedy in the Detailed Sediment Investigation underlying Tentative Cleanup and Abatement Order R9-2011-0001 ("TCAO") and the associated Draft Technical Report ("DTR"), and notwithstanding that substantial evidence demonstrates that the monitored natural attenuation alternative will avoid all of the proposed Project's significant and potentially significant environmental impacts, obviate the need for the Project's detailed, costly and uncertain mitigation measures, and feasibly accomplish the Project Objectives in a reasonable period of time.

- **Recontamination from Stormwater**: The DEIR does not disclose the past and continuing discharges of urban runoff from Chollas Creek and other sources to the Shipyard

Sediment Site ("Site"), even though the TCAO and DTR make clear that these discharges have contributed pollutants to sediments at the Site. This omission is compounded by the DEIR's failure to evaluate reasonably foreseeable impacts to the Site from recontamination, which would likely occur after the Project's contemplated dredging is completed given that stormwater discharges to the Site (unrelated to NASSCO) are uncontrolled.

- **Hypothetical Baseline**: The DEIR states without analysis that existing sediment quality at the Site adversely impacts beneficial uses to aquatic life, aquatic-dependent wildlife and human health. But these statements are based on extremely conservative theoretical assumptions used to support the DTR's analysis, and have no relationship to the actual, *existing* conditions at the Site, as is mandatory for the "baseline" under the California Environmental Quality Act ("CEQA").

- **Bias In Favor of Convair Lagoon CDF Alternative**: More than 30% of the DEIR is devoted to consideration of the Convair Lagoon alternative (in addition to six appendices), while each of the other alternatives is evaluated in less than seven pages. The DEIR does not explain why the analysis is stacked in favor of the Convair Lagoon alternative, it does not disclose that the alternative is being championed by the San Diego Unified Port District ("Port District"), and it does not indicate why the Port District was allowed to submit a detailed analysis in support of its preferred alternative (which would create ten acres of waterfront property for the Port District with substantial corresponding financial benefits to it and substantial corresponding costs to the other Designated Parties).

- **Proposed Mitigation Is Infeasible**: The DEIR introduces new mitigation requirements that were not evaluated in the TCAO/DTR's economic feasibility analysis, and which will add an estimated $11.8 to $18.3 million to the costs of remediating the Site. Because these measures were not evaluated under State Water Resources Control Board Resolution No. 92-49, Polices and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code section 13304 ("Resolution 92-49"), or California Water Code sections 13267 and 13307, and in any event will not pass muster under such analysis to the extent that it is conducted, the Regional Board lacks authority to impose these measures under the Porter Cologne Act and they are thus "legally infeasible" under CEQA. The additional costs also render certain of the measures, and implementation of the proposed Project as a whole, economically infeasible under CEQA.

- **The Regional Board Cannot Mandate Cleanup Methods**: The proposed Project and alternatives (aside from the "no project" alternative) each purport to dictate the method by which cleanup levels at the Site are to be achieved. However, because the Regional Board's authority under the Porter Cologne Act is limited to prescribing cleanup levels rather than selecting methods to achieve those cleanup levels, (Water Code § 13360), the Project and the alternatives proposing remediation each are "legally infeasible" under CEQA because they cannot be adopted under the Porter Cologne Act.

NASSCO's specific and detailed comments on the DEIR are set forth below.

I. THE DEIR'S ALTERNATIVES ANALYSIS IMPROPERLY OMITS CONSIDERATION OF MONITORED NATURAL ATTENUATION

A. CEQA Requires Evaluation of Potentially Feasible Alternatives That Will Reduce Environmental Impacts

In order to be legally valid and fulfill the EIR's purpose to "foster informed decisionmaking and public participation," an EIR "**must** consider a reasonable range of potentially feasible alternatives" that would "avoid or substantially lessen any of the significant effects of the project." 14 Cal. Code Regs. ("CEQA Guidelines") § 15126.6(a) (emphasis added); *Center for Biological Diversity v. County of San Bernardino*, 185 Cal. App. 4th 866, 885 (2010) ("The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making."). The purpose of the alternatives discussion is to identify ways to reduce or avoid significant environmental effects, (*Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.*, 47 Cal. 3d 376, 403 (1988)), and proposed alternatives must be discussed to the extent that they are able to implement most although not all of the identified project objectives. *See Mira Mar Mobile Community v. City of Oceanside*, 119 Cal. App. 4th 477 (2004). Further, "an in-depth discussion is required" of any alternative that is "at least potentially feasible." *Center for Biological Diversity*, 185 Cal. App. 4th at 883.

An agency's selection of alternatives for evaluation in an EIR must be supported by a "reasonable basis," and an EIR is legally defective if it fails to include a reasonable explanation for excluding consideration of an alternative that would reduce environmental impacts and achieve most project objectives. *Center for Biological Diversity*, 185 Cal. App. 4th at 883. Moreover, the scope of the alternatives analysis is not subject to a "categorical legal imperative," rather "[e]ach case must be evaluated on its facts . . ." *Watsonville Pilots Ass'n v. City of Watsonville*, 183 Cal. App. 4th 1059, 1086 (2010).

B. The DEIR Was Required to Evaluate Monitored Natural Attenuation As an Alternative To The Project

1. Overview of The Monitored Natural Attenuation Alternative

Monitored Natural Attenuation ("MNA") refers to the reliance on natural processes to achieve site-specific remedial objectives. As explained in the DTR, MNA:

> [i]s a contaminated sediment remedy that depends on un-enhanced natural processes to reduce risk to human and environmental receptors to acceptable levels. [MNA] involves leaving the contaminated sediment in place and allowing the ongoing aquatic processes to contain, destroy, or otherwise reduce the bioavailability of the sediment pollutants in order to achieve site specific remedial action objectives. Underlying MN[A] processes may include biodegradation, biotransformation, bioturbation, diffusion, dilution, adsorption, volatilization, chemical reaction or destruction, resuspension, and burial by clean sediment.

DTR, at 30-2.[1]

"Monitoring is fundamental to the remedy in order to assess whether risk reduction and ecological recovery by natural processes are occurring as expected." *Id.* Thus, while dependent upon natural processes, MNA is not a "no-action" remedy, as it must be used within the context of a carefully controlled and monitored cleanup approach.

Although MNA is completely ignored in the DEIR, it was selected as the preferred alternative remedy out of the three studied in detail in the expert-prepared Detailed Sediment Investigation underlying the TCAO/DTR.[2] NASSCO and Southwest Marine Detailed Sediment Investigation ("Shipyard Report"), at 1-2 – 1-4. The Shipyard Report also provided the data underlying the TCAO and DTR. TCAO, at ¶ 13. The Shipyard Report concluded that "natural recovery of benthic macroinvertebrate communities would be expected to occur within a 3-5 year period" if off-site sources were to be controlled, and that MNA "is the only alternative that provides acceptable effects on beneficial uses and is technically and economically feasible." Shipyard Report, at 15-3 and 19-12, 19-13. The Shipyard Report and its associated sediment investigation was "detailed" and conducted with substantial oversight and input from Regional Board staff, stakeholders, and the public. Shipyard Report, at 1-2 – 1-4 (summarizing the directives and guidance provided by Regional Board staff throughout the planning and execution of the sediment investigation and Shipyard Report); Deposition of David Barker ("Barker Depo."), at 80:2 – 80:22, 82:3 – 82:4, 82:14 – 82:23 (discussing the scope, quality, and extent of Regional Board staff involvement in the sediment investigation); Deposition of Tom Alo ("Alo Depo."), at 402:21 – 403:18 (acknowledging that the Regional Board had significant oversight and involvement in the process of developing and conducting the sediment investigation and Shipyard Report); DTR, at 13-2 – 13-3 (summarizing Regional Board staff and stakeholder involvement in the sediment investigation).

The MNA alternative includes "sampling to assess naturally occurring changes in sediment conditions and biological communities," consisting of long-term monitoring, with periodic surveys and sample collection throughout areas of the Site not otherwise subject to disturbance, in order "to track sediment quality and benthic community conditions over time." Shipyard Report, at 17-1. More specifically, the alternative requires monitoring of physical, chemical, and biological parameters in four separate sampling events during years 1, 2, 5, and 10, and additional monitoring beyond year 10, if necessary, depending upon the degree to which natural recovery has occurred after 10 years. Shipyard Report, at 16-1. Monitoring stations would be located every 2 to 5 acres throughout the Site, depending on the chemical concentrations currently existing in the sediments (i.e., within the specified range, monitoring

---

[1] Unless otherwise indicated, all documents or information cited in this letter are already contained within the Shipyard Administrative Record ("Administrative Record"). Accordingly, NASSCO incorporates herein those documents and information by this reference, and is not resubmitting them with this letter.

[2] The "MNA alternative" discussed in this letter refers to the monitored natural attenuation alternative evaluated in and recommended by the Shipyard Report.

stations would be more closely spaced in areas with higher chemical concentrations.). *Id.*, at 16-1 - 16-2. Each monitoring event would include bathymetry and core sampling for sediment thickness and physical properties (including particle size distribution, total solids, and TOC); monitoring of a selected set of metals, as well as butyltins, PCBs, and PAHs; and amphipod toxicity tests and benthic macroinvertebrate community assessments. *Id.* Reports would be prepared and submitted to the Regional Board after each monitoring event. *Id.*

The DEIR fails to offer *any* explanation, much less a "reasoned" explanation, for completely omitting discussion or consideration of the MNA alternative. Because substantial evidence from multiple sources demonstrates that MNA can achieve the Project Objectives while avoiding the proposed Project's significant environmental impacts (and the need to rely on detailed, costly and uncertain mitigation measures), as discussed below, CEQA requires evaluation of MNA as an alternative remedy. Exclusion of MNA from the DEIR frustrates CEQA's goal of informed decision making and meaningful public participation, because it precludes the public from commenting on, and the Regional Board from considering and potentially adopting, a remedy that will avoid the Project's significant environmental impacts while achieving its objectives in a timely and cost-effective manner. Any doubt by Regional Board staff about whether MNA should have been considered is put to rest conclusively by the fact that it was the Shipyard Report's preferred remedy, mandating its inclusion in any "reasonable range" of alternatives based on the specific facts of this proceeding. *Watsonville Pilots Ass'n,* 183 Cal. App. 4th at 1086.

2. The Monitored Natural Attenuation Alternative Will Feasibly Attain Project Objectives

Pursuant to the Regional Board's mandate, the primary purpose of the Project is to protect beneficial uses in San Diego Bay for human health, aquatic life, and aquatic-dependent wildlife, and to ensure the best water quality that is "reasonable." DEIR, at 3-3 and 3-4. Project Objectives also include the implementation of a sediment cleanup that is consistent with the TCAO, including the attainment of cleanup levels set forth in the TCAO, which will have long-term effectiveness while minimizing environmental impacts and disruptions on the use of shipyard and other San Diego Bay-dependent facilities. DEIR, at 3-4 and 3-5. As discussed below, substantial evidence demonstrates that natural recovery is already occurring at the Site, and that the MNA alternative is capable of fully satisfying Project Objectives in a feasible manner.

The DTR acknowledges that "a range of natural recovery processes are active at the Shipyard Sediment Site." DTR, at 30-3. As detailed in NASSCO's May 26, 2011 comments on the TCAO and DTR,[3] record evidence shows that natural attenuation is already occurring at the

[3] For the sake of brevity, and because NASSCO has already submitted detailed comments on the TCAO/DTR that are included within the Administrative Record, NASSCO will reference its prior comments in this letter rather than re-stating those comments in full. All of NASSCO's prior comments pertaining to the issues addressed in this letter are incorporated herein by this reference.

Site for all five primary contaminants of concern ("primary COCs") identified in the TCAO,[4] and that, if allowed to continue in lieu of dredging, will achieve the Regional Board's cleanup goals within a reasonable period of time. *See* Comments On The San Diego Regional Water Quality Control Board Cleanup Team's September 15, 2010 Tentative Cleanup And Abatement Order No. R9-2011-0001, Draft Technical Report, And Shipyard Administrative Record ("NASSCO's May 26 Comments"), at 40-41. Sampling conducted in 2009 indicates that the surface-weighted average concentrations ("SWACs")[5] for the five primary COCs decreased substantially in the monitored locations during the seven years since the data for the Shipyard Report was collected in 2002, and, in many cases, are now only slightly higher than post-remedial (i.e., dredging) SWACs in the TCAO. This suggests that the cleanup goals articulated in the TCAO can be achieved in a reasonable time through the MNA alternative, without incurring the significant environmental, economic, and social impacts that are certain to result from dredging. Barker Depo. Exhibit No. 1228. In fact, among the locations sampled in 2009, which were selected because they are considered representative of site-wide conditions, ***three of the five SWACs for primary contaminants of concern already have attained the post-remedial SWACs that would be required by the TCAO***, and the remaining two are only slightly higher. *Id.*; *see also* Barker Depo., at 335:22 – 337:13 (confirming same); *see also* Barker Depo., at 303:5 – 304:4 (acknowledging that MNA could eliminate risks to benthic organisms, and improve protection for all beneficial uses within five years).

Regarding the efficacy of natural attenuation, evidence within the Administrative Record demonstrates that sediments buried below approximately 10 cm are not "biologically available,"[6] and thus do not impact the water or marine environment. Evidence also shows that new

---

[4] The primary COCs are copper, mercury, HPAHs, PCBs, and TBT. DEIR, at 4.3-3 and 4.3-4.

[5] A "SWAC" approach, which refers to calculating the average concentration of a contaminant in the sediment at the surface, was used to assess potential impacts to human health and aquatic-dependent wildlife at the Site. DTR, at 32-7. The TCAO and DTR require that sediments be remediated to meet specified cleanup levels, articulated as post-remedial SWACs for the primary COCs, which levels have been determined by Regional Board staff not to pose an unreasonable health risk to humans or aquatic dependent wildlife. *Id.* Under the DTR's approach, once these extremely conservative target SWACs are met, through MNA or otherwise, the sediments will be considered fully protective of beneficial uses.

[6] The term "biologically available" refers to the potential for a chemical to enter into ecological or human receptors. Importance of Bioavailablity for Risk Assessment of Sediment Contaminants at the NASSCO Site – San Diego Bay, Herbert E. Allen, Ph. D., March 11, 2011 ("Allen Report"), at 2. Sediments below the "biologically active zone"—which refers to the surface layer of sediment in which bioturbation and mixing occurs, and where the exposure potential is greatest for invertebrates and fish—are not "bioavailable." The biologically active zone comprises approximately the top 10 cm of sediment; however, the most biologically active zone typically occurs within the top 0-2 cm. Deposition of David Gibson, at 156:3 – 157:12; Shipyard Report, at 15-3.

sediments are deposited at a rate of 2 cm per year, suggesting that new sediments will bury any residual contamination within a reasonable period of time. Deposition of David Gibson ("Gibson Depo."), at 156:3 – 157:12 (agreeing that sediments buried below approximately 10 cm are below the "biologically active zones," and therefore are not biologically available); Regional Board Cleanup Team's Response to NASSCO's Requests For Admission, at RFA No. 57 (agreeing that new sediments are deposited at a rate of 2 cm/year at the Shipyard Sediment Site); Barker Depo., at 292:6 – 292:22 (agreeing that Site characteristics, including active deposition of sediments at 1-2 cm per year, limited elevated concentrations of chemicals in certain areas of the shipyard, and that the limited bioavailability of the chemicals to benthic organisms favors the potential effectiveness of natural recovery).

Additionally, "chemical biodegradation;[7] sediment accumulation, mixing, and burial; and [concomitant] benthic fauna recolonization" are other natural processes that are expected to "lead to changes in aquatic life conditions" at the Site. Shipyard Report, at 18-4 ("Natural recovery will occur through breakdown of organic chemicals and through burial and dilution of chemical concentrations by newly deposited sediment.").

3. The Monitored Natural Attenuation Alternative Will Avoid All Of the Proposed Project's Significant and Potentially Significant Impacts

The DEIR recognizes that each of the Project's potential environmental impacts results from "construction or dredging activity," and that, in the absence of construction or dredging, no temporary construction traffic or noise would occur, and there would be no air quality impacts, contribution to global warming, objectionable odors, risk of accidental spills during cleanup activities, impacts to marine species or communities, or increased potential impacts related to hazards or marine biological resources. DEIR, at 5-10, 5-25. The same is true with respect to all alternatives considered except for the "no-project" alternative.

Because it involves no construction or dredging, it is undisputed that implementing the MNA alternative will avoid all of the Project's significant environmental impacts to air quality, as well as its potentially significant effects to biological resources, water quality, hazardous materials and traffic, all of which are tied specifically to dredging. The MNA alternative would also avoid the Project's proposed destruction of highly sensitive eelgrass and mature benthic communities, and obviate the Project's mandatory reliance on numerous mitigation measures which are costly and uncertain, and which will cause their own environmental impacts requiring

---

[7] Site constituents and primary COCs such as TBT and PAHs are known to naturally degrade relatively quickly in the marine environment. *See* Barker Depo, at 335:22 – 336:10 (testifying that TBT undergoes rapid natural degradation in the environment, and confirming that the 2009 testing results are consistent with previous findings concerning the rapid biodegradation of TBT); Shipyard Report, at 15-3 ("Petroleum hydrocarbons . . . weather relatively quickly. The most toxic components of petroleum hydrocarbons are broken down in weeks to months in the marine environment. As a result, remediation of subtidal sediments is ordinarily not required even after a major oil spill. A relatively short period of natural recovery is therefore expected to address any effects of petroleum hydrocarbons.").

mitigation (NASSCO also believes that many of these mitigation requirements are infeasible or otherwise inappropriate, and may not be imposed by the Regional Board, as detailed below, such that certain of the impacts deemed potentially significant would need to be treated as significant if the proposed Project is adopted). In this way, the environmental impacts associated with the MNA alternative would be equivalent to those of the "no project/no development alternative" (Alternative 1) studied in the DEIR, which was found to be the "environmentally superior" alternative "because the direct physical effects of the proposed project **would not occur**." DEIR, at 5-25 (emphasis added).

A wealth of evidence elsewhere in the Administrative Record likewise shows that the MNA alternative will not implicate the environmental and other costs associated with dredging. *See, e.g.*, Shipyard Report, at § 19 (comparing a variety of alternatives and concluding that dredging alternatives "provide little or no incremental benefit over baseline conditions but impose significant impacts on shipyard operations and on the local community, and do so at a high cost"); *see also* Barker Depo., at 306:22 – 307:21 (acknowledging the existence of healthy benthic communities at the Site, agreeing that MNA would preserve those communities and avoid the possible risk of colonization by invasive species, and recognizing that these factors weigh in favor of selecting MNA over dredging), 916:22 - 917:2 (avoiding destruction of the mature benthic communities and eelgrass beds located at the Site would be one benefit of selecting the MNA alternative).

By contrast to natural recovery, the DTR confirms that dredging "destroys the benthic community," with no guarantee that it will be recolonized successfully. DTR, at 34-11; *see also* Barker Depo., at 306:22 – 307:21. Dredging destroys other biota as well, such as eelgrass, which may require more than five years to become reestablished and mature to the point that they can sustain the original community. Shipyard Report, at 15-10, 18-9 – 18-10. Moreover, "eelgrass is currently found primarily in areas with water depths less than 10 ft and may not be able to reestablish itself in the deeper water that would exist in the dredged areas" regardless of any mitigation that is imposed. Shipyard Report, at 18-12. Critically, the MNA alternative also avoids the very real possibility that the Project will be implemented and substantial amounts of sediment dredged, only to have the dredged areas recontaminated by ongoing and uncontrolled stormwater discharges to the Site from Chollas Creek and elsewhere. As noted, natural recovery is already occurring at the Site even in the presence of continuing sources of stormwater discharges to the Site. The TCAO and DTR recognize that these stormwater discharges continue to affect sediments at the Site, (TCAO, at ¶¶ 4, 11, 30, 32, 33; DTR, at §§ 4.7, 11.6, 30, 32, 33), although the DEIR failed to evaluate this reasonably foreseeable significant impact.

Given that source control is a critical component of any remedy that is selected,[8] it certainly makes more sense to ensure that source control is achieved before incurring the significant costs associated with dredging, since recontamination may obviate any beneficial

---

[8] According to EPA Guidance, "[i]dentifying and controlling contaminant sources typically is critical to the effectiveness of any [ ] sediment cleanup." Contaminated Sediment Remediation Guidance for Hazardous Waste Sites, EPA-540-R5-05-012 (Dec. 2005), at 2-20.

results of the dredging, and since natural recovery is already occurring at the Site even in the presence of ongoing stormwater contamination. The MNA alternative would allow source control to be implemented, and continued monitoring could determine whether the TCAO's cleanup levels are achieved through natural recovery and without the need for dredging. If dredging ultimately is required, which NASSCO does not believe it will be, that dredging would be more effectively implemented after stormwater discharges to the Site are controlled.

4. Monitored Natural Attenuation is Not a "No Action" Remedy

As the Cleanup Team acknowledges, *"[m]onitored natural recovery is not a passive, no-action, or no-cost remedy*:

> While it does not require active construction, effective remediation via MN[A] relies on a fundamental understanding of the underlying natural processes that are occurring at the site. MN[A] remedies require extensive risk assessment, site characterization, predictive modeling and monitoring to verify source control, identify natural processes, set expectations for recovery, and confirm that natural processes continue to reduce risk over time as predicted.

DTR, at 30-2 (emphasis added); *see also* Shipyard Report, at 17-1 (describing detailed monitoring requirements associated with MNA). Indeed, the DEIR recognizes that "[r]emedial actions may include . . . natural recovery." DEIR, at 3-5.

In addition to detailed monitoring requirements, the MNA alternative also contemplates active remediation (or other action) *if necessary* based on the monitoring results. *E.g.*, Barker Depo., at 916:16 – 917:17 (testifying that if MNA is selected and does not work as expected, the Regional Board could impose dredging or another remedy). Thus, the "no project/no development" alternative, which "would not implement the Tentative CAO," (DEIR, at 5-9), and would not include any monitoring or associated requirements, plainly is distinguishable from implementing the MNA alternative.

By way of analogy, in *Watsonville Pilots Association v. City of Watsonville*, the court rejected an agency's claim that the EIR's analysis of a no project alternative in the context of a general plan approval constituted sufficient consideration of a reduced development alternative, because "the environmental impacts of the project were primarily due to the impacts of growth itself" and "the alternatives analysis should have included an assessment of a reduced growth alternative that would meet most of the objectives of the project but would avoid or lessen these significant environmental impacts." 183 Cal. App. 4th at 1089-90. Instead, "[b]ecause . . . the 'no project' alternative would not create *any* plan for the future . . . it did not serve the purpose that a reduced development alternative should have served . . . Analysis of such an alternative would have provided the decision makers with information about how most of the project's objectives could be satisfied without the level of environmental impacts that would flow from the project." *Id.* at 1090. Accordingly, the city's certification of the EIR was set aside.

Here, because taking "no action" would not implement the TCAO or serve the purposes of the MNA alternative, an "in-depth discussion" of the MNA alternative is required. *Center for Biological Diversity*, 185 Cal. App. 4th at 883.

C. The Monitored Natural Attenuation Alternative Should Be Adopted

As explained, NASSCO believes that CEQA compels the DEIR to evaluate the MNA alternative before the Regional Board may approve the proposed Project. More importantly, however, the Regional Board should adopt the MNA alternative instead of the Project because MNA provides the opportunity to feasibly accomplish Project Objectives, in a reasonable period of time, without the environmental impacts, costs and economic and social disruptions that will result from the contemplated dredging of 143,000 cubic yards of sediment. Indeed, the Regional Board is prohibited from adopting the proposed Project instead of the MNA alternative, due to CEQA's "substantive mandate" that agencies refrain from approving projects with significant environmental effects if there are feasible alternatives that can avoid those effects. *Mountain Lion Foundation v. Fish & Game Comm.*, 16 Cal. 4th 105, 134 (1997).

Upon request, NASSCO will be pleased to provide the Regional Board with any further information regarding the MNA alternative that it may wish to consider, in addition to the large volume of supporting evidence already included within the Administrative Record; and, as explained below, NASSCO will also provide a detailed analysis of the MNA alternative for inclusion in a recirculated DEIR.

II. THE DEIR FAILS TO DISCUSS STORMWATER DISCHARGES TO THE SITE OR REASONABLY FORESEEABLE IMPACTS FROM RECONTAMINATION

A. An Accurate Description of the Project's Environmental Setting Is Critical to An Accurate Assessment of Impacts and Alternatives

An EIR is not required unless a proposed activity may result in a "significant effect on the environment." CEQA § 21100(a). Significant environmental effects are defined as substantial or potentially substantial adverse changes in the environment. CEQA §§ 21068, 21100(d); CEQA Guidelines § 15382. The "environment" for the purposes of CEQA analysis refers to the "the physical environmental conditions in the vicinity of the project" – normally "as they *exist* at the time the notice of preparation [for the EIR] is published" – and this environmental setting is referred to as the "baseline" against which the potential impacts of a proposed project are measured. CEQA Guidelines § 15125(a). In order to assess whether a project will have a potentially significant impact, the potential effects of a proposed activity are measured against this existing conditions "baseline." CEQA Guidelines § 15126.2(a) ("In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the *existing* physical conditions in the affected area as they *exist* at the time the notice of preparation is published . . .") (emphasis added).

Because an EIR "must demonstrate that the significant environmental impacts of the proposed project were adequately investigated and discussed . . . in the full environmental context," (CEQA Guidelines § 15125(c)), an EIR is invalid if its description of the

environmental setting is in any way deficient. *Cadiz Land Co. v. Rail Cycle, L.P.*, 83 Cal. App. 4th 74, 87 (2000) ("If the description of the environmental setting of the project site and surrounding area is inaccurate, incomplete or misleading, the EIR does not comply with CEQA."). This is because an "inadequate description of the environmental setting for the project" makes "a proper analysis of project impacts [] impossible." *Galante Vineyards v. Monterey Peninsula Water Management Distr.*, 60 Cal. App. 4th 1109, 1122 (1997).

B. The DEIR Ignores Ongoing Sources of Contamination to the Site and Associated Impacts From Recontamination

The DEIR's description of the environmental setting completely ignores discharges of urban runoff to the Site from Chollas Creek, as well as stormwater discharges to the Site via storm drains SW4 and SW9, all of which are continuing and uncontrolled.[9] Because substantial evidence makes clear that these on-going discharges contribute pollutants to the sediments at the Site, and thus present a reasonable likelihood that the Site could be recontaminated after the Project's contemplated dredging, the DEIR's decision to exclude them from the environmental setting is improper as a matter of law and also precludes a legally adequate consideration of environmental impacts and alternatives. *See, e.g., San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus*, 27 Cal. App. 4th 713, 725-29 (1994) (environmental setting invalid as a matter of law, and rendered inadequate the impact analysis and mitigation findings, where the EIR failed to discuss a nearby wildlife preserve).

As discussed in NASSCO's May 26 Comments, and stated clearly in the TCAO and DTR (and the supporting technical studies cited in the DTR),[10] substantial evidence shows that Chollas Creek discharges have contributed (and will continue to contribute) to the accumulation of pollutants observed in marine sediments at the Site; and, further, that the discharge of contaminants from Chollas Creek is not expected to be fully controlled for decades. May 26 Comments, at 35-39; *see also* TCAO, at ¶¶ 4 and 10 ("during storm events, storm water plumes toxic to marine life emanate from Chollas Creek up to 1.2 kilometers into San Diego Bay, and contribute to pollutant levels at the Shipyard Sediment Site."); DTR, at 4-1, 4-14 – 4-15 (confirming that the toxic plume of contaminated stormwater from Chollas Creek during rain events has been shown to extend more than a kilometer into San Diego Bay, including the area within NASSCO's leasehold, and contributes an array of pollutants to the Site); Deposition of Craig Carlisle ("Carlisle Depo."), at 200:5-200:13 (confirming that Chollas Creek releases contributed to sediment contamination at the Site); Barker Depo., at 921:14 – 922:15 (confirming that storm water outflows from Chollas Creek have contributed to the accumulation of pollution

---

9 Pollutants in these discharges include metals, such as arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc; TSS; sediment; petroleum products; and synthetic organics, such as pesticides, herbicides, and PCBs. DTR, at 4-6.

10 DTR, at § 4.7.1.3 (collecting studies concluding that toxic storm water flows from Chollas Creek impact the sediments at the Site, including Schiff (2003); Katz (2003); and Chadwick, *et al.* 1999. Sediment Quality Characterization - Naval Station San Diego Final Summary Report. U.S. Navy Technical Report 1777.

in marine sediment at the Site, and that these outflows reach the inner portion of NASSCO's leasehold), 923:8 – 923:15 (confirming that Stations NA19, NA06, NA15 and NA17 within the Site are potentially subject to influence from Chollas Creek); Carlisle Depo., at 104:5 – 105:3 (same). The TCAO and DTR also specifically identify urban runoff from SW4 and SW9 as sources contributing to sediment contamination at the Site. TCAO, at ¶¶ 4 and 10; DTR, at § 4; *see also, e.g.,* Carlisle Depo., at 102:23 – 103:21 (concluding that chemicals discharged from SW9 impact the area to be addressed in the TCAO); 207:2 – 207:7.

Because these sources are continuing, logic dictates against dredging sediments at the Site until the sources are controlled, given the potential for subsequent recontamination. Indeed, the Shipyard Report concluded that "remediation of shipyard sediments prior to control of contaminant sources would be premature. Remediation would be ineffective because the shipyard leaseholds would be recontaminated by Chollas Creek and storm drain effluent." Shipyard Report, at 13-3.

Moreover, members of the Cleanup Team have acknowledged it is "probable" that discharges from Chollas Creek will remain uncontrolled for the foreseeable future. Deposition of Benjamin Tobler ("Tobler Depo."), at 90:6 – 92:5. No reductions are required under the Chollas Creek TMDL for metals[11] until **2018**, and full compliance is not required until October **2028**. RWQCB Resolution No. R9-2007-0043, at ¶ 13; Barker Depo., 925:19-927:25. And it is unlikely that full compliance with the TMDL will be achieved even within the twenty-year timeframe set forth in the TMDL, because existing technology is simply insufficient and cost-prohibitive. Tobler Depo., at 90:6 – 92:5 ("[W]ithout getting into space-age technology, which is extremely cost-prohibitive, the only possible fix for the problem is a system of sand filters. Sand filters do filter out metals, but even sand filters only get you into the general ballpark for meeting compliance. In other words, the best sand filters right now only just barely get you to the ballpark of compliance. There's no margin of safety with it."). Thus, according to Regional

---

[11] Since 1994, Chollas Creek storm water samples have frequently exceeded Basin Plan narrative water quality objectives for toxicity, and California Toxics Rule criteria for copper, lead, and zinc. DTR, at 4-12. As a result, Chollas Creek was placed on the Clean Water Act section 303(d) List of Water Quality Limited Segments in 1996 for cadmium, copper, lead, zinc and toxicity, with zinc, copper, and diazinon subsequently identified as causes of the observed toxicity. Chollas Creek TMDL for Metals, Background, (available at http://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdls/chollascreekmetals.shtml). Chollas Creek was also designated as a priority hot spot due to the presence of copper, DDT, chlordane and diazinon in the sediments, and the presence of impacts to aquatic life. RWQCB, Proposed Regional Toxic Hot Spot Cleanup Plan (Dec. 1997), at 1-16; Shipyard Report, at 1-16 – 1-17. To address these problems, TMDLs were adopted for diazinon and metals in Chollas Creek, and the Regional Board is currently in the process of developing a TMDL for PCBs, PAHs, and chlordane at the mouth of Chollas Creek. *Id.* The Chollas Creek TMDL for metals allocates quantitative limits for point and nonpoint discharges of copper, lead, and zinc, with the goal of ensuring that the capacity of the waterbody to assimilate pollutant loading is not exceeded.

Board staff, it is "probable" that full compliance will not be achieved, even after 20 years and significant infrastructure improvements, "unless technology comes to the rescue."

While it is undisputed that stormwater discharges are reaching the Site and have contributed to sediment contamination at the Site, and that Regional Board staff are well aware of same, the DEIR fails even to mention these sources of pollution, much less address the potential for recontamination. This oversight is particularly egregious given that EPA and Regional Board policies concerning sediment remediation each call for source control prior to any active remediation. Contaminated Sediment Remediation Guidance for Hazardous Waste Sites, EPA-540-R5-05-012 (Dec. 2005) ("Contaminated Sediment Remediation Guidance"), at 2-21 ("Generally, significant continuing upland sources ... should be controlled to the greatest extent possible before sediment cleanup."); State Water Resources Control Board Resolution No. 92-49, at III. E.; EPA's Contaminated Sediment Management Strategy, EPA-823-R-98-001 (Apr. 1998), at 54 (recognizing pollution prevention and source control as methods that will allow contaminated sediments to recover naturally without unacceptable impacts to beneficial uses). In fact, EPA Guidance specifically provides that "project managers should consider the potential for recontamination and factor that potential into the remedy selection process" "***before any sediment action is taken.***" Contaminated Sediment Remediation Guidance, at 2-21 (emphasis added).

This Regional Board and its staff are certainly aware of the need for source control prior to active remediation, given, among other things, the experience at the Convair Lagoon site in San Diego Bay, where significant funds were expended to construct a cap to remediate PCBs, only to subsequently find PCBs on top of the cap, apparently due to incomplete source control (among other potential causes). *E.g.*, Barker Depo., at 183:22 – 183:25. Ironically, the DEIR recognizes the potential for recontamination in its analysis of the Convair Lagoon alternative, noting the prior history at Convair Lagoon and explaining that the current Convair Lagoon CAO requires discharges to be abated, to the satisfaction of the State Board, before any further remedial actions may be conducted at Convair Lagoon. DEIR, at 5-35, 5-208, 5-211, 5-225 ("The CAO states that soil and groundwater must be cleaned up and waste discharges abated prior to conducting remedial actions in Convair Lagoon and San Diego Bay to prevent potential recontamination of the marine sediments in the bay."). Inexplicably, however, the DEIR simultaneously fails even to mention potential recontamination in relation to the proposed Project. *See also* Deposition of Cynthia Gorham, at 62:4 – 62:23 (acknowledging that dredging prior to source control may lead to recontamination).

