

# PRELIMINARY

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NSY LONG BEACH  
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## LONG BEACH NAVAL COMPLEX Response to Restoration Advisory Board and Public Comments received on the Draft Remedial Investigation Report for IRP Site 7 dated 22 February 1996

### INTRODUCTION

On 19 March 1996 the Department of the Navy conducted a Workshop at the Restoration Advisory Board (RAB) meeting to discuss the draft Remedial Investigation (RI) Report for IR Program Site 7 (the Long Beach Harbor, West Basin), dated 22 February 1996.

On 16 April 1996 the Department of the Navy conducted a RAB meeting to provide the RAB and the public an opportunity to comment on the draft RI report. The comment period extended from 22 February 1996 to 16 April 1996, allowing the RAB or public almost 60 days to review and comment on the draft RI document.

The following DRAFT responses have been numbered to correlate with a specific RAB member's written comment provided at the 16 April 1996 RAB meeting and attached hereto.

A copy of the final comments and responses thereto, will be available for review at the Long Beach Naval Complex Information Repository (IR) for the Long Beach Installation Restoration Program: The IR location is the Long Beach Public Library, 101 Pacific Avenue, Long Beach, California.

### GENERAL RESPONSE

For the purposes of implementing the Installation Restoration Program at Site 7, the Department of the Navy has selected to follow the Remedial Investigation/Feasibility Study methodologies promulgated by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization act (SARA) of 1986, even though Site 7 is not a National Priority List (NPL) site.

The U. S. EPA document entitled "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA", EPA/540/G-89/004, describes the general procedures for conducting a Remedial Investigation. This guidance document provides the methodologies of the Remedial Investigation process established by the Superfund program for collecting data to characterize site conditions, assess the nature of the waste, and assess risk to human health and the environment.

A Work Plan and Sampling and Analysis Plan (SAP) for the Site 7 RI were prepared by the CLEAN I Contractor in 1993. Numerous subsequent meetings between SWDIV/BNI and the technical oversight agencies (including National Oceanic & Atmospheric

Administration (NOAA); State of California Department of Toxic Substances Control (DTSC); Regional Water Quality Control Board, Los Angeles Region (RWQCB); U.S. Fish & Wildlife (U.S. F&W); California Department of Fish & Game (CDF&G); and U.S. EPA under CLEAN II (1994) resulted in some modifications to the Work Plan and the SAP, as described in the several Technical Memoranda prepared for Site 7 at the onset of the RI.

Accordingly, the Site 7 RI goals involved assessing:

- sediment toxicity;
- whether sediment toxicity posed a risk to ecology;
- whether chemicals in fish posed a risk to aquatic predators; and
- whether chemicals in fish posed a risk to recreational and subsistence anglers.

On the basis of the observations presented above, it is clear that the RI process does not include components unrelated to site characterization and corresponding risk assessment, such as developing possible future reuse plans, assessing the potential effects or risks associated with future reuse plans, developing/reviewing dredging plans, or developing/reviewing dredging permit applications. An RI is not intended to be a dredging permit application. Activities (e.g. dredging) and responsibilities of the Port of Long Beach are not included in the draft RI report prepared by SWDIV.

Prior to dredging activities, other processes will be completed to address non-RI issues, such as: Environmental Impact Statements/Environmental Impact Reports (EISs/EIRs); Environmental Assessments (EAs) and associated Finding of No Significant Impact (FONSI); and the "Green Book" or "Evaluation of Dredged Material Proposed for Ocean Disposal", Testing Manual, Published by the U.S. EPA and the U.S. Army Corps of Engineers (EPA-503/8-91/001).

## **SPECIFIC RESPONSES**

1. The RI for Site 7 was conducted according to the requirements of analyzing a subtidal marine ecosystem. Because none of the other LBNC IR sites were marine systems, the approach and procedures for Site 7 were unique. The following summary is offered as a review of the investigative process of Site 7 at LBNC, which includes documentation on how the scope of work was defined:

### 1969 Industrial Waste Study

- Identified discharge of industrial wastewater into the West Basin
- Identified placement of industrial wastes, liquids and sludges into pits on the Navy Mole
- Identified use of solid waste and sandblast grit to enlarge the Navy Mole

### 1983 Initial Assessment Study (IAS)

- Identified 12 potentially contaminated sites (including Site 7)

- Assessed each of these 12 sites with regard to contamination characteristics, migration pathways, and potential receptors
- Concluded that none of the 12 sites posed a sufficient threat to human health or the environment to warrant a confirmation study
- Recommended various precautionary measures

#### 1989 RCRA Facility Assessment

- Identified and evaluated solid waste management units and other areas of concern at LBNC
- Conducted a records review, an evaluation of existing data, personnel interviews, and a visual site inspection to evaluate the potential for releases of hazardous constituents
- Concluded that a full priority pollutant analysis for sample points near the harbor discharge points be conducted, based on U.S. EPA Region IX review of the IAS
- Recommended further action at the 12 sites

#### 1991/1992 Site Inspection (SI)

- Collected and analyzed 15 sediment core samples
- Evaluated results of laboratory analyses with regard to contaminant releases via various pathways in accordance with U.S. EPA guidance
- Laboratory results indicated the presence of organic contaminants (PAHs) and several metals
- Recommended further investigation because of the limited number of samples collected

#### 1993 RI/FS Work Plan

- Reviewed existing data
- Developed a conceptual model representing site conditions and potential exposure pathways
- Performed a screening-level assessment to identify where risk-based or regulatory-based protectiveness criteria may have been exceeded. SI results indicated that measured concentrations of chemicals in sediments exceeded sediment screening-level criteria
- Concluded that further evaluation of sediment toxicity would be required to ascertain the need for sediment remediation. The approach to characterize risk associated with contaminated sediments was based on evaluation of sediment analytical data, bioassay results, and tissue bioaccumulation test results

#### 1993 Sampling and Analysis Plan (SAP)

- Provided guidelines on sampling strategy, laboratory analyses, and data usage
- Provided procedures for sample handling and QA/QC
- Included a Quality Assurance Project Plan
- Included a Health and Safety Plan

#### 1994 Final Risk Assessment Work Plan

- Described methodologies for use in assessing human health and ecological risk posed by exposure to chemicals present in West Basin sediments

#### 1994 Final Fish Sampling and Analysis Plan

- Described procedures to be used in selecting fish sampling locations, collecting fish, and measuring concentrations of selected chemicals in fish tissue
- Provided the results of a creel census conducted at the LBNC
- Provided a list of fish species targeted for collection

#### 1994 Final Implementation of Final RI/FS Sampling and Analysis Plan - Technical Memorandum No. 4

- Provided clarification and revisions to the strategies for sampling and characterizing West Basin sediments as initially described in the SAP
- Provided additional details of the rationale on implementing key elements of the SAP related to sediments, such as characterization of indigenous benthic infaunal communities and delineation of reference stations
- Defined “triggering” process for water column analysis and benthic community analysis
- Added pore water (interstitial water) bioassay tests to sediment toxicity scope of work
- Replaced bioaccumulation tests of benthic infaunal organism with bioaccumulation tests of laboratory clams
- Added analyses of total organic carbon and grain size to surface sediment scope of work
- Modified QA/QC requirements for sediment analyses because of specialized methods

#### 1994 Final Fish Sampling and Analysis Plan - Technical Memorandum No. 5

- Significantly expanded the fish collection, analysis, and data usage strategies for this RI, thereby replacing in its entirety the Final Fish Sampling and Analysis Plan
- Identified the number of fish required, representative species of fish targeted for collection, and types of samples to be obtained (whole body, fillet, and bile), and analyzed each species to support both human health and ecological risk assessments
- Identified sample collection locations within the West Basin and at project reference areas, target analytes, and laboratory analytical methods
- Described specific fish collection and sample handling methods

#### 1995 Final Addendum to RI/FS Work Plan and Risk Assessment Work Plan (RAWP)

- Described how the sediment and tissue data acquired during the course of this RI would be evaluated and used to support the assessment of ecological risk (focused on sediments) and human health risk (focused on fish)
- Described the statistical methods for use in evaluating physical, chemical, and biological data
- Described the preponderance-of-evidence approach for use in toxicity evaluation
- Described the evaluation matrix developed for characterization of ecological risk

1995 Interim Status of Remedial Investigation at Site 7 (West Basin) - Technical Memorandum No. 6

- Provided a review of previous investigations and attempted to identify sources of discharge with respect to areas of contamination within the West Basin
- Discussed the rationale of the RI with respect to the design of sample locations and data analysis plan
- Described the field activities and procedures including sampling conducted as part of the RI
- Summarized the laboratory analytical methods and test results
- Outlined the work in progress consisting of chemical and biological data analysis, and ecological and human health risk assessment
- Technical Memorandum No. 6 was presented to the RAB on 20 June 1995. The Draft RI Report essentially contains the same information presented in Technical Memorandum No. 6, and provides data evaluation and conclusions.