The DEIR also ignores other potential sources of recontamination that could occur after the Project's contemplated dredging. For example, while the DEIR concedes that resuspension of sediment caused by dredging related ship/barge movements is a potentially significant impact, (DEIR, at 4.3-15), it wholly fails to consider resuspension from non-dredging related ship movements. *See also* DEIR, at 4.3-15 (discussing potential for resuspended sediment to be introduced into the water column during placement of silt curtains).

The DEIR's failure to discuss urban runoff/stormwater discharges to the Site and the potential for Site recontamination precludes a proper consideration of the Project's potential environmental impacts or comparison of alternatives, and renders the DEIR invalid.

C. The Proposed Project May Not Feasibly Attain Project Objectives Due to the Likelihood That The Site Will Be Recontaminated After Dredging

Among others, the Project includes an objective of implementing a cleanup plan "that will have long-term effectiveness." DEIR, at 3-5. Even setting aside the proposed Project's significant environmental effects and questions regarding the necessity of the contemplated dredging or the efficacy of related mitigation measures, the proposed dredging may not ultimately be effective, or have "long-term effectiveness," if the dredged areas are subsequently recontaminated by ongoing sources of contamination to the Site. This is another reason why the DEIR must describe those sources and analyze the reasonably foreseeable and potentially significant impacts from recontamination, and identify any mitigation measures or alternatives to address this impact.

Potential recontamination of the Site also weighs in favor of adopting the MNA alternative, which would allow source control to be addressed prior to any dredging, while confirming whether natural recovery is achieving the cleanup levels in the TCAO.

III. THE BASELINE DOES NOT REFLECT EXISTING CONDITIONS

A. The Baseline Must Be Premised On *Existing* Physical Conditions

As noted, potentially significant impacts are assessed in an EIR by measuring the potential effects of a proposed activity against a "baseline." CEQA Guidelines § 15126.2(a) ("In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the *existing* physical conditions in the affected area as they *exist* at the time the notice of preparation is published . . .") (emphasis added). Regarding the selection of a "baseline," the California Supreme Court recently confirmed that the lead agency must use "existing physical conditions." *Communities for a Better Env't v. South Coast Air Quality Mgmt. Dist.*, 48 Cal. 4th 310, 316, 319, 321 n. 7 (2010) (proper baseline for determining whether there would be significant environmental effects from emissions caused by proposed modifications to an oil refinery was the refinery's current existing operations, rather than its maximum permitted operations); *see also Eureka Citizens for Responsible Government v. City of Eureka*, 147 Cal. App. 4th 357, 370 (2007) ("environmental impacts should be examined in light of the environment as it exists when a project is approved").

"Case law makes clear that '[a]n EIR must focus on impacts to the existing environment, *not hypothetical situations*.'" *Sunnyvale West Neighborhood Ass'n v. City of Sunnyvale*, 190 Cal. App. 4th 1351, 1373 (2010) (emphasis added). This is because "[a]n approach using hypothetical . . . conditions as the baseline results in 'illusory' comparisons that 'can only mislead the public as to the reality of the impacts and subvert full consideration of the actual environmental impacts,' a result at direct odds with CEQA's intent." *Id.* at 1374. "It is only against [a proper] baseline that any significant environmental effects can be determined." *Id.* at 1373.

Agencies possesses discretion to decide how the existing physical conditions can most realistically be measured, so long as that determination is supported by substantial evidence.

Communities for a Better Environment, 48 Cal. 4th at 328. "[T]he date for establishing a baseline cannot be a rigid one. Environmental conditions may vary from year to year and in some cases it is necessary to consider conditions over a range of time periods." *Id.* at 327-28.

B. The DEIR's Description of Sediment Quality at the Site Is Based On Hypothetical Assumptions Used In the TCAO and DTR

Based on the most cursory purported description of sediment quality at the Site, (DEIR, at 4.3-2; 3-3), the DEIR assumes (without providing any factual or analytical support) that Site sediments present risks to aquatic life, aquatic-dependent wildlife and human health beneficial uses. These assumptions color the entire CEQA review, including the Project Objectives and the analysis of alternatives and mitigation measures, and go to the heart of the decision whether the proposed Project should be pursued notwithstanding its undisputed significant and potentially significant environmental impacts. It is clear that the DEIR premises its statements regarding sediment quality on the TCAO and DTR, which the Project is designed to implement. But the TCAO's conclusions of risk to beneficial uses at the Site are predicated on assumptions that are overly conservative and unrealistic—by design and as admitted by the Cleanup Team, with an intent of being overly protective. Regardless of whether or not the Regional Board's highly conservative assumptions are appropriate in the context of the Project's evaluation under the Porter Cologne Act (NASSCO believes they are not), such assumptions cannot form a proper baseline under CEQA, as a matter of law, because CEQA mandates that the baseline reflect actual, existing conditions rather than hypothetical or theoretical scenarios. *Sunnyvale*, 190 Cal. App. 4th at 1373.

A wealth of information in the Administrative Record shows that existing conditions at the Site present no risk to aquatic life, aquatic-dependent wildlife or human health beneficial uses. Rather, actual conditions are protective of beneficial uses, and the "risks" identified in the DTR were manufactured by compounding a series of overly conservative and unrealistic assumptions. *See* NASSCO's May 26 Comments, at 7-34. In fact, the Shipyard Report concluded that Site conditions were protective of beneficial uses based on sampling conducted in 2002-03;[12] and, as explained above, supplemental 2009 sampling (the most recent data available) demonstrates that natural attenuation has since reduced further the SWACs for primary COCs at the Site, and that for three of the five primary COCs the SWACs are already below the post-remediation levels required by the TCAO at the locations monitored in 2009. Shipyard Report, at 18-4; Barker Depo., Ex. 1228.

The hypothetical assumptions in the DTR and TCAO that are the foundation of the DEIR's environmental setting and baseline regarding sediment quality and alleged risks to beneficial uses are summarized below.

---

12 Because the data underlying the TCAO and DTR was collected in 2002-2003, and because that data is the most recent comprehensive data set for the Site, it may appropriately be used to establish the baseline. It is also appropriate to consider the data collected in 2009. *Communities for a Better Environment*, 48 Cal. 4th at 328.

1. Aquatic-Dependent Wildlife

In assessing risks to aquatic-dependent wildlife, Regional Board staff assumed that each of the six species of concern that were evaluated[13] derived 100% of their diet from prey obtained within the Site. DTR, at § 24.2.2, Table 24-6. This assumption is entirely unrealistic for all six receptors—and was in no way predicated on the actual foraging activities of the receptors or any studies, guidelines or other agency documents. *E.g.*, Alo Depo., at 333:11-334:2; 345:8-346:13. The home range for each receptor is substantially greater than the 43 acre shipyard area, demonstrating that the receptors will travel well beyond (and consume prey outside) the confines of the shipyards. It also is unrealistic to assume that any receptor would choose to forage exclusively in an active industrial shipyard where the habitat quality is low for all species. Expert Report, of Thomas C. Ginn, Ph.D. ("Ginn Report"), at 59-61. By contrast, using a realistic assumption of each receptor's foraging area, alone, demonstrates that there is no risk to any of the receptors at the NASSCO shipyard. *Id.* Thus, the DTR's finding of risk to aquatic-dependent wildlife is entirely dependent upon Regional Board staff's policy decision to assume receptors would consume 100% of their diet at the shipyards; is not reflective of existing conditions at the Site; and cannot be used to inform the DEIR's baseline under CEQA.

It is notable that in assessing the Project's impacts to the California Least Tern (one of the six receptors evaluated in the DTR's aquatic-dependent wildlife analysis), the DEIR states that the Site is only a "very small area of San Diego Bay" and that there are other open water areas available for foraging. DEIR, at 4.5-51. The DEIR also notes that "the majority of the sediment remediation site is in an area with relatively low abundance of prey species" for the least tern, and that "[t]here is no shallow water foraging habitat at the project site, limiting feeding opportunities." DEIR, at 4.5-51, 52. In other words, the DEIR's biological analysis emphatically refutes the DTR's assumption that a least tern would consume 100% of its diet from the Site, and precludes any reliance on such an assumption in selecting the environmental baseline relative to the effect of Site sediments on aquatic-dependent wildlife beneficial uses.

The DEIR should be revised to reflect accurately the estimated foraging behavior of the six species of concern evaluated in the DTR's aquatic-dependent wildlife analysis, and analyze how that data affects the DTR's conclusions regarding risks to aquatic-dependent wildlife from sediments at the Site and the determination of an appropriate baseline. The DEIR's baseline should also be revised to reflect existing conditions.

2. Human Health Impairment

Likewise, in the human health risk analysis, Regional Board staff assumed not only that fishing *could* occur at the Site—a facially erroneous assumption because strict security measures resulting from the shipyards' work for the U.S. Navy prevent *any* fishing at the shipyards—but also that each hypothetical subsistence angler at the shipyards would derive his or her entire

---

[13] The DTR's aquatic-dependent wildlife analysis evaluated the California Least Tern, the California Brown Pelican, the Western Grebe, the Surf Scoter, the California Sea Lion, and the East Pacific Green Turtle. DTR, at Table 24-4.

daily protein source from fish caught within the shipyard (161 g/day), **every day for 70 years (for carcinogens)**,[14] and would always eat the entire fish or shellfish (including skin/shell, organs, eyes, etc.), containing the maximum measured pollutant concentrations. Ginn Report, at 80-81; Expert Report of Brent L. Finley, Prepared in Regards to the California Regional Water Quality Control Board's Draft Technical Report for Tentative Cleanup and Abatement Order No. R9-2011-0001 (San Diego Bay) (March 11, 2011) ("Finley Report"), at 9, 22.

Given that absolutely no fishing occurs at the shipyards, and since the Administrative Record is devoid of evidence that there has *ever* been *any* fishing at the shipyards (*see* Alo Depo., at 88:4-93:18), it is highly conservative (to put it mildly) to assume that anglers will fish at the shipyards, much less that any angler would do so every day for 70 years and derive all of his or her protein requirements from fish caught at the shipyards. Because this hypothetical assumption bears no relationship to existing conditions at the Site, it cannot be used to inform the DEIR's environmental baseline relative to the effect of Site sediments on human health beneficial uses.

The DEIR should be revised to accurately describe the extent of fishing currently taking place at the Site, and analyze how that information affects the DTR's conclusions regarding risks to human health from sediments at the Site and the determination of an appropriate baseline. The DEIR's baseline should also be revised to reflect existing conditions.

3. Aquatic Life

The DTR contends that aquatic life beneficial uses at the Site are impaired "due to the elevated levels of pollutants present in the marine sediment at the Shipyard Sediment Site." TCAO, at ¶ 14, DTR, at 14-1. But the results of the sediment investigation indicate that, although contaminants of concern and other pollutants are present in Site sediments in elevated concentrations relative to reference, they do not pose significant risks to aquatic life because they are not "bioavailable" and many constituents do not "bioaccumulate."[15] NASSCO's May 26 Comments, at 8.

---

[14] The DEIR uses an assumption of 30 years for non-carcinogens.

[15] As explained above, "bioavailability" is a measure of the potential for a chemical to enter into ecological or human receptors. Similarly, "bioaccumulation" refers to the accumulation of substances, such as pesticides or COCs, in an organism. Bioaccumulation occurs when an organism absorbs a toxic substance at a rate greater than that at which the substance is lost.

The DTR cites a finding that "bioaccumulation is occurring at the shipyard" as one basis for concluding that aquatic life at the Site is impacted. DTR, at 14-1, 19-1. But the DTR's conclusion that Site sediments impact aquatic life is overly-conservative, since substances may bioaccumulate in laboratory tests (such as those underlying the DTR's bioaccumulation finding), but not adversely affect the benthic community, and because not all shipyard chemicals were found to bioaccumulate. DTR, at 19-1; Barker Depo, at 98:19 – 98:22. For many COCs, including all primary COCs, the laboratory bioaccumulation test was the only test showing any

Risks to aquatic life were evaluated by sampling and assessing both benthic macroinvertebrates and fish. Ginn Report, at 12. Effects on benthic macroinvertebrates were assessed using a triad approach, involving the synoptic collection of data on sediment chemistry, toxicity, and benthic community structure, and effects on fish were assessed by comparing fish living at the Site to fish caught in reference areas in San Diego Bay. The results of these analyses showed little or no effects on aquatic life; in particular, the results of the sediment investigation confirmed that (1) amphipod toxicity is absent from all but one station at the NASSCO Shipyard (out of 15 monitored), with only one station showing any significant difference from reference conditions, and even then the station was only 3% below the statistical reference range equal to one of the reference stations; (2) measurements of four indices of the health of benthic macroinvertebrate communities are not different from reference conditions[16]; (3) fish show no elevation in significant liver lesions or other abnormalities related to chemical exposures at the Site; and (4) predicted exposures of aquatic-dependent wildlife fall below the thresholds for which adverse effects are expected. Ginn Report, at 15-16. Likewise, the direct measurements of biological conditions, which Regional Board staff acknowledge "are the most important since they are direct measures of what is being protected," reveal that only a minimal fraction of stations at NASSCO do not meet reference conditions. Alo Depo., at 228:23 – 229:3; Ginn Report, at 49. Put another way, of 42 total toxicity tests conducted (excluding NA22, which is not being addressed under the Project), 37 tests showed conditions at NASSCO were as protective as background, with respect to toxicity.

---

statistical relationship between the chemicals at the Site and a biological response to a particular chemical, suggesting that the concentrations observed in the *Macoma* laboratory testing did not accurately predict adverse responses in consumer organisms at the Site. Barker Depo, at 95:22 – 98:16. Moreover, other COCs, including cadmium, chromium, nickel, selenium, silver, and PPT showed no statistical relationship with biological effects and also did not bioaccumulate in laboratory tests. DTR, at Table 20-1. Similarly, bioaccumulation relationships for arsenic and zinc, although statistically significant, were each controlled by only a single data point. DTR, at 19-1.

[16] The health of benthic macroinvertebrate communities at the Site was measured by comparing four benthic macroinvertebrate metrics at the NASSCO Site with the 95% prediction limits for the reference pool selected by Regional Board staff. The four metrics evaluated were (1) the benthic response index for Southern California embayments (BRI-E), which is a quantitative index that measures the conditions of marine and estuarine benthic communities by reducing complex biological data to single values; (2) total abundance, which measures the total number of individuals identified in each replicate sample; (3) total taxa richness, which measures the number of taxa identified in each replicate sample; and (4) Shannon-Weiner Diversity, which is a measure of both the number of species and the distribution of individuals among species, with higher values indicating that more species are present or that individuals are more evenly distributed among species. DTR, at 18-20. Of the 60 individual comparisons between Site conditions and reference conditions (15 stations and 4 metrics), there were only three significant differences from the reference pool. Ginn Report, at 31.

Remarkably, even the DTR's overly conservative analysis[17] acknowledges that (1) benthic communities are equivalent to reference conditions at 14 of 15 stations in the NASSCO leasehold, with the only "moderately" impacted station located at the mouth of Chollas Creek; (2) amphipod toxicity was found at only 1 of 15 stations at NASSCO, and for that station the survival rate, at 70%, was still only 3% below the statistical reference range **and equal to one of the reference stations**; (3) toxicity to sea urchins was not found at any of the 15 stations at NASSCO; and (4) toxicity to bivalves was found at only 5 of 15 stations at NASSCO. DTR, at Tables 18-8 and 18-13. Yet, despite these favorable toxicity results and contrary to current regulatory guidance, the DTR simply assumed "possible" or "likely" effects whenever chemical and biological indicators disagreed, resulting in seven stations at NASSCO being incorrectly characterized as having either "possible" or "likely" impacts on benthic macroinvertebrates. For example, NA19 was characterized as "likely" impaired, even though six of the seven lines of direct biological evidence showed no significant differences from reference conditions. Alo Depo., at 263:22 – 265:17. The DTR's conclusions of adverse effects to aquatic life beneficial uses does not accurately reflect existing conditions and cannot be used to form the DEIR's baseline.

C. The Environmental Setting Fails to Account For Pre-1960 Activities Contributing to Existing Conditions at the Site

In the description of Project Site Conditions for the Hazards and Hazardous Materials analysis, the DEIR describes wastes allegedly generated as a result of shipyard operations conducted by NASSCO since at least 1960, and BAE Systems (and its predecessor) since 1979. DEIR, at 4.3-1, 2. But the DEIR completely ignores pre-1960 activities that caused releases of hazardous materials to the Site, even though the DTR and the Administrative Record include detailed information regarding a variety of industrial operations conducted at the Site going back to the turn of the century, by a multitude of entities.

It is well-documented that the City of San Diego leased properties at or in the vicinity of the Site to numerous industrial and commercial tenants beginning in approximately 1900—well before NASSCO existed or operated at the Site. San Diego Unified Port District Report, Historical Study San Diego Bay Waterfront Sampson Street to 28th Street (2004) (SAR159392 – 94); City of San Diego, Report for the Investigation of Exceedances of the Sediment Quality

---

[17] The DTR framework is overly conservative and fundamentally flawed because it concludes that adverse effects on benthic macroinvertebrates are "likely" or "possible" whenever sediment chemistry is characterized as "high"—regardless of whether significant sediment toxicity or adverse effects on benthic communities are also observed. DTR, at Table 18-4. As a result, the chemistry line of evidence unilaterally trumps the others, causing the TCAO and DTR to reach conclusions that are not technically justified. Ginn Report, at 48. Regional Board staff's framework is further biased by its lack of a "no" effects category—meaning that stations will be characterized as having at least "low" levels of effects, even where the results are indistinguishable from reference conditions—contrary to methods published by others, including the State Water Resources Control Board. *Id.*

Objectives at National Steel and Shipbuilding Company Shipyard (2004) (SAR157095 – 167). These former tenants included operators in heavy industries such as tire manufacturing, lumbering, fish-packing and shipbuilding, and operated at times when environmental regulations were minimal or non-existent. There is ample record evidence that these entities contributed significant contamination to the Site. *See e.g.*, *id.*; Letter from City Port Director to Anthony Martinolich (1951) (SAR175155) ("[a]pparently your sandblasters are dumping the used sand in the bay in your water area."); Documents Evidencing Transformer Spill/PCB discharge by Lynch Shipbuilding at foot of 28th Street (1943) (PORT05994 -06007) ("hot oil from the transformer was sprayed over many square feet of deck").

Accordingly, the DEIR must be revised to reflect the waste discharges to the Site that resulted from pre-1960s activities.

D. The DEIR Provides No Support For Its Assumption That 15% of the Sediment Will Be Classified as "Hazardous" Material

The DEIR assumes that 15% of the sediment to be dredged under the proposed Project will be classified as "hazardous" and require transport to a Class I hazardous waste facility. *E.g.*, DEIR, at 4.1-12. This is presented as a "worst-case" scenario. *Id.* The DEIR does not provide any support for this assumption, however, and therefore must be revised to inform the public as to the basis of the assumption. If none of the dredged sediment is "hazardous," that would upset the stated rationale for incurring the environmental impacts and other costs associated with the proposed plan to dredge 143,000 cubic yards of sediment from the Bay. If, after dredging, more than 15% of the material is determined to be "hazardous," this would disturb the remaining environmental impact analyses for a variety of impact areas, including but not limited to impacts associated with truck trips required to transport the material to a hazardous waste facility.

The DEIR's assumption regarding the amount of sediment that will qualify as "hazardous" is relied upon and affects all environmental impact areas that were assessed, so it is particularly important that the DEIR provide support for that assumption; or, if there is no support, explain how each impact area will be affected if the assumption proves to be incorrect.

IV. THE DEIR'S DESCRIPTION OF THE PROJECT'S PROPOSED SAND COVER REMEDY MUST BE REVISED TO CLARIFY THAT AN ENGINEERED SAND CAP IS NOT REQUIRED

While the proposed Project calls for dredging as the primary remedial tool, the Project Description indicates that "[d]ue to the presence of infrastructure, such as piers and pilings, dredging is constrained in several locations within the project site. Therefore, contaminated areas under piers and pilings will be remedied through subaqueous, or in situ, clean sand cover. In situ clean sand cover is the placement of clean material on top of the contaminated sediment." DEIR, at 3-7. Elsewhere, the DEIR indicates that approximately 2.4 acres of the remedial areas "will be covered with a layer of clean sand to contain contaminated sediments." DEIR, at 4.2-14. NASSCO recognizes that clean sand cover is part of the TCAO proposed by the Cleanup Team and evaluated in the DTR; however, certain language in the DEIR and its proposed mitigation measures must be clarified in order to ensure that the proposed remedy is not

confused with the separate and significantly more costly and technologically challenging (and likely infeasible) remedy of an engineered sand cap. Such clarification is necessary in order to ensure that the Project Description in the DEIR accurately reflects the remediation that is being proposed by the TCAO and DTR.[18] *See San Joaquin Raptor*, 27 Cal. App. 4th at 730 ("an accurate project description is necessary for an intelligent evaluation of the potential environmental effects of a proposed activity."); CEQA Guidelines § 15124 (EIR must include "description of the project's technical . . . characteristics, considering the principal engineering proposals if any . . .").

Although the DEIR correctly refers to a "clean sand cover" rather than an engineered sand "cap," certain language in the DEIR could be misconstrued to refer to an engineered cap, and Mitigation Measure 4.2.7 includes requirements commensurate with an engineered cap. For example, the DEIR refers to the "design and install[ation]" of the sand cover, in contrast to the DTR's description of the "placement of a sand layer" in under-structure remedial areas. *Compare* DEIR, at 4.2-14 *with* DTR, at 30-4. In addition, Mitigation Measure 4.2.7 proposes detailed requirements regarding the "design" of the sand cover, including requirements that it "prevent substantial perturbation . . . of underlying contaminated sediments," "physically isolate the sediments from benthic or epigenetic organisms," "stabilize the contaminated sediments," and include "final engineering plans." DEIR, at 4.2-20. This measure includes the likely requirement for a surficial layer of protective armor rock, along with, potentially, an intervening layer of filter gravel and brick, among other things that would be required in an engineered cap.

In light of the above, the DEIR should be revised to make clear that the TCAO contemplates a sand cover rather than an engineered sand cap in the under-pier remedial areas, and Mitigation Measure 4.2.7 should be modified accordingly. The distinction is significant with respect to the proposed Project's economic and technological feasibility analysis. As explained below, Mitigation Measure 4.2.7 is estimated to add approximately **$7,000,000** in additional costs relative to the clean sand cover remedy contemplated by the parties in the TCAO/DTR process. Memorandum Regarding Cost Implication of Mitigation Measures Described in the Draft Environmental Impact Report for the San Diego Shipyards Sediment Cleanup Project, San Diego California, submitted concurrently herewith (the "Anchor Comments").

V. THE DEIR PROPOSES INFEASIBLE MITIGATION MEASURES

A. CEQA Mitigation May Not Be Adopted Unless It Is "Feasible"

Mitigation may not be adopted under CEQA unless it is "feasible," which CEQA defines as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." CEQA Guidelines § 15364. Mitigation is "legally infeasible" if its adoption is beyond the powers conferred by law on the agency, or prohibited by statutes governing the agency. *Kenneth*

---

[18] The sand cover is described as a mitigation measure (number 4.2.7), but it is more than that, as it is a critical component of the Project's proposed remediation strategy and thus must be detailed as part of the Project description in the DEIR.

Mebane Ranches v Superior Court, 10 Cal. App. 4th 276, 291 (1992); *Sequoyah Hills Homeowners Ass'n v City of Oakland,* 23 Cal. App. 4th 704, 715-16 (1993).

CEQA does not provide agencies with independent authority to mitigate environmental impacts. Rather, "[i]n mitigating or avoiding a significant effect of a project on the environment, a public agency may exercise only those express or implied powers provided by law other than this division." CEQA § 21004; *see also* CEQA Guidelines § 15040. Accordingly, the Regional Board may not adopt any mitigation measures for the proposed Project unless those measures are authorized by the Porter Cologne Act or other applicable statutory authority beyond CEQA. To the extent mitigation contemplated by the DEIR does not satisfy the Porter Cologne Act, it is legally infeasible under CEQA and may not be adopted.

B. New Mitigation Proposed In The DEIR Does Not Satisfy Resolution 92-49; Therefore It May Not Be Adopted

1. The TCAO's Cleanup Levels Must Be Evaluated For Economic Feasibility Under Resolution 92-49

The Regional Board's authority to issue cleanup and abatement orders is supplied by Water Code section 13304, (*see* DEIR, at 3-3), which is part of the Porter Cologne Act, Water Code sections 13000, *et seq.*, which sets forth California's water quality control laws. Regarding implementation of Water Code section 13304, the State Board issued Resolution 92-49.. Among other things, Resolution 92-49 requires an analysis of cost-effectiveness and technological and economic feasibility in determining cleanup levels. Resolution 92-49, at 6-8 ("The Regional Water Board shall . . . ensure that dischargers shall have the opportunity to select cost-effective methods for . . . cleaning up or abating the effects [of wastes discharged and] . . . require the discharger to consider the effectiveness, feasibility, and relative costs of applicable alternative methods for investigation, cleanup and abatement."). The Regional Board is also required to evaluate costs pursuant to Water Code section 13307.

The DTR explains that the "economic feasibility" requirement under Resolution 92-49 "refers to the objective balancing of the incremental benefit of attaining more stringent cleanup levels compared with the incremental cost of achieving those levels," and "does not refer to the discharger's ability to pay the costs of a cleanup." DTR, at 31-1. In assessing economic feasibility under Resolution 92-49, the benefits of remediation are best expressed as the reduction in exposure of human, aquatic wildlife and benthic receptors to site-related contaminants of concern. *Id.*

Resolution 92-49 cites Water Code section 13307 as authorizing the State Board to adopt policies for Regional Boards to follow for the oversight of cleanup and abatement activities. Section 13307, in turn, mandates that the State Board's policies "*shall* include ... [p]rocedures for identifying and utilizing the *most cost-effective* methods ... for cleaning up *or abating the effects* of contamination or pollution." Water Code § 13307(a)(3) (emphasis added).. Water Code section 13267 likewise requires a costs-benefits analysis with regard to any "technical or monitoring program reports" required by the Regional Board, providing specifically that "[t]he burden, including costs, of these reports shall bear a reasonable relationship to the need for the

report and the benefits to be obtained from the reports." This provides further confirmation that the cost of any measures imposed on dischargers by the Regional Board must have a reasonable relationship to the anticipated benefits to be obtained.

2. New Mitigation Requirements In The DEIR Would Increase Site-Wide Remediation Costs By Approximately $11.8 to $18.3 Million

As set forth in the concurrently submitted Anchor Comments, an expert assessment of the mitigation proposed in the DEIR indicates that new measures or requirements not discussed in the TCAO/DTR will increase Site-wide remediation costs by an estimated $11.8 to $18.3 million. The critical changes or additions to the cleanup requirements that are proposed in the DEIR, and associated increases in remediation costs, are summarized in the chart below, and detailed further in the Anchor Comments.[19] These measures were not evaluated in the TCAO/DTR, and were not included in the DTR's economic feasibility analysis for the TCAO.

---

[19] NASSCO takes issue with the necessity or feasibility of many of these measures, as set forth in the Anchor Comments and elsewhere in this letter. NASSCO also seeks clarification as to the scope or application of certain of these measures, as also reflected elsewhere in NASSCO's comments. Such clarification (and corresponding revision to the DEIR and its discussion of mitigation measures), or the removal of certain mitigation, could alter the above cost estimates.

Mitigation Measure(s)	Probable Minimum Cost	Most Probable Cost	Probable Maximum Cost
Automatic turbidity monitoring systems (MMRP 4.2.1)	$ 500,000	$ 800,000	$ 1,000,000
Double silt curtain enclosure (MMRP 4.2.2)	$ 250,000	$ 400,000	$ 500,000
Bucket additions and controls (closure switches, Clam Vision TM) (MMRP 4.2.2)	$ 250,000	$ 400,000	$ 500,000
Air Curtains (MMRP 4.2.2)	$ 300,000	$ 400,000	$ 500,000
Complete enclosure of dredge AND barge (MMRP 4.2.3)	$ 1,500,000	$ 1,750,000	$ 2,000,000
Design and construction of permanent cap instead of sand cover (MMRP 4.2.7)	$ 5,000,000	$ 6,000,000	$ 7,000,000
Hydraulic placement of cap material (MMRP 4.2.8)	$ 1,500,000	$ 1,750,000	$ 2,000,000
Restriction on haul times (MMRP 4.4.1)	$ 2,000,000	$ 3,200,000	$ 4,000,000
Biological monitoring for sea turtles, terns, etc. (MMRP 4.5.7 -4.5.9)	$ 250,000	$ 400,000	$ 500,000
Use of engine catalysts, low-NOx, and alternative fuels (MMRP 4.6.8 - 4.6.10)	$ 100,000	$ 180,000	$ 200,000
Use of special deodorizing additives (such as Simple Green) (MMRP 4.6.15)	$ 50,000	$ 80,000	$ 100,000
Total Estimated Cost Increase from Mitigation Measures	$ 11,700,000	$ 15,360,000	$ 18,300,000

3. The New Mitigation Has Not Been Evaluated Under Resolution 92-49, And Is Not Economically Feasible Under Resolution 92-49

The aforementioned mitigation requirements have not been assessed for economic feasibility under Resolution 92-49 or Water Code sections 13267 and 13307, and the TCAO and DTR's economic feasibility determinations did not incorporate the additional $11.8 to $18.3 million in estimated remedial expenses. Because these costs have not been assessed for compliance under Resolution 92-49 or Water Code sections 13267 and 13307, they may not be imposed under the Porter Cologne Act. As a result, the Regional Board lacks authority to impose them under CEQA because they are "legally infeasible," and they may not be adopted by the Regional Board. *Sequoyah Hills*, 23 Cal. App. 4th at 715-16; *Kenneth Mebane Ranches,* 10 Cal. App. 4th at 291; CEQA Guidelines § 15364; CEQA § 21004.

Nor could these mitigation measures pass muster under Resolution 92-49 had they been evaluated. The DTR's economic feasibility analysis compared incremental benefits of further cleanup, expressed in terms of exposure reduction to target receptors, with the incremental cost of achieving those benefits, and determined that the degree of exposure reduction does not justify the incremental cost of such reductions beyond approximately $33 million in total cleanup costs. DTR, at 31-2 - 31-3. Even before the mitigation requirements proposed in the DEIR, the maximum estimated cleanup costs totaled approximately $60,345,500, well beyond the point at which the DTR concluded any incremental benefit is not supported by the additional costs. Resolution 92-49 certainly will not permit an additional $11.8 to $18.3 million in remediation

costs, given that the additional, significant costs would have such a minimal degree of environmental benefit. Accordingly, the additional mitigation requirements proposed in the DEIR may not permissibly be adopted by the Regional Board under Resolution 92-49. Stated differently, to the extent that the Regional Board determines that the additional mitigation requirements are necessary to achieve the TCAO's cleanup levels (which NASSCO disputes), then those cleanup levels are economically infeasible and must be revised. Accordingly, Resolution 92-49 precludes adoption of the above measures, as does Water Code section 13307.

It is also worth noting that the costs of the mitigation requirements proposed in the DEIR, which increase the total Project cleanup costs to an estimated $72,145,500 to 78,645,500, also render implementation of the Project economically infeasible under CEQA. Given their estimated cost, many of the proposed individual mitigation measures, including each of those set forth in the chart above, are also economically infeasible under CEQA. *See* CEQA Guidelines § 15364 (feasibility analysis under CEQA includes consideration of "economic factors").

VI. SIMILAR SITES MUST BE TREATED SIMILARLY, BUT OTHER SEDIMENT REMEDIATION PROJECTS HAVE NOT BEEN SUBJECTED TO CEQA REVIEW AND MITIGATION

Resolution 92-49 also provides that the "Regional Water Board *shall* . . . prescribe cleanup levels which are *consistent* with appropriate levels set by the Regional Water Board for analogous discharges that involve similar wastes, site characteristics, and water quality considerations." (emphasis added). *See also* Barker Depo., at 345:12-345:17 (recognizing that one goal of Resolution 92-49 is to ensure that the Regional Boards treat similar sites similarly). Constitutional principles of due process and equal protection likewise require both fundamental fairness and similar treatment of similarly situated persons subject to the same legislation or regulation. U.S. Const. amend. XIV, §1; Cal. Const. art. I, §§ 7, 15.

Contravening these principles, the Project appears to be the first sediment remediation project in San Diego Bay that the Regional Board has subjected to CEQA review and mitigation. The Regional Board imposed CEQA review notwithstanding that the Project is "categorically exempt" from CEQA, as explained below, and despite the DEIR's concession that an average of 245,000 cubic yards of sediment are dredged annually from San Diego Bay, which nullifies the Cleanup Team's prior position that "unusual circumstances" required CEQA review because the Project called for the dredging of 143,000 cubic yards of sediment. Because the Regional Board's unprecedented imposition of CEQA review is not consistent with the Regional Board's treatment of similarly situated sites in San Diego Bay, and because, among other things, the DEIR is proposing mitigation that would add approximately $11.8 to $18.3 million to the cost of cleanup, the Regional Board's review of the Project under CEQA violates Resolution of 92-49 and the constitutional mandates of due process and equal protection. Notably, most of these measures have not been required for other cleanups in San Diego Bay (or elsewhere), including for the Campbell Shipyard cleanup, the most recent environmental sediment remediation project in San Diego Bay.

VII. THE IMPOSITION OF NEW MITIGATION THROUGH THE DEIR WOULD VIOLATE DUE PROCESS BECAUSE THE PARTIES HAVE NOT HAD THE OPPORTUNITY TO TAKE DISCOVERY ON THOSE REQUIREMENTS

The DEIR's new mitigation requirements (if adopted) violate due process for the additional reason that they purport to alter the cleanup required under the TCAO and DTR, but were first imposed after the close of discovery in the TCAO proceeding, precluding the opportunity for the parties to take discovery regarding the new requirements. There is no question that due process mandates that discovery may be taken regarding the parameters of the TCAO and DTR; the Presiding Officer's February 18, 2010 Discovery Plan specifically states that the "Designated Parties are entitled to the procedural and due process safeguards" provided by the state and federal constitutions, the California Administrative Procedure Act, and the California Code of Regulations.

NASSCO, along with the City of San Diego, United States Navy, SDG&E, BAE Systems and Campbell Industries, previously made this very point in connection with their combined request for the discovery period to be extended to coincide with the CEQA process, so that the parties would retain the right to take discovery on any components of the TCAO/DTR (or their implementation) that might be affected by the CEQA review.[20] The Cleanup Team agreed. SAR381340 ("Because the CEQA process must determine the timing of the San Diego Water Board's consideration of the tentative CAO and DTR . . . the Cleanup Team does not believe there is any good reason not to integrate the timing of the remaining discovery deadlines with the CEQA process."). But this request was denied by former Presiding Officer David King.

Accordingly, to the extent the Regional Board desires to impose additional mitigation requirements introduced in the DEIR, it must reopen the discovery period to allow the Designated Parties to take discovery regarding same, and extend the comment period so that the parties may use the results of discovery to inform their comments.

VIII. THE CUMULATIVE IMPACTS ANALYSIS FAILS TO IDENTIFY REASONABLY FORESEEABLE DREDGING PROJECTS IN SAN DIEGO BAY

As noted, the DEIR indicates that between 1994-2005, "an average of approximately 245,000 cubic yards of sediment was dredged from San Diego Bay each year," including maintenance and environmental dredging, with an annual total as high as 763,000 cubic yards.

---

[20] The parties' request stated: "Tying discovery deadlines to the CEQA process is logical because the "project" will be better defined and explained through the CEQA process and in the resulting Environmental Impact Report ('EIR"). The Parties will not know whether or to what extent they are agreeable to the final CAO (and therefore, can waive discovery) until after the CEQA process has been completed, including the submission of public comments and responses by the Regional Board and an analysis of proposed mitigation measures. It therefore makes sense for the discovery period to coincide with the CEQA process, so that the parties may take any discovery they believe is necessary as a result of the CEQA process, or waive discovery entirely." SAR381342.

DEIR, at 4-2. The DEIR further makes the "**conservative assumption** that two similar-sized dredging projects occur during the dredging operations at the project site." DEIR, at 4.3-30 (emphasis added). The DEIR also "anticipates that **regularly scheduled** maintenance dredging projects may occur in San Diego Bay over the next several years." DEIR, at 4.2-25. These statements raise several concerns regarding the DEIR's cumulative impacts analysis, which applies across all environmental impact areas considered in the DEIR.

First, given (i) that approximately 245,000 cubic yards of sediment are dredged from the Bay each year; (ii) that we can conservatively assume that two dredging projects of approximately 143,000 cubic yards each will occur during Project implementation; and (iii) that maintenance dredging in the Bay is "regularly scheduled," the DEIR's failure to identify a single anticipated dredging project is unsupportable. The DEIR should identify *any* dredging projects currently underway or scheduled to take place in the next ten years, regardless of whether they are maintenance *or* environmental dredging projects, as well as any specific dredging projects that are reasonably foreseeable or probable at this time. The DEIR's statement that no "specific environmental dredging projects have been identified" suggests that maintenance dredging projects have been identified, but were simply not disclosed. DEIR, at 4.3-30. This is improper.

The DEIR also should explain the steps that were taken to identify "probable" future dredging projects; and, if a "schedule" of "regularly scheduled" maintenance dredging exists, it should be made publicly available. CEQA Guidelines § 15065(a)(3) (cumulative impacts analysis must consider "the effects of probable future projects."). Among other things, the DEIR should indicate the extent to which the proposed or probable dredging projects may involve contaminated rather than "pristine" sediment,[21] and whether eelgrass or other sensitive biological communities may be located in the dredged areas. Similarly, the DEIR should clarify the grounds supporting its statements that "the location and timing of future dredging and staging activity is not known," and that "[m]aintenance dredging projects in the San Diego Bay do not typically occur simultaneously." DEIR, at 4.1-31. The last assertion is curious given the DEIR's above-stated point that the Regional Board conservatively is assuming that two other dredging projects of approximately 143,000 cubic yards will occur while the Project is being implemented, so that approximately 420,000 cubic yards of sediment will be dredged concurrently from the Bay.

Second, the DEIR should explain whether the Regional Board has conducted CEQA review for any of the dredging projects in San Diego Bay that its record reflect occurred during 1994-2005, and whether it intends to conduct CEQA review for any of the anticipated future dredging projects in the Bay. The DEIR indicates that future projects would require NPDES permitting, but does not mention CEQA review. DEIR, at 4.2-25.

Third, the DEIR should include a thorough analysis of any specific or reasonably anticipated dredging projects (maintenance or environmental) that will occur during the next ten

---

[21] There are no "pristine" sediment conditions that exist in San Diego Bay (or any other water body), such that any dredging will involve the removal of sediments contaminated to some degree.

years. Based on the DEIR's historical analysis, the EIR could analyze the Project's impacts in the context of an additional 24,500,000 cubic yards of sediment that may reasonably be expected to be dredged from the Bay over the next ten years, in light of past averages. Given CEQA's mandate to conduct environmental review at the earliest time feasible, (*Laurel Heights.*, 47 Cal. 3d at 394-96), and given that these other dredging projects are unlikely to be reviewed under CEQA, it is important for the Regional Board to conduct this cumulative impacts analysis now, rather than deferring it to the future in the context of other dredging projects (if subsequent CEQA analysis is done at all).

Fourth, although the cumulative impacts analysis implicates all impact areas, the DEIR should pay particular attention to the anticipated combined effects of dredging on sensitive eelgrass communities in the Bay, and the resultant effects to marine life that are reliant upon eelgrass as habitat. At a minimum, the DEIR should assess the location of sensitive eelgrass throughout the Bay, the extent to which foreseeable dredging projects will impact eelgrass, the effect of the combined eelgrass losses when measured in tandem with the Project, and the extent to which all of those losses may or may not be mitigated feasibly and in a reasonable amount of time.

Finally, Mitigation Measure 4.2.14 provides that the Regional Board shall "coordinate" water quality monitoring efforts and data with other dredging projects in the Bay for the duration of the Project, and take other actions intended to address potential cumulative impacts. DEIR, at 4.2-25. However, it is not clear that other dredging projects will be under the jurisdiction of the Regional Board. If they are not, this mitigation measure is unenforceable and illusory, and thus infeasible. If they are under the jurisdiction of the Regional Board, then the Board should be able to provide more specific information regarding all reasonably anticipated future dredging projects, and whether or not the Regional Board intends to review those dredging projects under CEQA. As a start, the Regional Board could indicate any applications it has received for dredging-related permits. If future CEQA review is not conducted, this may be the only opportunity to assess the cumulative environmental effects of dredging significant quantities of sediment from San Diego Bay.

IX. THE ENVIRONMENTAL IMPACT ANALYSES, MITIGATION MEASURES AND ALTERNATIVES CONTAIN ADDITIONAL DEFICIENCIES

Set forth below are additional comments on various environmental impact analyses, mitigation measures and alternatives in the DEIR, to the extent these issues are not separately addressed.[22] For the sake of brevity, comments pertaining to specific impact areas or mitigations addressed elsewhere in this letter generally are not reasserted here.

---

[22] Please note, however, that additional, detailed analyses of certain mitigation measures included in chapters 4.2, 4.4, 4.5, 4.6 and 4.7 of the DEIR are provided in the Anchor Comments. In addition, further discussion of DEIR Sections 4.2, 4.3 and 4.5, and the DEIR's alternatives analysis, is included in the concurrently submitted memorandum by Rick Bodishbaugh, Tom Ginn and Gary Brugger ("Exponent Comments").

Sections 3 and 4—Project Description and Environmental Analyses

- Water Code section 13360 provides in relevant part that "[n]o waste discharge requirement or other order of a regional board . . . shall specify the design, location, type of construction, or particular manner in which compliance may be had with that requirement, order, or decree, and the person so ordered shall be permitted to comply with the order in any lawful manner." Contradicting Water Code section 13360, the proposed Project purports to dictate how the Site should be remediated to achieve the TCAO's cleanup levels. Because the Regional Board lacks authority to dictate how the cleanup levels are to be achieved, it may not adopt the proposed Project, which therefore is legally infeasible under CEQA. *Kenneth Mebane Ranches*, 10 Cal. App. 4th at 291; *Sequoyah Hills Homeowners Ass'n*, 23 Cal. App. 4th at 715-16; CEQA § 21004; CEQA Guidelines § 15040.

Section 4.1—Transportation and Circulation

- The DEIR indicates that vessel traffic in San Diego Bay for maintenance dredging is similar to that required for the proposed Project. DEIR, at 4.1-9. To better assess cumulative impacts, the DEIR should provide a discussion of the vessel traffic typically encountered during recent maintenance dredging projects in the Bay, based on the volume of dredging that occurs.

- The DEIR indicates that an alternative traffic mitigation measure is the diversion of 15 percent of the dredged sediment to an ocean disposal site, but that "ocean disposal has not been approved by the San Diego Water Board at this time." DEIR, at 4.1-24. Given that no form of remediation or disposal has yet to be approved by the Regional Board, the purpose of this statement should be explained.

- The DEIR uses the 2000 Highway Capacity Manual ("HCM") published by the Transportation Research Board, even though an updated edition was published in 2010. The Regional Board should explain its decision to use the 2000 manual, despite the availability of an updated version, and explain whether use of the 2010 HCM would affect the results of the DEIR's traffic analysis in any way.

- The DEIR states that the I-5 Southbound Ramp/Boston Avenue intersection currently operates at LOS E during the p.m. peak hour, but the Draft Barrio Logan /Harbor 101 Community Plan Update acknowledges that this intersection currently operates at LOS F. The Regional Board should explain this discrepancy, as well as whether the results of the DEIR's traffic analysis would be affected in any way if this intersection is properly categorized as operating at LOS F.

- The DEIR repeatedly refers to "the City's performance criteria" or "the City's significance criteria" without specifying which city is referred to (San Diego or National City), or which particular guidance document contains the referenced criteria. *See e.g.*, DEIR, at 4.1-16, 4.1-25, Appx. B, at 39. The Regional Board should clarify which city's criteria is implicated, and cite to the particular document containing the criteria that were relied upon.

- The DEIR recognizes that the National City General Plan is currently in the process of being updated; however, it appears that the revised General Plan was adopted on June 7, 2011, and a revised zoning map is expected to be adopted on August 16, 2011, well before the Regional Board will take action on the Project. The Regional Board should explain whether the results of the DEIR's traffic analysis will be affected in any way by the revisions to these plans.

Section 4.2—Hydrology and Water Quality

- At page 4.2-12, the DEIR correctly acknowledges that cleanup to "background sediment quality level" is economically infeasible. The DEIR should be revised to indicate that cleanup to background also is technologically infeasible, as conceded in the Cleanup Team's written discovery responses. Cleanup Team's Response to NASSCO's RFA No. 18.

- Mitigation Measure 4.2.1 requires automatic rather than manual turbidity monitoring during dredging. The requirement for automatic dredging should be deleted and replaced by manual monitoring. Given possible disturbances in San Diego Bay, such as ship movements or storm events, the likelihood of false positives from automatic monitoring is high, and the associated dredging interruptions will significantly impair the ability to implement the proposed remedy in a timely and cost-effective manner.

- Mitigation Measure 4.2.2, as described on pages 1-10 and 4.2-17 of the DEIR, indicates that the contractor "may" use air curtains in conjunction with silt curtains. In the Mitigation Monitoring and Reporting Program ("MMRP"), however, Mitigation Measure 4.2.2 provides that the contractor "shall" use air curtains. DEIR, at 7-5. We understand that the use of air curtains is not intended to be mandatory, and that the "shall" included in the MMRP is inadvertent. Accordingly, we request revision of the MMRP so that the requirements of Mitigation Measure 4.2.2 relative to the use of air curtains are consistent throughout the document.

- Mitigation Measure 4.2.2 includes a requirement for a double silt curtain enclosure, which adds considerable cost without any demonstrated environmental benefit. This requirement therefore should be eliminated.

- Mitigation Measure 4.2.2 also would require certain customized features on the dredge buckets, such as closure switches and Clam Vision TM. These features would add considerable cost, and pose the risk of complicating the contractor's work by providing ambiguous or misleading data during dredging. These features should not be required.

- Mitigation Measure 4.2.3 requires that double silt curtains are to "fully encircle the dredging equipment and the scow barge being loaded with sediment." Including the scow barge in the enclosure would significantly impact (and slow down) operations, increasing costs without measurable environmental benefit. This requirement should be removed.

- In addition to concerns raised elsewhere in this letter, Mitigation Measure 4.2.14 constitutes improper "deferred" mitigation because it defers an assessment of reasonably

anticipated cumulative impacts from other dredging projects in concert with the proposed Project.

Section 4.4—Noise

- Mitigation Measure 4.4.1 prohibits certain treatment and haul activities between the hours of 7:00 p.m. and 7:00 a.m., to the extent the activities would cause "disturbing, excessive, or offensive noise," unless a permit has been obtained from the City of San Diego's Noise Abatement and Control Administrator in conformance with San Diego Municipal Code section 59.5.0404. DEIR, at 4.4-10. NASSCO understands that this measure is intended to allow work to be performed continuously at all hours of the day, so long as a variance or other appropriate permit has been obtained from the City of San Diego, or so long as any noise generated is not "disturbing, excessive, or offensive." Please confirm that this is the Regional Board's understanding as well. The ability to work continuously throughout the day is critical to accomplishing the proposed remediation in a timely and cost-effective manner.

- Mitigation Measure 4.4.2 is generally similar to Mitigation Measure 4.4.1, except that it applies to activities in National City rather than the City of San Diego. Mitigation Measure 4.4.2 should be modified to correspond to Measure 4.4.1, and allow activities to occur continuously throughout the day, in National City, so long as any noise generated is not "disturbing, excessive, or offensive," or if a variance or other appropriate permit has been obtained from National City.

Section 4.6—Air Quality

- Mitigation Measure 4.6.15 provides that the contractor "shall apply a mixture of Simple Green and water (a ration of 10:1) to the dredged material." DEIR, at 4.6-21. We understand that this measure is not intended to apply to every load of dredged material, and instead should apply only to the extent that an odor issue arises. As such, we request that the language of Mitigation Measure 4.6.15 be revised to clarify that liquids need only be applied to the extent odor issues arise with respect to particular portions of the dredged material.

Section 5.5—Alternative 1: No Project/No Development Alternative

- The DEIR states that the "no project" alternative would not reduce or minimize adverse effects to aquatic life, aquatic-dependent wildlife and human health beneficial uses "because the contaminated sediments would remain in place." DEIR, at 5-10. This statement is conclusionary, and is not supported by the requisite "facts and analysis." *Citizens of Goleta Valley v. Board of Supervisors*, 52 Cal. 3d 553, 568 (1990) ("the EIR must contain facts and analysis, not just the agency's bare conclusions or opinions."). As set forth above and in NASSCO's May 26 Comments, substantial evidence does not support the contention that current sediment conditions adversely effect any of these beneficial uses, rather, such contentions are premised on assumptions which are clearly erroneous and not reflective of existing conditions at the Site. *See* CEQA Guidelines § 15384 ("Argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly erroneous or inaccurate . . . does not constitute substantial evidence.").

- The DEIR's conclusion that the no project alternative would result in the Site continuing to be "injurious to human health," and "a public nuisance" is similarly unsupported by "facts and analysis" or any substantial evidence. DEIR, at 5-10.

Section 5.6—Alternative 2: Confined Aquatic Disposal (CAD) Site

- Alternative 2 consists of dredging and constructing a CAD facility "at a yet to be determined location." DEIR, at 5-11. Given that a location for the facility has not been identified, the feasibility of this alternative cannot properly be evaluated.

- Alternative 2 assumes that a majority of dredged sediments would be "barged to an ocean disposal location." DEIR, at 5-11. But elsewhere the DEIR rejects consideration of ocean disposal. If the Regional Board believes ocean disposal is a feasible option, the DEIR should explain the basis for that decision. If not, the DEIR should state clearly that Alternative 2 is not feasible and may not be adopted.

- The DEIR indicates that "Alternative 2 could have greater impacts [to marine biological resources] if the CAD facility did not effectively sequester underlying contaminants . . ." DEIR, at 5-15; *see also id.* at 5-13. But the DEIR provides no analysis of whether this may or may not happen, and concludes only that the potential marine biological impacts from Alternative 2 "would be slightly increased as compared to the proposed project" but remain less than significant with mitigation. *Id.* Without any analysis of whether or not the CAD cap will maintain its integrity, Alternative 2 should be considered to have a significant effect on marine biological resources and water quality, and should be treated as environmentally inferior to the proposed Project. This is certainly a critical area that would warrant detailed evaluation before Alternative 2 could be approved by the Regional Board.

- The Regional Board lacks authority to adopt Alternative 2 because the Regional Board's authority under the Porter Cologne Act is limited to setting cleanup levels, rather than selecting methods to achieve cleanup levels. Water Code § 13360. Accordingly, Alternative 2 is legally infeasible under CEQA. *Kenneth Mebane Ranches*, 10 Cal. App. 4th at 291; *Sequoyah Hills Homeowners Ass'n*, 23 Cal. App. 4th at 715-16; CEQA § 21004; CEQA Guidelines § 15040.

Section 5.7—Alternative 3: Convair Lagoon Confined Disposal Facility

- The DEIR indicates that "[a] complete analysis of the potential impacts related to Alternative 3, the Convair Lagoon CDF, was completed by Atkins and is included in Section 5.10 of this chapter. Technical appendices in support of the Convair Lagoon CDF Alternative Analysis are included as Appendices I through O of this PEIR." DEIR, at 5-18. But the DEIR fails to explain why a "complete analysis" of this alternative was prepared by separate consultants, or why technical appendices were included for this alternative. The DEIR also fails to explain why a "complete analysis" and technical appendices were not provided for Alternatives 1, 3 or 4.

- The DEIR must explain the basis for this discrepancy. If Regional Board staff believe the cursory analysis in Section 5.7 is insufficient for a proper assessment of Alternative 3, then it must explain why it believes the same cursory analysis is sufficient for consideration of the remaining alternatives. If Regional Board staff believes that the analysis included for Alternatives 1, 3 and 4 is insufficient to allow the Regional Board to adopt one of those alternatives, or fairly compare these alternatives to the proposed Project, the DEIR should also make that point clear.

- The Regional Board lacks authority to adopt Alternative 3 because the Regional Board's authority under the Porter Cologne Act is limited to setting cleanup levels, rather than selecting methods to achieve cleanup levels. Water Code § 13360. Accordingly, Alternative 3 is legally infeasible under CEQA. *Kenneth Mebane Ranches,* 10 Cal. App. 4th at 291; *Sequoyah Hills Homeowners Ass'n*, 23 Cal. App. 4th at 715-16; CEQA § 21004; CEQA Guidelines § 15040.

Section 5.8—Alternative 4: Nearshore CDF With Beneficial Use of Sediments

- The DEIR indicates that "the location of the CDF for Alternative 4 is unknown at this time; therefore, it is unknown whether this alternative would result in any short-term or long-term loss of use of shipyard or other San Diego Bay-dependent facilities." DEIR, at 5-20. But this is only one reason why the feasibility of Alternative 4 cannot be assessed without identification of where the CDF would be located. The DEIR fails to demonstrate that Alternative 4 is a feasible alternative that could attain most of the Project Objectives, and it may not be adopted by the Regional Board.

- The DEIR indicates that Alternative 4 "could have greater impacts if the covering did not effectively sequester underlying contaminants . . ." DEIR, at 5-23, *see also id.* at 5-21. But the DEIR provides no analysis of whether this may or may not happen, and concludes only that the potential marine biological impacts from Alternative 4 "would be slightly increased as compared to the proposed project" but remain less than significant with mitigation. *Id.* Without any analysis of whether or not the CDF covering will maintain its integrity, Alternative 4 should be considered to have a significant effect on marine biological resources and hydrology and water quality, and should be treated as environmentally inferior to the proposed Project. This is certainly a critical area that would warrant detailed evaluation before Alternative 4 could be approved by the Regional Board.

- The Regional Board lacks authority to adopt Alternative 4 because the Regional Board's authority under the Porter Cologne Act is limited to setting cleanup levels, rather than selecting methods to achieve cleanup levels. Water Code § 13360. Accordingly, Alternative 4 is legally infeasible under CEQA. *Kenneth Mebane Ranches,* 10 Cal. App. 4th at 291; *Sequoyah Hills Homeowners Ass'n*, 23 Cal. App. 4th at 715-16; CEQA § 21004; CEQA Guidelines § 15040.

Section 5.9—Identification of Environmentally Superior Alternative

- The DEIR's conclusion that the no project alternative "would cause [the alleged] environmental impacts related to the existing conditions to be perpetuated," is not supported by any "facts and analysis." *Citizens of Goleta Valley,* 52 Cal. 3d at 568. This is a fatal omission, as it is the sole justification provided by the DEIR for foregoing the "environmentally superior" no project alternative, which would avoid all of the proposed Project's significant and potentially significant impacts.

X. THE ALTERNATIVES ANALYSIS IS BIASED IN FAVOR OF THE CONVAIR LAGOON ALTERNATIVE FAVORED BY THE PORT DISTRICT

The DEIR selected four alternatives for consideration: (1) the No Project/No Development Alternative (Alternative 1), (2) Confined Aquatic Disposal Site (Alternative 2), (3) Convair Lagoon Confined Disposal Facility (CDF) (Alternative 3), and (4) CDF with Beneficial Use of Sediments (Alternative 4). DEIR, at 5-9. While the alternatives analysis (and the DEIR as a whole) is deficient for its failure to study the MNA alternative, as detailed above, it also is facially biased in favor of Alternative 3; which, unlike the other Alternatives, received its own, detailed supplemental evaluation consisting of roughly 239 pages, or approximately **31% of the entire DEIR,** not including six Alternative-specific appendices totaling approximately 247 additional pages. DEIR, at 5-32. By contrast, the other three alternatives each received between 2 and 6.5 pages of analysis in the DEIR, with no appendices.

We understand that Alternative 3 is favored by the San Diego Unified Port District ("Port District"), which makes sense given that this alternative would create ten acres of shoreline property that would likely be leased by the Port District to third parties. DEIR, at 5-117. We also understand that the detailed supplemental analysis of Alternative 3 was submitted on behalf of the Port District, and at the Port District's request, and note that the analysis was prepared by different consultants than those that prepared the remainder of the DEIR, including the analysis of the other alternatives. DEIR, at 9-1 and 9-2. The DEIR should clearly explain to the public the circumstances associated with the Regional Board's decision to include more than 200 pages of analysis (plus appendices) for one alternative prepared by separate consultants for a party that will benefit from that alternative (if implemented), while the other alternatives each received less than seven pages of analysis.

The Regional Board should make publicly available any contract or other agreement that has been entered into between the Regional Board and the Port District (or the Port District's consultants) regarding the preparation of the expanded analysis for Alternative 3, as well as any other documentation associated with the decision to include the expanded analysis of Alternative 3 in the DEIR. The Regional Board should also make clear if Alternative 3 is the politically preferred alternative, or is otherwise receiving special treatment because it is being advanced by the Port District, and explain why the Port District is being allowed to submit its own self-serving alternatives analysis for inclusion in the DEIR, an offer that has not (to NASSCO's knowledge) been extended to other Designated Parties or members of the public. CEQA's emphasis on public participation and open decisionmaking demands that the public be fully apprised of the circumstances associated with the inclusion of the expanded analysis regarding Alternative 3.

To this end, NASSCO requests the opportunity to prepare a detailed analysis of the MNA alternative for incorporation into a recirculated DEIR. To the extent the Regional Board is unwilling to allow NASSCO to prepare an analysis of the MNA alternative for inclusion into the DEIR, it should explain the basis for treating NASSCO differently than the Port District.

Biasing an EIR in favor of one entity or alternative is grounds for invalidation under CEQA. For example, CEQA's implementing regulations specifically provide that "[t]he lead agency is responsible for the adequacy and objectivity of the draft EIR," and the draft EIR "must reflect the independent judgment of the lead agency." CEQA Guidelines § 15084(e); *see also* CEQA § 21082.1 (EIR "shall be prepared directly by, or under contract to" the lead agency). Although a lead agency may enlist the initial drafting and analytical skills of an applicant's consultant, the agency must apply its "independent review and judgment to the work product before adopting and utilizing it." *Eureka Citizens*, 147 Cal. App. 4th at 369-371 (quotations omitted); *People v. County of Kern*, 62 Cal. App. 3d 761, 775 (1976) (lead agency "may not use a draft EIR as its own without independent evaluation and analysis."); CEQA Guidelines § 15084(e) ("Before using a draft prepared by another person, the lead agency shall subject the draft to the agency's own review and analysis."). Thus, the Regional Board may not simply adopt the Port District's submittal verbatim, and the DEIR must include a reasoned basis for its extensive analysis of Alternative 3 relative to the other alternatives.

Moreover, as noted above, the Port District was the only entity that was permitted to directly draft sections of the EIR, improperly biasing the alternatives analysis in its favor. This is particularly troubling given the circumstances of the instant proceeding. Unlike a typical development project subject to CEQA, where approvals are sought by a single project applicant, here, multiple parties are required to implement the Project and currently are involved in federal court litigation regarding the proper allocation of costs required for Project implementation. There is no basis for allowing the Port District to prepare a self-serving analysis of an alternative that would provide it with financial and other benefits associated with the creation of an additional ten acres of shoreline property while imposing additional costs on other Designated Parties and additional (but largely undisclosed) impacts on the environment.

XI. THE CONVAIR LAGOON ALTERNATIVE WILL CAUSE ADDITIONAL ENVIRONMENTAL IMPACTS AND SHOULD NOT BE ADOPTED

Alternative 3, which the DEIR acknowledges has greater impacts than the proposed Project, (DEIR, at 5-19), should not be adopted for a variety of reasons, but primarily because it would take contaminated sediment from one location in the Bay and transport it for burial in another location of the Bay, creating the very real possibility that contaminants from the sediment will escape from the CDF and recontaminate another portion of the Bay. As a threshold matter, the DEIR simply fails to analyze this risk in sufficient detail to provide the decisionmakers with an accurate assessment of the likelihood that the Convair site may be recontaminated due to CDF failure. This alone mandates that the DEIR treat Alternative 3 as causing a significant impact to water quality, hazards and hazardous materials, and marine biological resources, and dictates that the Regional Board may not adopt Alternative 3 because it is environmentally inferior to the proposed Project. CEQA § 21002 (project may not be approved if feasible alternatives exist that would substantially lessen environmental impacts).

A variety of additional inadequacies regarding Alternative 3 and the DEIR's analysis of same are set forth below (and also are discussed in the concurrently submitted Exponent Comments):

- As noted above, the DEIR indicates that Alternative 3 cannot be commenced until continuing discharges of PCBs to the Convair Lagoon site are abated to the satisfaction of the State Board, in order to "prevent potential recontamination of the marine sediments in the bay." DEIR, at 5-35, 5-208. But the DEIR does not provide any indication of how long it will take to achieve source control at Convair Lagoon, and thus fails to provide any information as to how soon Alternative 3 could be implemented in relationship to the Project or other alternatives. This clouds the viability of Alternative 3, given the Regional Board's desire to implement the TCAO as soon as reasonably possible. It also clouds the feasibility of the alternative under CEQA, which requires that an alternative be "capable of being accomplished in a successful manner *within a reasonable period of time* . . ." CEQA Guidelines § 15364 (emphasis added).

- The DEIR states the source of continuing PCB contamination to the Convair site "presumably" is a 60-inch storm drain, reflecting uncertainty as to the source and highlighting the difficulty that may be required to ultimately address the issue. DEIR, at 5-224. It also suggests that cap failure may, in part, be the cause of the recontamination, a cautionary point in relationship to Alternative 3's contemplated CDF.

- Alternative 3 is premised on the assumption that 15%, or 21,510 cubic yards, of the material dredged from the Shipyard Sediment Site will be classified as "hazardous" and thus would not qualify for placement in the CDF, due to high contamination levels. Conversely, the DEIR assumes that 85%, or 121,890 cubic yards, would be placed within the CDF. DEIR, at 5-42. But the DEIR fails to provide any support for these assumptions, which are critical to the feasibility of Alternative 3. If these assumptions are incorrect, and substantially more of the dredged sediment does not qualify for placement into a CDF, the ability to feasibly implement Alternative 3 will be jeopardized.

- The DEIR indicates that the thresholds of significance used to assess Alternative 3 are "primarily" based on Appendix G to the CEQA Guidelines. DEIR, at 5-62. The DEIR should explain which thresholds of significance are not based on Appendix G, and the reason for departing from these thresholds in certain circumstances.

- Table 5-8 purports to provide a list of past, present and probable future projects within the vicinity of the Convair Lagoon Alternative site. DEIR, at 5-63-67. But the table fails to include a list of past, present and probable future (or indeed any other) dredging projects in San Diego Bay, which necessarily precludes an accurate evaluation of the cumulative impacts from Alternative 3's proposed dredging of 143,000 cubic yards of sediment from the Bay.

- The DEIR acknowledges that "[e]xtensive eelgrass beds are present on the Convair Lagoon Alternative site." DEIR, at 5-101. The DEIR indicates that Alternative 3 would destroy 5.64 acres of eelgrass, with 6.01 acres significantly impacted. DEIR, at 5-113, 114. Given the DEIR's acknowledgment of the importance of eelgrasss as habitat for a variety of marine life, and the extensive (and uncertain) mitigation that would be required to address

Alternative 3's substantial eelgrass destruction, this weighs strongly against adoption of Alternative 3, in which eelgrass impacts from disposal of sediment would substantially outweigh eelgrass impacts caused by dredging at the Shipyard Site.

- Alternative 3 indicates that the Southern California Eelgrass Mitigation Policy requires pre and post construction surveys within 30 days of project commencement and completion. DEIR, at 5-109. But elsewhere the DEIR indicates that such surveys are required 120 days before proposed start dates. DEIR, at 4.5-56. This discrepancy should be clarified.

- Alternative 3 would result in the direct loss of 4 acres of intertidal habitat; another significant impact weighing heavily against adoption of Alternative 3. DEIR, at 5-114.

- The DEIR contends that Alternative 3 satisfies a Port Master Plan ("PMP") goal that "Bay fills, dredging and the granting of long-term leases will be taken only when substantial public benefit is derived." DEIR, at 5-117. According to the DEIR, a substantial public benefit would be satisfied because the Alternative "would protect the quality of the waters of San Diego Bay for use and enjoyment by the people of the state" by implementing the TCAO. This is inaccurate, because, rather than "protecting" the waters of the state, Alternative 3 would actually eliminate 10 acres of water by converting it to upland habitat. Accordingly, Alternative 3 would cause a significant impact regarding consistency with local policies and ordinances, by virtue of its conflict with the PMP's Goals. This is particularly critical given that Alternative 3 is the only alternative that would require the elimination of state waters in order to implement the TCAO.

- The DEIR also contends that Alternative 3 satisfies PMP Goal X, requiring that the "quality of water in San Diego Bay will be maintained at such a level as will permit human water contact activities." DEIR, at 5-118. Rather than "maintaining" water quality, however, Alternative 3 calls for the elimination of 10 acres of water by converting it to upland habitat. While the DEIR claims that Alternative 3 satisfies this goal by virtue of implementing the TCAO, Alternative 3 is the only alternative that proposes eliminating water in the Bay in order to accomplish TCAO objectives. Alternative 3 therefore would cause a significant impact by conflicting with local policies and ordinances.

- The DEIR asserts that Alternative 3 satisfies PMP Goal XI, which provides that "[t]he District will protect, preserve and enhance natural resources, including natural plant and animal life in the Bay as a desirable amenity, and ecological necessity, and a valuable and usable resource." DEIR, at 5-118. But since Alternative 3 will destroy up to six acres of eelgrass at the Convair site, and destroy the benthic community, on its face the alternative is incapable of "preserving" same. While mitigation measures propose "creating similar habitat in an alternative location," (DEIR, at 5-118), this certainly is not equivalent to "preserving" the eelgrass present at the Convair site in the first instance. Alternative 3 therefore would cause a significant impact by conflicting with local policies and ordinances. Alternative 3 conflicts with Goal XI for the additional reason that it proposes off-site creation of eelgrass habitat in locations outside of the PMP area, insufficient to comply with the PMP's mandate.

- Alternative 3's proposed Mitigation Measure 5.10.4.3 constitutes improper "deferred" mitigation because it defers a determination of the "success criteria" and "actions to

undertake for failed mitigation goals" until after Project approval. It also does not provide for a final Regional Board determination as to the adequacy of the mitigation measure.

- Alternative 3's proposed Mitigation Measure 5.10.4.4 also constitutes improper deferred mitigation because it does not provide success criteria or performance standards, and does not provide for a final Regional Board determination as to the adequacy of the mitigation measure.

- Not only will Alternative 3 cause greater environmental impacts than the proposed Project, but its significant impacts to 6 acres of eelgrass and 4 acres of intertidal habitat at the Convair site (among other impacts) would require the imposition of substantial mitigation measures. While these measures are uncertain regarding their potential for success, they also will cause significant environmental impacts of their own requiring even further mitigation. DEIR, at 5-125. This weighs heavily against adoption of Alternative 3, and there is simply no reason to rely on mitigation measures to protect against the additional impacts from Alternative 3, only to be required to rely on even more mitigation measures to address the environmental impacts caused by the initial mitigation, when other less environmentally harmful alternatives are available.

XII. THE DEIR MUST BE "RECIRCULATED"

Recirculation of an EIR is required if "significant new information" is added to the EIR after notice of public review has been given but before final certification. CEQA Guidelines § 15088.5(a). Recirculation is generally required when the addition of new information deprives the public of a meaningful opportunity to comment on substantial adverse project impacts or feasible mitigation measures or alternatives that are not adopted. *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.*, 6 Cal. 4th 1112 (1993); CEQA Guidelines §15088.5(a). The CEQA Guidelines specify that the new information requiring recirculation may include changes in the project or the environmental setting. CEQA Guidelines §15088.5(a). Recirculation is also required if information added to the EIR shows a new potentially significant impact that was not previously addressed. *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova,* 40 Cal. 4th 412, 447 (2007). "A decision not to recirculate must be supported by substantial evidence in the administrative record." CEQA Guidelines § 15088.5(e).

Here, recirculation of a revised DEIR is required for at least the following reasons, among others:

- A revised DEIR must evaluate the MNA alternative. As explained above, the MNA alternative will avoid all of the Project's significant and potentially significant impacts and obviate the need for mitigation measures, and substantial evidence shows that it can feasibly attain Project Objectives in a reasonable period of time.