2. The strategy for the development of the Site 7 RI Work Plan was to identify areas of concern within a site based on similar mechanisms of potential contamination, similar types of contamination, or similar remedial actions. A sampling and analysis plan was then prepared to adequately characterize each of these similar areas.

Based on the conceptual model of the West Basin, Site 7 was initially divided into two main areas of concern: the general harbor area where sediments are subject to the effects of vessel operations and tidal and wind-driven currents; and depositional areas such as under piers or where sediments are probably not affected by vessel operations or tidal and wind-driven currents. The depositional areas were subdivided into areas of similar operations which were expected to have similar types and concentrations of contaminants:

- LBNSY pier area: Sediments under Piers 1, 2, and 3 experience less disturbance from shipping traffic and are next to the LBNSY, where higher levels of contamination have been observed.
- NAVSTA pier area: Sediments under Piers 6, 7, 9, 15, and 16 experience more disturbance from traffic and are away from the LBNSY.
- Fuel pier area: Sediments under Pier 12 (Fuel Pier), since it is a newer pier and may have significantly less sediment accumulation.
- Northwest area: The northwest harbor area, where there is little shipping disturbance.
- Marina area: The marina area, where the smaller crafts are likely to cause less sediment disturbance.

A minimum of three surface sediment samples were collected in each depositional area. Three samples were considered the minimum number of samples because three samples provide an 85 percent confidence that the highest concentration detected would be greater

than the median value for that area. This sampling frequency provides statistical confidence that a contaminant median concentration is represented by a suitably conservative estimate. At least one sample was collected from beneath each pier within the noted areas to provide information for characterizing each pier, because sediments are expected to be similar beneath individual piers. The NAVSTA pier area and the marina area were represented by five samples, which provides a 95 percent confidence that the highest concentration detected would be greater than the median value for that area. Because of the larger size of the general harbor area, 26 samples were collected along a 300 meter grid.

The overall sampling plan produced eleven surface sediment samples from beneath piers and 34 samples from the basin stations -- 45 total surface sediment samples from the West Basin.

The origin (starting point) of a sampling grid was randomly located for each of the sampling areas (general harbor area and five depositional areas). Pier sampling points were selected by a random distance from the base of the pier.

Statistical testing was conducted among areas within the West Basin exhibiting similar physical and chemical properties using an analysis of variance.

3. To conduct the ecological and human health risk assessments for the West Basin, the West Basin analytical results were compared to results of analyses of project reference stations (sampling sites not located within the West Basin). The purpose of the reference stations was to provide an estimate of the general sediment quality conditions existing in the area of the Los Angeles / Long Beach Harbors that are not expected to have been affected by LBNC activities. Results of sediment analyses of the West Basin samples were not compared to theoretical quality criteria because that comparison would be too conservative in light of the conditions within Los Angeles / Long Beach Harbors, which have contained industrial port facilities for more than 100 years. A great part of the drainage of the Los Angeles Basin is released in or near the Los Angeles / Long Beach Harbors (e.g., Cerritos Channel and Los Angeles River). The potential ubiquitous effects of this terrestrial runoff and harbor-wide practices must be removed from the set of effects noted within the West Basin. Therefore, reference stations were selected within the Los Angeles / Long Beach Harbors area at sites expected to be unaffected by LBNC activities and minimally affected by the ubiquitous effects of terrestrial runoff and miscellaneous harbor conditions.

Potential reference stations were proposed in the RI/FS Work Plan from recommendations by National Oceanic & Atmospheric Administration (NOAA) and the State of California Department of Toxic Substances Control (DTSC), Regional Water Quality Control Board, Los Angeles Region (LARWQCB) and U.S. EPA, based on existing stations showing favorable historical results (almost no sediment toxicity). Several sampling stations from the State Water Resources Control Board/Regional Water Quality Control Board Bay Protection and Toxics Cleanup Program were evaluated for use as project

reference stations. Seven sampling stations from three reference sites (abbreviated as 40010, 40018, 40032) in San Pedro Bay (Los Angeles / Long Beach Harbors area) were selected as project reference stations. The reference stations are identified as 40010.1, 40010.2, 40010.3, 40018.1, 40018.2, 40018.3, and 40032.1. Stations 40010.1, 40010.2, and 40010.3 are located near Cabrillo Beach. Stations 40018.1, 40018.2, 40018.3 are located in the eastern portion of outer Long Beach Harbor, within the breakwater and east of Queen's Gate breakwater opening. Station 40032.1 is located in the outer Los Angeles Harbor near Angeles Gate breakwater opening. Analytical results of the reference station sediment samples indicate low contaminant concentrations and low sediment toxicity (Tables 4-6 and 4-12 of the Draft RI Report).

Oversight agencies commented on proposed reference station locations both in progress meetings and in telephone conferences. Recommendations from the agencies for Stations 40010.1, 40010.2, 40010.3, 40018.1, 40018.2, and 40018.3 are available in written correspondence pertaining to TM 4 (BNI 1994). During field investigation, as recommended by the Navy and approved by the technical oversight agencies, a reference station No. 40032.1 was added. A summary of these comments are presented in the attachments to TM 4 (available as Appendix A of the Draft RI Report).

4. Deep sediment in the depositional areas, which were developed in CLEAN I documents based on sedimentation patterns, were sampled to characterize contaminant concentrations. Because the sediment conditions within an individual depositional area was expected to be fairly homogeneous, one subsurface sediment sample was collected from each of the depositional areas (LBNSY pier area, NAVSTA pier area, fuel pier area, northwest area, marina area). Three subsurface sediment samples were collected from the general harbor area. See also Response No. 7

The overall sample plan provided three subsurface sediment samples from sediment beneath piers and five subsurface sediment samples from basin (non pier) locations. The depositional area deep sediments were tested to five meters depth, while the general harbor area was tested to two meters depth. The five meter depth for subsurface cores was selected on the basis of the need for subsurface information to evaluate remedial alternatives if remedial action were required. All deep sediment samples were tested for the same list of chemical analyses as the surface sediment samples, which was developed in CLEAN I documents from investigations of known or suspected discharges to the West Basin. The deep sediment sample locations were randomly selected to avoid bias..

5. Dredging activities were not part of the Remedial Investigation. Consequently, dredge plans or dredge permits are not included in the Site 7 Draft RI Report.

6. California Department of Fish and Game has been involved with the Site 7 RI as early as November 1993. Telephone conference calls were set up by BNI for 15 November 1993 and 22 November 1993 to discuss the Fish Sampling and Analysis Plan with the technical oversight agencies, including Mr. Dick Nitsos of California Department of Fish and Game. Ms. Carol Roberts of US Fish & Wildlife Service had attended RI/FS

monthly progress meetings as early as 22 March 1994, during the planning stages of this project, and prior to conducting any field work. Since then, the California Department of Fish and Game (currently represented by Mr. Michael Martin) and the US Fish & Wildlife Service (continually represented by Ms. Carol Roberts) have been regularly invited to participate, and have been present at progress meetings as well as technical workshops, as well as reviewing technical documents for Site 7 RI.

See also Response No. 1.

7. The subsurface sediment data were not used in the ecological or human health risk assessment because the surface sediment provides a better description of the contaminant concentrations to which marine organisms are exposed. However, the results of the subsurface sediment sample analyses provide information that can be used to evaluate possible adverse effects associated with any proposed remedial action involving dredging. Correlation of surface and subsurface data was not necessary for purposes of the ecological risk assessment.

Additional sampling has not been recommended because the existing data have provided an adequate basis for meeting the objectives of the RI. Also, during field investigation, the visual observations did not justify the need to do additional sampling.

Cross section isopleths were not prepared for subsurface data because of the incongruous nature of the sediment stratification.

See also Response No. 4 and the General Response.