- A revised DEIR must include an updated description of the environmental setting, including a disclosure of past and ongoing sources of contamination to the Site via stormwater from Chollas Creeks and SW4 and SW9, as well as an accurate

description of baseline conditions regarding sediment quality at the Site, in relationship to the potential impairment of aquatic life, aquatic-dependent wildlife and human health beneficial uses. This baseline must be premised on actual conditions rather than hypothetical (and erroneous) assumptions.

- A revised DEIR must evaluate the reasonably foreseeable potentially significant impact of recontamination of the Site, after Project implementation, from ongoing and uncontrolled stromwater discharges from Chollas Creek and SW4 and SW9. Mitigation measures and alternatives to address this potentially significant impact must also be evaluated.

- A revised DEIR must include an updated cumulative impacts analysis accounting for scheduled and reasonably anticipated probable future dredging projects in San Diego Bay.

- A revised DEIR must treat as "significant" impacts previously found to be less than significant based on mitigation measures that are infeasible or otherwise impermissible, including mitigation that may not be adopted by the Regional Board under the Porter Cologne Act, and which therefore is legally infeasible under CEQA.

XIII. THERE ARE NO "UNUSUAL CIRCUMSTANCES" REQUIRING AN EIR

A. The Project is Categorically Exempt From CEQA

Finally, NASSCO reasserts its objection to the Regional Board's decision to require preparation of an EIR for the Project, on the grounds that the Project is "categorically exempt" from CEQA review. While NASSCO's preceding comments are based on its assumption that the Regional Board and its staff will continue with the Project's CEQA review notwithstanding that the Project should be found exempt, the preceding comments should in no way be interpreted as a waiver of NASSCO's position that an EIR is not required.

CEQA section 21084(a) requires the Secretary of the Natural Resources Agency to prepare and adopt "a list of classes of projects which have been determined not to have a significant effect on the environment," and which are therefore "categorically exempt" from CEQA. Thirty-three such categorical exemptions are currently authorized, (CEQA Guidelines sections 15301-333), and each exempted class of project "embodies a 'finding by the Resources Agency that the project will not have a significant environmental impact.'" *San Lorenzo Valley Community Advocates For Responsible Education v. San Lorenzo Valley Unified School District*, 139 Cal. App. 4th 1356, 1381 (2006); CEQA Guidelines § 15300. If a project is categorically exempt, it "may be implemented without any CEQA compliance whatsoever." *Ass'n for Prot. of Envt'l Values in Ukiah v. City of Ukiah*, 2 Cal. App. 4th 720, 726 (1991).

As explained in the motion filed by NASSCO on July 23, 2010, the TCAO is "categorically exempt" from CEQA under at least the three exemptions set forth in CEQA Guidelines sections 15307, 15308 and 15321, which apply to actions by regulatory agencies to

protect natural resources or the environment, as well as regulatory enforcement actions. More specifically, the referenced classes of exempted projects include (i) "actions taken by regulatory agencies as authorized by state law or local ordinance to assure the maintenance, restoration, or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment" (Class 7); (ii) "actions taken by regulatory agencies, as authorized by state or local ordinance, to assure the maintenance, restoration, enhancement, or protection of the environment where the regulatory process involves procedures for protection of the environment" (Class 8); and (iii) actions by agencies related to "enforcement of a law, general rule, standard, or objective, administered or adopted by the regulatory agency" (Class 21). CEQA Guidelines §§ 15307, 15308 and 15321. Because the proposed Project is to be overseen by a regulatory agency, the Regional Board, and is designed to protect water quality and beneficial uses in the San Diego Bay, it clearly falls within the scope of each of these exemptions.

In fact, the above-referenced categorical exemptions were cited in the first three iterations of the TCAO, released between 2005–2008, to support the Cleanup Team's then-position that the TCAO was exempt from CEQA review. Cleanup Team's California Environmental Quality Act Analysis for Shipyard Sediment Project; Tentative Cleanup and Abatement Order R9-2010-002, dated July 9, 2011 ("CUT's CEQA Analysis"); Tentative Cleanup and Abatement Order R9-2005-0126, released April 29, 2005; Tentative Cleanup and Abatement Order R9-2005-0126, released August 24, 2007; Tentative Cleanup and Abatement Order R9-2005-0126, released April 4, 2008. It was not until the fourth iteration of the TCAO, released on December 22, 2009, that the Cleanup Team dramatically reversed course and alleged that CEQA review was required because the Project "presents unusual circumstances both with respect to its scope and unique characteristics." CUT's CEQA Analysis, at 2, Section II(A).

An exemption finding would be consistent with statewide practice and this Regional Board's prior practice of exempting cleanup and abatement orders, including orders for sediment remediation and dredging projects in San Diego Bay, and, as NASSCO repeatedly has asserted, also would avoid any unnecessary delay in the cleanup associated with the preparation and certification of an EIR.

B. The DEIR Refutes the Regional Board's Determination That Unusual Circumstances Differentiate The Project From Other Dredging in the Bay

NASSCO recognizes that a categorical exemption to CEQA may not apply where a project includes "unusual circumstances" ***and*** those unusual circumstances present a "reasonable possibility of a significant effect on the environment." *Banker's Hill, Hillcrest, Park West Community Preservation Group v. City Of San Diego*, 139 Cal. App. 4th 249, 278 (2006). Both of these prongs must be satisfied, however, as "[a] negative answer to either question means the exception does not apply." *Id.* (quoting *Santa Monica Chamber of Commerce v. City of Santa Monica*, 101 Cal. App. 4th 786, 800 (2002)). Further, "unusual circumstances" will not be found unless some feature distinguishes the project from other typical projects in the exempt class, such that the type of environmental impacts that may result are different than the type of environmental impacts likely to result from other typical projects within the class. *E.g.*, *Santa Monica Chamber of Commerce*, 101 Cal. App. 4th at 801-803.

In opposition to NASSCO's motion, the Cleanup Team argued that an EIR is required because the TCAO "**is the largest sediment remediation project *in the history San Diego Bay***" and thus is distinguishable from "garden variety" Class 7, Class 8, and Class 21 projects because it is expected to require dredging of over 140,000 cubic yards of sediment. *See* Cleanup Team's Comments On The Applicability of a CEQA Categorical Exemption For Tentative Cleanup And Abatement Order R9-2010-0002, at 2 (emphasis added). The Cleanup Team further relied on a statement by David Gibson that the Project "**will result in more dredging and removal of sediments from San Diego Bay than all previous Cleanup and Abatement Orders combined.**" *Id.* at n.1 (emphasis added). In addition, the Cleanup Team asserted that NASSCO's argument for an exemption was based on an improper supposition that "large-scale dredging projects do not usually have a potential for significant adverse environmental impacts," while, according to the Cleanup Team, the volume of this dredging project differentiated it from other dredging in San Diego Bay. *Id.*; *see also* CUT's CEQA Analysis, at 3, Section III(A) (citing the alleged unprecedented scope of the project, and referencing as factors supporting a finding of unusual circumstances its associated "physical disturbance to the environment, including but not limited to, sediment movement, air quality impacts from diesel emissions from dredging equipment, and potential impacts to traffic patterns and noise from equipment operations in the area where the sediments will be dewatered and from which they will be transported."); *see also* DTR, at 37-3.

Finally, the Cleanup Team contended that the above-referenced categorical exemptions contain exclusions where "construction activities" are undertaken in the context of an otherwise exempt project, and that dredging of sediment constitutes a "construction activit[y]" such that dredging cannot qualify for a categorical exemption under CEQA Guidelines sections 15307, 15308 or 15321. Cleanup Team's Comments On The Applicability of a CEQA Categorical Exemption For Tentative Cleanup And Abatement Order R9-2010-0002, at 4. The Cleanup Team further opined that "large-scale modifications" to the environment caused by the volume of dredging required for the Project precluded application of a categorical exemption, including the destruction of eelgrass habitat.

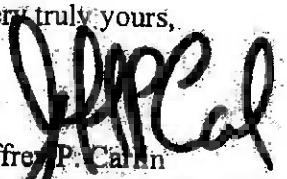
But the DEIR disproves the Regional Board's finding that "unusual circumstances" required an EIR for this particular sediment remediation project, which calls for the dredging of approximately 143,000 cubic yards of sediment. The DEIR indicates that during an 11-year period between 1994-2005, "an average of approximately 245,000 cubic yards of sediment was dredged from the Bay each year," including maintenance and environmental dredging, with an annual total as high as 763,000 cubic yards. The DEIR further indicates that the project dredge volume "**falls within the historic ranges for the yearly overall volume of dredging activity in San Diego Bay.**" DEIR, at 4-2 (emphasis added).

Because the DEIR confirms that the volume of dredging for this Project is consistent with the normal amount of dredging conducted in San Diego Bay each year (albeit the Project is a larger sediment remediation CAO than other sediment dredging in San Diego Bay), there are no "unusual circumstances" warranting CEQA review for this but not other dredging projects. Accordingly, NASSCO reasserts its objection to the preparation of the EIR, and requests that the Regional Board refrain from further CEQA review of the Project and elect not to prepare or certify a Final EIR.

In addition, so that the public may better understand the type and scope of dredging typically conducted in San Diego Bay, NASSCO requests that the Regional Board make publicly available and include in the Administrative Record the records of dredging in San Diego Bay between 1994-2005, referenced at page 4-2 of the DEIR, as well as any additional records reflecting past dredging in San Diego Bay or reasonably anticipated future dredging. The Regional Board should also explain the extent to which it does or does not regularly analyze sediment dredging projects in San Diego Bay under CEQA, and indicate each dredging project in San Diego Bay that has undergone CEQA review.

Thank you for your consideration of these comments. We look forward to your responses.

Very truly yours,



Jeffrey P. Carlin
of LATHAM & WATKINS LLP

cc: Frank Melbourn, on behalf of the Advisory Team
Designated Parties (per attached proof of service)

Certification of Authenticity of Electronic Submittal

I, Jeffrey P. Carlin, declare:

I am an associate at Latham & Watkins LLP, counsel of record for National Steel and Shipbuilding Company ("NASSCO") in the Matter of Tentative Cleanup and Abatement Order R9-2011-0001 before the San Diego Regional Water Quality Control Board ("Water Board"). I am licensed to practice law in the State of California and make this declaration as an authorized representative for NASSCO. I declare under penalty of perjury under the laws of the State of California that the electronic version of NASSCO's Comments on the Draft Environmental Impact Report for the Shipyard Sediment Remediation Project (SCH # 2009111098), submitted to the Water Board and served on the Designated Parties by e-mail on August 1, 2011, is a true and accurate copy of the submitted signed original. Executed this 1st day of August 2011, in San Diego, California.

Jeffrey P. Carlin

LATHAM & WATKINS LLP
Robert M. Howard (SB No. 145870)
Kelly E. Richardson (SB No. 210511)
Jeffrey P. Carlin (SB No. 227539)
Ryan R. Waterman (SB No. 229485)
Jennifer P. Casler-Goncalves (SB No. 259438)
600 West Broadway, Suite 1800
San Diego, California 92101-3375
Telephone: (619) 236-1234
Facsimile: (619) 696-7419

Attorneys for Designated Party
National Steel and Shipbuilding Company

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN DIEGO REGION

IN THE MATTER OF TENTATIVE CLEANUP AND ABATEMENT ORDER NO. R9-2011-0001 (SHIPYARD SEDIMENT CLEANUP)	**DECLARATION OF SERVICE**

PROOF OF SERVICE

I am employed in the County of San Diego, State of California. I am over the age of 18 years and not a party to this action. My business address is Latham & Watkins LLP, 600 West Broadway, Suite 1800, San Diego, CA 92101-3375.

On **August 1, 2011**, I served the following document described as:

1. **NASSCO'S COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE SHIPYARD SEDIMENT REMEDIATION PROJECT (SCH # 2009111098)**

2. **ANCHOR QEA'S MEMORANDUM REGARDING COST IMPLICATIONS OF MITIGATION MEASURES DESCRIBED IN THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE SAN DIEGO SHIPYARDS SEDIMENT CLEANUP PROJECT, SAN DIEGO, CALIFORNIA**

3. **EXPONENT, INC.'S COMMENTS ON DRAFT PRELIMINARY ENVIRONMENTAL IMPACT REPORT FOR THE SHIPYARD SEDIMENT REMEDIATION PROJECT, DATED JUNE 16, 2011**

by serving a true copy of the above-described documents in the following manner:

BY ELECTRONIC MAIL

Upon written agreement by the parties, the above-described documents were transmitted via electronic mail to the parties noted below on **August 1, 2011.**

Raymond Parra Senior Counsel BAE Systems Ship Repair Inc. PO Box 13308 San Diego, CA 92170-3308 raymond.parra@baesystems.com Telephone: (619) 238-1000+2030 Fax: (619) 239-1751	Michael McDonough Counsel Bingham McCutchen LLP 355 South Grand Avenue, Suite 4400 Los Angeles, CA 90071-3106 michael.mcdonough@bingham.com Telephone: (213) 680-6600 Fax: (213) 680-6499
Christopher McNevin Attorney at Law Pillsbury Winthrop Shaw Pittman LLP 725 South Figueroa Street, Suite 2800 Los Angeles, CA 90017-5406 chrismcnevin@pillsburylaw.com Telephone: (213) 488-7507 Fax: (213) 629-1033	Brian Ledger Kristin Reyna Kara Persson Gordon & Rees LLP 101 West Broadway, Suite 1600 San Diego, CA 92101 bledger@gordonrees.com kreyna@gordonrees.com kpersson@gordonrees.com Telephone: (619) 230-7729 Fax: (619) 696-7124

Christian Carrigan Senior Staff Counsel Office of Enforcement, State Water Resources Control Board P.O. Box 100 Sacramento, CA 95812-0100 ccarrigan@waterboards.ca.gov Telephone: (916) 322-3626 Fax: (916) 341-5896	Marco Gonzalez Attorney at Law Coast Law Group LLP 1140 South Coast Highway 101 Encinitas, CA 92024 marco@coastlawgroup.com Telephone: (760) 942-8505 Fax: (760) 942-8515
James Handmacher Attorney at Law Morton McGoldrick, P.S. PO Box 1533 Tacoma, WA 98401 jvhandmacher@bvmm.com Telephone: (253) 627-8131 Fax: (253) 272-4338	Jill Tracy Senior Environmental Counsel Sempra Energy 101 Ash Street San Diego, CA 92101 jtracy@semprautilities.com Telephone: (619) 699-5112 Fax: (619) 699-5189
Sharon Cloward Executive Director San Diego Port Tenants Association 2390 Shelter Island Drive, Suite 210 San Diego, CA 92106 sharon@sdpta.com Telephone: (619) 226-6546 Fax: (619) 226-6557	Duane Bennett, Esq. Leslie FitzGerald, Esq. Ellen F. Gross, Esq. William D. McMinn, Esq. Office of the Port Attorney 3165 Pacific Highway San Diego, CA 92101 dbennett@portof sandiego.org lfitzgerald@portofsandiego.org egross@portofsandiego.org bmcminn@portofsandiego.org Telephone: 619-686-6200 Fax: 619-686-6444
Sandi Nichols Allen Matkins Three Embarcadero Center, 12th Floor San Francisco, CA 94111 snichols@allenmatkins.com Telephone: (415) 837-1515 Fax: (415) 837-1516	Laura Hunter Environmental Health Coalition 401 Mile of Cars Way, Suite 310 National City, CA 91950 laurah@environmentalhealth.org Telephone: (619) 474-0220 Fax: (619) 474-1210
Gabe Solmer Jill Witkowski San Diego Coastkeeper 2825 Dewey Road, Suite 200 San Diego, CA 92106 gabe@sdcoastkeeper.org jill@sdcoastkeeper.org Telephone: (619) 758-7743 Fax: (619) 223-3676	Mike Tracy Matthew Dart DLA Piper LLP US 401 B Street, Suite 1700 San Diego, California 92101-4297 mike.tracy@dlapiper.com matthew.dart@dlapiper.com Telephone: (619) 699-3620 Fax: (619) 764-6620

William D. Brown Brown & Winters 120 Birmingham Drive, #110 Cardiff By The Sea, CA 92007 bbrown@brownandwinters.com Telephone: (760) 633-4485 Fax: (760) 633-4427	Nate Cushman Associate Counsel U.S. Navy SW Div, Naval Facilities Engineering Command 1220 Pacific Hwy San Diego, CA 92132-5189 nate.cushman@navy.mil Telephone: (619) 532-2511 Fax: (619) 532-1663
Sarah R. Brite Evans Schwartz Semerdjian Ballard & Cauley 101 West Broadway, Suite 810 San Diego, CA 92101 sarah@ssbclaw.com Telephone (619) 236-8821 Fax: (619) 236-8827	Roslyn Tobe Senior Environmental Litigation Attorney U.S. Navy 720 Kennon Street, #36, Room 233 Washington Navy Yard, DC 20374-5013 roslyn.tobe@navy.mil Telephone: (202) 685-7026 Fax: (202) 685-7036
C. Scott Spear U.S. Department of Justice, Environmental Defense Section P.O. Box 23986 Washington, D.C. 20026-3986 scott.spear@usdoj.gov Telephone: (202) 305-1593 Fax: (202) 514-8865	Suzanne Varco Opper & Varco LLP 225 Broadway, Suite 1900 San Diego, California 92101 svarco@envirolawyer.com

BY ELECTRONIC MAIL

Upon written agreement by the parties, the above-described documents were transmitted via electronic mail to the parties noted below on **August 1, 2011.**

BY OVERNIGHT MAIL DELIVERY

I am familiar with the office practice of Latham & Watkins LLP for collecting and processing documents for overnight mail delivery by Express Mail or other express service carrier. Under that practice, documents are deposited with the Latham & Watkins LLP personnel responsible for depositing documents in a post office, mailbox, subpost office, substation, mail chute, or other like facility regularly maintained for receipt of overnight mail by Express Mail or other express service carrier; such documents are delivered for overnight mail delivery by Express Mail or other express service carrier on that same day in the ordinary course of business, with delivery fees thereon fully prepaid and/or provided for. I deposited in Latham & Watkins LLP' interoffice mail a sealed envelope or package containing the above-described document and addressed as set forth below in accordance with the office practice of Latham & Watkins LLP for collecting and processing documents for overnight mail delivery by Express Mail or other express service carrier:

Vincente Rodriguez Frank Melbourn Catherine Hagan California Regional Water Quality Control Board San Diego Region 9174 Sky Park Court, Suite 100 San Diego, CA 92123-4340 fmelbourn@waterboards.ca.gov chagan@waterboards.ca.gov Telephone: (858) 467-2958 Fax: (858) 571-6972	(12 copies of each document)

I declare that I am employed in the office of a member of the Bar of, or permitted to practice before, this Court at whose direction the service was made and declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on **August 1, 2011**, at San Diego, California.

Diane Griffin

Jeffrey P. Carlin
Direct Dial: (619) 238-2854
Jeff.Carlin@lw.com

600 West Broadway, Suite 1800
San Diego, California 92101-3375
Tel: +1.619.236.1234 Fax: +1.619.696.7419
www.lw.com

LATHAM & WATKINS LLP

August 1, 2011

VIA EMAIL AND OVERNIGHT MAIL

Mr. Vicente Rodriguez
California Regional Water Quality Control Board
San Diego Region
9174 Sky Park Court, Suite 100
San Diego, California 92123
vrodriguez@waterboards.ca.gov

Re: NASSCO's Comments on the Draft Environmental Impact Report for the Shipyard Sediment Remediation Project (SCH # 2009111098)

Dear Mr. Rodriguez:

Designated Party National Steel and Shipbuilding Company ("NASSCO") submits the enclosed comments regarding the Draft Environmental Impact Report ("DEIR") for the Shipyard Sediment Remediation Project ("Project"), State Clearing House Number 2009111098, publicly released by the California Regional Water Quality Control Board, San Diego Region ("Regional Board") on June 16, 2011. The enclosed comments were prepared by Michael Whelan and David Templeton of Anchor QEA, and supplement the comment letter prepared by my office that is being submitted concurrently.

Very truly yours,

Jeffrey P. Carlin
of LATHAM & WATKINS LLP

cc: Frank Melbourn, on behalf of the Advisory Team
Designated Parties (per attached proof of service)

ANCHOR QEA

26300 La Alameda, Suite 240
Mission Viejo, California 92691
Phone 949.347.2780
Fax 949.334.9646
www.anchorqea.com

MEMORANDUM

To: Kelly Richardson and Jeff Carlin, Latham & Watkins

Date: August 1, 2011

From: Michael Whelan, P.E., and David Templeton, Anchor QEA, L.P.

Cc: Mike Chee, NASSCO

Re: Cost Implications of Mitigation Measures Described in the Draft Environmental Impact Report for the San Diego Shipyards Sediment Cleanup Project, San Diego, California

This memorandum presents a detailed discussion and tabulation of estimated costs that could result from the imposition of certain mitigation measures described in the San Diego Shipyard Project's Draft Environmental Impact Report (EIR), dated June 16, 2011. If imposed in combination and as described in the Mitigation and Monitoring Reporting Program (MMRP; Section 7 of the Draft EIR), the various mitigation measures are estimated to potentially add $11.8 to $18.3 million to the total project cost estimate, which is currently estimated at up to $60 million.

Many of the mitigation measures described in the MMRP are typical for environmental sediment cleanup projects of this type and, therefore, have been included in Anchor QEA, L.P.'s most recent cost model for the site sediment cleanup. "Typical" environmental mitigation measures for sediment remediation projects include those required for the 2005/2006 cleanup of Campbell Shipyard, the most recent sediment cleanup project in San Diego Bay as well as the ongoing cleanup of the Rhine Channel in Newport Beach (for which a Water Quality Certification [WQC] was issued by the Santa Ana Regional Water Quality Control Board). However, a number of mitigation measures are not typical, do not provide substantive increases in environmental protection, and/or significantly increase construction costs. Such measures have typically not been in effect for Campbell Shipyard, Rhine Channel, or many other similar projects.

The impacts to construction costs are compounded when various measures are implemented in combination. Practices that decrease the contractor's productivity while failing to increase environmental protectiveness are particularly problematic and likely to result in

escalated total costs. Table 1 presents a summary of these compounding factors and estimated costs as they relate to MMRP mitigation elements. Costs are presented as a range of probable minimum, most probable, and probable maximum, reflecting the early stage of the project and the conceptual nature of its current definition. Cost elements will be refined as the project design process proceeds. The following sections discuss the mitigation measures in greater detail and focus on their effectiveness based on our experience with similar sediment cleanup projects.

A key consideration in this analysis is whether these mitigation measures are "required" or if the Draft EIR is recommending that they be considered during design and permitting (e.g., development of the Construction Quality Assurance Plan [CQAP] and the Section 401 WQC), with further consideration of environmental protectiveness and cost implications.

MITIGATION ELEMENTS RELATED TO HYDROLOGY, WATER, AND AIR QUALITY

Mitigation Measure 4.2.1: Hydrology and Water Quality

This mitigation measure requires that "automatic systems" be used to monitor turbidity outside of the construction area. While automatic monitoring of dredging position and progress is a standard and beneficial industry practice (and a key monitoring element of the Section 401 WQC), the automated monitoring of turbidity is not, aside from a select few instances known nationally. In fact, requiring automated monitoring is likely to have significant adverse effects on operations owing to the difficulty of discerning meaningful turbidity results from ambient conditions and statistical "noise." Turbidity is a complex phenomenon and subject to a host of environmental variables as well as to the ever-changing conditions of construction. Successful monitoring of turbidity effects, and interpretation of the monitoring data, requires the judgment of a skilled operating team so that external variables can be properly taken into account. Automating the monitoring is likely to lead to significant uncertainty and false positives (unwarranted indications of exceedances) resulting from external factors such as currents, weather, and vessel traffic as well as a frequent need to refine or clarify what the automatic monitors are indicating, which is likely to lead to confusion and loss of time on the project.

Potential slowdowns to the dredging process, even if limited in duration, will result in considerable extra costs, because dredging effectiveness is primarily driven by production

rate. Working in these active shipyards is already subject to a number of scheduling challenges. We expect that adding the uncertainty of an automated turbidity monitoring system could add as much as $500,000 to $1 million to total project costs, simply through the occasions of unnecessary work slowdown and uncertainty.

Alternatively, implementation of a water quality monitoring program that employs the manual collection of turbidity values allows for appropriate adjustments for tidal exchanges, wind, and vessel traffic. This flexibility will allow the contractor to adjust dredging and barge-loading methodologies (e.g., speed and bucket type) based on visual assessment at both the early warning and compliance distances from the construction area. In turn, manual collection of water quality results in better production rates and lower costs while providing better environmental protectiveness.

Mitigation Measure 4.2.2: Hydrology and Water Quality

This mitigation measure lists a number of best management practices (BMPs) intended to meet water quality objectives during the dredging work. Some of these BMPs are standard and would customarily be included in the project specifications, such as prohibitions against stockpiling, spillage, and splashing; bucket closure; and debris grid management. Other listed BMPs, however, are not representative standard practice. While there have been limited instances known nationally where they have been applied to highly toxic cleanup events, at this project they will add significantly to construction costs (and potentially slowing down the rate of progress) without a commensurate gain in environmental protectiveness. Examples of such BMPs include:

- Double silt curtain enclosure. Although double silt curtains were used for the Campbell Shipyard project in San Diego, they are not a standard practice. Single silt curtains, for instance, have been required and successfully used for recent and ongoing sediment cleanup projects in Newport Beach and at the Port of Long Beach. Employing double silt curtains adds considerable cost and management time without any demonstrated environmental benefit. We estimate that this measure could add $250,000 to $500,000 to project costs, owing not only to the increased cost of material purchase but also to the greater effort required to manage and move the double silt curtain.

- Specialized bucket additions and controls (e.g., closure switches and Clam Vision TM). These additions and controls would add cost due to their purchase, installation, upkeep, calibration, and management and would pose the risk of complicating the contractor's work by providing ambiguous or misleading data owing to the many variables that are in effect during dredging. We envision this measure adding as much as $250,000 to $500,000 to project costs. Alternatively, a practical water quality control and monitoring plan (as was used used successfully for the Campbell Shipyard project in 2005/2006) will ensure compliance with the Section 401 WQC and allow the contractor to use the right equipment for the conditions while keeping production efficient.
- Air curtains. The MMRP suggests these as a supplement to silt curtains for better controlling loss of suspended sediment and enhancing worker safety. We are not aware of any regional precedent for using air curtains for these reasons, and their effectiveness in this regard appears highly doubtful. Air curtains would add considerable cost and would be time-consuming to install, maintain, and continually relocate as the dredging proceeds. We estimate that this measure could add as much as $300,000 to $500,000 to project costs, owing not only to the increased cost of material purchase but also to the greater effort required to manage and move the air curtain assembly.

Mitigation Measure 4.2.3: Hydrology and Water Quality

This mitigation measure stipulates that double silt curtains (previously discussed) are to "fully encircle the dredging equipment and the scow barge being loaded with sediment." Although a silt curtain enclosure around the dredging barge is a typical requirement, including the scow barge in the enclosure would have a significant impact on operations. Each time the scow barge is loaded, it would have to wait within the silt curtain enclosure until water quality within the curtains can be documented as meeting water quality criteria and then for the curtain enclosure to be opened. This delay on the contractor's work efforts will increase dredging cycle times and, therefore, significantly slow down the necessary progress of the cleanup work. We also anticipate an increase to the dredging unit cost that could add as much as $1.5 to $2 million to project costs, with little to no resulting environmental benefit. With the appropriate controls on scow leakage and overflow, it

would be unnecessary and counterintuitive to require that the scows also be situated within the silt curtains.

Mitigation Measure 4.2.7: Hydrology and Water Quality

This mitigation measure anticipates a fundamentally different concept for the underpier remediation aspect of the project work. Prior discussions envisioned that a cover layer of sand or a sand-gravel mixture would be placed below piers, as a means of lessening the incidence of exposed contaminants and augmenting the ongoing process of sedimentation. Installing the cover to be a permanent feature that is fully protected against erosion requires the addition of a surficial armoring layer, generally comprised of a rock product, separated from the underlying sand by an intervening "filter layer" of gravel, and potentially a layer of filter fabric. The resulting sequence of aggregrate material layers would in fact be 5 to 7 feet thick, comprised of layers of sand, gravel, and rock. Not only is such a sediment cover a far more complex element to design and construct, it also raises the risk of imposing stresses on the foundations and soils that underlie the overwater marine structures. Clearly, this measure has tremendous impacts on the project's cost and timeframe. We estimate that the cost impact would be as much as $5 to $7 million, which makes it the most costly of all the mitigation measures described in the MMRP, because the material and placement costs increase so substantially.

Mitigation Measure 4.2.8: Hydrology and Water Quality

Hydraulic placement of sand cover material might in fact be a feasible and cost-effective option for some contractors, but including hydraulic placement as a project requirement will unnecessarily disrupt the ability of otherwise qualified contractors to submit competitively priced bids. Other feasible methods are also available for placement of sand and gravel materials below overwater structures, including long-reach conveyors and reticulated bucket arms. Rather than making hydraulic placement a project requirement, we recommend instead to let individual contractors determine whether they will use mechanical or hydraulic methods to place sand cover materials. In other words, we recommend approaching the project requirements in much the same way as was done for the successful Campbell Shipyard project. Otherwise, the cost difference could be substantial, as much as $1.5 to $2 million for this relatively high-cost element of the project.

Mitigation Measure 4.4.1: Noise

This mitigation measure anticipates a restriction on haul times to the hours between 7 am and 7 pm only. While these construction times are consistent with the San Diego Municipal Code, imposition of this ordinance will delay the critical transport of sediment off site. The common and recommended practice for critical environmental cleanups, such as this one, is to obtain a temporary variance from the City Ordinance so that the work can be completed in as timely a fashion as possible. Because sediment disposal is a high-cost item on the project, any change will result in a proportionately high impact. We estimate that restricting truck haul times could add as much as $2 to $4 million is cost by significantly complicating the sediment transport operations and hindering the rate and progress of the cleanup action.

Mitigation Measures 4.5.7-4.5.9: Biological Resources

It is expected that the proper application of operational controls and BMPs, as will be detailed in the Section 401 WQC, in combination with effective construction quality assurance will be successfully able to limit impacts to biological resources. Further, water quality impacts that might result from the work are expected to be short-term in duration. Nevertheless, the use of biological monitors on such projects is not without precedent and can be completed without incurring significant project delays, although it does add cost to the work effort. We estimate that the net cost could be as much as $250,000 to $500,000.

Mitigation Measures 4.6.8-4.6.10: Air Quality

This set of mitigation measures discusses the use of various technologies for reducing air emissions from construction equipment engines to the extent that they are readily available and cost effective in the San Diego Air Basin (ADAB). Specifically identified measures include the use of engine catalysts, low-NOx fuels, and alternative fuels. Because of the clause regarding their use only when available and cost effective, the imposition of these measures on construction costs is restricted. In the case of low-NOx fuels, the MMRP defines cost effective as up to 125 percent of the cost of diesel. We anticipate that these requirements will increase overall costs by approximately $100,000 to $200,000.

Mitigation Measure 4.6.15: Air Quality

The MMRP describes the application of a sanitizing solution (Simple Green and water mixed in a 10:1 ratio) as a means of controlling potential odors from sediment stockpiles. This mitigation measure would require purchase of the chemical agent in industrial-size quantities and applying and mixing the solution into sediment stockpiles using earthmoving equipment. The method would slow down the dewatering and drying process, because water would be added to the sediment and would add weight to sediment loads being hauled off for disposal. If this measure were applied consistently to all sediment stockpiles, it would have a significant impact on construction progress, delaying the processing and disposal of dredged sediments and would have a similar affect on cost, increasing costs by as much as $1 million. The cost impacts can be managed by using this measure only on an as-needed basis, in cases where significant odors are present, thus bringing the estimated net costs down to an estimated $50,000 to $100,000. This as-needed approach appears to be consistent with the Regional Water Quality Control Board's intentions. Note that such measures were not used for the Campbell Shipyard project, which occurred immediately adjacent to the San Diego Convention Center, and no odor-related problems were reported.

TABLE

Table 1

Summary of Cost Impacts from Potential Environmental Mitigation Elements

Mitigation Measure(s)	Probable Minimum Cost	Most Probable Cost	Probable Maximum Cost	Summary of Key Considerations (as discussed in accompanying memo)
Automatic turbidity monitoring systems (MMRP 4.2.1)	$ 500,000	$ 800,000	$ 1,000,000	Increased potential for excessive work stoppages and 'false positive' readings.
Double silt curtain enclosure (MMRP 4.2.2)	$ 250,000	$ 400,000	$ 500,000	Has precedent in San Diego but not elsewhere Doubles the cost of silt curtain materials and deployment efforts.
Bucket additions and controls (closure switches, Clam Vision TM) (MMRP 4.2.2)	$ 250,000	$ 400,000	$ 500,000	Requires up-front capital expenditure with potential to slow down dredging operations, without commensurate gain in environmental protection.
Air Curtains (MMRP 4.2.2)	$ 300,000	$ 400,000	$ 500,000	Unorthodox (except in isolated instances nationally) and of questionable merit. Expensive to install and relocate as the dredging proceeds.
Complete enclosure of dredge AND barge (MMRP 4.2.3)	$ 1,500,000	$ 1,750,000	$ 2,000,000	Will cause regular and systemic delays in hauling of sediment to offloading site. Other BMPs will allow sufficient protection of water quality.
Design and construction of permanent cap instead of sand cover (MMRP 4.2.7)	$ 5,000,000	$ 6,000,000	$ 7,000,000	Significantly changes approach to design and construction of sand cover in dredged and underpier areas. A surficial layer of protective armor rock would likely be needed, along with, potentially, an intervening layer of filter gravel and fabric.
Hydraulic placement of cap material (MMRP 4.2.8)	$ 1,500,000	$ 1,750,000	$ 2,000,000	Should be given as an option for contractors, but not as a requirement. Other legitimate (and potentially more cost-effective) techniques exist.
Restriction on haul times (MMRP 4.4.1)	$ 2,000,000	$ 3,200,000	$ 4,000,000	Will have significant effect on sediment haul-out rates (needed on a 24-hour cycle). Recommendation is obtain temporary City variance.
Biological monitoring for sea turtles, terns, etc. (MMRP 4.5.7 -4.5.9)	$ 250,000	$ 400,000	$ 500,000	Additional monitoring effort. Best management practices(BMPs) likely to be sufficiently protective of biological resources.
Use of engine catalysts, low-NOx, and alternative fuels (MMRP 4.6.8 - 4.6.10)	$ 100,000	$ 180,000	$ 200,000	Cost effect is countered by implementing this as a contractor option, subject to equipment availability.
Use of special deodorizing additives (such as Simple Green) (MMRP 4.6.15)	$ 50,000	$ 80,000	$ 100,000	Best if done only on an as-needed basis.
Total Estimated Cost Increase from Mitigation Measures	$ 11,700,000	$ 15,360,000	$ 18,300,000	

Certification of Authenticity of Electronic Submittal

I, Jeffrey P. Carlin, declare:

I am an associate at Latham & Watkins LLP, counsel of record for National Steel and Shipbuilding Company ("NASSCO") in the Matter of Tentative Cleanup and Abatement Order R9-2011-0001 before the San Diego Regional Water Quality Control Board ("Water Board"). I am licensed to practice law in the State of California and make this declaration as an authorized representative for NASSCO. I declare under penalty of perjury under the laws of the State of California that the electronic version of Anchor QEA's Memorandum Regarding Cost Implications of Mitigation Measures Described in the Draft Environmental Impact Report for the San Diego Shipyards Sediment Cleanup Project, San Diego, California, submitted to the Water Board and served on the Designated Parties by e-mail on August 1, 2011, is a true and accurate copy of the submitted hard copy. Executed this 1st day of August 2011, in San Diego, California.

Jeffrey P. Carlin

Jeffrey P. Carlin
Direct Dial: (619) 238-2854
Jeff.Carlin@lw.com

600 West Broadway, Suite 1800
San Diego, California 92101-3375
Tel: +1.619.236.1234 Fax: +1.619.696.7419
www.lw.com

LATHAM & WATKINS LLP

August 1, 2011

VIA EMAIL AND OVERNIGHT MAIL

Mr. Vicente Rodriguez
California Regional Water Quality Control Board
San Diego Region
9174 Sky Park Court, Suite 100
San Diego, California 92123
vrodriguez@waterboards.ca.gov

Re: NASSCO's Comments on the Draft Environmental Impact Report for the Shipyard Sediment Remediation Project (SCH # 2009111098)

Dear Mr. Rodriguez:

Designated Party National Steel and Shipbuilding Company ("NASSCO") submits the enclosed comments regarding the Draft Environmental Impact Report ("DEIR") for the Shipyard Sediment Remediation Project ("Project"), State Clearing House Number 2009111098, publicly released by the California Regional Water Quality Control Board, San Diego Region ("Regional Board") on June 16, 2011. The enclosed comments were prepared by Rick Bodishbaugh, Tom Ginn and Gary Brugger of Exponent, and supplement the comment letter prepared by my office that is being submitted concurrently.

Very truly yours,

Jeffrey P. Carlin
of LATHAM & WATKINS LLP

cc: Frank Melbourn, on behalf of the Advisory Team
Designated Parties (per attached proof of service)

Exponent

EXTERNAL MEMORANDUM

TO:	Jeff Carlin and Kelly Richardson, Latham & Watkins
FROM:	Rick Bodishbaugh, Tom Ginn, and Gary Brugger, Exponent
DATE:	August 1, 2011
PROJECT:	PH10719.001
SUBJECT:	Comments on Draft Preliminary Environmental Impact Report for the Shipyard Sediment Remediation Project, Dated June 16, 2011

At your request, Exponent has provided technical comments on the subject document (the PEIR), as viewed on the San Diego Regional Water Quality Control Board (RWQCB) website. These comments are restricted to the PEIR sections concerning environmental setting, impacts and mitigation, water quality, and biological resources, both for the existing conditions and for the remedial alternatives under consideration, as well as the engineering recommendations and design details of the preferred and alternative projects, to the extent they are presented. We have not reviewed in detail nor commented on PEIR sections dealing with transportation and circulation, noise, air quality, or greenhouse gas emissions.

Description of Current Environmental Conditions

The PEIR includes several brief qualitative descriptions of the current environmental conditions and characterizes possible beneficial use impairment at the Shipyard Sediment Site. These include descriptions of water quality (Section 4.2), sediment quality (Section 4.3), and biological resources (Section 4.5) at the Site. In general, these statements are drawn from and are consistent with findings set forth in the Tentative Cleanup and Abatement Order (TCAO, RWQCB 2010a) and the accompanying Draft Technical Report (DTR, RWQCB 2010b). However, as noted in comments we have previously submitted on the general lack of beneficial use impairment at the NASSCO Shipyard (see attached memorandum, dated May 25, 2011), and in the expert report we prepared critiquing the DTR (Ginn 2011), the conclusions of Site-wide beneficial use impairment in the TCAO are flawed, and do not accurately reflect current

environmental conditions. The analyses relied upon in the TCAO and DTR to reach a conclusion of beneficial use impairment are completely dependent on unrealistic and scientifically unsupportable assumptions and hypotheticals, including:

- Fractional intakes of 100 percent for recreational and subsistence anglers. In other words, the exposure estimate upon which the DTR human risk calculations are based assumes that all fish and lobster consumed by humans over a period of 30 years (non-carcinogens) to 70 years (carcinogens) are caught within the boundaries of the Shipyard Site. These calculations disregard both the limited fish populations at the Site and the access restrictions that preclude the use of the Site for fishing.

- Area use factor of 100 percent for all modeled aquatic-dependent wildlife receptors. All wildlife are presumed to derive their entire sustenance by foraging within the boundaries of the Shipyard Site, even though all have known forage ranges much larger than the Site, and suitable foraging habitat at the Site is extremely limited in size, of poor quality, or unattractive because of human activity.

- Inappropriately derived avian and reptilian toxicity reference values for lead, which drive an erroneous conclusion that sediment lead levels are a significant risk to wildlife.

- A highly biased evaluation approach for aquatic life (i.e., benthic) impairment that ignores direct evidence of the lack of toxicity or benthic community impacts at many Shipyard stations with elevated sediment chemistry.

In addition, the PEIR fails to acknowledge the existence or significance of non-Site related sources of water and sediment contamination in the characterization of current conditions, future impacts, or possible mitigation required. In particular, while Chollas Creek is described as a major freshwater source for central San Diego Bay, the significance of Chollas Creek as a known historical and current contaminant source for the portion of the Bay surrounding the shipyards is ignored, as is the potential for recontamination of the Shipyard Site if this source is not adequately controlled prior to remediation. The importance of Chollas Creek and municipal storm drain outfalls as both historic and ongoing contaminant sources to the Shipyard Site has

been recognized since the early stages of the sediment investigation (Exponent 2003), and is explicitly recognized and described in the DTR (RWQCB 2010b).

Discussion of Project Alternatives

The PEIR discusses and contrasts 4 alternatives to the proposed project, both from the perspective of impacts and mitigation required at the Shipyard Site and impacts and mitigation created by the various disposal alternatives, including transportation and ultimate disposition of dredged materials. These options are:

- No project (no action alternative)
- Confined aquatic disposal (CAD alternative)
- Convair Lagoon confined disposal facility (Convair Lagoon CDF alternative)
- Nearshore confined disposal facility (Nearshore CDF alternative)

Because the dredging method and dredged footprint is the same for all alternatives, the on-Site benefits and direct remediation-related impacts are essentially the same, with the exception of the no action alternative. Therefore the discussion primarily concerns differences driven by the alternative dredge spoil disposal method and location.

A notable omission of the PEIR assessment of alternatives is a failure to consider natural recovery through monitored natural attenuation (MNA) of contamination. Contrary to the hypothetical scenario evaluated in the PEIR under the "No Project" alternative, sediment contamination at the Shipyard Site is not static. Mitigation of any putative existing impacts or impairment would increase over time by natural attenuation from chemical degradation and sedimentation that is currently taking place at the Shipyards. The MNA remedial alternative has been discussed as a possible option at the Shipyard Site since the beginning of the sediment investigation, and was the alternative judged most likely to result in the highest net benefits with respect to beneficial uses in the feasibility assessment contained in the Phase I/II sediment investigation report (Exponent 2003). Given this history and the existing analyses, the complete omission of an MNA alternative from the PEIR evaluation is egregious.

Alternative 1: No Action Alternative

Under this hypothetical scenario, no dredging is conducted and contamination is assumed to be static and unchanged into the future. This is in fact an unrealistic scenario, and is apparently only included in the PEIR because of a statutory requirement to include a no-action alternative. Based on the unrealistic assumptions and dismissive treatment of the no-dredging scenario, Alternative 1 does not appear to be under serious consideration by the RWQCB.

Alternative 2: CAD Alternative

While the discussion of this alternative correctly identifies the primary benefits of this option (elimination of land-based staging and transport of dredged materials and associated impacts and mitigation), few details are provided. Without a specific location and project design for a CAD, it is impossible to fully describe, let alone quantify impacts or mitigation that would be required for this alternative. The discussion of net environmental costs and benefits is therefore incomplete, and this alternative cannot properly be compared with the proposed project or other alternatives. Also, since the sediments do not qualify for off-shore/deep water disposal due to contamination, near shore confined disposal carries a significant risk from both a physical and a regulatory perspective. It would be more realistic to include the removal, dewatering, and upland disposal of the most contaminated sediments in this alternative, as proposed under Alternative 3. However, this modification would eliminate many of the advantages of a CAD over the proposed project (i.e., some dewatering, transportation and upland disposal would be required). The likelihood and impacts of containment failure from an accident or natural disaster, such as a seismic event, should be evaluated.

Alternative 3: Convair Lagoon CDF Alternative

The majority of the PEIR is concerned with the description and discussion of this alternative (including more than 200 pages in Section 5.10 and several appendices). This starkly contrasts with the minimal detail and much more qualitative evaluation presented for the other three evaluated alternatives. Although Alternative 3 is not recommended by the PEIR, the vastly greater level of detail and analysis presented for Alternative 3 could imply to the reader that this

is a preferred or leading alternative to the proposed project. This inconsistency should be explained.

One obvious negative aspect of Alternative 3 is the dramatically greater loss of aquatic habitat and associated required mitigation due to the destruction of existing habitat in the CDF area, which is diverse and of relatively high quality. A detailed description of the various habitat types that would be destroyed or impacted by the Convair Lagoon CDF project is included in the PEIR, and would result in the complete loss of nearly 10 acres of jurisdictional waters (see Appendix J, Table 1). This total includes 1 acre of upland habitat, 4 acres of intertidal habitat, 4.5 acres of shallow subtidal habitat, and 0.3 acres of deep subtidal habitat. Notably, more than six acres of eelgrass loss is identified at the Convair Lagoon CDF site (eelgrass being the only designated Habitat Area of Particular Concern for the entire project), including more than 4 acres of eelgrass beds that were established as mitigation for prior remediation of this former industrial site. This compares with a small fraction of an acre of eelgrass loss due to dredging at the Shipyard Site. In other words, the critical habitat loss due to disposal is vastly greater than that associated with dredging for this alternative. Eelgrass beds must be replaced at a rate of 120 percent of the loss, as stipulated by the Southern California Eelgrass Mitigation Policy. The PEIR also notes that there is the potential for impacts to a nesting colony of endangered California least terns, located approximately one quarter mile from the Convair Lagoon site. The U.S. Fish and Wildlife Service, which exercises federal natural resource trusteeship over this area, has recognized and commented on the local importance of the site and surrounding intertidal area as a resting and foraging habitat for migrating shorebirds in the Pacific flyway, including the threatened western snowy plover (USFWS 2011, attached).

The PEIR includes a preliminary analysis of required habitat mitigation due to construction of the CDF, but this analysis is incomplete, since no specific mitigation projects or locations are proposed. Without a complete description of the off-Site disposal locations for Alternatives 2 and 4, it is not possible to fully place impacts or required mitigation of the alternatives into a comparative context, but Alternative 3 certainly results in a significant destruction of aquatic and shoreline habitat - much higher than the proposed project.

The PEIR analysis of Alternative 3 has several significant engineering/technical flaws and omissions:

- The design is a short fill located within an active fault zone, leading to a significant risk of failure and recontamination due to a seismic event. It is stated that the earthquake risks at the Convair Lagoon site are acceptable after mitigation (based on a preliminary study by Ninyo Moore), without any real engineering evaluation to confirm that the conditions and mitigation will work. Furthermore, the EIR does not address the risks should an earthquake occur during the placement of the contaminated sediments.
- The EIR does not address the risk of leakage or failure of the existing storm drains and the deposition of additional contaminants from the storm drains outside of Convair Lagoon. These structures are likely leaking, and would also be susceptible to failure during earthquake events. Additionally, the age of these structures and condition is not addressed. Even if the storm drains remain intact, there is a risk of contamination from releases of fuels and other hazardous contaminants from their respective drainage basins.
- The EIR fails to qualitatively note, let alone quantify the contaminants already present in the lagoon under the existing sand cap. The fact that the existing cap has been recontaminated due to failed source control is noted in Section 10, but not in any of the sections that parallel evaluation of the proposed project and the other alternatives. The fact that an ongoing source of PCBs is believed to be present is therefore acknowledged in the PEIR, but not factored into the impact and mitigation assessment. Convair Lagoon should not be used as a CDF until the PCB source has been identified and removed. Then cleanup or recapping must be completed before the lagoon can be used as a repository for shipyard sediments. There is no indication that the source area has as yet been controlled, let alone defined.
- The master plan table shows a 3" asphalt cap. This is inadequate. A 4" asphalt concrete cap would be required to get sampling vehicles and other light vehicles such as pickup trucks across the asphalt. Additionally, placing the cap on sand over an unconsolidated fill is likely to create substantial problems caused by differential settlement, resulting in failure of the asphalt and a need for substantial and on-going maintenance. Even a more substantial design such as the use of 4" of ¾ crushed rock, 4" of asphalt treated base and 2 lifts of asphalt 2" thick is likely to fail under differential settlement, requiring frequent

repair. Finally, this cap design is not impervious, and storm water will leak through the asphalt. At least 3 seal coats will be necessary to prevent infiltration through this cap. Also required would be a storm drain system to address surface water on the 10 acres.

- Extension of 2 large storm sewer pipes through the containment barrier is proposed. This would create a likely conduit for placed contaminants due to sewer pipe leakage and flow around the pipe through the bedding material. This flow can also put hydraulic pressure on any holes in the filter fabric allowing more fine sediment to escape the filter barrier at the rock anchor. The new storm sewer outfall will also be discharging further into the bay, adding contaminants to new areas.
- Alternative 3 makes no effort to prevent return of water from the dredged material to the lagoon as required by the project specific mitigation requirement described for the proposed project and Alternatives 2 and 4. The Alternative 3 design proposes silt curtain and weir/pipe discharge from the fill area back to the lagoon without treatment, contrary to the stated objectives for the other alternatives.
- The conceptual design for the containment barrier may be inadequate as the materials specified are likely not to hold, risking destruction of the filter fabric during placement of the anchor rock. The details provided are insufficient to verify that quantities are adequate.
- The energy dissipater design is not sufficiently detailed to evaluate. Additional information should be provided.
- The assessment fails to evaluate placement of hard shoreline out into the Bay. This will reflect waves to other parts of the lagoon, possibly creating substantial erosion in other areas.
- The assessment fails to account for the increased weight of the pozzolonic treated material. There may be only a 15% increase in volume but the weight increase will be greater, because the pozzolonic material is substantially denser than the dredged sediments. Since disposal costs are usually calculated by weight, the increased weight must be calculated and used to estimate disposal fees.
- The summary of Alternative 3 as presented on page 5-17 states that no dewatering of contaminated sediments would be required, but the PEIR contradicts this statement on

page 5-42, where it is noted that the contaminated sediments (assumed to be 15% of the total sediments) will be dewatered.

- No information is provided on any intended future use of the Convair Lagoon parcel, beyond serving as a CDF. The fill and cap design is unlikely to be capable of supporting any structure or redevelopment without significant compromise or risk of containment failure. Any anticipated future use or development of the CDF area should be described in the PEIR, and potential impacts and mitigation required should be assessed.

Alternative 4: Nearshore CDF Alternative

The discussion of this alternative correctly identifies the primary associated benefits and problems, including the requirement for staging and offsite transport of most of the dredged material. However, like Alternative 2, it is not possible to quantify most impacts or required mitigation without a specific off-Site disposal location and more details about the design of the CDF. As such, this discussion and evaluation are incomplete. The alternative cannot be properly compared with the proposed project. As with Alternatives 2 and 3, there are significant risks of containment failure and subsequent recontamination of the Bay due to disturbance, accident, or seismic events that do not exist for land based disposal.

Summary of Project Alternative Discussion

As noted above, the discussion of alternatives fails to evaluate the net benefits of MNA, which should be considered a legitimate option to dredging, and evaluated fairly and realistically. The discussion presented in the PEIR cannot even be taken as a complete or fair comparison of the four selected alternatives. Alternative 1 is completely unrealistic and appears to be a "throw away" alternative included to meet the statutory requirement for inclusion of a no-action alternative. Alternatives 2 and 4 are qualitatively described, but little detail about possible locations or design is provided, making quantitative comparison of benefits or associated impacts and mitigation impossible. Alternative 3, the Convair Lagoon CDF is presented with so much disproportionate detail and volume of information that the discussion takes on a persuasive tone favoring this alternative. Also absent from the comparison is an assessment of any potential for inadvertent re-release of contaminants back into San Diego Bay through CAD or CDF

containment failure in the future. In fact, none of the risks of failure are adequately evaluated by the PEIR. Any aquatic disposal alternative clearly has a much higher potential for re-release of contaminants than upland disposal options.

Several conclusions about the net benefits and risks of the alternatives are apparent from the information presented, but are missing or inadequately stated in the PEIR:

- Alternative 3, the Convair Lagoon CDF will have the highest associated ecological impacts, due to the extent and quality of the habitat destruction that will result from filling the CDF area.
- All three of the evaluated alternatives that include dredging will result in significantly more aquatic and shoreline habitat impacts than the proposed project, and all carry significant additional risk of future failure and re-release of contamination.

References

Exponent. 2003. NASSCO and Southwest Marine detailed sediment investigation. Volume I. Prepared for NASSCO and Southwest Marine, San Diego, CA. Exponent, Bellevue, WA.

Ginn, T.C. 2011. Evaluation of Draft Technical Report for Tentative Cleanup and Abatement Order No, R9-2011-0001. Expert report submitted on behalf of NASSCO. March 11, 2011

RWQCB. 2010a. Cleanup and abatement Order No. R9-2011-001, for the shipyard sediment site. Sand Diego Bay, San Diego, CA. California Regional Water Quality Control Board, San Diego Region, San Diego, CA. Available at: http://www.waterboards.ca.gov.sandiego.

RWQCB. 2010b. Draft technical report for tentative cleanup and abatement Order No. R9 2011-001, for the shipyard sediment site. Sand Diego Bay, San Diego, CA. California Regional Water Quality Control Board, San Diego Region, San Diego, CA. Available at: http://www.waterboards.ca.gov.sandiego.

USFWS (U.S. Fish and Wildlife Service) 2011. Letter from Scott A. Sobiech, USFWS Deputy Field Supervisor to Tom Alo, San Diego Regional Water Quality Control Board. FWS-EC-LET-11-01. Received Jan 13, 2011.

ATTACHMENT: MEMORANDUM DATED MAY 25, 2011

Exponent®

EXTERNAL MEMORANDUM

TO: T. Michael Chee

FROM: Rick Bodishbaugh

DATE: May 25, 2011

PROJECT: PH10719.001

SUBJECT: Summary of Need to Remediate NASSCO Stations

At your request, Exponent has reviewed the findings of the September 15, 2010 Tentative Cleanup and Abatement Order, as well as all lines of evidence presented therein for the proposed cleanup project. Our technical opinion remains unchanged from the one we reached in our 2003 Detailed Sediment Investigation Report. There is presently no evidence of significant impairment of beneficial uses due to NASSCO sediment contamination, and active remediation would not produce any clear long-term improvement in beneficial uses relative to current conditions. Current impacts to the benthic community are extremely limited in extent and severity, and are more likely the result of physical disturbance than chemical toxicity. There is presently no significant risk to aquatic dependent wildlife or human receptors, under realistic and reasonable exposure scenarios. Monitored natural recovery is therefore equivalent to or better than all other alternatives, and should be the preferred alternative of any remedial decision-making process.

A station-by-station summary for NASSCO stations of the primary lines of evidence concerning risk, beneficial use impairment, and the need for remediation follows.

Glossary of Key Terms in Summary

Primary COCs – The five principle contaminants of concern addressed in the Tentative Cleanup and Abatement Order, including copper, mercury, High Molecular Weight Polynuclear Aromatic Hydrocarbons (HPAHs), polychlorinated biphenyls (PCBs), and tributyltin (TBT).

Composite SWAC – The spatially weighted average concentration (SWAC) in sediments, calculated using Thiessen polygon areas. Theissen polygons are areas whose boundaries define the area that is closest to each sample station relative to all other stations, and are mathematically defined by the perpendicular bisectors of the lines between adjacent points. Each Thiessen polygons is interpreted to be the area represented by a single sediment sample.

60% LAET – The lowest adverse effects threshold (LAET) is the lowest concentration of any of the seven apparent effect thresholds (AETs) developed from the Triad study.. An AET is the concentration above which adverse effects to benthic invertebrates always occur. AETs were developed for the three toxicity tests and four benthic community parameters assessed in the DTR Triad analysis. The 60% LAET was selected as a highly protective site-specific benchmark of potential benthic community impairment.

SS-MEQ – Site-Specific Median Effects Quotient (SS-MEQ) is a multiple chemical benchmark calculated from the median sediment concentration of the five primary chemicals of concern (COCs) at six stations that were scored as "likely impaired" in the DTR Triad analysis. These stations are NA19, NA22, SW04, SW13, SW22 and SW23. For each station, the effects quotients (the ratio of measured concentration to the median "likely impaired" concentration) were calculated for each of the primary COCs, and these were averaged to yield the multi-chemical SS-MEQ. A benchmark of 90% of the SS-MEQ was used as a protective site-specific benchmark of benthic community impairment.

Triad Station – Of the 66 stations in the Shipyard Site, 30 Triad station were established where all three lines of evidence were collected, including benthic community conditions data, sediment chemistry data, and sediment toxicity data.

DTR – Draft Technical Report. The technical document supporting the conclusions reached in the Tentative Cleanup and Abatement Order.

SQGQ1 – Sediment Quality Guideline Quotient 1 (SQGQ1) as defined in Fairey et al. (2001). The SQGQ1 is the mean sediment quality guideline quotient chemical combination using the effects median probable effects level and other individual sediment quality guideline values. The chemicals included in the SQGQ1 mean calculation are cadmium, copper, lead, silver, zinc, total chlordane, dieldrin, total PCBs and total PAHs.

BRI – Benthic Response Index (BRI) is a metric developed by scientists at the Southern California Coastal Water Research Project (SCCWRP) to measure the relative likelihood of benthic community degradation in coastal marine environments in California.

Shannon-Weiner Diversity Index – Shannon-Weiner Diversity Index (Diversity Index) is a measure of both the number of species and the distribution of individuals among species; higher

values indicate that more species are present or that individuals are more evenly distributed among species.

Reference LPL and UPL – the reference lower prediction limit (LPL) and upper prediction limit (UPL) are the one-tailed 95% prediction limits of the reference pool of stations. Site biological indicators outside the prediction limits (below LPL or above UPL) are judged to be significantly different from the reference condition.

SPI – sediment profile imaging (SPI) is a photographic method of assessing benthic community structure. Photographs are taken with a probe-mounted camera mounted above a prism that penetrates into the sediment and photographs a vertical cross-section of the sediment. The resulting photographs provide information on physical conditions in the sediment as well as a direct assessment of the presence condition of the benthic fauna.

Stage 1 - refers to the succession of benthic colonization and interaction with sediment soon after disturbance or defaunation of the soft-bottom marine sediment. Stage 1 represents the first stage at which small tube-dwelling polychaetes that feed at the sediment surface colonize the sediment soon after disturbance in the sediment.

Stage 2 – refers to the benthic colonization phase after Stage 1, in which the succession is characterized by organisms that burrow shallowly into the sediment but nevertheless feed at or near the sediment surface. Burrowing activity loosens and aerates the sediment, a process that makes it more suitable for further colonization.

Stage 3 – refers to the climax phase of benthic colonization, which is characterized by organisms that burrow well into the anaerobic sediment and feed at depth off of organic matter and microbial decomposers. These deep burrowing organisms typically irrigate their burrows with oxygenated surface water. This community is regarded as the mature stage of a fully developed benthic community.

TENTATIVE CLEANUP AND ABATEMENT ORDER NO. R9-2011-0001

STATION NA01

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 28 of 66 polygons
   - Copper ranking = 26 of 66 polygons
   - Mercury ranking = 19 of 66 polygons
   - HPAH ranking = 25 of 66 polygons
   - PCB ranking = 30 of 66 polygons
   - TBT ranking = 31 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.69 (less than 0.90 benchmark)

3. **No impacts to benthic community:**
   - **Triad Station: "Unlikely" benthic impacts**
   - **DTR chemistry score = moderate**
     SQGQ1 is less than 1.0. Only 2 chemicals exceed both DTR SQG and UPL.
   - **DTR toxicity score = low**
     No evidence of toxicity. Amphipod, urchin, and bivalve tests all scored above reference LPL.
   - **DTR benthic disturbance score = low**
     No evidence of disturbance. BRI is below reference UPL. Abundance, # taxa, and diversity index are all above reference LPL.
   - **SPI data indicate Stage I and III successional stages present**

CONCLUSION

Based on relatively low chemistry, and the absence of benthic impacts, NA01 was properly excluded from the proposed remedial footprint in the DTR

STATION NA02

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 46 of 66 polygons
   - Copper ranking = 44 of 66 polygons
   - Mercury ranking = 46 of 66 polygons
   - HPAH ranking = 44 of 66 polygons
   - PCB ranking = 41 of 66 polygons
   - TBT ranking = 46 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.41 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Non-Triad Station**
   - **SPI data indicate Stage I and III successional stages present**

CONCLUSION

Based on relatively low chemistry, and a lack of evidence for benthic impacts, NA02 was properly excluded from the proposed remedial footprint in the DTR.

TENTATIVE CLEANUP AND ABATEMENT ORDER NO. R9-2011-0001

STATION NA03

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 32 of 66 polygons
   - Copper ranking = 36 of 66 polygons
   - Mercury ranking = 13 of 66 polygons
   - HPAH ranking = 26 of 66 polygons
   - PCB ranking = 31 of 66 polygons
   - TBT ranking = 24 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.67 (less than 0.90 benchmark)

3. **No impacts to benthic community:**
   - **Triad Station: "Unlikely" benthic impacts**
   - **DTR chemistry score = moderate**
     SQGQ1 is less than 1.0. Only 2 chemicals exceed both DTR SQG and UPL.
   - **DTR toxicity score = low**
     No evidence of toxicity. Amphipod, urchin, and bivalve tests all scored above reference LPL.
   - **DTR benthic disturbance score = low**
     No evidence of disturbance. BRI is below reference UPL. Abundance, # taxa, and diversity index are all above reference LPL.
   - **SPI data indicate Stage I and III successional stages present.**

CONCLUSION

Based on relatively low chemistry, and the absence of benthic impacts, NA03 was properly excluded from the proposed remedial footprint in the DTR.

TENTATIVE CLEANUP AND ABATEMENT ORDER NO. R9-2011-0001

STATION NA04

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 34 of 66 polygons
   - Copper ranking = 22 of 66 polygons
   - Mercury ranking = 13 of 66 polygons
   - HPAH ranking = 34 of 66 polygons
   - PCB ranking = 39 of 66 polygons
   - TBT ranking = 13 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.69 (less than 0.90 benchmark)

3. **No impacts to benthic community:**
   - **Triad Station: "Unlikely" benthic impacts**
   - **DTR chemistry score = moderate**
     SQGQ1 is less than 1.0. Only 1 chemical exceeds both DTR SQG and UPL.
   - **DTR toxicity score = low**
     No evidence of toxicity. Amphipod, urchin, and bivalve tests all scored above reference LPL.
   - **DTR benthic disturbance score = low**
     No evidence of disturbance. BRI is below reference UPL. Abundance, # taxa, and diversity index are all above reference LPL.
   - **SPI data indicate Stage I and III successional stages present.**

CONCLUSION

Based on relatively low chemistry, and the absence of benthic impacts, NA04 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA05

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 47 of 66 polygons
   - Copper ranking = 44 of 66 polygons
   - Mercury ranking = 50 of 66 polygons
   - HPAH ranking = 44 of 66 polygons
   - PCB ranking = 47 of 66 polygons
   - TBT ranking = 40 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.40 (less than 0.90 benchmark)

3. **No impacts to benthic community:**
   - **Triad Station: "Unlikely" benthic impacts**
   - **DTR chemistry score = moderate**
     SQGQ1 is less than 1.0. No chemicals exceed both DTR SQG and UPL.
   - **DTR toxicity score = low**
     No evidence of toxicity. Amphipod, urchin, and bivalve tests all scored above reference LPL.
   - **DTR benthic disturbance score = low**
     No evidence of disturbance. BRI is below reference UPL. Abundance, # taxa, and diversity index are all above reference LPL.
   - **SPI data indicate Stage I and III successional stages present.**

CONCLUSION

Based on relatively low chemistry, and the absence of benthic impacts, NA05 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA06

SUMMARY OF STATION CONDITIONS

1. **Only mercury and copper are relatively high:**
   - Composite SWAC ranking = 19 of 66 polygons
   - Copper ranking = 9 of 66 polygons
   - Mercury ranking = 2 of 66 polygons
   - HPAH ranking = 31 of 66 polygons
   - PCB ranking = 15 of 66 polygons
   - TBT ranking = 18 of 66 polygons

2. **Chemistry is below or slightly exceeds conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 1.11 (greater than 0.90 benchmark)

3. **No impacts to benthic community:**
   - **Triad Station: "Unlikely" benthic impacts**
   - **DTR chemistry score = moderate**
     SQGQ1 is less than 1.0. Only 3 chemicals exceed both DTR SQG and UPL.
   - **DTR toxicity score = low**
     No evidence of toxicity. Amphipod, urchin, and bivalve tests all scored above reference LPL
   - **DTR benthic disturbance score = low**
     No evidence of disturbance. BRI is below reference UPL. Abundance, # taxa, and diversity index are all above reference LPL.
   - **SPI data indicate Stage I and III successional stages present**

CONCLUSION

There are no impacts to the benthic community at this station. NA06 was included in the DTR proposed remedial footprint because of relatively high mercury and copper, which are potential food web risk drivers. However, a realistic analysis of food web risks to wildlife and human receptors shows that there are no significant risks. Therefore, no risk-based justification for remediating NA06 exists.

STATION NA07

SUMMARY OF STATION CONDITIONS

1. **Only mercury and HPAH are relatively high:**
   - Composite SWAC ranking = 17 of 66 polygons
   - Copper ranking = 35 of 66 polygons
   - Mercury ranking = 7 of 66 polygons
   - HPAH ranking = 6 of 66 polygons
   - PCB ranking = 21 of 66 polygons
   - TBT ranking = 39 of 66 polygons

2. **Chemistry is below or slightly exceeds conservative biological benchmarks:**
   - Only slight exceedance of 60% HPAH LAET (63%)
   - SS-MEQ = 0.91 (slightly more than 0.90 benchmark)

3. **No impacts to benthic community:**
   - Triad Station: "Unlikely" benthic impacts
   - DTR chemistry score = moderate
     SQGQ1 is less than 1.0. Only 2 chemicals exceed both DTR SQG and UPL.
   - DTR toxicity score = low
     No evidence of toxicity. Amphipod, urchin, and bivalve tests all scored above reference LPL.
   - DTR benthic disturbance score = low
     No evidence of disturbance. BRI is below reference UPL. Abundance, # taxa, and diversity index are all above reference LPL.
   - SPI data indicate Stage III successional stage present.

CONCLUSION

HPAH and mercury are relatively elevated at this station. HPAH is a potential benthic and food web risk driver, while mercury is a potential food web risk driver. There are no impacts to the benthic community at this station, and a realistic analysis of food web risks to wildlife and human receptors shows that there are no significant risks. Therefore, no risk-based justification for remediating NA07 exists, and NA07 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA08

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 40 of 66 polygons
   - Copper ranking = 18 of 66 polygons
   - Mercury ranking = 36 of 66 polygons
   - HPAH ranking = 34 of 66 polygons
   - PCB ranking = 35 of 66 polygons
   - TBT ranking = 40 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.56 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Non-Triad Station**
   - **No SPI data**

CONCLUSION

Based on relatively low chemistry, and a lack of evidence for benthic impacts, NA08 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA09

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 38 of 66 polygons
   - Copper ranking = 22 of 66 polygons
   - Mercury ranking = 10 of 66 polygons
   - HPAH ranking = 44 of 66 polygons
   - PCB ranking = 37 of 66 polygons
   - TBT ranking = 36 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.62 (less than 0.90 benchmark)

3. **No clear indication of impacts to benthic community:**
   - **Triad Station: "Possible" benthic impacts**
   - **DTR chemistry score = moderate**
     SQGQ1 is less than 1.0. Only 2 chemicals exceed both DTR SQG and UPL.
   - **DTR toxicity score = moderate**
     Bivalve test scored below reference LPL. Amphipod and urchin tests scored above reference LPLs.
   - **DTR benthic disturbance score = low**
     No evidence of disturbance. BRI is below reference UPL. Abundance, # taxa, and diversity index are all above reference LPL.
   - **SPI data indicated Stage I and III present.**

CONCLUSION

There are no clear impacts to the benthic community at this station. NA09 was included in the DTR proposed remedial footprint because of a "possible impacts" score in the DTR Triad analysis and relatively high mercury levels. However, none of the four benthic community indicators evaluated is significantly different from reference conditions. Only one of the three toxicity tests (bivalve larval development) was different from reference, and this is the least reliable of the three tests performed. Mercury is a potential food web risk driver. However, a realistic analysis of food web risks to wildlife and human receptors shows that there are no significant risks. Therefore, no risk-based justification for remediating NA09 exists.