8. Sediment resuspension analyses are considered a component of water column conditions. The IR Site 7 planning documents (1993 CLEAN I Work Plan, 1994 Technical Memorandum No. 4 [TM 4], and 1995 Risk Assessment Work Plan [RAWP]) describe the mechanisms for "triggering" West Basin water column analyses. Specifically, the evaluation matrix shown in Table 3-1 of the RAWP shows all of the potential combinations of data results presented in four categories (sediment chemistry, bioassay, benthic community analysis, and bioaccumulation) that define the need to further characterize the water column. Such further characterizations could include evaluations of West Basin sediment transport, including an assessment of the potential for and the impact of sediment disturbance (CLEAN I Work Plan), the calculation of water column chemical concentrations following such disturbance (CLEAN I Work Plan), and *in situ* bioaccumulation testing using caged mussels (TM 4). However, based on the West Basin RI results and the evaluation of the results using the sediment evaluation matrix as a tool for decision-making, no area within the West Basin contained sediments in need of further characterization, such as water column studies.

9. The list of methods used for the analyses of the West Basin samples were initially presented in the RI/FS Sampling and Analysis Plan (JEG 1993). Based on comments received from oversight agencies, the list of analytical methods was modified to more

effectively meet the objectives of the RI and presented in TM 4 (BNI 1994a) and TM 5 (BNI 1994b). A description of field and laboratory methods are presented in Section 3 of the Draft RI Report. In addition, see Response No. 15.

10. The overall sampling program was designed to collect sediment, benthic invertebrate, and fish tissue and bile samples from the West Basin and from the reference stations. The program was designed on the basis of using statistical methods to enhance the usability and effectiveness of data. To accomplish these objectives, three major elements of statistical representativeness were taken into consideration: randomness, adequate representation of reference conditions, and sample replication.

Replication in an environmental sampling program provides for a measure of variability inherent in physical and biological systems. Therefore, although West Basin stations were generally sampled only once for chemical and biological measurements, two field measures were implemented to assess variability between West Basin stations and reference stations. These measures included: 1) replicating, in triplicate, all chemical measurements at one of the West Basin stations (Station 1); and 2) replicating, in triplicate, chemical measurements at Reference Station 40010.3. The more intensive sampling, conducted at Station 1 and at the reference location referred to above, provided greater insight into the natural variability of the chemistry in sediments at these sampling stations.

Additional replication of West Basin sediment data was achieved by treating individual West Basin stations as field replicates within each sediment evaluation zone (SEZ). The SEZs are areas within the West Basin exhibiting similar physical and chemical properties. The evaluation of data by SEZs implements replication as an element of statistical representativeness. Detailed discussions of SEZs are presented in Section 4.6 of this Draft RI Report.

Also refer to Response Nos 2, 3, 4, and 7.

11. See Response Nos. 4, 7, and 1.

12. The objectives of the Site 7 RI include ecological risk assessment of the surface sediments, characterization of deep sediments in the depositional areas, and human health risk associated with the consumption of fish caught in the West Basin. Calculation of a total burden (total mass) of contaminants is not required for the risk assessment process. Exposure concentrations and the ecological or human health effects of those concentrations are the critical elements of risk assessment. Although a single integrated risk estimate can be calculated for an individual species occurring in the West Basin (e.g. hazard index), no procedures of which we are aware are available to calculate such an integrated risk estimate for an entire marine environment.

13. See Response to No. 1.

14. See Response to No. 6 and the General Response.

15. MEC was awarded Subcontract No. 22214-026-158-TSC by Bechtel National, Inc. (BNI) on March 14, 1994 with a period of performance extending through December 1995. The award was a result of a competitive procurement in accordance with Federal Acquisition Regulation (FAR) Part 15. The field of participants were selected from letters of interest submitted in response to an announcement placed in the Commerce Business Daily on October 18, 1993. There were fourteen (14) prospective offerors. Proposals were received from five (5) offerors. MEC was selected based on the RFP award criteria of "lowest priced technically acceptable offeror". Note that Coast to Coast submitted a separate proposal to be considered as a prime. Although they were rated by the chemistry and toxicology group as being technically qualified, they received a poor rating based on their QA, and project management not having sufficient experience. MEC stated in its proposal that it had selected Coast to Coast for use in the chemistry analysis and MEC would be responsible for the overall management and QA/QC performed, thereby removing potential concerns related to Coast to Coast.

16. Certifications applicable to Coast to Coast and PACE are attached.

17. See Response Nos. 15, 16, and 18.

18. The Environmental Laboratory Accreditation Program (ELAP) certification provided by the California Department of Health Services (DHS) can be transferred in cases where there is a change of ownership of a laboratory facility (Reference responses 16 and 20). The ELAP certification transfer can be approved on an interim basis by the DHS under the California Code of Regulations, Section 64827. In cases of interim approval, use of the original ELAP certification through the expiration date will be granted upon successful completion of a site visit and performance evaluation sample(s) in accordance with Sections 64807 and 64809, respectively. (See Certifications attached.)

19. EPA Contract Laboratory Program (CLP) analytical methods were not required for the analytical work performed by this laboratory in support of this CTO activity. The methods employed by the laboratory were within the agency approved project scope and included EPA SW-846 methods for standard analyses and selected methods to achieve low detection limits for nonstandard matrices (e.g. tissues). Selected method protocols were largely from the National oceanic and Atmospheric Administration (NOAA) Status and Trends Program.

20. The takeover of Coast to Coast by PACE occurred well into contract performance. On August 12, 1994, PACE notified DHS of the takeover and DHS responded on October 21, 1994, allowing PACE to continue to perform analyses under the Coast to Coast certification. MEC did contact the Contract Task Order Leader (CTOL) in July of 1994 to advise of the takeover and their intent to continue with PACE.

21. MEC selected their lower tier subcontractors in establishing the analytical laboratory to support the subcontract with BNI. However, it seems apparent that the lab

has used one or more commonly used EPA methods, based on MEC's selection of Coast to Coast to perform the lab work. Also see Response to No. 15.

22. The response to this question assumes that the RAB member is referring to archived or "unusable" sample material and data. Laboratory standard operating procedures (SOPs) address QA/QC procedures for all aspects of laboratory analysis, including the disposition of contaminated reagents, affected results, and sample reanalyzes. Laboratory SOPs and all aspects of operation are subject to the audit process for DHS certification, as well as all other routine audits performed internally or by outside agencies or client contractors.

We assume that the quotation in this item is based on informal discussions with people not associated with the laboratory and not on the results of a routine laboratory audit.

23. The approved work scope for this project did not involve sending split samples to an independent laboratory. This is not a routine requirement by the Navy Laboratory Quality Assurance Program as based upon the "Navy Installation Restoration Laboratory Quality Assurance Guide," Naval Facilities Engineering Service Center (NFESC), February 1996.

The laboratory would routinely assess method precision through laboratory duplicate analyses as matrix spike/matrix spike duplicates or matrix duplicates, and with laboratory control sample (LCS, or method blank spike) duplicates. This data would have been evaluated during the data validation process and the associated field sample data would have been qualified as appropriate to method-specific QC requirements.

The laboratory would routinely archive unused samples for a period of time generally specific to client requirements. The practical time limit for sample storage would be related to the regulatory sample holding time associated with the sample type (matrix) and the analytical method(s). The particular scope associated with this CTO required archiving of used and unused samples for a period of six (6) months after completion of the final lab report.

24. See Response Nos. 15, 16 and 18.

25. Based on the volatility of the analytical laboratory market, PACE has responded by streamlining its domestic business operations. PACE has corporate facilities in Minneapolis, Minnesota, and may be contacted through the BNI Contracts Department.

Samples collected are analyzed and then dispositioned in accordance with contract requirements between MEC and PACE. The BNI Chain of Custody (COC) is maintained in the BNI field reports held in Document Control and typically included in the RI report. The labs COC tracks the samples from delivery to the lab through final disposition and is typically maintained in the lab's controlled document system. Formal data validation was

performed on the analysis data by an independent company and the results are included in the RI report.

26. See General Response and Response Nos. 1, 6, and 16.

27. See Response Nos. 4 and 7.

28. See Responses Nos. 4 and 7.

29. A statement regarding silver concentration patterns will be added to the Executive Summary.

Surface sediment from seven basin stations and one pier station had concentrations of silver that exceeded the reference 95% upper predictive limit of 3 mg/kg: 10, 17, 22, 26, 27, 28, and 50 (Pier 3). These stations represent three distinct areas (shown on Figure 4-18 of the Draft RI Report) within West Basin having silver concentrations that exceed reference levels. The first area is represented by Station 10 and consists of the sediments in between Piers 6 and 7. The second area is represented by Station 26 and consists of the sediments near Pier 16, extending east to the Navy Mole. The third area is represented by Stations 17, 22, 27, 28, and 50 and consists of the sediments underneath Pier 3, in between Piers 2 and 3, 1 and 2, and E and 1, and sediments extending along Pier E.