STATION NA10

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 54 of 66 polygons
   - Copper ranking = 48 of 66 polygons
   - Mercury ranking = 51 of 66 polygons
   - HPAH ranking = 54 of 66 polygons
   - PCB ranking = 54 of 66 polygons
   - TBT ranking = 44 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.35 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Non-Triad Station**
   - **SPI data indicate Stage III successional stage present.**

CONCLUSION

Based on relatively low chemistry, and a lack of evidence for benthic impacts, NA10 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA11

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 49 of 66 polygons
   - Copper ranking = 43 of 66 polygons
   - Mercury ranking = 34 of 66 polygons
   - HPAH ranking = 44 of 66 polygons
   - PCB ranking = 45 of 66 polygons
   - TBT ranking = 56 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.42 (less than 0.90 benchmark)

3. **No clear indication of impacts to benthic community:**
   - **Triad Station: "Possible" benthic impacts**
   - **DTR chemistry score = moderate**
     SQGQ1 is less than 1.0. Only 1 chemical exceeds both DTR SQG and UPL.
   - **DTR toxicity score = moderate**
     Amphipod test scored slightly below reference LPL. Bivalve and urchin tests scored above reference LPLs.
   - **DTR benthic disturbance score = low**
     No evidence of disturbance. BRI is below reference UPL. Abundance, # taxa, and diversity index are all above reference LPL.
   - **SPI data indicate Stage I and III successional stages present.**

CONCLUSION

There are no highly elevated COPC levels at this station. There are no clear impacts to the benthic community. None of the four benthic community indicators evaluated is significantly different from reference conditions. Only one of the three toxicity tests (amphipod survival) was lower than reference. Due to a lack of high chemistry and no clear indication of benthic impacts, NA11 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA12

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 55 of 66 polygons
   - Copper ranking = 50 of 66 polygons
   - Mercury ranking = 49 of 66 polygons
   - HPAH ranking = 52 of 66 polygons
   - PCB ranking = 57 of 66 polygons
   - TBT ranking = 47 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.35 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Triad Station: "Possible" benthic impacts**
   - **DTR chemistry score = moderate**
     SQGQ1 is less than 1.0. No chemicals exceed both DTR SQG and UPL.
   - **DTR toxicity score = moderate**
     Bivalve test scored below reference LPL. Amphipod and urchin tests scored above reference LPLs.
   - **DTR benthic disturbance score = low**
     No evidence of disturbance. BRI is below reference UPL. Abundance, # taxa, and diversity index are all above reference LPL.
   - **SPI indeterminate, due to poor probe penetration.**

CONCLUSION

There are no highly elevated COPC levels at this station. There are no clear impacts to the benthic community. None of the four benthic community indicators evaluated is significantly different from reference conditions. Only one of the three toxicity tests (bivalve larval development) was lower than reference, and this is the least reliable of the three tests performed. Due to a lack of high chemistry and no clear indication of benthic impacts, NA12 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA13

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 53 of 66 polygons
   - Copper ranking = 42 of 66 polygons
   - Mercury ranking = 48 of 66 polygons
   - HPAH ranking = 54 of 66 polygons
   - PCB ranking = 52 of 66 polygons
   - TBT ranking = 48 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.38 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Non-Triad Station**
   - **SPI data indicate Stage I and III successional stages present.**

CONCLUSION

Based on relatively low chemistry, and the lack of evidence of benthic impacts, NA13 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA14

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 60 of 66 polygons
   - Copper ranking = 55 of 66 polygons
   - Mercury ranking = 53 of 66 polygons
   - HPAH ranking = 59 of 66 polygons
   - PCB ranking = 59 of 66 polygons
   - TBT ranking = 54 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.28 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Non-Triad Station**
   - **No SPI data**

CONCLUSION

Based on relatively low chemistry, and the lack of evidence of benthic impacts, NA14 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA15

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 22 of 66 polygons
   - Copper ranking = 28 of 66 polygons
   - Mercury ranking = 24 of 66 polygons
   - HPAH ranking = 38 of 66 polygons
   - PCB ranking = 34 of 66 polygons
   - TBT ranking = 7 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.87 (less than 0.90 benchmark)

3. **No impacts to benthic community:**
   - **Triad Station: "Unlikely" benthic impacts**
   - **DTR chemistry score = moderate**
     SQGQ1 is less than 1.0. Only 2 chemicals exceed both DTR SQG and UPL.
   - **DTR toxicity score = low**
     No evidence of toxicity. Amphipod, urchin, and bivalve tests all scored above reference LPL.
   - **DTR benthic disturbance score = low**
     No evidence of disturbance. BRI is below reference UPL. Abundance, # taxa, and diversity index are all above reference LPL.
   - **SPI data indicate Stage I and III successional stages present.**

CONCLUSION

There are no impacts to the benthic community at this station. NA15 was included in the DTR proposed remedial footprint because of relatively TBT, which can potentially impact gastropods and pose a food web risk. However, a realistic analysis of food web risks to wildlife and human receptors shows that there are no significant risks, and there is no evidence of an impacted gastropod population at the shipyard. Therefore, no risk-based justification for remediating NA15 exists.

STATION NA16

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 30 of 66 polygons
   - Copper ranking = 26 of 66 polygons
   - Mercury ranking = 18 of 66 polygons
   - HPAH ranking = 39 of 66 polygons
   - PCB ranking = 17 of 66 polygons
   - TBT ranking = 25 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.69 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Triad Station: "Possible" benthic impacts**
   - **DTR chemistry score = moderate**
     SQGQ1 is less than 1.0. Only 2 chemicals exceed both DTR SQG and UPL.
   - **DTR toxicity score = moderate**
     Bivalve test scored below reference LPL. Amphipod and urchin tests scored above reference LPLs.
   - **DTR benthic disturbance score = low**
     No evidence of disturbance. BRI is below reference UPL. Abundance, # taxa, and diversity index are all above reference LPL.

CONCLUSION

There are no highly elevated COPC levels at this station. There are no clear impacts to the benthic community. None of the four benthic community indicators evaluated is significantly different from reference conditions. Only one of the three toxicity tests (bivalve larval development) was lower than reference, and this is the least reliable of the three tests performed. Due to a lack of high chemistry and no clear indication of benthic impacts, NA16 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA17

SUMMARY OF STATION CONDITIONS

1. **Only copper and TBT were relatively high:**
   - Composite SWAC ranking = 10 of 66 polygons
   - Copper ranking = 7 of 66 polygons
   - Mercury ranking = 35 of 66 polygons
   - HPAH ranking = 42 of 66 polygons
   - PCB ranking = 18 of 66 polygons
   - TBT ranking = 3 of 66 polygons
2. **Chemistry is below or slightly exceeds conservative biological benchmarks:**
   - Only TBT exceeds the 60% LAET
   - SS-MEQ = 1.41 (greater than 0.90 benchmark)
3. **No direct evidence of impacts to benthic community:**
   - **Triad Station: "Possible" benthic impacts**
   - **DTR chemistry score = high**
     SQGQ1 is greater than 1.0 and 4 chemicals exceed both DTR SQG and UPL.
   - **DTR toxicity score = low**
     No evidence of toxicity. Amphipod, urchin, and bivalve tests all scored above reference LPL.
   - **DTR benthic disturbance score = low**
     No evidence of disturbance. BRI is below reference UPL. Abundance, # taxa, and diversity index are all above reference LPL.
   - **SPI data indicate Stage I and III successional stages present.**

CONCLUSION

There are no clear impacts to the benthic community at this station. NA17 was included in the DTR proposed remedial footprint because of a "possible impacts" score in the DTR Triad analysis and relatively high TBT and copper levels. However, none of the four benthic community indicators evaluated is significantly different from reference conditions, and none of the three toxicity tests was different from reference. In other words, the "possible" disturbance score was due solely to high chemistry, not to any biological indicator. TBT can potentially impact gastropods and pose a food web risk. However, a realistic analysis of food web risks to wildlife and human receptors shows that there are no significant risks, and there is no evidence of an impacted gastropod population at the shipyard. Copper is primarily a benthic risk driver, and can pose a food web risk. Again, there is no evidence of either benthic impacts or food web risk from copper, based on a realistic analysis of risk to wildlife and human receptors. Therefore, no risk-based justification for remediating NA17 exists.

STATION NA18

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 39 of 66 polygons
   - Copper ranking = 31 of 66 polygons
   - Mercury ranking = 37 of 66 polygons
   - HPAH ranking = 49 of 66 polygons
   - PCB ranking = 32 of 66 polygons
   - TBT ranking = 19 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.56 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Non-Triad station**
   - **No SPI data**

CONCLUSION

Based on relatively low chemistry, and the lack of evidence of benthic impacts, NA18 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA19

SUMMARY OF STATION CONDITIONS

1. **Only PCB and TBT are relatively high:**
   - Composite SWAC ranking = 18 of 66 polygons
   - Copper ranking = 18 of 66 polygons
   - Mercury ranking = 38 of 66 polygons
   - HPAH ranking = 40 of 66 polygons
   - PCB ranking = 10 of 66 polygons
   - TBT ranking = 8 of 66 polygons
2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.92 (slightly greater than 0.90 benchmark)
3. **No direct evidence of impacts to benthic community:**
   - Triad Station: "Likely" benthic impacts
   - DTR chemistry score = high
     SQGQ1 is greater than 1.0 and 4 chemicals exceed both DTR SQG and UPL.
   - DTR toxicity score = moderate
     Bivalve test scored below reference LPL.
   - DTR benthic disturbance score = low
     No evidence of disturbance. BRI is below reference UPL. Abundance, # taxa, and diversity index are all above reference LPL.
   - SPI data indicate Stage I and III successional stages present.

CONCLUSION

NA19 was included in the DTR proposed remedial footprint because of a "likely" impacted score in the DTR Triad analysis and relatively high TBT and PCB levels. However, none of the four benthic community indicators evaluated is significantly different from reference conditions, and only one of the three toxicity tests (bivalve larval development, the least reliable of the three tests) was different from reference. In other words, the "likely" disturbance score was due solely to high chemistry, and one of seven biological indicators being different from reference conditions. TBT can potentially impact gastropods and pose a food web risk. However, a realistic analysis of food web risks to wildlife and human receptors shows that there are no significant risks, and there is no evidence of an impacted gastropod population at the shipyard. PCBs are a potential food web risk driver, and again, there is no evidence of food web risk from PCBs, based on a realistic analysis of risk to wildlife and human receptors. Therefore, no risk-based justification for remediating NA19 exists.

STATION NA20

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 50 of 66 polygons
   - Copper ranking = 61 of 66 polygons
   - Mercury ranking = 65 of 66 polygons
   - HPAH ranking = 43 of 66 polygons
   - PCB ranking = 60 of 66 polygons
   - TBT ranking = 14 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.34 (less than 0.90 benchmark)

3. **No impacts to benthic community:**
   - **Triad Station: "Unlikely" benthic impacts**
   - **DTR chemistry score = low**
     SQGQ1 is less than 1.0. No chemicals exceed both DTR SQG and UPL.
   - **DTR toxicity score = low**
     Amphipod, urchin, and bivalve tests all scored above reference LPL.
   - **DTR benthic disturbance score = moderate**
     The number of taxa present is below that found in the reference condition. However, the other three indicators show no sign of disturbance. BRI is below the reference UPL. Abundance and diversity index are above reference LPL. The relatively low number of taxa present is likely the result of physical disturbance in this area.
   - **SPI data indicate Stage I and III successional stages present.**

CONCLUSION

Based on relatively low chemistry, and the absence of clear evidence of benthic impacts, NA20 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA21

SUMMARY OF STATION CONDITIONS

1. **Only TBT is relatively high:**
   - Composite SWAC ranking = 41 of 66 polygons
   - Copper ranking = 50 of 66 polygons
   - Mercury ranking = 58 of 66 polygons
   - HPAH ranking = 50 of 66 polygons
   - PCB ranking = 51 of 66 polygons
   - TBT ranking = 12 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.50 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Non-Triad Station**
   - **No SPI data**

CONCLUSION

Based on relatively low chemistry, and the lack of evidence of benthic impacts, NA21 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA22

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 51 of 66 polygons
   - Copper ranking = 50 of 66 polygons
   - Mercury ranking = 63 of 66 polygons
   - HPAH ranking = 33 of 66 polygons
   - PCB ranking = 47 of 66 polygons
   - TBT ranking = 36 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.35 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Triad Station: "Likely" benthic impacts**
   - **DTR chemistry score = moderate**
     SQGQ1 is less than 1.0. No chemicals exceed both DTR SQG and UPL.
   - **DTR toxicity score = moderate**
     Bivalve test scored below reference LPL.
   - **DTR benthic disturbance score = moderate**
     No evidence of disturbance. BRI is below reference UPL. Abundance and number of taxa are above reference LPL. Diversity index is above reference LPL.
   - **SPI data indicate Stage I and III successional stages present.**

CONCLUSION

Station NA22 has relatively low COPC levels. This station received a "likely" impacted score in the DTR Triad analysis. However, none of the four benthic community indicators evaluated is significantly different from reference conditions, and only one of the three toxicity tests (bivalve larval development, the least reliable of the three tests) was different from reference. In other words, the "likely" disturbance score was due solely to high chemistry, and one of seven biological indicators being different from reference conditions. Furthermore, this area is under the influence of deposition from Chollas Creek, and will be assessed as part of the Chollas Creek Mouth TMDL process. For this reason, NA22 was not included and the DTR proposed remedial footprint, and no risk-based justification for remediation exists.

STATION NA23

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 31 of 66 polygons
   - Copper ranking = 11 of 66 polygons
   - Mercury ranking = 13 of 66 polygons
   - HPAH ranking = 36 of 66 polygons
   - PCB ranking = 20 of 66 polygons
   - TBT ranking = 36 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.72 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Non-Triad Station**
   - **No SPI data**

CONCLUSION

Based on relatively low chemistry, and the lack of evidence of benthic impacts, NA23 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA24

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 45 of 66 polygons
   - Copper ranking = 40 of 66 polygons
   - Mercury ranking = 29 of 66 polygons
   - HPAH ranking = 50 of 66 polygons
   - PCB ranking = 37 of 66 polygons
   - TBT ranking = 49 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.47 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Non-Triad Station**
   - **No SPI data**

CONCLUSION

Based on relatively low chemistry, and the lack of evidence of benthic impacts, NA24 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA25

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 64 of 66 polygons
   - Copper ranking = 63 of 66 polygons
   - Mercury ranking = 62 of 66 polygons
   - HPAH ranking = 59 of 66 polygons
   - PCB ranking = 64 of 66 polygons
   - TBT ranking = 63 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.20 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Non-Triad Station**
   - **No SPI data**

CONCLUSION

Based on relatively low chemistry, and the lack of evidence of benthic impacts, NA25 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA26

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 61 of 66 polygons
   - Copper ranking = 64 of 66 polygons
   - Mercury ranking = 60 of 66 polygons
   - HPAH ranking = 64 of 66 polygons
   - PCB ranking = 47 of 66 polygons
   - TBT ranking = 58 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.23 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Non-Triad Station**
   - **No SPI data**

CONCLUSION

Based on relatively low chemistry, and the lack of evidence of benthic impacts, NA26 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA27

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 36 of 66 polygons
   - Copper ranking = 10 of 66 polygons
   - Mercury ranking = 10 of 66 polygons
   - HPAH ranking = 44of 66 polygons
   - PCB ranking = 40 of 66 polygons
   - TBT ranking = 42 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.69 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Non-Triad Station**
   - **No SPI data**

CONCLUSION

Based on relatively low chemistry, and the lack of evidence of benthic impacts, NA27 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA28

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 42 of 66 polygons
   - Copper ranking = 14 of 66 polygons
   - Mercury ranking = 31 of 66 polygons
   - HPAH ranking = 36 of 66 polygons
   - PCB ranking = 47 of 66 polygons
   - TBT ranking = 45 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.55 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Non-Triad Station**
   - **No SPI data**

CONCLUSION

Based on relatively low chemistry, and the lack of evidence of benthic impacts, NA28 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA29

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 58 of 66 polygons
   - Copper ranking = 58 of 66 polygons
   - Mercury ranking = 53 of 66 polygons
   - HPAH ranking = 53 of 66 polygons
   - PCB ranking = 45 of 66 polygons
   - TBT ranking = 50 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.30 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Non-Triad Station**
   - **No SPI data**

CONCLUSION

Based on relatively low chemistry, and the lack of evidence of benthic impacts, NA29 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA30

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 59 of 66 polygons
   - Copper ranking = 54 of 66 polygons
   - Mercury ranking = 45 of 66 polygons
   - HPAH ranking = 62 of 66 polygons
   - PCB ranking = 61 of 66 polygons
   - TBT ranking = 64 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.30 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Non-Triad Station**
   - **No SPI Data**

CONCLUSION

Based on relatively low chemistry, and the lack of evidence of benthic impacts, NA30 was properly excluded from the proposed remedial footprint in the DTR.

STATION NA31

SUMMARY OF STATION CONDITIONS

1. **Primary COCs are relatively low:**
   - Composite SWAC ranking = 66 of 66 polygons
   - Copper ranking = 65 of 66 polygons
   - Mercury ranking = 64 of 66 polygons
   - HPAH ranking = 66 of 66 polygons
   - PCB ranking = 65 of 66 polygons
   - TBT ranking = 65 of 66 polygons

2. **Chemistry is below conservative biological benchmarks:**
   - No exceedances of 60% LAETs
   - SS-MEQ = 0.16 (less than 0.90 benchmark)

3. **No direct evidence of impacts to benthic community:**
   - **Non-Triad Station**
   - **No SPI data**

CONCLUSION

Based on relatively low chemistry, and the lack of evidence of benthic impacts, NA31 was properly excluded from the proposed remedial footprint in the DTR.

ATTACHMENT: USFWS, 2011

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

In Reply Refer To:
FWS-EC-LET-11-01

JAN 13 2011

Mr. Tom Alo
California Regional Water Quality Control Board
San Diego Region
9174 Sky Park Court, Suite 100
San Diego, California 92123

Subject: Draft Addendum No. 4 to Cleanup and Abatement Order No. R9-2004-0258 Former Teledyne Ryan Aeronautical Site, 2701 N. Harbor Drive, San Diego, California

Dear Mr. Alo:

Thank you for the opportunity to comment on the subject document. As indicated in the public notice and the addendum, the cleanup and abatement is for wastes discharged to land at the former Teledyne Ryan Aeronautical (TDY) site. Elevated levels of contaminants that were released to land have been found in groundwater beneath the site and in conveyance systems that transported contaminated media from the site to Convair Lagoon and San Diego Bay. The addendum, once executed, should result in cleanup of onsite soils such that remaining contaminant levels will pose no known unacceptable risk to human health, under the commercial/industrial future use conditions proposed for the site. In addition, the addendum, once executed, is expected to prevent waste discharges from the TDY site to Convair Lagoon and San Diego Bay. A subsequent enforcement order will be issued to assess and cleanup wastes discharged from landside sources to the marine sediments of Convair Lagoon and San Diego Bay.

The U.S. Fish and Wildlife Service (Service) has an interest in remedial actions at the site because of the potential for trust resources to be exposed to and impacted by site-related contaminants. Resources of concern at the TDY site are primarily avian species that feed and/or nest in or near intertidal and shallow water habitats, and the aquatic biota that constitute their diet. These include numerous species of seabirds that nest in dense colonies and feed on fish from San Diego Bay. One such species is the Federal and State-endangered California least tern (*Sternula (Sterna) antilarium browni*), which has a nesting colony at Lindbergh Field bordering the TDY site. When exposed, mudflats, such as those that occur in Convair Lagoon provide feeding habitat for small shorebirds including the federally threatened western snowy plover (*Charadrius alexandrinus nivosus*). Other species of interest include waterfowl, shorebirds, seabirds and marsh birds that occur in great numbers as they stop to feed and/or overwinter in San Diego Bay as part of migrations along the Pacific Flyway. Many of the latter rely heavily on aquatic and/or semi-aquatic invertebrates for their nutrition. Service concerns about biota upon which trust resources rely for food include

preservation of populations sufficient to support the nutritional needs of listed and migratory species and to ensure that site-related contaminants are not present at unsafe levels in the diet of trust resources.

The former TDY site is a vacant industrial facility that provides little if any habitat for use by wildlife species. The property is to be redeveloped for future commercial/industrial uses that preclude the creation of habitat for wildlife species. Consequently, concerns about risks posed to wildlife by cleanup actions outlined in Addendum No. 4 are very limited, and apply only if soils are considered for uses other than commercial/industrial development, and if means for preventing migration of soil into Convair Lagoon are unsuccessful. At this time, the following comments are offered for the record.

1. While the proposed cleanup levels for contaminants in soil may be protective of human health under commercial/industrial exposure conditions, they would not be considered protective of terrestrial wildlife without further consideration. Risks to terrestrial species should be evaluated if any uses for soils other than those identified in Addendum No. 4 are considered in the future.

2. In the event that soils migrate off site and become sediment in Convair Lagoon, the proposed cleanup levels for contaminants in soils would not be considered protective of aquatic life or aquatic-dependent wildlife.

Again, the Service's concerns about cleanup and abatement planned for this industrial site are very limited, and are contingent upon changes in plans for the soils at the site, or the ability to prevent migration of contaminated site-related particles into Convair Lagoon. Unlike the upland portion of the former TDY site, Convair Lagoon and San Diego Bay provide habitat for many fish and wildlife species. Consequently, the Service looks forward to working extensively with the San Diego Regional Water Quality Control Board (Regional Board), other State and Federal Trustees, and Teledyne Ryan, Inc. as you move into the assessment and cleanup of wastes discharged from landside sources to the marine sediments of Convair Lagoon and San Diego Bay. The Service appreciates the Regional Board staff's efforts in working with us toward our mutual goal of protecting and restoring San Diego Bay and the Nation's wildlife resources. If you have any questions about comments provided in this letter, please contact Catherine Zeeman of my staff at (760) 431-9440 extension 291.

Sincerely,

Scott A. Sobiech
Deputy Field Supervisor

CURRICULUM VITAE

Exponent

Exponent
15375 SE 30th Place
Suite 250
Bellevue, WA 98007

telephone 425-519-8700
facsimile 425-519-8799
www.exponent.com

D. Frederick Bodishbaugh, Ph.D.
Managing Ecotoxicologist

Professional Profile

Dr. Rick Bodishbaugh is a Managing Ecotoxicologist in Exponent's EcoSciences practice. He has 19 years of diverse experience in aquatic toxicology research, chemical and site assessment, ecological risk assessment (ERA) in aquatic and terrestrial systems, and natural resource damage assessment (NRDA). His specific areas of technical expertise include fish and wildlife toxicity assessment, resource/habitat equivalency analysis (REA/HEA), bioavailability of chemical contaminants in aquatic and terrestrial ecosystems, and chemical structure-activity relationships. Dr. Bodishbaugh's graduate research focused on the aquatic toxicology of synthetic surfactant and other organic pollutants. Originally trained as a chemical engineer, he also has 4 years of experience as a geophysical and geochemical engineer in the international offshore oil and gas industry, and is trained and experienced in geophysical surveying and reservoir geology. Dr. Bodishbaugh also has formal training in marine biochemistry, molecular biology, and bioremediation principles.

Dr. Bodishbaugh is experienced in evaluating the effects of contaminated soil, groundwater, surface water, and sediments on ecological receptors. He has conducted assessments of chemical risk at dozens of sites for energy, petrochemical, pulp and paper, manufacturing, and mining industry clients. He is intimately familiar with federal, regional, and various state guidance and standards or practice for ERA under common regulatory frameworks, and has extensive face-to-face negotiation experience with federal and state regulatory agency technical staff across the U.S. He is also experienced in evaluating and interpreting field bioaccumulation and laboratory toxicity bioassay data for use in assessing ecological risk. He is well versed in the environmental toxicology and assessment of metals and persistent organic pollutants, especially PCBs and PAHs.

Dr. Bodishbaugh is experienced in providing technical support in a litigation context. He has extensive NRDA experience, and has helped clients develop defensive and settlement strategies for NRDA claims by federal, state, and tribal trustees at sites in Alaska, California, Indiana, Missouri, New Jersey, New York, Texas, and Washington. He is an expert in the application of REA and HEA, including applications for assessment of groundwater injury. He has worked closely with client legal teams to assess and critically evaluate the technical merits and costs of natural resource liability and settlement options, and has represented industry clients in both formal and informal trustee negotiations to arrive at rational injury assessments and cost effective, restoration-based compensation options. He has provided deposition testimony on NRD liability for east and west coast clients, and has contributed to numerous expert reports for NRD cases.

Academic Credentials and Professional Honors

Ph.D., Aquatic Toxicology, Duke University, 1995
B.S., Chemical Engineering, University of Tulsa (*cum laude*), 1985

Publications

Pastorok RA, Noftsker C, Iannuzzi TJ, Ludwig DF, Barrick RC, Ruby MV, Bodishbaugh DF. Natural remediation of polynuclear aromatic hydrocarbons and other petroleum hydrocarbons. In: Natural Remediation of Environmental Contaminants: Its Role in Ecological Risk Assessment and Management. Swindoll M, Stahl Jr RG, Ells SJ (eds), SETAC General Publications Series, Society of Environmental Toxicology and Chemistry, SETAC Press, Pensacola, FL, pp. 159–198, 2000.

Bodishbaugh DF. Acute toxicity mechanisms and quantitative structure-activity relationships of alkylphenol polyethoxylate surfactants in fish. Dissertation. Duke University, Durham, NC, 1995.

Bonaventura C, Bonaventura J, Bodishbaugh DF. Environmental bioremediation: Approaches and processes. In: Ecotoxicity and Human Health: A Biological Approach to Environmental Remediation. Bloom AD and de Serres FJ (eds) CRC Press, Boca Raton, FL, 1995.

Bonaventura C, Bonaventura J, Bodishbaugh DF. Environmental bioremediation: Applications and new horizons. In: Ecotoxicity and Human Health: A Biological Approach to Environmental Remediation. Bloom AD and de Serres FJ (eds) CRC Press, Boca Raton, FL, 1995.

Selected Presentations

Ginn T, Bodishbaugh DF. Key issues for use of habitat equivalency analysis in scaling compensatory restoration projects. Presentation at SETAC Annual Meeting, Portland, OR, November 2004.

Bodishbaugh DF, Moore ML, Godtfredsen KL. Congener composition of environmental PCB mixtures: An empirical analysis. Presentation at SETAC Annual Meeting, Austin, TX, November 2003.

Bodishbaugh DF. Toxicity endpoint extrapolation for characterization of ecological risk: Which method is right? Invited presentation at SETAC Annual Meeting, San Francisco, CA, November 1997.

Bodishbaugh DF. Toxicity assessment for calculation of ecological risk: The deterministic vs. probabilistic approaches to endpoint extrapolation. Presentation at SETAC Annual Meeting, Washington, DC, November 1996.

Bodishbaugh DF. *In vitro* studies of acute toxicity mechanisms and structure-activity relationships of nonionic surfactants in fish. Presentation at SETAC Annual Meeting, Denver, CO, November 1994.

Project Experience

Natural Resource Damage Assessment

Performed injury assessments and developed restoration alternatives for more than a dozen NRDA sites, involving PCBs, mining wastes, pulp mill effluent, chemical plant discharges and other hazardous releases. Habitats assessed include freshwater rivers and lakes, estuaries, and marine systems, as well as terrestrial habitats.

Familiar with NOAA, DOI, and various state trustee guidance and standard NRDA methods. Experienced in emerging NRDA issues, such as evaluation of groundwater resource damages, resource scaling in sensitive habitats, allocation at complex industrial sites, and allegations involving wood waste.

Developed client-customizable HEA computational tools for real-time evaluation of injury and restoration alternatives. Provided technical support and strategy in preparation for and during legal negotiations between industry clients and trustees on NRD settlements.

Developed and provided scientific rationale for cost-effective HEA-based restoration alternatives to avoid an expensive and arbitrary cash settlement. Presented and defended NRDA alternatives and technical justifications to trustees during face-to-face settlement negotiations.

Ecological Risk Assessment

Conducted or supervised ERAs for numerous industrial facilities where a combination of organic and inorganic contaminants were risk drivers. Sites have included pipelines, foundries, refineries, petrochemical plants, wood preservative sites, manufactured gas plant sites, shooting ranges, pulp mills, landfills, shipyards, mining sites, research facilities, and munitions plants. State-of-the-art approaches for ecological screening assessments, receptor exposure modeling, toxicity assessment, and chemical hazard characterization were integrated to form rational, science-based site assessments.

Conducted extensive bioavailability and bioaccumulation assessments for organic and inorganic contaminants in aquatic systems to provide higher tiers of assessment at complex sites where conventional bulk sediment assessment failed to produce feasible remedial alternatives. Successfully implemented habitat assessment and bioavailability analysis as tools to focus the scope of ecological risk assessments and make site assessment manageable.

Conducted ERAs of PCB contamination for numerous industrial clients. Contamination scenarios evaluated include direct product discharges and indirect transport of product to soil, groundwater, and surface water, including sensitive habitats. Industrial sites evaluated include pipeline facilities, heavy manufacturing facilities, and landfills. Developed site-specific food

web modeling approaches to the assessment of risk from PCBs, and negotiated technical approaches to assessment with state and federal regulatory agencies. Reviewed and critiqued recent research developments and helped design original research into environmental toxicity of PCBs.

Developed, supported, and negotiated site-specific approaches to the assessment of metals toxicity at mining sites where natural mineralization and physical disturbance make bulk concentration a poor indicator of exposure and risk from site activities.

Litigation Support

Testified in deposition on general and site-specific NRDA issues on liability insurance case for a pulp and paper industry client in Alaska.

Testified in deposition on potential groundwater injuries at an industrial facility in New Jersey.

Authored and contributed to expert reports on NRDA issues submitted to state and federal courts on several NRD cases across the country.

Reviewed literature and served as an expert technical consultant for client legal teams, and authored affidavits on aquatic toxicity and biodegradation issues in support of active litigation concerning client product liability.

Conducted ERA and NRDA training for client legal staff.

Aquatic Toxicology Research and Consulting

Designed and conducted aquatic toxicity investigations using a variety of *in vivo* and *in vitro* techniques and test species, including studies on the toxicity mechanisms and structure-activity relationships of surfactant chemicals, detergents, and oil spill dispersants to fish.

Provided oversight for client-supported independent research used to establish the value of potential restoration projects.

Participated in the design of chronic dietary exposure studies to assess risk of endangered salmon species to PCBs and PAHs in estuarine sediments.

Served as technical consultant on potential endocrine disruptor effects of chemicals and client operations. Conducted training for client technical staff.

Professional Affiliations

- American Chemical Society
- Society of Environmental Toxicology and Chemistry

Exponent

Thomas C. Ginn, Ph.D.
Principal

Professional Profile

Dr. Thomas Ginn is a Principal Scientist in Exponent's EcoSciences practice. He specializes in natural resource damage assessment and ecological risk assessment. He has conducted studies of the effects of inorganic and organic chemicals on aquatic and terrestrial organisms at sites nationwide. Dr. Ginn has specialized expertise in assessing the fate, exposure, and effects of substances such as PCBs, PAHs, dioxins, arsenic, cadmium, copper, lead, and mercury. He has provided scientific consultation regarding the design of remedial investigations and development of overall strategy, and he has provided technical support during negotiations with state and federal agencies. Dr. Ginn has provided support to industrial clients for natural resource damage assessments in Alaska, Arizona, California, Idaho, Indiana, Missouri, Montana, Massachusetts, Michigan, Minnesota, New Jersey, New York, Ohio, Oklahoma, South Carolina, Texas, Washington and West Virginia. In these projects, he has worked closely with legal counsel during strategy development and settlement negotiations with state, federal, and tribal trustees. Dr. Ginn has performed detailed technical assessments of injuries to terrestrial and aquatic resources, including fishes, birds, and mammals, and has also developed innovative and cost-effective restoration alternatives. He has provided deposition and trial testimony concerning injury to aquatic and terrestrial resources. Dr. Ginn has evaluated remedial alternative at contaminated sediment sites and has conducted state-of-the-art studies of the sources and distribution of trace metals. He has also developed site-specific sediment quality values based on the empirical relationships of chemical concentrations to biological effects.

Dr. Ginn has authored many publications in the area of applied ecology. He has given numerous presentations and CLE seminars on risk assessment and natural resource damage assessment. Since 1983, he has co-authored the annual literature review of marine pollution studies published by the Research Journal of the Water Environment Federation. Dr. Ginn has served as an expert witness concerning the effects of waste discharges and chemicals in sediments on aquatic organisms. He has also served on scientific advisory committees concerning management of contaminated sediments for Puget Sound, San Francisco Bay, and New York/New Jersey Harbor. Dr. Ginn testified to the U.S. House of Representatives, Commerce Committee, concerning the natural resource damage provision of Superfund reauthorization.

Academic Credentials and Professional Honors

Ph.D., Biology, New York University, 1977
M.S., Biological Sciences, Oregon State University, 1971
B.S., Fisheries Science, Oregon State University, 1968

Licenses and Certifications

Certified Fisheries Professional, American Fisheries Society, Certificate No. 2844

Publications

Mearns AJ, Reish DJ, Oshida PS, Buchman M, Ginn T, Donnelly R. Effects of pollution on marine organisms. Water Environ Res 2009; 81(10):2070–2125.

Gala W, Lipton J, Cernera P, Ginn TC, Haddad R, Henning MH, Jahn K, Landis WG, Mancini E, Nicoll J, Peters V, Peterson J. Ecological Risk Assessment (ERA) and Natural Resource Damage Assessment (NRDA): Synthesis of assessment procedures. Integrated Environ Assess Manage 2009; 5(4):515–522.

Mearns AJ, Reish DJ, Oshida PS, Buchman M, Ginn T, Donnelly R. Effects of pollution on marine organisms. Water Environ Res 2008; 80(10):1918–1979.

Becker DS, Ginn TC. Critical evaluation of the sediment effect concentrations for polychlorinated biphenyls. Integrated Environ Assess Manage 2008; 4(2):156–170.

Mearns AJ, Reish DJ, Oshida PS, Buchman M, Ginn TC, Donnelly R. Effects of pollution on marine organisms. Water Environ Res 2007; 79(10):2102–2160.

Becker DS, Long ER, Proctor DM, Ginn TC. Evaluation of potential toxicity and bioavailability of chromium in sediments associated with Chromite ore processing residue. Environ Toxicol Chem 2006; 25(10):2576–2583.

Mearns AJ, Reish DJ, Oshida PS, Buchman M, Ginn TC. Effects of pollution on marine organisms. Water Environ Res 2006; 78(10):2033–2086.