Based on reviews of historical documents and Naval Complex personnel interviews conducted as part of this RI and previous investigations (e.g., 1983 Initial Assessment Study, 1989 RCRA Facility Assessment, 1992 Site Inspection), no sources of silver contamination, either land- or ship-based, have been identified for the West Basin. One reference to silver was found in the IAS, concerning the Quality Assurance Laboratory located in Building 129. The laboratory reportedly generated an estimated 300 gallons annually of hazardous wastes. X-ray developer and fixing solutions, and waste wet chemistry solutions were sent to the sanitary sewer. Silver, however, was removed from the developer and fixing solutions prior to sewer disposal.

30. Because tributyltin was not detected in surface sediments as part of either previous investigations (e.g., 1992 Site Investigation) or the current RI, and analytical detection limits were actually lower for the current RI than for previous studies, it was not deemed necessary to further investigate tributyltin in West Basin surface sediments. Tributyltin degrades over time to the less toxic monobutyltin and dibutyltin.

Although tributyltin was found in clam and California halibut fish tissue, there were no statistically significant differences between concentrations in West Basin samples and reference samples. The clams were not collected in the West Basin but are standard test organisms provided by the laboratory. In addition, clam tissue chemical concentrations appeared not to be dependent upon sediment chemical concentrations found in West Basin sediments based on statistical correlations, indicating that tributyltin in West Basin sediments is not particularly bioavailable. Also, the ranges of tributyltin concentrations in

West Basin California halibut are similar to concentrations found in fish collected from other areas of the Southern California Bight (Mearns et al. 1991). Therefore, concentrations of tributyltin in California halibut from the West Basin indicate no ecological concern at the population or community level.

Concentrations of tributyltin in West Basin whole body white croaker were statistically significantly higher than concentrations in reference whole body white croaker. However, West Basin white croaker tributyltin concentrations are similar to or less than concentrations found in fish collected from other areas of the Southern California Bight (Mearns et al. 1991). Furthermore, based on the high number of fish captured, there was no evidence of the elevated levels of tributyltin having any detrimental effects on the white croaker population in the West Basin. If white croaker had experienced adverse effects because of tributyltin concentrations, such effects would most likely have manifested in a reduced population within the West Basin (SWRCB 1988).

Mearns, A.J., M. Matta, G. Shigenaka, D. MacDonald, M. Buchman, H. Harris, J. Golas, and G. Lauenstein. 1991. "Contaminant Trends in the Southern California Bight: Inventory and Assessment." NOAA Technical Memorandum NOS ORCA 62.

State Water Resources Control Board (SWRCB). 1988. "Tributyltin: A California Water Quality Assessment." Division of Water Quality. Report No. 88-12. 180 pp.

31. See General Response.

32. In response to your concern about the document review protocol, the RAB meeting of 20 June 1995 included a discussion about the RAB document review protocol - presented by Community Co-Chair Donna DiRocco. At that time the RAB indicated a concern about having to review multi-volume documents. At the 16 January 1996 RAB meeting, the RAB again discussed review options to cut down the effort of having to review these extensive documents. The Navy agreed to provide the RAB with a Workshop and open forum to discuss each of the documents submitted for their review. The RAB further stated that they did not want to receive another "7 volume" document for review. They requested, and the Navy agreed, to provide only the Executive Summary of each environmental document for review. The RAB agreed that if they wanted further detail, they would visit the Information Repository (Long Beach Public Library) or ask the Navy to provide them a copy of the entire document for review. For this reason, the Navy only provided a copy of the site 7 draft RI Executive Summary to each RAB member for their review (Chapters 1 and 7 were also provided by the Navy as additional information to assist the RAB in their review).

33. See Responses 28, 29, 30, and 31.

34. Based on previous (e.g., 1983 IAS) and current source identification efforts, we were unable to find records of releases of radioactive material to the West Basin or

records of a plutonium-beryllium calibrator at LBNC. Therefore, a G-RAM survey was not performed.

The following information was excerpted from the IAS (1983):

- Cathode ray tubes, containing low-level radiation, were disposed of in the trash, possibly in the Mole, although most likely they were hauled out of the Naval Complex by contract.
- Based on an examination of LBNC facilities operations, no sources or locations of radioluminescent dial or gauge painting were found.
- According to the Naval Regional Medical Center, no radioactive materials have been used or generated there.
- Three locations were identified in the Naval Shipyard where radioactive materials are used but no wastes are generated: Non-destructive test equipment using enclosed radioactive sources, radioactive gauge calibration sources, and calibration sources used in the Quality Assurance Laboratory.
- Approximately 70 tons of sandblast grit was used in a test in 1972. This material reportedly contained small, virtually insignificant, amounts of radioactive thorium-132 and may have been disposed of within the Naval Complex.
- Old radioluminescent material in gauges or other instrumentation that are removed from shipboard during repairs and retrofitting may have been accumulated at a rate of one to two 55-gallon drums per year and disposed to the general trash from the early 1950s to the mid-1970s.
- In a reportedly one-time operation occurring around 1956 or 1957, low level radioactive wastes, generated by Naval facilities other than Long Beach, were handled by the LBNSY. These wastes were encased in concrete containers, and loaded onto Navy ships for disposal into the Pacific Ocean.
- No nuclear-powered ships have ever been stationed at the LBNC, but such ships have occasionally docked at the Naval Station. However, there is no record of loading or storage of nuclear materials in association with these dockings.

35. See Response No 2.

36. Figure 2-5 within the Draft RI Report represents benthic biological conditions within West Basin based on data collected in 1971 and reported by Reish (1980). The southern portion of West Basin was termed "semi-healthy" by Reish. Sediments within the northern portion (including the Shipyard area and most of the piers) supported benthic invertebrates typically found in polluted areas (e.g., *Capitella capitata*) and had little to no dissolved oxygen. Thus, the northern half of West Basin was termed by Reish as "Polluted Zone".

It is important to review Figure 2-6 within the Draft RI Report along with Figure 2-5, because Figure 2-6 represents benthic biological conditions within West Basin based on data collected in 1978 and reported by Reish (1980). Reish (1980) found that in 1978, sediments within the West Basin supported a healthy community of benthic invertebrates,

and thus applied the term "Healthy Zone". Figures 2-5 and 2-6 together demonstrate the improvement in the West Basin benthic biological habitat from 1971 to 1978. This improvement can be attributed to the pollution abatement program implemented at Long Beach Naval Complex during the mid-1970's. Benthic conditions of this post-pollution abatement period are considered a more recent basis for defining baseline conditions and evaluating possible environmental changes within West Basin.

Reish, D.J., D.F. Soule, and J.D. Soule. 1980. The benthic biological conditions of Los Angeles-Long Beach Harbors: Results of 28 years of investigations and monitoring. *Helgolander Meeresunter.* 34:193-205.

37. See Response No. 34.

38. See Response Nos. 4 and 7.

39. See Response No. 34.

40. On 24 May 1995 the Department of Defense (DoD) requested public comment on a number of promising funding options for providing technical assistance to community members of a Technical Review Committee or Restoration Advisory Board (RAB). The DoD is considering three options for providing technical assistance to RAB members. The use of purchase orders is one option being considered along with independent technical assistance providers, and the Environmental Protection Agency's Technical Assistance Grant (TAG) and Technical Outreach Services to Communities (TOSC) program. The request for comments in the Federal Register did not authorize the use of purchase orders nor any of the other options discussed. The DoD has not selected any option at this time and therefore no vehicle for funding technical assistance is in place. The DoD is making every effort to complete this process and establish the means to provide technical and public participation assistance to RAB members. Until such time as a final rule is published there is no mechanism for funding technical assistance providers.

41. No response required

42. See Response No. 3.

43. See General Response.

44. Objectives of the IRP Site 7 RI were stated in the RI/FS Work Plan (CLEAN I Work Plan) and include: characterize ecological risk associated with the surface sediments, characterize the contaminant levels in deep sediments of depositional areas, and characterize human health risk associated with consumption of fish caught in the West Basin. The conclusions of the Site 7 RI are based on the existing state of the West Basin at the time of sample collection. Subsequent activities within the West Basin must be evaluated separately by those proposing such activities.