Sampson JR, Sexton JE, Ginn TC, Pastorok RA, Spielman A, Young DR, Taganov I. Content of metals and some organic contaminants in environmental media of Lake Baikal. Proc Russ Geogr Soc 2006; 1:52–58 (in Russian).

Nielsen D, Ginn T, Ziccardi L, Boehm P. Study: Proposed offshore gulf LNG terminals will have minor effects on fish populations. Oil Gas J 2006; 104(28), July 28.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC, Buchman M. Effects of pollution on marine organisms. Water Environ Res 2005; 77(7):2733–2919.

Dunford RW, Ginn TC, Desvousges WH. The use of habitat equivalency analysis in natural resource damage assessments. Ecol Econ 2004; 48(1):49–70.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC, Buchman M. Effects of pollution on marine organisms. Water Environ Res 2004; 76(7):2443.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC, Buchman M. Effects of pollution on marine organisms. Water Environ Res 2003; 75, 63 pp.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC, Buchman M. Effects of pollution on marine organisms. Water Environ Res 2002; 74, 78 pp.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC, Buchman M. Effects of pollution on marine organisms. Water Environ Res 2001; 73, 77 pp.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC, Buchman M. Effects of pollution on marine organisms. Water Environ Res 2000; 72, 59 pp.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC, Buchman M. Effects of pollution on marine organisms. Water Environ Res 1999; 71(5):1100–1115.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC, Buchman M. Effects of pollution on saltwater organisms. Water Environ Res 1998; 70(4):931–949.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC, Godwin-Saad EM, Buchman M. Effects of pollution on saltwater organisms. Water Environ Res 1997; 69(4):877–892.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC. Effects of pollution on saltwater organisms. Water Environ Res 1996; 68(4):784–796.

Becker DS, Ginn TC. Effects of storage time on toxicity of sediments from Puget Sound, Washington. Environ Toxicol Chem 1995; 14(5):829–835.

La Tier AJ, Mulligan PI, Pastorok RA, Ginn TC. Bioaccumulation of trace elements and reproductive effects in deer mice *(Peromyscus maniculatus)*. Proceedings, 12th Annual National Meeting of the American Society for Surface Mining and Reclamation, Gillette, WY, pp. 3–14, 1995.

Pastorok RA, La Tier AJ, Butcher MK, Ginn TC. Mining-related trace elements in riparian food webs of the Upper Clark Fork River Basin. Proceedings, 12th Annual National Meeting of the American Society for Surface Mining and Reclamation, Gillette, WY, pp. 31–51, 1995.

Pastorok RA, Butcher MK, Ginn TC. 1995. Thresholds for potential effects of mining-related trace elements on riparian plant communities. Proceedings, 12th Annual National Meeting of the American Society for Surface Mining and Reclamation, Gillette, WY, pp. 15–30, 1995.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC. Effects of pollution on saltwater organisms. Water Environ Res 1995; 67(4):718–731.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC. Effects of pollution on saltwater organisms. Water Environ Res 1994; 66(4):623–635.

EX™

Reish DJ, Oshida PS, Mearns AJ, Ginn TC. Effects of pollution on saltwater organisms. Res J Water Pollut Control Fed 1993; 65(4):573–585.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC. Effects of pollution on saltwater organisms. Res J Water Pollut Control Fed 1992; 64(4):599–610.

Ginn TC, Pastorok RA. Assessment and management of contaminated sediments in Puget Sound. In: Sediment Toxicity Assessment. Burton GA (ed), Lewis Publishers, Inc., Boca Raton, FL, 1992.

Johns DM, Pastorok RA, Ginn TC. A sublethal sediment toxicity test using juvenile Neanthes sp. (Polychaeta: Nereidae). In: Aquatic Toxicology and Risk Assessment: Fourteenth Volume. Mays MA, Barron MG (eds), ASTM STP 1124, American Society for Testing and Materials, Philadelphia, PA, pp. 280–283, 1992.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC. Fate and effects of pollutants: Effects on saltwater organisms. Res J Water Pollut Control Fed 1992; 62(4):577–593.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC. Effects on saltwater organisms. Res J Water Pollut Control Fed 1991; 63(4):696–709.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC. Effects on saltwater organisms. Res J Water Pollut Control Fed 1990; 62(4):577–593.

Becker DS, Bilyard GR, Ginn TC. Comparisons between sediment bioassays and alterations of benthic macroinvertebrate assemblages at a marine Superfund site: Commencement Bay, Washington. Environ Toxicol Chem 1990; 9(5):669–685.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC. Effects on saltwater organisms. J Water Pollut Control Fed 1989; 61(6):1042–1054.

Ginn TC. Assessment of contaminated sediments in Commencement Bay (Puget Sound, Washington). In: Contaminated Marine Sediments—Assessment and Remediation. National Academy Press, Washington, DC, pp. 425–439, 1989.

Barrick RC, Beller H, Becker DS, Ginn TC. Use of the apparent effects threshold approach (AET) in classifying contaminated sediments. In: Contaminated Marine Sediments—Assessment and Remediation. National Academy Press, Washington, DC, pp. 64–77, 1989.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC. Effects on saltwater organisms. J Water Pollut Control Fed 1988; 60(6):1065–1077.

Ginn TC, Barrick RC. Bioaccumulation of toxic substances in Puget Sound organisms. In: Oceanic Processes in Marine Pollution, Volume 5. Wolfe DA and O'Connor TP (eds). Robert E. Krieger Pub. Co, Malabar, FL, pp. 157–168, 1988.

EX™

Barrick RC, Pastorok R, Beller H, Ginn T. Use of sediment quality values to assess sediment contamination and potential remedial actions in Puget Sound. Proceedings, 1st Annual Meeting on Puget Sound Research, Volume 2. Puget Sound Water Quality Authority, Seattle, WA, pp. 667–675, 1988.

Becker DS, Ginn TC, Bilyard GR. Field validation of sediment bioassays at a marine Superfund site: Commencement Bay, Washington. In: Superfund '88, Proceedings, 9th National Conference, Hazardous Materials Control Research Institute, Silver Spring, MD, pp. 323–328, 1988.

Jacobs LA, Barrick R, Ginn T. Application of a mathematical model (SEDCAM) to evaluate the effects of source control or sediment coordination in Commencement Bay. Proceedings, 1st Annual Meeting on Puget Sound Research, Puget Sound Water Quality Authority, Seattle, WA, pp. 677–684, 1988.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC. Effects on saltwater organisms. J Water Pollut Control Fed 1987; 59(6):572–586.

Becker DS, Ginn TC, Landolt ML. Powell DB. Hepatic lesions in English sole (*Parophrys vetulus*) from Commencement Bay, Washington (USA). Mar Env Res 1987; 23:153–173.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC. Effects on saltwater organisms. J Water Pollut Control Fed 1986; 58(6):671–680.

Williams LG, Chapman PM, Ginn TC. A comparative evaluation of marine sediment toxicity using bacterial luminescence, oyster embryo and amphipod sediment bioassays. Mar Env Res 1986; 19:225–249.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC, Carr RS, Wilkes FG, Butowski N. Effects on saltwater organisms. J Water Pollut Control Fed 1985; 57(6):699–712.

Reish DJ, Oshida PS, Wilkes FG, Mearns AJ, Ginn TC, Carr RS. Effects on saltwater organisms. J Water Pollut Control Fed 1984; 56(6):759–774.

Reish DJ, Geesey GG, Wilkes FG, Oshida PS, Mearns AJ, Rossi SS, Ginn TC. Marine and estuarine pollution. J Water Pollut Control Fed 1983; 55(6):767–787.

Reish DJ, Geesey GG, Wilkes FG, Oshida PS, Mearns AJ, Rossi SS, Ginn TC. Marine and estuarine pollution. J Water Pollut Control Fed 1982; 54(6):786–812.

Poje GV, O'Connor JM, Ginn TC. Physical simulation of power plant condenser tube passage. Water Res 1982; 16(6):921–928.

Reish DJ, Geesey GG, Oshida PS, Wilkes FG, Mearns AJ, Rossi SS, Ginn TC. Marine and estuarine pollution. J Water Pollut Control Fed 1981; 53(6):925–949.

Grieb TM, Porcella DB, Ginn TC, Lorenzen MW. Classification and analysis of cooling impoundments: an assessment methodology using fish standing crop data. Proceedings, Symposium on Surface Water Impoundments. American Society of Civil Engineering, Washington, DC, pp. 482–494, 1981.

Pastorok RA, Lorenzen MW, Ginn TC. Aeration/circulation as a control of algal production. Proceedings, Workshop on Algal Management and Control. Technical Report E-817. U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS, pp. 57–97, 1981.

Pastorok RA, Ginn TC, Lorenzen MW. Evaluation of aeration/circulation as a lake restoration technique. Ecological Research Series, EPA-600/3-81/014. U.S. Environmental Protection Agency, Corvallis, OR, 1981.

Pastorok RA, Ginn TC, Lorenzen MW. Review of aeration/circulation for lake management. In: Restoration of Lakes and Inland Waters. EPA-440/5-81/010. U.S. Environmental Protection Agency, Washington, DC, pp. 124–133, 1980.

Ginn TC, O'Connor JM. Response of the estuarine amphipod *Gammarus daiberi* to chlorinated power plant effluent. Estuarine Coastal Mar Sci 1978; 6(5):459–469.

Haven KF, Ginn TC. A mathematical model of the interactions of an aquatic ecosystem and a thermal power station cooling system. Proceedings, 4th National Workshop on Entrainment and Impingement. Jensen LD (ed). E.A. Communications, Melville, NY, pp. 321–344, 1978.

Poje GV, Ginn TC, O'Connor JM. Responses of ichthyoplankton to stresses simulating passage through a power plant condenser tube. In: Energy and Environmental Stress in Aquatic Systems. J.H. Thorp and J.W. Gibbons (eds.). U.S. Department of Energy, Technical Information Center, Washington, DC, pp. 794–808, 1978.

Ginn TC, Waller WT, Lauer GL. Survival and reproduction of *Gammarus* spp. (Amphipoda) following short-term exposure to elevated temperature. Chesapeake Sci 1976; 17(1):8–14.

Ginn TC, Waller WT, Lauer GL. The effects of power plant condenser cooling water entrainment on the amphipod, *Gammarus* sp. Water Res 1974; 8(11):937–945.

Ginn TC, Bond CE. Occurrence of the cutfin poacher, *Xeneretmus leiops*, on the continental shelf off the Columbia River mouth. Copeia 1973; 4:814–815.

Selected Project Experience

Natural Resource Damage Assessments

Illinois River and Lake Tenkiller (Oklahoma). Assessment of the status of benthic macroinvertebrates and fishes in the aquatic environment and relationships of biotic characteristics to habitat factors and potential effects of poultry operations. Expert witness in the case.

Bayway and Bayonne Refineries (New Jersey). Evaluation of marine, wetland, and terrestrial communities at the refinery sites. Expert witness in the case.

Tittabawassee and Saginaw River/Bay (Michigan). Assessment of potential injuries to aquatic and terrestrial resources caused by releases of dioxins/furans and other substances. Negotiations with state, tribal, and federal trustees.

Pine Bend Refinery (Minnesota). Key issues involve injuries to groundwater, surface water, and wetland resources resulting from releases of petroleum products. Negotiations with state and federal trustees.

FAG Bearing site (Missouri). The claim focused on potential injuries to groundwater resources and federally-listed aquatic species resulting from releases of trichloroethene. Negotiation with trustees and successful settlement.

Ohio River (Ohio and West Virginia). Claim related to alleged releases of carbamate-metal complexes from a manganese smelter at Marrietta. Key issues involve the causes of mortalities in populations of freshwater mussels and fishes and restoration alternatives for important species. Negotiations with state and federal trustees and deposition.

Ashtabula River/Harbor site (Ohio). Key issues include potential effects of PCBs and PAH on fishes and invertebrates in the harbor ecosystem.

White River (Indiana). Alleged injuries included a major fish kill associated with releases of carbamate-metal complexes from an industrial facility. Participant in technical negotiations with state and federal trustees.

Koppers site in Charleston Harbor (South Carolina). Assessment of PAH and metals in the estuarine environment and development of restoration alternatives. Negotiations with state and federal trustees.

Coeur d'Alene River (Idaho). Provided expert testimony concerning potential injuries caused by metals at deposition and trial (U.S. v. Asarco et al).

Saginaw River/Bay (Michigan). Key issues involve bioaccumulation and effects of PCBs in fishes, aquatic birds, and terrestrial wildlife. Participated in settlement negotiations with state and federal trustees.

Three industrial sites on the St. Lawrence River (New York). Negotiations with federal, state, and tribal trustees on injuries related to PCBs and PAH and identification of restoration alternatives.

Duwamish River (Washington). Claim related to releases of PCBs in the estuarine environment and potential injuries to fish, benthic, and bird resources. Participated in settlement negotiations with state, federal, and tribal trustees.

Clark Fork Basin Superfund complex (Montana). Served as technical lead for PRP negotiations with the trustee and developed supporting scientific reports. Provided testimony at trial in areas of water quality, sediments, and ecosystem-level effects of metals for terrestrial environments.

SMC Cambridge site (Ohio). Technical review and response to a natural resource damage claim associated with metals injuries to wetland resources. Participated in settlement negotiations with state and federal trustees.

Pools Prairie Superfund site (Missouri). Key issues include groundwater injuries and potential effects on a federally listed species.

Koppers site in Texarkana (Texas). Assessment of aquatic injuries and developed restoration settlement package for client. Leader of technical negotiations with state and federal trustees.

SMC Newfield site (New Jersey). Conducted technical review and response to a natural resource damage claim for groundwater resources at the. Participated in settlement negotiations with the state trustee.

Ecological Risk Assessments

NASSCO Shipyard (California). Expert and mediation support to resolve sediment remediation issues in response to a cleanup and abatement order. Issues involved the amount of dredging and other remediation required to reduce aquatic and human health risks at the site and the scope of post-remedial monitoring.

San Diego Bay Shipyard sites (California). Studies of sediment contamination and ecological risks of metals (e.g., copper, zinc, and butyltins) and organic substances (PAH and PCBs) at two major shipyards. Site-specific studies included sediment triad assessment and sampling of resident biota for bioaccumulation and histopathology analyses.

Hudson River (New York). Studies and agency presentations to support ecological risk assessment for the upper Hudson River. Technical leader for studies of the effects of PCBs on fishes, invertebrates, mammals, and birds of the upper Hudson River.

National Zinc site (Oklahoma). Participated in agency negotiations on RI/FS implementation. Assessed effects of metals on aquatic and terrestrial biota.

Lake Apopka (Florida). Ecotoxicological investigation of large-scale avian mortality at restored wetland habitats near the lake. The specific objective is to determine whether organochlorine pesticides or some other environmental factor was the causal agent of the mortalities.

Shelter Island Boatyard (California). Principal investigator for field and laboratory studies and an assessment of sediment cleanup levels for copper, mercury, and butyltin near a commercial marine maintenance operation in San Diego Bay, California.

PCB sites in Southeast. Principal-in-charge for ecological risk assessments conducted at several natural gas pipeline compressor stations located throughout the southeastern U.S. Led technical negotiations with EPA concerning the scope and interpretation of studies assessing risk of PCBs to aquatic and terrestrial biota.

Clark Fork River (Montana). Managed integrated ecological risk assessment studies at the Clark Fork River, Montana, Superfund site. Assessed the bioavailability and effects of metals in aquatic and terrestrial food chains.

Chikaskia River (Oklahoma). Managed field and laboratory studies of the effects of cadmium and the development of site-specific water quality criteria using the water effect ratio approach.

Campbell Shipyard (California). Directed an investigation of sediment chemical levels, biological effects, and human health risks at a major shipyard facility in San Diego Bay, California.

Commencement Bay Superfund Site (Washington). Managed RI/FS that included extensive field sampling of sediments and biota, assessing effects of toxic substances, assessing health risks, and identifying pollutant sources.

Puget Sound Estuary Program (Washington). Managed a multiyear, comprehensive field and laboratory investigation of the effects of chemicals in various sub-areas of Puget Sound. The study included numerous projects involving field and laboratory analyses, assessment of pollutant sources, assessments of human health and ecological risks, and development of sampling and analytical protocols.

Sewage Discharges (Alaska). Managed field and laboratory studies of benthic macroinvertebrates, bioaccumulation, and water quality at three sewage outfalls in southeastern Alaska.

Bering Sea (Alaska). Conducted study design, statistical analysis, and interpretation of results for a field study investigating the effects of commercial harvesting operations on surf clams and other invertebrates.

Poplar River (Montana). Managed a risk assessment for water quality, air quality, and socioeconomic impacts of a coal-fired power plant in the Poplar River basin in Montana. Managed an EIS for river flow apportionment alternatives and atmospheric emissions from the plant.

Klamath Lake (Oregon). Managed a project to evaluate water quality effects on fish populations in the Klamath River basin and to develop a modeling approach to assess the effects of flow apportionment alternatives on water quality and fish habitat.

Puget Sound (Washington). Project manager for an assessment of potential biological effects caused by the release of dichloromethane from an industrial facility. Prepared expert report for use in litigation.

Regulatory Programs

Project manager for technical support activities for EPA's Office of Marine and Estuarine Protection. Supervised data management, development of technical guidance, estuarine program support, monitoring program design, bioaccumulation analyses, and quality assurance reviews.

Served as one member of the five-member Technical Review Panel for the Long-Term Management Strategy for San Francisco Bay. The panel provided critical outside technical review of the program's conceptual approach, scientific rigor, and technical findings. Specifically assigned to sediment toxicology aspects.

Manager for a comprehensive review by EPA of sediment toxicity test methods and development of a resource document that is used to select appropriate test methods for use in NPDES monitoring programs at industrial facilities.

Served as a member of a six-member Biological Resource Assessment Group for New York Harbor. Specifically assigned as an expert in chemical contaminants in sediments and bioaccumulation.

For EPA multi-year project, served as chief biologist for technical evaluation of Clean Water Act Section 301(h) applications for permit modifications at marine sewage discharge sites throughout the United States.

Provided technical support to the Oklahoma Water Resources Board for the development of site-specific water quality criteria for metals.

For the Army Corps of Engineers, served as principal-in-charge for Puget Sound Dredged Disposal Analysis Phase I and II baseline biological surveys at dredged material disposal sites in Puget Sound, Washington.

Served on the Technical Advisory Committee for the Puget Sound Estuary Program. The committee provided technical review and program guidance to the various sponsoring agencies.

Other Water Quality Studies

Served as principal investigator and expert witness for an assessment of benthic biological effects and sediment chemical levels near the Pt. Loma, California, sewage discharge.

Assessment of the effects of offshore LNG terminals in the Gulf of Mexico on fish populations. Evaluated effects of fish egg and larvae entrainment of key species in proposed facilities at various locations.

Conducted a comprehensive assessment of bioaccumulation of inorganic and organic substances in marine organisms in the Southern California Bight.

Directed a comprehensive review and evaluation of the biological impacts of oil spill cleanup operations on marine ecosystems.

Conducted an evaluation of the role of soil and water bioassays for assessing biological effects of hazardous waste sites.

Principal investigator to evaluate the biological impacts of ocean disposal of manganese nodule processing wastes.

Managed a project to evaluate available cause and effect data and models to predict water quality and biological impacts for Puget Sound, Washington.

Developed the biological components of an ecosystem model to evaluate effects of multiple power plant discharges on a single water body.

Managed statistical analyses of benthic infauna data collected near the Waterflood Causeway in the Beaufort Sea.

Project co-manager and principal investigator for a review and analysis of biological impact data for all currently operating coastal power plants in the United States.

Principal scientist to evaluate responses of benthic invertebrates and fishes to lake aeration and circulation projects.

Principal scientist for a comprehensive limnological evaluation of the Lafayette Reservoir in California.

Evaluated the responses of benthic invertebrates and fishes to lake aeration and circulation programs and developed recommendations for applicable lake restoration techniques.

Principal investigator in analyzing water quality conditions at a hypereutrophic lake and conducting public workshops on alternative restoration measures.

Developed a method of predicting biological responses of new cooling lakes based on a deterministic ecosystem model and empirical fish production models.

Conducted field and laboratory investigations of the effects of power plant entrainment on macroinvertebrates in the Hudson River estuary. Determined relationship of entrainment effects to populations in the lower estuary.

Managed laboratory bioassay studies evaluating the combined effects of temperature, chlorine, and physical stress on estuarine ichthyoplankton and zooplankton.

Professional Affiliations

- Society of Environmental Toxicology and Chemistry
- American Chemical Society
- American Institute of Fishery Research Biologists

Depositions

The Quapaw Tribe of Oklahoma et al. v. Blue Tee Corp, et al., United States District Court, Northern District of Oklahoma, Case No. 03-CV-0846-CVE-PJC, deposition 2010.

Moraine Properties, LLC v. Ethyl Corporation, United States District Court, Southern District of Ohio, Civil Action No. 3:07-cv-00229, deposition 2010.

State of Oklahoma et al. v. Tyson Foods, Inc, et al., United States District Court for the Northern District of Oklahoma, Civil Action Number 4:05-CV-00329-TCK-SAJ, deposition 2009.

New Jersey Department of Environmental Protection and Administrator, New Jersey Spill Compensation Fund v. Exxon Mobil Corporation, Superior Court of New Jersey, Law Division/Union County, DOCKET NO. L-3026-04, deposition 2008.

United States of America, The State of West Virginia, and The State of Ohio v. Elkem Metals Co. L.P., Ferro Invest III Inc., Ferro Invest II Inc., and Eramet Marietta Inc, United States District Court, Southern District of Ohio, Eastern Division, Case No. 2:03 CV 528, deposition 2005.

United States of America v. Asarco Incorporated et al., United States District Court for the District of Idaho, Case No. CV-96-0122-N-EVL, deposition, 2000.

State of Montana v. Atlantic Richfield Company, United States District Court for the District of Montana, Case No. CV-83-317-HLN-PGH, deposition, 1996.

Aluminum Company of America and Northwest Alloys, Inc. v. Accident and Casualty Insurance Company, et al, Superior Court of the State of Washington, King County, Case No. 92-2-28065-5, depositions 1995, 1996.

Asarco v. American Home Insurance Company, et al., Superior Court of the State of Washington, King County, Case No. 90-2-23560-2, deposition 1993.

U.S. v. City of San Diego, United States District Court, Southern District of California, Case No. 88-1101-B, depositions 1991, 1993.

EX™

Trials and Arbitrations

United States of America v. Asarco Incorporated et al., United States District Court for the District of Idaho, Case No. CV-96-0122-N-EVL, testimony at trial, 2001.

State of Montana v. Atlantic Richfield Company, United States District Court for the District of Montana, Case No. CV-83-317-HLN-PGH, testimony at trial 1997 (aquatic and terrestrial phases of the trial).

U.S. v. City of San Diego, United States District Court, Southern District of California, Case No. 88-1101-B, deposition, testimony at trial 1991, testimony at motion hearing 1994.

EX™

Exponent

Exponent
15375 SE 30th Place
Suite 250
Bellevue, WA 98007

telephone 425-519-8700
facsimile 425-519-8799
www.exponent.com

Gary L. Brugger, P.E.
Senior Managing Engineer

Professional Profile

Mr. Gary Brugger is a Senior Managing Engineer in Exponent's Environmental Sciences practice. He has more than 30 years of experience in civil and environmental engineering. His project experience includes "environmental forensics"; environmental insurance technical support; litigation technical support; product stewardship; site investigation, remediation, and closure; water resources and water quality management, including industrial, municipal, and wastewater treatment and management; contaminated site redevelopment; waste management; landfill closure; remedial performance evaluation; and lead paint investigation and abatement. Specific assignments have included compliance auditing; TSCA registration; regulatory affairs and compliance management; CERCLA and RCRA investigations; remedial design and closure plan preparation; hazardous waste cleanup management; emergency response management, planning, and assessment; construction management and monitoring; ecological restoration; and wastewater treatment technology assessment, including failure analysis and prevention. He has also conducted and managed lead-based paint investigations, prepared management and abatement plans, and developed proprietary methods for use of a portable x-ray fluorescence (XRF) analyzer for field screening soils to segregate lead-based paint from other sources of lead. In addition, he has directed the investigation and/or review of numerous NRDAs. Mr. Brugger also has testified as an expert in the areas of environmental compliance (RCRA, CERCLA, TSCA, and CWA), remediation and remedial requirements, environmental forensics, emergency response management, and cost allocation.

At Exponent, Mr. Brugger specializes in solving complex and diverse environmental and related problems for which his broad engineering and environmental background are invaluable. Mr. Brugger frequently works with other engineers and scientists at Exponent to evaluate environmental contributions to process or materials failures, to conduct product and due-diligence evaluations, and to work with clients to improve their product's reliability and limit or eliminate the risk to the environment from the product.

Mr. Brugger's experience as a design engineer, regulator, and consultant allows him to apply a broad approach derived from his understanding of science, engineering, and regulations. With this approach, Mr. Brugger has been able to anticipate environmental issues and integrate their solutions into his clients' routine practices. Since 1988, he has helped to integrate environmental programs into the company cultures of clients in the manufacturing, fabrication, plating, mining, agriculture, pulp and paper, and food processing industries. More recently, he is helping clients assess their greenhouse gas footprint and develop innovative solutions to reducing the footprint or recovering energy. He has developed innovative investigation techniques, remedial measures, and disposal practices that have provided documented cost savings for clients. Where confidentiality has allowed, Mr. Brugger has presented or published the results. Recent presentations have included such diverse topics as innovative investigations, environmental forensics, and redevelopment value analysis.

Academic Credentials and Professional Honors

B.S., Civil Engineering, University of California at Davis, 1970

Association of Washington Businesses: AWB Waste Management Committee, AWB Superfund Committee, and AWB Environmental Executive Committee

Licenses and Certifications

Registered Professional Civil Engineer, Alaska, # 7910
Registered Professional Civil Engineer, Idaho, # 5966
Registered Professional Civil Engineer, Oregon, # 14111PE
Registered Professional Civil Engineer, Washington, # 15170
Registered Professional Engineer, Montana#9770
Registered Professional Engineer, Oklahoma, #24438
Registered Professional Engineer, Michigan, #6201057384
Registered Professional Engineer, Tennessee, #00114829

Presentations

Shields WJ, Ruby MV, Benton L, Sun B, Brugger G. Identification of the sources of lead contamination in surface soils in the vicinity of mines and smelters. Invited presentation, Local Solutions Smart Future Conference and Celebration. Working and Living with Lead, Port Pirie, South Australia, September 28–October 1, 2003.

Brugger G, Lehmicke L. Environmental forensics applied to voluntary restoration. Presentation, AEHS Conference, San Diego, CA, March 19, 2002.

Yost L, Brugger G. Use of conceptual site models for risk communication and remediation. AEHS Conference, San Diego, CA, March 19, 2002.

Brugger G. Guilty by association, innocent by forensics. AEHS Conference, San Diego, CA, March 2001.

Brugger GL, Lehmicke L. Dating a chlorinated solvent release: 1982 or 1994. Platform presentation, Environmental Forensics Session, 10th West Coast Conference of AEHS, San Diego CA, March 22, 2000.

Brugger GL, Perry M, Clem E. RCRA Corrective Action an asset in redeveloping a solvent recycling facility. Poster presentation, 10th West Coast Conference of AEHS, San Diego CA, March 21–23, 2000.

Brugger GL, Murphy S, Rohr W. Use of portable XRF to screen former Inert Target Range for heavy metals, allowing rapid assessment and remediation. Platform presentation, Investigations Section, 9th West Coast Conference of AEHS Oxnard, CA, March 29, 1999.

EX™

Brugger GL, Ivers L. Innovative recovery of waste oil by using subfreezing temperatures to allow removal of contaminated water as clean ice. Presentation to the BP Arctic Remediation Conference, Anchorage, AK, and U.S. Air Force Conference, Honolulu, HI, 1995.

Ivers L, Brugger GL. Restoration and recycling of abandoned asphalt plant. Presentation to the BP Arctic Remediation Conference, Anchorage, AK, and U.S. Air Force PACAF Remediation, Recycling and Restoration Conference, Honolulu, HI, March 1995.

Konen B, Brugger GL, Ghofani TG. *Ex situ* bioremediation in interior Alaska. Presentation to the BP Environmental Conference, Anchorage, AK, 1993.

Brugger GL, McKay E. RCRA soil treatment by generators, a study of soil treatment within a "RCRA tank." Presentation, Hazamacon, Spring 1991.

Brugger GL, McKay E, et al. RCRA incineration ash transfer, methodology and control for transfer of incinerator ash to remote sites for disposal. Presentation at the 2nd Annual Northwest Conference for Hazardous Materials Management and Recycling, 1991.

Brugger GL. Impact of MTCA standards on cleanups of sites with chlordane, DDT, and lindane contamination. White paper presented to the AWB Environmental Committee, Seattle, WA, 1990.

Brugger GL. Impact of the Washington State Waste Minimization Regulations on selected industries. White paper presented to the AWB Environmental Committee, Seattle, WA, 1990.

Brugger GL. Design of carbon treatment systems for treatment of groundwater. Presentation to the Kleinfelder Environmental Conference, Sacramento, CA, 1989.

Brugger GL, Hubbard TR. The action team approach to expedited restoration of urban bays. A presentation of the use and success of the interagency action team approach to improved water quality in urban bays. Presentation to the Second Annual National Urban Bay Conference, Seattle, WA. Sponsored by EPA, 1987.

Project Experience

Solid and Hazardous Waste

Landfills

Responsible for engineering controls for landfill cap and stormwater controls for landfill closure and development as a golf course.

Responsible for RCRA Subtitle D audits and needs studies for more than 40 landfills. Studies covered identification of non-complying landfills and preliminary assessment of requirements to close or bring the landfills into compliance, including cost estimates.

EX™

Responsible for approval of design and issuance of permit for time-critical landfill expansion. Working in partnership with the landfill consultant, developed the design for the first self-sealing double liner system.

Responsible for approval of design and issuance of permit for time-critical closure of three major landfills. Working in partnership with the City's engineers, developed the first multi-layer closure cap implemented on the West Coast.

Landfill closure plan for Eielson AFB (Alaska) was integrated with the need to treat fuel-contaminated soils excavated during major expansion of base housing and mission support buildings. Land-farming cells were constructed on top of the former landfill using a compacted soil liner. Over the course of the next five summers, the excavated soils were bioremediated on top of the former landfill. Each spring, the soils cleaned during the previous summer were incorporated into the soil liner. At the end of the land-farming project, the treated soils were sufficiently clean to qualify as a RCRA Subtitle D landfill cap. The combining of the two projects saved the USAF over $7,000,000 budgeted for the landfill cap.

RCRA Subpart X

Responsible engineer for development of the RCRA closure plan for the open-burning, open-detonation facility at Eielson AFB. Tasks included site investigation, closure report, and agency negotiations.

Acted as engineering consultant and technical reviewer of the RCRA closure plan for Egland AFB.

Acted as technical consultant to Eielson AFB's Civil Engineering Squadron audit of Elmendorf OBOD permit.

Acted as consultant to range manager to address RCRA Subpart X monitoring, compliance, environmental controls, and closure issues.

RCRA Permitting and Compliance

Acted as consultant to project manager addressing numerous compliance issues, including RCRA tank certifications and emergency response planning.

Conducted audits of facilities in Washington, Oregon, and Hawaii for major bank client financing expansion of manufacturing and warehouse facilities. Included RCRA and stormwater permitting compliance assessment.

Acted as RCRA compliance consultant regarding waste management, waste segregation, SARA reporting, and emergency response planning.

RCRA compliance and closure consultant to project manager for resolution of environmental issues associated with AST leaks and spills at a chemical manufacturing and repackaging facility.

Retained as a compliance consultant for a restoration project involving land that had previously received heavy-metal sludge from an industrial wastewater treatment facility. Provided research and documentation to establish that the sludge was not currently a regulated waste nor a regulated waste at the time it was placed. Furthermore, removal of the waste would have compromised the planned wetland restoration project.

Retained as a consultant to assess potential RCRA compliance issues associated with the release of chlorinated solvents from an electronics manufacturing facility. Initial assessment indicated that the contaminant plume was the result of historical operations and not related to current operations.

Retained to assess source of groundwater contamination from wood preservatives. Tasks included evaluating RCRA compliance and management practices, as well as stormwater impacts. Assessment concluded that stormwater was mixing with contaminated groundwater from a historical accident. Remediation system modifications were recommended to intercept contaminated groundwater plume.

Retained as a consultant and possible testifying expert to assess whether USTs and ASTs operated by the client were regulated under RCRA. Initial evaluation indicated that these tanks were not regulated under RCRA.

Retained to assist with remediation and disposal of mercury-contaminated rocks from a former industrial trickling filter. Innovations included novel removal and cleaning process that recovered most of the mercury and allowed the majority of the rocks to be disposed as non-hazardous waste.

Environmental Engineering

Remedial Performance Evaluation

Retained to assess the design of, and to install and operate, a bio-pile system for *ex situ* bioremediation of fuels and non-chlorinated solvents. The original design, prepared by a national laboratory, was found to be unnecessarily complex and difficult to construct. Revised the system from vacuum to blower, simplified the monitoring system, and modified the construction plan, resulting in a savings of $250,000—over half the construction cost. Subsequently, developed and tested a non-mechanical system for use on remote sites, resulting in a savings of 75 percent over the original design estimate.

Retained to assess contractor's proposal to recover oil and hazardous materials from drummed liquids using a gravity separator. Initial review indicated that the process was unreliable, expensive, too time consuming, and would require a RCRA permit. An alternative treatment approach was developed using subfreezing air temperatures to freeze the water in the drums

then remove it as uncontaminated ice. The remaining liquid was field screened for solvents. Solvents were segregated for RCRA disposal, and waste oils were recovered for use as fuel in portable heaters. Cost savings from proposed treatment was more than $500,000.

Retained by manufacturer to provide technical advice and permitting assistance for onsite micro-encapsulation of arsenic-contaminated soils. Review of competitive proposals and test results from three vendors indicated that tight process controls were necessary if the encapsulated soils were to pass the RCRA hazardous waste designation. Innovations included permitting the treatment process under the "treatment by generators" provisions in RCRA, and designing the treatment-area "tank" to be left in place as a RCRA cap.