Ecological risk associated with the surface sediments was evaluated with three basic assessments (one chemical and two biological): bulk sediment contaminant concentrations, sediment toxicity bioassay tests, and benthic invertebrate community patterns. Bulk sediment contaminant concentrations were analyzed from samples of the upper 2 centimeters (0.8 inches) because this layer represents the most recently settled sediments, the sediments to which many benthic organisms are exposed, and the sediments to which the demersal (bottom dwelling) fish are exposed. Biological analyses, toxicity and benthic community analysis, were evaluated from samples of the upper 10 centimeters (4 inches) of sediments because this layer represents the biologically active zone (depth of activity for most burrowing organisms). Additionally, ecological risk to a predator species (marine mammal) was evaluated using chemical contaminant concentrations of fish caught in the West Basin.

To characterize the deep sediments of the depositional areas, core samples (to 5 meters depth) were analyzed for physical properties and chemical contaminant concentrations. The results of the deep sediment characterization would be used to evaluate possible adverse effects associated with any proposed remedial actions involving dredging. Subsurface sediment chemistry characterization reflects historical conditions and the depth/time relationship is a function of sediment deposition rates. Contaminants do not migrate down in sediment but can be buried by deposited sediment.

Human health risk associated with Site 7 was characterized by risk assessment studies of individuals consuming fish caught in the West Basin. The conceptual site model (CLEAN I Work Plan) identifies human exposure to contaminants existing in West Basin sediments as a result of consuming fish caught in the West Basin. Fish samples were collected from representative species found in the West Basin and analyzed for contaminant residues.

See also General Response.

45. No response required

STATE OF CALIFORNIA—HEALTH AND WELFARE AGENCY

## DEPARTMENT OF HEALTH SERVICES

2151 BERKELEY WAY  
BERKELEY, CA 94704-1011

(510) 540-2800

PETE WILSON, GOV

October 21, 1994

Mr. Steve A. Vanderboom  
Attention: Laboratory Director  
Pace Incorporated  
4765 Calle Quetzal  
Camarillo, CA 93012

Dear Mr. Vanderboom:

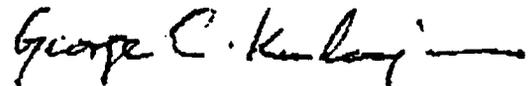
We have received your letter of August 1, 1994 notifying us of the transfer of ownership of Coast-to-Coast-Camarillo, Certificate Number 1598. We find that the information you have supplied with your correspondence is complete and acceptable. Under authority of Health and Safety Code, Section 1014(c), we grant you continued use of Certificate Number 1598 until August 31, 1995.

To continue as a California certified laboratory beyond August 31, 1995, you must seek a new certification. Please submit an application preferably six months in advance of the expiration date to assure continuity of certification.

An interim certification may be sought by sending a written request.

If you have any questions, please feel free to contact us at (510) 540-2800.

Sincerely,



George C. Kulasingam, Ph.D.  
Manager  
Environmental Laboratory  
Accreditation Program

STATE OF CALIFORNIA—HEALTH AND WELFARE AGENCY

PETE WILSON, Governor

## DEPARTMENT OF HEALTH SERVICES

2151 BERKELEY WAY  
BERKELEY, CA 94704-1011  
(510) 540-2800

February 23, 1993

Mr. Kurt Kline  
MEC Analytical Systems, Inc.  
428 Main Street, Suite 428  
Tiburon, CA 94920

CERTIFICATE NO.: 1860

Dear Mr. Kline:

This is to advise you that the laboratory named above has been certified/registered as an environmental testing laboratory pursuant to the provisions of the California Environmental Laboratory Improvement Act of 1988 (Health and Safety Code, Division 1, Part 2, Chapter 7.5, commencing with Section 1010).

The fields of testing for which this laboratory has been certified/registered under this Act are indicated in the enclosed "List of Approved Fields of Testing Analytes." Certification/Registration shall remain in effect until February 28, 1995, unless revoked. This certificate is subject to an annual fee as prescribed by Section 1017(a), Health and Safety Code, on the anniversary date of the certificate.

Please note that your laboratory is required to notify the Environmental Laboratory Accreditation Program of any major changes in the laboratory such as the transfer of ownership, laboratory director, change in location, or structural alterations which may affect adversely the quality of analyses (Section 1014(b), California Health & Safety Code).

Until the new regulations pertaining to environmental laboratories are adopted the existing regulations pertaining to drinking water and hazardous waste testing laboratories (California Code of Regulations, Title 22, Sections 64481-64499 and 67602-67606) will remain in effect to the extent that they are not superseded by the provisions of the Act.

Your continued cooperation is essential to establish a reputation for the high quality of the data produced by environmental laboratories certified by the State of California.

If you have additional questions, please contact Mr. William Ray at (510) 540-2800.

Sincerely,

George C. Kulasingham, Ph.D., Manager  
Environmental Laboratory  
Accreditation Program

Enclosure

STATE OF CALIFORNIA—HEALTH AND WELFARE AGENCY

PETE WILSON, Governor

## DEPARTMENT OF HEALTH SERVICES

2131 BERKELEY WAY  
BERKELEY, CA 94704-1011  
(510)540-2800

March 25, 1994

COPY

Mary Havlicek, Ph.D.  
Coast-to-Coast Analytical Services  
Southern California  
4765 Calle Quetzal  
Camarillo, CA 93012

Certificate No.: 1598

Dear Dr. Havlicek:

This is to advise you that the laboratory named above has been certified/ registered as an environmental testing laboratory pursuant to the provisions of the California Environmental Laboratory Improvement Act of 1988 (Health and Safety Code, Division 1, Part 2, Chapter 7.5, commencing with Section 1010).

The fields of testing for which this laboratory has been certified/registered under this Act are indicated in the enclosed "List of Approved Fields of Testing and Analytes." Certification/registration shall remain in effect until August 31, 1995 unless revoked. This certificate is subject to an annual fee as prescribed by Section 1017(a), Health and Safety Code, on the anniversary date of the certificate.

Please note that your laboratory is required to notify the Environmental Laboratory Accreditation Program of any major changes in the laboratory such as the transfer of ownership, change of laboratory director, change in location, or structural alterations which may affect adversely the quality of analyses (Section 1014(b), California Health & Safety Code).

Until the new regulations pertaining to environmental laboratories are adopted under the Act, the existing regulations pertaining to drinking water and hazardous waste testing laboratories (California Code of Regulations, Title 22, Sections 64481-64499 and 67440.1-67440.7) will remain in effect to the extent that they are not superseded by the provisions of the Act.

Your continued cooperation is essential in order to establish a reputation for the high quality of the data produced by environmental laboratories certified by the State of California.

If you have additional questions, please contact Mr. William Ray at (510) 540-2800.

Sincerely,

George C. Kulasingam, Ph.D., Manager  
Environmental Laboratory  
Accreditation Program

Enclosure

April 16, 1996

CALIFORNIA EARTH CORPS  
4927 Minturn Avenue  
Lakewood, CA 90712  
(310) 630-1491

Donna DiRocco, Community CoChair  
Restoration Advisory Board  
Long Beach Naval Shipyard, Bld 300

RE: IRP Site 7 Draft RI/FS

Dear Ms. DiRocco,

The summary review of the Draft Remedial Investigation of the West Basin sediments, IRP Site 7, presented by Omar Kadaster at the March 19 RAB Workshop, was contradictory to so much information that we have received over the years, and raised so many questions, many of which were voiced at that meeting, that we convened our technical team chaired by Dr Rimmon Fay to review CTO-0026.

1. Following our March 28 request, Dr Kadaster provided us with the entire Draft RI/FS. A cursory review of these documents raises far more serious questions. Until the validity of the study and the validity of the data on which the summary report in Volumes I & II was based have been confirmed, no measure of confidence in the conclusions can be reached. Our technical team cannot begin our review until the responses to these initial questions either provide such validation, or the location of supporting documents and individuals to provide validation. Dr. Fay states that they will still need the 90 days requested in our March 28 memo after the foundation documents can be located, to perform an adequate review of the RI/FS itself.

These questions involve:

- 1) the adequacy of the RI/FS Study Plan and Work Plan to define the strategy that will result in the collection of the right number of samples from the right locations in the right manner to provide the appropriate level of confidence in a conclusion that all of the priority toxins in the sediments that may pose a risk to the public or to fish, shellfish and wildlife, have been identified and a three dimensional distribution of the pollutants determined;
- 2) the adequacy of the Sampling Plan to define how the samples will be collected, who will do the work and how the performers will be selected. With very soft sediments, the exact manner in which the samples are collected can largely determine the validity of the results.
- 3) the adequacy of the Analysis Plan to define which tests will be run, how the samples will be handled, the qualifications and credibility of the laboratories performing the tests, and how they will be selected.

1.  
cont

California Earth Corps and, we believe the RAB members and the Public they represent, has relied upon the summaries of these documents to reassure us that this study was to be done in a manner that would yield credible and complete data that would support sound decisions. The questionability of the Draft RI/FS leads us to question the foundation documents themselves.

#### Study Plan and Work Plan

2.

What were the criteria used to determine the number of samples to be taken at each sampling station? What statistical model was proposed to be used? Were sufficient data contemplated to allow power testing to determine correlations between variables and with outside data?. (The resultant data base appears too small to allow any statistical analysis to determine correlations, for modeling or even for a comfortable level of confidence)

3.

What were the rationale and criteria for control sites? Why were controls selected within San Pedro Bay, and not outside the outer harbor? Did the Study Plan consider selection of primordial sediments for controls, instead of (highly) contaminated sites? (Resource agency literature has characterized sediments at the sites selected as among the most contaminated in the Pacific Rim; ordinarily, primordial sites are used for controls)

4.

Why were the areas under the piers not selected for deep core samples? (Since these are the areas known to have the highest levels of contamination, we would have expected most of the deep cores to be taken here)

5.

Would you please furnish us with dredging plans for the last five dredging projects within the West Basin, along with the 404 permits and permit applications? (Anecdotal reports suggest that the deep core sites selected are in the areas dredged and expected to have removed the contaminated sediments, leaving minimally contaminated cores)

6.

Does the Work Plan support the objectives of the Study Plan? Did the representatives of the U.S. Fish & Wildlife Service and of the California Department of Fish and Game, whose comments and approval are required for completion of the administrative record, sign off on the Plans? Did their comments indicate that the breadth and depth of the proposed RI/FS would be sufficient to allow correlation with the extensive data collected by these resource agencies? (Our records show their request for inclusion in the design and development of the study, but no indication that they were consulted or approved it) Were the Plans amended or changed after approval by the Technical Committee?

7. Were historical, construction and projected future physical sedimentation mechanics addressed in the Study Plan? Was the rate/time correlation with anecdotal history used to determine the optimal depth and location of deep cores? Were sufficient analyses at the separate depths in each core defined? Were concentration isopleths correlated with known sources of contamination? (Such isopleths are required to define the depth, location, & volumes of sediment to be remediated and the types of contaminant. Rates of future deposition must be predictable to determine the appropriate methods for prevention of future contamination to conform with EPA nondegradation policy) How will the Port assure compliance with non-degradation policy?

8. Were biological sediment churn rates and depth, e.g. conveyor feeders like Capitella, considered for measurement, as well as energetic storm motion and propeller perturbation impacts on sedimentation and toxin redistribution? Were reentry rates into the water column calculated? Are methods of quantifying and validating these mechanisms proposed and included into the Sampling Plan? (Substantial progress has been achieved in recent years in the improvement of quality of the water column; we expect this to be expressed in the absence of toxics in the surface sediments. We would also expect that construction and the above effects would resuspend toxics in the water column and hence into the fish, shellfish and wildlife, and on into human receptors) Where are these processes analyzed?

### Sampling Plan

9. Where are the methods of sample collection defined? (Where very soft sediments are concerned, careful underwater hand sampling is required to avoid disturbing and mixing the layering of the sediments. This requires experienced divers with substantial history in this type of study/sample collection. Power corers, automatic and grab samplers won't do) What were the criteria for selection of contractors?
10. Why were only 10% replicates taken? (Not enough to define the data spread at each site; without sufficient replicate samples, technique cannot be substantiated) Why were replicates not sent out for independent analyses?
11. Why didn't they collect most deep core samples under the piers, where the pollutant concentrations and volumes are known to be highest? How can the study determine correlations between deep core and surface samples without collecting deep core samples were most of the surface samples were taken?
12. How can the total burden of priority toxins in the West Basin be calculated, using the Sample Plan adopted? Where is it attempted? Isn't this the bottom line to prepare the Health Risk Assessment?

13. Why was "the sampling handled quite differently at site 7 than at the other sites" (Barnett, MEC) What changes were made to the Statement of Work after it was approved by the Technical Committee?

14. Was the methodology and Statement of Work approved by Cal DF&G and USF&WS? Were the cognizant oversight agencies, especially the environmental unit of the Corps of Engineers, consulted in the drafting and approve the required 404 permit for the Sampling work? Were the required permits, e.g. 404 permit, obtained as required? Were the permits noticed, heard, and commented on by the Agencies? (We are aware no one was paying much attention to these things, at least until it became apparent that there was substantial error in how the sample plan and work statement were defined, how the samples were taken, or how the samples were analyzed, or all of these. Only now does it become interesting whether due process was followed. Perhaps, if the Agencies had been consulted, mishaps that may substantially delay the ROD could have been avoided)

#### Analysis Plan

15. How was the Contract Laboratory selected? What were the criteria for contract award? Who made the contract award? How widely was the RFP circulated? Who or how many laboratories responded? Who checked the qualifications and statements of the respondents? Why was this "handled quite differently then the other sites"? (R Jordan, Bechtel) Why was MEC not allowed to chose the lab performer, as is the usual procedure? ("Coast-to-Coast was chosen for us; we had no say in the matter." Barnett, MEC)

16. Was Coast-to-Coast certified to perform the tests performed at the Camarillo laboratory? (CEC checks indicate the certs cited are for other labs, e.g. the Anaheim and San Luis Obispo labs.

17. Unfortunately, Coast-to-Coast is no longer available to answer any questions, as they are no longer in business, having been absorbed in a hostile takeover by PACE environmental laboratories.

18. Can certifications be transferred from on lab to another? From one company to another? From one location to another? (We believe not)

19. Did PACE, or Coast-to-Coast for that matter, have CLAP (Contract Laboratory Procedures similar to GLPs) in place at the time that they were doing contract work for CTO-0026? (It appears they did not)

20. Did Coast-to-Coast divulge and/or were the contracting officers, whoever they were, aware that a hostile takeover was underway at the time of submission of their proposal and execution of contract? Is there any requirement to divulge this information?

21. Was there any contract requirement that the contract laboratory have any experience in this type of analysis, or to have run the procedures, e.g. EPA Method 8270, required by the contract before? (Both C2C & PACE state "this is the first time we have analyzed sediments by EPA Method 8270". Coast-to-Coast was a reputable lab well known for air work, not wet chemical procedures. No one seems to know who PACE was.)
22. What is the criteria for discarding data and samples? (According to the other tenants and the property manager at the Camarillo facility where PACE was a subtenant, PACE "had chronic problems with contamination. E.g., TBT analysis, samples and data were discarded because Grignard reagents were contaminated with tin. No records were kept of what was analysed, what was archived or what was discarded)
23. Why was PACE not required to send splits to independent labs for verification/quality control? (This is a usual practice in other studies) Did they run duplicates (Splits) internally to verify their own variance? Did they archive the retained samples?
24. Unfortunately, PACE is not available either, having disappeared.  
(In an effort to track them down, CEC drove to the Camarillo address. Other tenants stated they disappeared in the middle of the night, taking everything that was not nailed down, leaving behind only a mess and unpaid bills. The other locations listed, like Camarillo, have their telephones busied out and cannot be reached, at least we can't find them. A sign on the door reads "Building owners are not responsible for the clean up of any hazardous waste left by the former occupant." The other offices of PACE nationwide disappeared the same night. The receptionist at the front desk of the office complex formerly occupied by PACE commented "Good luck finding them. We have been besieged by bill collectors looking for them."
25. Is there any way to find PACE principles, technicians or officers to answer any of these questions? How can the samples collected be recovered? How can the chain of custody be maintained in the face of these circumstances? Who is available with direct knowledge to verify the validity of the data reported?

4/16/96

-6-

SUMMARY

There appears to have been a rash of suspended and decertified laboratories doing Superfund and BRAC work recently; five in the past year; most recently National Environmental Testing of Santa Rosa. PACE and it's predecessor seem poised to join the list.

26.

In some cases, individuals or data or samples have been found to salvage part of the BRAC/Superfund/CERCLA plan. Others have had to start the entire process all over, at substantial loss of time and money.