Reviewed plans to use an in-well stripping process to remove chlorinated solvents released from a small metal-plating facility. Our analysis indicated that the system was inadequately characterized and too small to meet remedial goals within the project schedule. Additionally, we raised concerns that the proposed system would introduce oxygen to the aquifer, ending the natural biodegradation of the plume. Recommended two-phase in-well stripping approach that used nitrogen in the initial phase to maintain anaerobic conditions in the aquifer, thus supporting natural biodegradation.

Retained to review and comment on proposed remedial technologies to be applied at two locations at the site. Initial review of the steam extraction technology proposed by the regulator indicated that it was nearly six times the cost of containment through conventional means. Furthermore, no studies had been conducted to ensure that the contaminants could be recovered once the steam had mobilized them. Also saved the client substantial costs for soil removal. A soil removal program had been proposed based on two soil samples. Close scrutiny of the data suggested that the contamination was extremely localized and associated with creosote-treated railroad ties left in place when a rail spur was abandoned. Confirmation sampling supported this assumption, saving the client more than $100,000.

Retained to review a proposed remedial system for a dry cleaner site. The ROD proposed use of Fenton's Reagent to remove residual PCE from former cesspools suspected to be the current source of contamination, but ignored piping and other potential issues, including the amount of organic carbon present in the system that would react violently with the Fenton's Reagent. Additional work on this Long Island site includes a natural attenuation assessment, regulatory strategy development, vapor intrusion assessment, and identification of prior investigations conducted by others that breached the natural containment at the site, releasing chlorinated compounds to offsite groundwater.

Wastewater Treatment

Evaluated causes of the digester failure at the City of Spokane wastewater treatment plant, prepared expert report and presented expert testimony regarding the causes of failure and the standard of care associated with a "back-of-the-envelope" engineering design prepared by a professional engineer working a consulting assignment for the City.

Assessed design and operational problems associated with anaerobic digesters being operated for digestion and methane production. Work included assessment, preparation of training materials, and presentation at a seminar. Within 2 months, digesters were not only stable, but performing consistently above the design efficiencies. Problems encountered included highly variable waste stream, limited controls, inconsistent/conflicting direction and advice, equipment not performing as designed, inadequate (or never provided) operation manuals, and inadequate training.

Retained by City of Spokane to conduct forensic analysis of unusual grease problem, to provide suggestions for management, identify source if possible, and provide recommendations for treatment. Work included successful identification of the material, recommendations for inspection and communication with industries that were possible sources, and strategy for identification and appropriate actions should the problem re-occur. Industry communication strategy was successful, and no reoccurrences have been observed.

Retained by Fortune 200 company as an expert and consultant regarding claims of damage to POTW pump stations and sewers from clients' discharges. Multiple projects in multiple states. Provided client with engineering and cost documents to allow negotiation of reasonable settlement of legitimate claims and rejection of excessive charges. Also evaluated pretreatment systems and made recommendations.

Retained by confidential client to assess efficacy of physical chemical system to remove trace contaminants, including pharmaceuticals, from drinking water.

Retained by internationally recognized museum and research facility to solve odor and pretreatment issues. Helped client conduct investigations, assess treatment technologies, and implement solutions.

Conducted blind efficacy testing of chemical treatment technology to enhance and expedite treatment of conventional and other pollutants at existing industrial and municipal treatment facilities. Tests were designed and conducted to verify that the product was, in fact, achieving treatment and not fooling the tests.

Retained by Phoslock International to assess applications of Phoslock technology for phosphorus removal in the United States. Work also included submittal of pre-manufacturing notices and regulatory support for applications.

Retained to determine the operational conditions that led to the failure of the #3 Digester at the Spokane Wastewaster Reclamation plant. Personally responsible for operations analyses and interviews of plant and other personnel with knowledge of the digester and/or the event. Interviewed 30 people and resolved conflicts between initially reported observations and recorded and preserved data. All significant observations were verified and accounted for within the data and failure mode.

Retained to develop innovative approach for water and wastewater treatment for the Polar Ice Coring Research facility located in Alaska. Work included development of innovative water

treatment and wastewater treatment technologies that would supply the facility during the summer research season and could be easily protected during the harsh winter months.

Retained by international client to evaluate off-the-shelf integrated treatment plants for potential use at resort facilities in areas with limited power. The proposed technology did not have the flexibility to address weekly fluctuations in flow and loading, because most facilities were occupied from noon on Sunday to noon on Friday, with significant cleaning activities occurring in between. Developed two approaches—one used a lagoon system where land was available, and the other used aerated equalization basis followed by extended aeration activated sludge package plant.

Retained by confidential client to provide efficacy testing of physical chemical treatment system to remove trace contaminants, including trace pharmaceuticals, from drinking water. Work includes identifying a range of parameters for testing, locating representative water supplies, and conducting tests to verify the effectiveness of the process.

Highlights of wastewater projects as a state review and grants engineer:

- Wastewater construction grants for state of Washington – Managed more than $200,000,000 in projects from 1974 through 1979.
- Technical plan review of nearly $0.5 billion in wastewater treatment and pretreatment facilities. Review included reliability, operability, and adequacy.
- Expertise in conventional, tertiary, and innovative chemical treatment for industrial wastewater, stormwater, and municipal wastewater.
- Expertise in permitting issues that included nearly 1,000 industrial pretreatment facilities, hundreds of POTWs, and dozens of stormwater treatment facilities.
- Drafted first municipal stormwater permit and first water quality–based permit for major POTW in EPA Region X.

Mining, Smelting, and Finishing

Served as senior engineer for multimillion-dollar demonstration projects to conduct full-scale testing of remedial measures for several major CERCLA sites involving surface mines and smelting operations.

Retained as a consultant to assist client who had purchased a site with metal finishing waste. Assignment included remedial technology assessment and permitting. Permitting strategy included the first use of the RCRA provisions allowing generators to treat their own waste streams under their waste generator permits. These demonstration projects developed cost-effective techniques for remediating soils with various concentrations of heavy metals.

Developed and implemented a recycling plan for flue dust and sandblast wastes contaminated by heavy metals, and conducted a preliminary assessment of long-term impact from the use of this material. Also evaluated heavy metal contribution to adjacent waterway sediments from

coal and mercury mine drainage. Conducted an evaluation, up-river remedial design, and implementation plan for the smelter slag sandblast waste.

Organized PRP group, developed plans, and directed an environmental evaluation and expedited remedial measures for a lead smelter and processor. Contaminated sediments and soils were recovered and recycled, avoiding substantial remediation costs associated with planned disposal.

Conducted preliminary site assessments, including wetlands evaluations of a former industrial site in the Northwest. During the wetlands assessment, found evidence of smelter slag. Discovered that the property had been developed for smelting operations that had ceased nearly 100 years ago. Knowledge of the magnitude of potential liabilities and uncertainties associated with developing a former smelter site allowed the client to assess risks rapidly and make timely business decisions.

Served as project manager and designer for a survey of metals fabrication, handling, and storage facilities. Evaluated potential for recycling surplus metals and qualitatively assessing environmental concerns associated with the operations. Innovations included beta-testing a Niton XRF analyzer that provided real-time analysis of metal alloys to determine approximate salvage value.

Served as project and client manager for site investigation, and as client manager for ecological and toxicological risk assessment of industrial sites. Innovations included the use of field screening techniques and inclusion of an ecologist and a toxicologist on the sampling team, which allowed adjustment of the sampling plan in the field, facilitating collection of the data needed to prepare the risk assessments.

Served as project manager and responsible engineer for series of remedial demonstration projects that included the first large-scale soil incinerator, first large-scale biological treatment system, and also included bioventing, use of power plant boilers to incinerate waste, and landfill closures. Major challenges included reluctant regulators, temperatures to –30°F, management of ultrafine dusts from the incinerator and the power plant ash, and biological hazards (mosquitoes and moose). Innovations included conducting *ex situ* biological treatment on top of a landfill, which saved the client more than $5,000,000 in soil treatment costs.

Responsible for the design and restoration of the gravel pit and batch plant sites at Elmendorf AFB. Sites covered nearly 10 acres and contained over 100,000 yd^3 of soil potentially contaminated with asphalts and heavy metals. Innovations included the recovery and recycling of 100,000 gal of asphalt, 30,000 tons of rock used for roadway ballast, and 15,000 tons of asphalt-coated rock and soil incorporated in roadway and parking lot subgrades. Innovations saved the client nearly $6,000,000 vs. the cost of a planned and budgeted disposal option.

Manufactured Gas Plants and Other Related Projects

Served as project manager and consultant for RCRA investigation and proposed closure of major wood treatment facility. Contaminants included creosotes and other wood treating

EX™

chemicals. Work included cost analysis, cost allocation evaluation, and evaluations of prior investigations, interim removal actions, and treatment systems.

Site manager for Washington State Department of Ecology. Accomplishments included site investigations, interim removal, and disposal plan development (asbestos contaminated with PAH. Demonstrated to EPA that the site should not be listed on the NPL.

Served as project manager for Washington State Department of Ecology for environmental issues associated with the original MGP for the City of Seattle. Although the site had originally been built on a pier, the structure had been torn down and the area filled. Challenges included identification of historical disposal areas, and development of sampling plans and special controls for installation of building piling supports to minimize disturbance of PAHs.

Acted as senior remediation consultant on several restoration and redevelopment projects at MGP sites. Tasks included review of innovative research proposals and results, remedial technology analysis, regulatory analysis, storm water management planning, redevelopment analysis, cost analysis, and senior technical review.

Pesticides

Retained to investigate, remediate, and resolve environmental issues associated with an agricultural chemical warehouse fire. Challenges included addressing contamination and risks from the 181 chemicals in the warehouse at the time of the fire. A risk-based investigation approach was developed, and the project focused on chemicals that were in the warehouse in sufficient quantity to present an environmental or toxicological risk. Laboratory cost savings from this approach was in excess of $500,000. This was one of the first RI/FS projects accepted and closed by the Oregon Department of Environmental Quality. The project went from work plan preparation through investigation and remedial implementation within 11 months.

Retained to investigate, evaluate, remediate, and resolve environmental issues associated with a fire at a pesticide applicator's warehouse in eastern Oregon. The warehouse had contained nearly 80 tons of aluminum phosphide pellets used for fumigation of grain elevators and ships. Worked with the client to arrange first-responder training for employees and developed an emergency response plan to stabilize the unburned pellets. Worked with the manufacturer to expand the FIFRA registration and licensing for the product to allow use for control of burrowing rodents as an alternative to disposal.

Retained to evaluate contamination and risks associated with fertilizer distribution facility that had also handled some pesticides. The RI/FS had been completed, and the client wished to assess potential remedial measures. Review of the RI/FS indicated that pesticide issues were limited, and although soil concentrations exceeded Washington State MTCA standards, they did not exceed EPA standards, thereby allowing disposal as non-RCRA waste in Idaho. Groundwater contaminated with nitrates and phosphates above drinking-water standards was used for irrigation where the contaminants would be removed as a beneficial component of the water.

Retained as a consultant to assess compliance issues associated with corrosion inhibitors included in products used in large hydraulic systems. Because the corrosion inhibitors included compounds that were biocides, the client needed to know if the products and the manufacturing process were regulated under FIFRA, TSCA, or both. Because the active ingredients in some of the inhibitors are formulated for pesticides, this became a complex assessment to verify that the actual raw materials used in our client's products were manufactured as corrosion inhibitors and were approved for such use under both FIFRA and TSCA.

PCBs

Acted as Washington State Department of Ecology engineering manager for emergency response for recovery and treatment of PCBs from a transformer spill that occurred when a transformer being loaded on a barge broke free and fell into the river. Responsibilities included review and approval of recovered PCBs/water treatment system and disposal.

Served as principal investigator and enforcement officer for a mysterious oil spill containing PCBs. Careful investigation determined that the employees of a machine shop had dumped waste oils without PCBs into a former power plant flume that contained PCB-contaminated sediments. During the brief contact period, the waste oil mobilized the PCBs. A case was developed, and substantial monetary penalties were assessed against the dumpers, including allocation of cleanup costs.

Retained to determine the cause of transformer recontamination of five PCB transformers at a major industrial facility. Transformers had been cleaned and certified to be <50 ppm PCBs, but resampling during an EPA inspection found PCBs in the 500- to 800-ppm range. Thorough investigation of the methods used by the transformer cleaning contractor, and interviews of the client's employees who observed the contractor, enabled us to determine that the cleaning contractor had problems with its oil removal unit and did not remove and recycle the transformer oil either under load or with heated oil as required. Furthermore, the verification sampling was done with the transformer cold and prior to use. Consequently, a relatively substantial amount of PCBs remained trapped within the coils..

Served as project manager for contract to support USAF initiative to remove PCBs from USAF facilities. Project assignments included development of an investigation and management plan, investigation and testing of electrical components, and auditing of prior work involving PCB removal and/or recycling projects. Challenges included differing state standards for PCBs and poorly documented prior work. Two California bases (Vandenberg and Mather) and Williams AFB in Arizona required resampling, because prior contractors had not used the 1-ppm threshold used in California. Consequently, these transformers had to be resampled and re-cleaned or disposed as PCB waste.

Retained as a consultant in a litigation case to investigate the probable source of PCBs found in a storm water retention pond and sediments of an adjacent waterway. Although cutting fluids in the client's machine shop were suspected and alleged by the regulators, the contamination was not consistent with the client's source (location). The investigation focused on a nearby facility with documented spills of hydraulic fluids in the late 1940s though the late 1950s. Investigation

of library and company records indicated that the nearby facility had used surplus aircraft hydraulic oil in their hydraulic systems. Research of the records of the Commemorative Air Force (CAF) and interviews with CAF volunteers produced documentation that the surplus aircraft hydraulic oil used by the nearby facility contained substantial quantities of PCBs.

Product Stewardship

Initially retained in 1987 to address regulatory compliance issues associated with solvent use and disposal. Scope subsequently expanded to include integration of environmental issues within the development, use, and ultimate disposal of products. Within 18 months, the implementation of ideas developed by the Tempress team reduced the defective parts rate to less than 0.001 percent, (from greater than 5 percent). Solvent use was reduced by 98 percent, while product quality, customer satisfaction, and profit margin increased dramatically.

Retained to observe, document, and recover for testing piping components used in fuel dispensing. Additional activities included assessment of the installation, notation of any failures causing environmental impact, and documentation of any near-term potential failures or impacts.

Retained to file Toxic Substances Control Act (TSCA) applications and verify efficacy of proprietary product used in the treatment of waste water and lake restoration. Application was complete and EPA approval to begin manufacturing was received within 60 days.

Retained to review electronic device and associated materials to verify California Prop. 65 compliance, and to certify product stewardship program for client's customers. Work included assessment of device and the extent and nature of subcontractors' stewardship programs, and evaluation of printing and materials used for instructions and CD.

Retained to address environmental hazards and risks associated with green energy systems. Although the systems are completely recyclable, the client needed to assess any potential environmental impacts associated with abandonment, vandalism, landfill disposal, and incineration. Subsequently retained to address other environmental stewardship issues and integrate them with manufacturing and marketing.

Environmental Forensics

TIC v. Quemetco, et al. Case No. BC 012529 in the Superior Court of the State of California, County of Los Angeles. Subject: Release of lead from a secondary smelter with regard to insurance coverage matters. Technical consultant and principal investigator. Client: RSR Corporation (represented by Latham & Watkins).

RSR Corporation et al. v. AIU Insurance Company et al. Cause No. 93-0217 in the 71st Judicial District Court, Harrison County, Texas. Principal investigator and consultant for recovering records and calculating emissions from historical smelter operations at sites in Texas, Washington, and Indiana. Work included identification and documentation of process upsets documented (but not previously identified) during routine ambient monitoring by state and local

EX™

air agencies and the recovery and use of other agency documents to validate air dispersion models and expert opinions.

Retained as expert in the practice of automotive recycling, including the nature, extent, and management of waste streams resulting from this process. Provided analysis and documentation that facilitated settlement.

Retained to identify timing of disposal of battery manufacturing wastes found in the crawl space of a large commercial building. Because of multiple ownership of the battery manufacturing operation, it was necessary to ascertain the timing of the release(s) in order to establish responsibility. Innovations included the dating of construction materials and building remodels, dating battery casings, and dating the plates based on alloy content.

Retained to prepare cost allocation of investigation, remediation, and restoration costs for a major industrial facility. Before cost allocation could be prepared, contaminant sources had to be identified, segregated, and dated.

Retained to ascertain the source of mercury contamination found in an industrial wastewater treatment facility. Research of the client's records produced the original design drawings from the 1950s. The design showed a floating mercury bearing. From prior experience with these bearings, we estimated that the original floating bearing would likely have contained approximately 40 pounds of mercury. Having identified the probable source, our client was allowed to proceed with environmental closure of this site, allowing for planned redevelopment.

Served as project manager and principal investigator for drum disposal site for feasibility study and record of decision preparation project. Although four prior consultants and two Navy investigations had failed to produce evidence that the drums placed at the site were in fact "RCRA Clean," convinced the Navy to try once more. Investigation demonstrated the total quantity of materials released was consistent with washed drums and found documents and managers not previously found who confirmed that the drums had in fact been cleaned in accordance with RCRA. Site closed under MTCA (state standards) at a savings of more than $500,000 in disposal costs. Project team received a Navy commendation for outstanding performance for actions on this project.

Litigation Technical Support

David Michael v Denbeste Transportation. Case Number VC038131. Retained to assess the environmental controls, site management, and regulatory compliance and non-compliance with EPA and California laws and guidance regarding decontamination and site safety at a state Superfund site. Additionally asked to assess how such compliance or non-compliance would have contributed to the injury of Mr. Michael, who was working at the site.

Angel Good, et al. v. Fluor Daniel Corporation, et al. U.S. District Court, Eastern District of Washington Case No. CT-00-5021-EFS. Retained as expert to evaluate the emergency response to an event at the plutonium finishing plant at Hanford, including expert report. Also retained to assist with preparation of a technical report evaluating the improper use of ISO 9000 and ISO

EX™

14000 (Gap Analysis) processes to evaluate emergency response activities. The same issues were addressed in a separate case, *Arthur Aylsworth, et al. v. Fluor Daniel Corporation, et al.* U.S. District Court, Eastern District of Washington Case No. CY-00-3038-EFS.

Grove Investment Company v. United States Testing Company and Grove Investment Company vs. Collins Radio Company, et. al. Case Number SA CV 00-1076 DOC (EEx) (Lead Case) Consolidated with Case Number SA CV 01-646 DOC (EEx). Retained as expert to assess process solvent usage by the electronics and metal finishing industries in the 1960s and 1970s. Deposition has not been scheduled. Client: Weston Benshoof.

Union Station Associates, LLC v. Puget Sound Energy, Inc. Case No. C01-289P in the U.S. District Court, Western District of Washington at Seattle. Subject: Sources of polycyclic aromatic hydrocarbons at a site of former iron foundry, railroad terminal, manufactured gas plant, wood treatment facility, and power plant. Deposition: 2002. Client: Riddell Williams (representing Travelers Insurance, insurance carrier for Puget Sound Energy).

Seattle City Light v. Lloyds et al. Review of claims and assessment of costs related to water transport of contaminants; assessment of claims and costs prepared by opposition experts. Case dismissed prior to deposition. Client: Lane Powell Spears Lubersky for Lloyds.

Massoud v. Sparky's Towing et al. Retained by defendant for evaluation of contaminant sources at site owned by plaintiff. Developed scientific evidence presented at deposition and trial to demonstrate that automotive fluids from vehicles handled at Sparky's could not have produced the contamination found at the plaintiff's site. Evidence developed included a forensic analysis of automotive wastes and fluids, including analysis of trace metals and alloys used in automobiles. The jury did not award the plaintiff any environmental damages. Client: Phil Welshman of Friese and Welshman representing Sparky's.

Andalex v. D.A. Stuart et al. Retained to address Toxic Substances Control Act compliance issues associated with products manufactured by D.A. Stuart regarding product liability claims and allocation of responsibilities. Deposition: 2002. Client: Richards, Brandt, Miller, Nelson representing D.A. Stuart on behalf of AIG.

City of Ridgefield v. SAFECO, AIG, et al. Retained to analyze and document the City of Ridgefield's contributions related to impacts from the lease of City property to Pacific Wood Treating. Initial assignments have included evaluation of remedial technologies, property acquisition, and redevelopment opportunities. Deposition: Not yet scheduled. Client: Merrick, Hofstedt & Lindsey, representing the City of Ridgefield's interests on behalf of its insurers AIG and SAFECO.

Todd Shipyards v. Lloyds. Retained by counsel for Todd Shipyards as an expert on shipyard best-management practices, environmental compliance, and waste management practices. Deposition: 2001. Client: Corr Cronin representing Todd Shipyards.

Fentron Building v. American Motorist et al. Evaluation of remedial technologies, facility compliance issues, and cost assessment and allocation for site restoration related to third-party

EX™

claims. Clients held not liable; case dismissed prior to deposition. Clients: Merrick, Hofstedt & Lindsey, representing Westport Insurance Company; Soha & Lang, representing Central National of Omaha and Highlands Insurance; Forsberg & Umlauf, representing First State and INSCO insurance companies.

Lilyblad Petroleum et al. v. Industrial Indemnity et al. Evaluated remedial technology, facility compliance issues, cost assessment, and cost allocation for site restoration related to third-party claims. Deposition: March and April 1999. Client: Forsberg & Umlauf, representing Old Republic.

J.I. Case & Co. v. Jones Stevedoring. Assessed level of environmental controls required and processing equipment and associated costs necessary to bring the facility into compliance; also evaluated appropriateness of actions by regulators. Deposition: May 1998. Settled out of court. Client: Williams, Kastner & Gibbs, representing Jones Stevedoring.

Esterline Technologies Corporation and Midcon Cable v. Highland Insurance Company et al. Evaluated remedial technology and cost assessment for site restoration related to RCRA compliance issues and to third-party claims. Case dismissed before deposition (October 1998). Client: Merrick, Hofstedt & Lindsey, representing Highlands Insurance.

King County v. Sunset Demolition. Subject: Improper handling and disposal of solid waste and the associated impacts on public health and the environment. Deposition and expert witness testimony: 1985. Client: King County (Washington) Prosecutor's Office.

U.S. EPA v. Western Processing. Subject: Presentation of investigation methods and results demonstrating that the actions by the owner and operator of the facility presented a substantial risk to public health and environment. Depositions: 1982, 1983. Client: U.S. Environmental Protection Agency.

Insurance Technical Support

Retained to assess and document the state of RCRA compliance requirements that were related to and may have contributed to the release of hazardous materials. Initial review identified that first responders, who did not follow emergency response plans provided by the insured industry, contributed to the extent of property damage from the event.

Retained to evaluate plans, costs, and schedule for remediation of a major Superfund site. Responsible for remedial technology assessment, including the risk of failure, schedule for performance, and associated costs. Work was completed within a 10-day period to allow client to prepare a proposal to the site owner for cost cap insurance.

Retained to assess nature and cause of contamination at a school district maintenance facility. An accident involving the fuel dispensers, a turbine failure, and a leaking vent pipe were thought to be the cause of the majority of the contamination. However, an environmental forensic evaluation of the nature and extent of the contamination and the precise location of the failed equipment suggested that overfilling of the UST was the primary source of

contamination. Research of maintenance records produced memos documenting two significant incidents when the tank was overfilled. Client: AIG Environmental Claims.

Retained by the insurance company funding cleanup of a contaminated property to provide technical support for review and approval of investigation plans, remedial technology assessments, treatability studies, remediation plans, and associated schedules and budgets. Saved client $300,000 by eliminating unnecessary studies and sampling costs.

Retained by insurance company to assess interim remedial measures (IRMs) and remedial technology to contain cost for which the insured was potentially responsible. Project successes included scoping of the IRMs to reduce costs and eliminate future liability, and termination of a plan to use expensive and risky IRMs that could have cost the insured and the client millions of dollars.

Retained to assess remedial failure of a soil-vapor extraction (SVE) and groundwater recovery system and develop closure strategy for a large service station complex in central Washington. Initial review of the site plans identified two large cisterns (that were part of the storm water control measures) located upgradient and laterally from the original spill site. Surface spills during fuel dispensing were being released to these cisterns, and heavy rainfall events would flood the cisterns, initially changing the direction of near-surface groundwater flow and resulting in recontamination of the site. Client was advised that the site would never reach cleanup goals without revising the storm water management.

Remedial Cost Analysis

Prepared expert analysis and testified at trial regarding past and future remediation costs that Raybestos had incurred as the result of a breach of agreement with the State of Indiana. Trial held in Indiana Superior Court September 2006. Cost projection analysis used proprietary cost model developed with Mark Johns of Exponent. The model and results were presented at trial, and the judge accepted the model, calculations, and analysis, and subsequently awarded our client 100% of claimed prior and future costs.

Prepared cost analysis for remediation/removal of lead-contaminated soil at the Roberts' Ranch in San Diego County as part of negotiating a purchase and sale agreement. This assignment included not only the remedial cost analysis but also working closely with our client (counsel to the seller) to draft technical requirements, and to establish conditions of the purchase and sale agreement that would allow the seller reasonable control of the removal process, to protect their liabilities and cost.

Redevelopment, Closure, and Brownfields

Served as project manager to address environmental issues associated with former 40-acre waste disposal site being redeveloped for residential use. Environmental issues included metals and nitrates. Used simple hydraulic models and natural attenuation analysis to demonstrate that the site could be safely redeveloped without requiring further measures to protect nearby water supplies. This information was communicated via a simple site model used to facilitate the

EX™

regulatory understanding of the miniscule risks that the site presented. Client savings from avoiding additional investigation and long-term monitoring were estimated at more than $300,000.

Served as project manager for closure of site and resolution of environmental issues necessary to facilitate sale and redevelopment of a large shopping center in suburban Maryland. Contaminants included multiple solvents (chlorinated and non-chlorinated) and heavy metals. Potentially affected areas included residential areas, schools, and a major wetland. Used available data and conceptual site models to demonstrate that ecological and health risks associated with the site would be eliminated by the natural attenuation processes already at work at the site. Evaluation also included an assessment of remedial failure that could be caused by changes in site conditions, and addressed concerns that the natural bioremediation would halt before reaching acceptable levels. Although solvent and metals concentrations in groundwater exceeded MCLs, client received a no-further-action letter based on our analysis. Net client savings included $200,000 in additional investigation costs and potentially $1,000,000 in long-term monitoring costs.

Served as project manager and consultant for restoration and proposed redevelopment of a portion of a major wood treatment facility that was on City property, located between residential areas and the national wildlife refuge. Contaminants included creosotes and other wood-treating chemicals. Work included cost analysis, EDA and EPA grant application support, interim removal action evaluation, and remedial failure analysis. Analysis allowed site re-development to proceed, with limited risk to the City. In turn, the lead PRP at the site was able to use more than $2,500,000 in remedial action from the City's redevelopment project to obtain matching cleanup grants.

Served as project manager for large solvent and fuel distribution facility and former solvent recycling facility. Tasks included failure analysis of various remedial actions proposed by site owner's consultant. Also conducted risk failure analysis of existing operations and liabilities associated with the site that could affect future redevelopment or sale. Analyses demonstrated that current operations were susceptible to routine failures that could prevent the site from ever achieving agency cleanup goals. Conversely, the near-surface geology and hydrogeology, along with the existing monitoring system, actually were an asset if the site were to be used for any operations that could accidentally release solvents, because natural containment, biological remediation equipment, and monitoring systems were in place and operational.

Retained by counsel for secondary insurers to evaluate site conditions and potential failure of proposed remedial measures. Initial evaluation indicated that the environmental issues associated with the site could be resolved within the limits of the underlying policies, and that further action or evaluation was not necessary.

Retained by major re-insurer to evaluate remedial actions and costs associated with a major Superfund site. Evaluated proposed remedial actions with regard to adequacy, cost, and failure potential, as well as proposed budgets and schedules. Project was initiated and completed within 2 weeks.

Retained by USAF ACC to conduct audits and assessments of Superfund sites at all 22 USAF ACC bases in the United States. Evaluated both the implemented and planned remediation for potential failures leading to unacceptable environmental or health risks. Project encompassed more than 50 Superfund sites with more than 200 remediation systems. Identified sites where remediation was no longer necessary as well, and reduced proposed sampling and extent of long-term monitoring.

Retained as a regulatory, closure, and remedial technology evaluator to address environmental engineering challenges associated with the closure or expansion of military installations in the three rounds of BRAC. Specific assignments included evaluation of risks of remediation failure or inadequacy to protect future uses of facilities. Such uses included schools and residential facilities, as well as commercial and industrial complexes. Evaluated remedial technology and schedule to ensure that remedial requirements would not interfere with the expansion of base facilities (industrial repair complexes) as well as support services such as child development centers and schools. Work was performed for USAF, U.S. Army, U.S. Navy, and Marines. California bases included Castle, Mather, Fort Ord, Twenty-Nine Palms, China Lake, Vandenberg, Davis Well Field, Stockton Army Depot, Sharp Army Depot, and Travis.

Supported an economic stability and redevelopment project in South Stockton, California. Provided an analysis and preliminary plan for required facilities, utilities, and zoning changes needed to develop undeveloped and underutilized properties for business purposes in support of economic growth and stability of the South Stockton neighborhood. 1970 graduate-level class and community support project through University of California at Davis.

Lead-Based Paint Investigation and Management

Retained as a technical expert to assess the nature, extent, and significance of lead paint investigations conducted at six school districts in Texas. Also retained to investigate and evaluate the restoration plans and costs associated with lead-based paint at these facilities.

Served as project manager for a study that included lead-based paint surveys of base schools, child development centers, hospital, recreational facilities, day care centers, day care homes, and representative military family housing. Survey data were analyzed and used to develop a lead-based paint management program plan. Project challenges included the need to manage lead-based paint on and in buildings listed on the national historic register that required maintenance of the original look and color of the buildings.

Acted as program and project manager for $4,000,000 lead-based paint investigation and management planning/consulting project that covered 200,000 military family housing units worldwide, as well as more than 4,000 schools, hospitals, child development centers, day care facilities, and other Air Force facilities used by military families. Recommended abatement procedures, revision of existing military housing renovation guidance to reduce potential releases of lead-based paint, in-place lead-paint management planning, evaluation of lead-based paint renovation debris, and options for disposal.

Served as project manager for investigation of lead-based paint and asbestos at historical command and aide residences. Showed staff how to interpret existing management plans and prior reports, eliminating the need for further investigation and management.

Served as project manager for lead investigation project. Developed screening methods to allow U.S. Army staff to segregate soil contaminated with lead-based paint from soil contaminated with bullet lead containing arsenic, using proprietary XRF soil screening methods. Soil in an area between an indoor shooting range and Post support buildings painted with lead-based paint had become contaminated with lead. However, because the bullet lead contained potentially leachable arsenic, the areas contaminated with bullet lead needed to be segregated from the areas contaminated with lead-based paint. XRF screening methods were employed, and the Army successfully segregated and remediated the soils contaminated by the different sources of lead.

Water Resources and Water Quality Management

Retained as project manager to support appeal of proposed permit requirements for NPDES permit. Although the proposed permit limits appeared to be required to meet Great Lakes Water Quality Standards for discharges, the analyses (by the regulator who drafted the permit) were flawed. Although the analyses' flaws were minor in nature, cumulatively they resulted in proposed permit effluent limits that would be expensive to meet, could not be met under routine adverse conditions, and provided no measurable benefit to water quality. Exponent prepared a rebuttal report pointing out the flaws—which included failure to address natural groundwater discharges with elevated contaminant concentrations, calculation errors, and use of unreliable sample data—and also provided documented studies showing that the minimal effects level for the contaminants was well above the proposed limit.

Served as project manager for design of restoration project to restore former disposal site on Hood Canal. Developed innovative design that provided nesting and perching structures for eagles and osprey, improved shoreline habitat for surf smelt, protected the small boat launch, and used native plants to revegetate the 3-acre site. The native plants specified provided much-needed food and cover, eliminated the need to provide nutrients and water during the first summer, and were less costly than traditional regrading and reseeding. U.S. Navy received regional recognition for use of native plants.

Served as project manager for restoration of a gravel pit, as required by Section 404, under direction of the U.S. Army Corps of Engineers. Innovations included the construction of nesting habitat, forage areas, and safety islands to attract geese away from the runways. Eielson AFB natural resources manager received USAF award for the success of this project.

Served as project manager and principle designer for expansion of storm water treatment facility to accommodate revised mission for Fairchild AFB. Innovations included expansion and re-configuration of the ponds to increase contact with vegetation and thereby improve metals removal, long-term maintenance plan to ensure continued compliance with permits, and revised vegetation to eliminate use by ducks and other water fowl that were accessing the current ponds located near the flight lines.

Acted as design engineer for vegetation restoration to improve spawning habitat for salmon. Innovations included use of limestone to improve water chemistry and introduction of plants formerly native to the area, to provide summer shading and reduce water temperatures.

Served as an internal consultant for implementation and limitation issues for water quality testing to detect water contamination from terrorist activities. Using experience and knowledge of water collection, treatment, and distribution facilities, identified sampling locations, assessed analytical methods, and evaluated the effectiveness of certain compounds.

Developed an innovative process to recycle 1,000,000 gal per day of the process wastewater that was being discharged to the POTW, while advising a client on process management of an industrial pre-treatment system. The payback from savings on water and sewer bills would be met within 8 years. However, the development of nearby properties was being delayed because of inadequate sewer capacity and water supplies. The right to the unneeded water and sewer capacity could be sold to the developers for more than the cost of recycling.

Professional Affiliations

- Sponsor Member, Washington State Defense Trial Lawyers Association

Deposition and Trial Testimony

Available on request.

EX™

Certification of Authenticity of Electronic Submittal

I, Jeffrey P. Carlin, declare:

I am an associate at Latham & Watkins LLP, counsel of record for National Steel and Shipbuilding Company ("NASSCO") in the Matter of Tentative Cleanup and Abatement Order R9-2011-0001 before the San Diego Regional Water Quality Control Board ("Water Board"). I am licensed to practice law in the State of California and make this declaration as an authorized representative for NASSCO. I declare under penalty of perjury under the laws of the State of California that the electronic version of Exponent Inc.'s Comments on the Draft Preliminary Environmental Impact Report for the Shipyard Sediment Remediation Project, Dated June 16, 2011, submitted to the Water Board and served on the Designated Parties by e-mail on August 1, 2011, is a true and accurate copy of the submitted hard copy. Executed this 1st day of August 2011, in San Diego, California.

Jeffrey P. Carlin