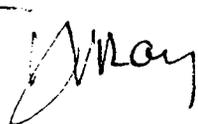
In any event, CEC calls for an immediate, in depth, independent fact finding investigation. We also recommend that those Agencies, like the Calif. Department of Fish and Game, who have first hand acquaintance with the site, who are most knowledgeable about marine sediment sample acquisition and analysis, who, despite written request to be consulted, have not had any part in the process, be a part of the investigation and participate in the preparation of a Project Recovery Plan.

Until we have been provided reliable data on which a credible RI/FS has been based, CEC sees no point further evaluation of the Draft RI/FS and therefore we withdraw our request for a 90 day extension.

We do have substantial comments on the subject volumes which are irrelevant in light of the above, but may help in the preparation of a replacement RI/FS.

We are available to answer any questions that you may have, and request that we be kept informed of your investigations and response to our questions.

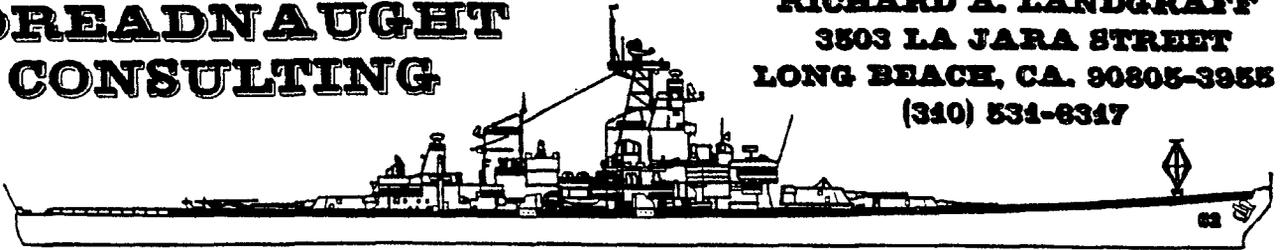
Very truly yours,



Don May, President  
California Earth Corps

# DREADNAUGHT CONSULTING

RICHARD A. LANDGRAFF  
3503 LA JARA STREET  
LONG BEACH, CA. 90805-3955  
(310) 531-8317



8 April 1996

## REVIEW OF RI FOR SITE 7 (CTO-0026)

27.

Volumes 1 and 2 of CTO-0026 of the Remedial Investigation (RI) report was more informative than just the Executive Summary and Section 7 sent previously. Most of the information that the layman wishes to know is in this one binder with appropriate maps and charts correlating with the text. However, these two volumes are still just a condensation of all the data gathered that are contained in the other five volumes. Therefore, this reviewer also looked at the other volumes at the Long Beach Public Library for more detailed findings of the subsurface corings and the mysterious lack of Tributyltin.

As I indicated at the March 19th meeting, I am concerned that the mere 4 inch depth of the surface samples would not give an accurate picture of what is really making up the bottom of the West Basin. Mr. Kadaster said that deeper samplings up to five meters in depth were taken but he did not state how many and where they were located.

28.

1. CTO-0026 shows that only eight subsurface corings were drilled with four of them basically in the middle of the Basin rather than alongside or under the piers that experienced the heaviest industrial activities. Of the nine industrial type piers at the LBNC, subsurface corings were done only at three (piers 2, 12 & 15) with a fourth only close to a pier (pier 9). However, no corings were done at the highest concentrations of contaminants between piers 2 and 3 or between piers 6 and 7.

*As analytical data was beginning to show that concentrations from surface samplings were becoming apparently high around pier 3 (sta 17) and between piers 6 & 7 (sta 10), why were subsurface corings not ordered in those areas in addition to the original eight?*

2. Volume VII, Appendix Q of the subsurface borehole logs shows that at station 51 (pier 2) petroleum sludge was not evident in the surface silt but was detected from just below the surface sample depths (4 inches) to a depth of 4.6 meters (15 feet).

*Upon discovery of petroleum sludge at these depths, why were no other pierside subsurface corings scheduled, particularly at stations 22, 17 and 10?*

29.

3. Volume 1, section 4, page 4-17 notes high concentrations of silver around pier 16 (possibly due to photo lab discharges from Tenders berthed there) but does not mention the silver concentrations shown in Figure 4-18 between piers 6 & 7 (probably from X-Ray lab discharges from hospital ships HAVEN and REPOSE). On the other hand, page iii of the Executive Summary states that there is no recognizable pattern of silver though figure 4-18 clearly shows patterns around piers of the heaviest ship repair activities and ship tender berthing.

*Will a comment on the silver concentrations between piers 6 & 7 be added to correlate with Figure 4-18 and will the Executive Summary be corrected to include possible sources of silver concentrations as patterned after ship repair activities at piers E and 1, tender berthing at pier 16 and hospital ship berthing at piers 6 and 7?*

30.

4. Volume 1, section 4, page 4-18 notes that no Tributyltin was found in any of the samples. Tributyltin Fluoride was impregnated in the rubber sheeting of Sonar domes and various other underwater items of ships as an anti-fouling agent. If it worked as advertised, it is surprising that it was not found in the remains of marine fouling organisms (i.e. barnacles) that died from it. Some ships came into the harbor with shredding of the rubber caused by surface debris being struck by the ship and by the "Megamouth" Shark (a previously unknown species until it developed a taste for Tributyltin Fluoride). The lacerations in the rubber would be prone to releasing Tributyltin Fluoride more so than the undamaged surfaces.

Volume VII, Appendix S shows a 100% frequency of detection of Tributyltin in every sample of Clams, Halibut and White Croaker yet 0% in surface silt samplings.

*Knowing that Tributyltin Fluoride was used as an anti-fouling agent on ships and it was detected in every sample of Clams (a non-migratory creature), Halibut and White Croaker, why were there not any further investigations and samplings done to find out where the sea life was ingesting the chemical?*

31.

5. The last paragraph of the Executive Summary, Conclusions and Recommendations, and Section 7.3, Recommendations, do not recommend any further action in the West Basin. Section 7.3 goes further with only the implication that removal or construction of piers "---- could result in an ecological risk." Just the maps in volume 2 showing obviously high levels of various contaminants does not appear to support the recommendation. As the RI reads now, there is no requirement for either the Navy or the Port of Long Beach to take any remedial actions or institute precautionary procedures now or in the future.

31.  
cont

Volume III, Appendix A, Section 3.2, page 5 defines "could possibly" (i.e. "could") as synonymous with "might" and at the lowest end of authority ("must", "should", "may", "can" and "might"). Only the most naive would disregard the potential hazards of over fifty years of industrial use of an almost land locked basin. Pier and camel removals will bring up every hazardous substance identified to date and many others overlooked or disregarded. If the pier arrangement of the West Basin was never going to be altered, then the recommendation of no remedial action may have merit.

*Since the Port of Long Beach has firm plans for major pier removals, the recommendations must outline remedial actions and precautionary measures to be taken prior to and during the removals of piers 6, 7 and 9 and any dredging between or alongside piers E, 1, 2, 3 and 16.*

32.

In summary, though it was agreed that only the Executive Summary with Conclusions and Recommendations would be offered first (in the hope that it would be concise enough to by-pass the review of the longer full set of volumes), this RAB did not agree that only that small part of the RI report would qualify it for voting on the entire report. This reviewer has found that it provides insufficient information to warrant a qualifying vote. Volumes 1 and 2 provide much more meaningful information that may qualify it for a vote by less technical oriented persons, but even those two volumes overlook or disregard certain important pieces of data contained in the other five volumes.

33.

On just the five items addressed above, the RI:

Fails to recognize an obvious pattern of silver concentrations, thus leaving a reviewer to wonder what other patterns were overlooked-

Failed to bore additional subsurface cores in areas where even the surface samples were showing high levels of contamination between piers 2 & 3 and between piers 6 & 7-

Failed to bore additional subsurface cores to investigate the spread and pattern of deep petroleum sludge after discovery at pier 2-

Failed to investigate the source of Tributyltin after finding it in every fish and clam taken for analysis-

Fails to be assertive in recommending any remedial actions or precautionary procedures to be employed prior to and during pier and camel piling removals.

**COMMENTS ON DRAFT REMEDIAL INVESTIGATION (RI) REPORT INSTALLATION RESTORATION PROGRAM  
FOR SITE 7 NAVAL STATION LONG BEACH, LONG BEACH, CALIFORNIA CTO-0026.**

by Karl A. Tiedemann

**Volume I**

34. P. i. - "These documents indicate that most of the sources of discharge entering the West Basin are historical, whereas currently identifiable sources are generally under permit." If this is the case, then why hasn't a general- radioactive materials (G-RAM) survey been done under and around piers where ships were tied up? Historically, the United States Navy used Radium paint on luminescent devices without pollution control permits from the 1930s well into the mid-1950s.

35. P. ii. - Why were more samples collected from basin stations than pier stations where contamination should be the worst?

**Volume II**

36. Figure 2-5 shows 5 zones:

- Healthy Zone
- Semi-Healthy Zone I
- Semi-Healthy Zone II
- Polluted Zone
- Very Polluted Zone

One half of the West Basin, which includes the part to be dredged, is in the Polluted Zone! Why is it called the Polluted Zone?

37. Figure 2-8 lists past discharges. However, I don't see Radium <sup>226</sup> which was used in electron tubes, electronic devices, analytical devices and ionization devices as well as the main ingredient in luminescent paint for luminescent devices. As a matter of fact, it was customary to pour radium paint and residue down the sink. Has a G-RAM survey been done at the seven locations on this map where past discharges include paint residue?

38. Figure 3-2 shows seven subsurface sediment sampling locations. Only two of these are in the Polluted Zone of the West Basin. One is a basin station sample. The other is a pier station sample from under the end of pier two (the longest pier on the north of the West Basin), located between Drydocks one and two, where the most water circulation in the West Basin is prevalent. The remainder of the subsurface sediment samples were collected from basin and pier locations in the Semi-Healthy Zone.

**Questions**

39. At any time during and after WWII was there a Radium Dial painting facility (or any similar facility) housed at the Long Beach Naval Complex? If so, where? What pier? What building? How was it decontaminated and dismantled - and when? *Note: Prior to 1972, the use of radium in paint was widespread throughout the Department of Defense (DOD) for visual acuity under low-light conditions.*

Was a plutonium-beryllium calibrator ever used by any NAVY calibration laboratory at Long Beach Naval Complex?

## Conclusions and Recommendations

39.  
cont

I conclude that adequate subsurface sediment sampling of the sections of Site 7 that seemingly are most contaminated has not been done. I also conclude that a G-RAM survey has not been done. If the Long Beach Naval Complex had maintained and home-ported luxury cruise liners for the past 50 years I would be less concerned about contaminated sediment than I am. However, the Long Beach Naval Complex home-ported and maintained United States Navy ships of war. Some of these ships were nuclear-powered and all had (at the very least) luminescent devices aboard.

My recommendation is that the entire process of subsurface sediment collecting and analysis be revisited and that the new testing include analysis for the following additional materials:

$^{228}\text{Ra}$  - used in luminescent devices, electron tubes, electronic devices, analytical devices and ionization devices and has a half-life of 1,620 years. (*Ra = Radium*)

$^{232}\text{Th}$  - found in Tungsten Inert Gas Welding Rod Grinding Debris and Thoriated Glass and has a half-life of 13.9 billion years. (*Th = Thorium*)

$^{238}\text{U}$  - used in munitions, radiography collimators and shields and has a half-life of 4.51 billion years. (*U = Uranium*)

$^{244}\text{Pu}$  - used in plutonium-beryllium calibrators and has a half-life of 76 million years. (*Pu = Plutonium*)

There are other radioactive materials that could be detected in a G-RAM survey. However, their half-lives are less than forty years and should have dissipated since regulation set in, provided that the regulations have been followed since 1954. *G-RAM materials such as Promethium, which has a short half-life, create "daughter" products which are also radio active.*

40.

Funding for these additional tests can be provided through purchase orders (vouchers) of up to \$25,000 to hire assistance providers selected by the community members of the RAB, as set forth in DOD's 24 May 1995 Federal Register notice.

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April 16, 1996

Donna DiRocco  
Community Co-Chair  
Restoration Advisory Board  
Naval Station Long Beach

RE: Draft RI Report for Site 7

Dear Ms. DiRocco:

41.

Given the uncertainty of an extension for public comment as we convene tonight's meeting, I am submitting a brief summary of my concerns based on the Executive Summary of the above-referenced report. If additional time for comment is available and preliminary responses to these concerns seem to dictate a need for it, I will visit the document repository to review the seven binders of supporting documentation and prepare more detailed remarks. In the meantime, the technical oversight agencies, Bechtel and the Navy can begin their assessment of what appears to be significant defects in the evaluation of Site 7.

As you know, I have the utmost respect for the Navy representatives and agency personnel that have supported the RAB process over the last two years. They are clearly loyal to the spirit of the public review process and have contributed greatly to our dissemination of a very complex set of issues. I also recognize the urgency of expediting the cleanup and transfer in order that the local redevelopment authority, (ie; the City of Long Beach) can take ownership as soon as possible. It is also important that we make an attempt to balance our scrutiny, and the requirements of law, with the potential cost to taxpayers.

Nevertheless, I found the RI Report to have significant and numerous defects, most significant of which is a very superficial evaluation of the harbor sediments that appears to have been misdirected toward laboratory analysis of transient sealife, rather than a meaningful study of the deep harbor sediments. My basic questions concern the following (report references in bold):

**Reference Station Data (page iii)**

42.

Were seven reference stations selected, or was it three? Omer Kadaster's presentation at the March 19<sup>th</sup> meeting indicated three stations were selected. Is three adequate, and by what authority?

How meaningful is it to compare harbor sediments in Site 7 to other locations within the Los Angeles/Long Beach harbor? I found it particularly unsettling to see the mouth of the Los Cerritos channel selected as a control site, since it is reputed to be among the most heavily

42.  
cont

polluted in the area. All of this gives the appearance of simply comparing one toxic waste site to another. Considering the reference stations selected, it seems relatively easy to project the outcome of the evaluation, ie; no significant variations in Site 7 pollutants. I believe reference stations in outlying areas, with native sediments, should have been included to provide us with an appropriate perspective and more meaningful assessment of the human health risk.

The Clean II contractor (Bechtel) personnel preparing the report make the claim that the seven reference stations were selected with "participation and acceptance" of the U.S. EPA, RWQCB and DTSC. What documentation exists to support this alleged multilateral decision? We only need study the agency comments on the RI/FS for Sites 1 - 6A (presented at the September 19, 1995 RAB meeting) to see major differences between an "accepted" work plan, the actual execution of that work plan, and the acceptance of the conclusions drawn from that work plan.

### **Objective and Scope of the Remedial Investigation (page 1-3)**

43.

The major tasks identified (ie; evaluating fish and sediment samples) are important, yes, but are too narrow in scope. I believe the objectives should have contemplated the most likely future use of Site 7 as a major expansion of the Port of Long Beach. Conversion will likely involve extensive demolition of existing piers and pilings, reconfiguration and dredging of the channel, and perhaps massive landfill operations to create acreage for new container yards and bulk unloading facilities. These activities could all involve major disturbances of deep harbor sediments, a possibility that receives minimal attention in the work plan (ie; very few deep borings) and only scant attention in the report's Conclusions and Recommendations.

### **Sedimentology (page 1-7)**

44.

The report's authors describe induced turbulence from ship propellers as one of "the major mechanisms for suspension and mobilization" of Site 7 sediments. Indeed, testimony from a long time shipyard employee is that relatively shallow seawater can turn from green to "desert tan" as a result of turbulence from slow speed docking and tugboat operations.

In this light, it seems certain that the first few inches of harbor sediments would have been disturbed countless times in the decade or so since substantially all toxic dumping ceased in the West Basin. Yet Omer Kadaster's supporting handout describes the sediment sampling as "typically" involving only the "upper 10 cm or four inches" (see March 19, 1996 slide presentation copy, page 6).

Is a concentration of sampling in the first four inches of sediment meaningful, especially if the sites selected are in open water? I suspect the repeated flushing of the surface sediments would have rendered them relatively clean compared to deeper soils, since many toxins migrate downward. I believe more evaluation is necessary of deep sediments underneath and adjacent to the piers, which is not only where most of the corrosive and toxic material from ship rebuilding processes was dumped, but also the areas most likely to be disturbed in future reconfiguration for the port uses.

**Comments by California Earth Corps (Don May)**

45.

I have read Don May's technical critique of the sampling plan and his questions as to the credibility and accountability of the contract laboratory in his letter to you dated April 15, 1996. I support his comments and expect better underlying support for the draft RI report before the RAB can go on record as accepting the report's conclusions.

Sincerely,



David Sundstrom

cc: Alan Lee, Naval Station BRAC Environmental Coordinator  
Anna Ulaszewski, IR Program Manager for Naval Shipyard  
Kathy Stevens, BNI