

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

Region 4
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1994 FEB -9 PM 2: N68311.000166
February 4, 1994 NAVSTA LONG BEACH
SSIC #5090.3

Captain Barry Janov
Commander Long Beach Naval Shipyard
300 Skipjack Road
Long Beach, California 90822-5099

Captain John Jones
Commander Long Beach Naval Station
Long Beach Naval Station
Long Beach, California 90822-5000

Dear Captain Janov and Jones:

**REMEDIAL INVESTIGATION/ FEASIBILITY STUDY SUPPLEMENTS FOR LONG BEACH
NAVAL STATION, LONG BEACH**

The California Department of Toxic Substances Control (Department) has completed its review of the following documents:

Draft Technical Memorandum Facility Wide Limited Field Investigation, Draft Technical Memorandum Proposed Modification to Final RI/FS, Draft Investigation Derived Waste (IDW) Management Plan, Draft Health and Safety Plan Supplement, Draft Data Management Plan, Draft Fish Sampling and Analysis Plan, Draft Risk Assessment Work Plan Remedial Investigation/ Feasibility Study (RI/FS), each dated December 18, 1993 and were prepared for SouthWest Division Naval Engineering Command by Bechtel. These documents are RI/FS Supplements for the Long Beach Naval Station, Long Beach.

The Department has compiled general and specific comments on these documents from its internal technical staff and from the Regional Water Quality Control Board's (RWQCB). General and specific comments are enclosed within this letter.

If you have any questions regarding comments included with this letter please contact me.

Sincerely,

Alvaro Gutierrez
Base Closure Team Member, LBNC
Region 4 Base Closure Branch

Enclosures

cc: See next page.



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Cpt. John Jones
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DRAFT RISK ASSESSMENT WORKPLAN

GENERAL COMMENTS

1. We assume that sampling of environmental media, analytical chemistry data, and quality assurance procedures described in these documents and summarized in the document reviewed by Office of Scientific Affairs (OSA) were adequately reviewed by Regional staff. If deficiencies or data gaps were encountered with respect to adequacy for risk assessment, these are noted in our comments.
2. The document was reviewed for scientific content. In general, minor grammatical or typographical errors that do not affect the interpretation have not been noted. However, these should be corrected in the final version of the document.
3. Future changes in the document should be clearly identified. This may be done in several ways: by submitting revised pages with the reason for the changes noted, by the use of strikeout and underline, by the use of shading and italics, or by cover letter stating how each of the comments here has been addressed.
4. Specific Comments 1 through 10 refer to the human health risk assessment, while the remainder deal with the ecological risk assessment.
5. We anticipate that Bechtel can deal readily with most of our comments. However, some issues regarding the assessment of the harbor sediments might not be resolved until a workshop is convened with representatives of the Department, the Los Angeles Regional Water Quality Control Board, USEPA Region IX, SOUTHWESTDIV, Bechtel, and the subcontractor selected for the bioassay work.

SPECIFIC COMMENTS

1. Random Variation, Sec. 2.1.1.2, p. 7: The Department accepts the assumption that waste disposal practices were uniform within the individual site of OU1. This is the basis for a stratified random sampling plan. We do not agree that wastes disposed at any of the four sites are likely to be either randomly or uniformly distributed throughout OU1.
2. Excavation Worker, Figs 2-1 and 2-2: Include the excavation worker in these diagrams.
3. Screening Criteria for Non-Carcinogens, Sec. 2.2. 1, p. 17: Screening criteria for non-carcinogenic toxic effects were agreed upon during the DQO process. These appear in the RI/FS Work Plan in Table B-4. OSA prefers these to the preliminary remediation goals (PRG) published by USEPA Region IX, because the dermal pathway is not thoroughly taken into consideration in the PRGs from Region IX.

In addition, we fail to see why any chemicals of potential concern should be eliminated according to the method described on page 17. The numbers of chemicals detected were not

unmanageably large at any individual site during the site inspection. Spreadsheet software is readily available to accommodate all organic chemicals detected and all inorganic chemicals present above background concentrations.

4. **Background Tolerance Limits, Sec. 2.2.1, p. 17-18, and Appendix A:** We accept both the definition of the background tolerance limit in Appendix A and its use to eliminate Chemical of Potential Concern (COPC) as described on pages 17-18. However, it is essential that the data which are included in the calculation of these tolerance limits be provided to OSA, so we can eliminate any outliers which might drive the tolerance limits too high. Let us work out an arrangement with Bechtel for the transfer of these data in the most convenient form.

Defining the range of background concentrations is difficult for soils on Terminal Island, because of the ubiquitous anthropogenic impact. It is our intention to build and maintain a data base of concentrations of inorganics in soils across both the Naval Station and the Naval Shipyard. Although this implies that the exact values of the tolerance limits we will accept could change as more data are collected, we will not impose such changes retroactively, i.e. a set of tolerance limits derived from a recent report will not be imposed upon an older report.

5. **Chromium:** We recommend that analyses for chromium routinely include speciation into the trivalent and hexavalent forms. This will avoid the highly uncertain assumption that concentrations of "total chromium" consists wholly of hexavalent chromium.
6. **Receptors, Sec. 2.2.3.1.3, p. 23:** We do not understand why "most" hospitals, day-care centers, or schools will be considered instead of all such establishments within an area of concern. Please be more specific.
7. **Exposure to Soil, Sec. 2.2.3.2, p. 24:** In Chapter 1 of its *Supplemental Guidance*, OSA recommends using surface areas of 5,800 and 2,000 cml-/day, respectively, for adults and children exposed to soil in a residential setting. For the construction worker, use an ingestion rate for soil of 480 mg/day, per USEPA and Cal/EPA guidance cited elsewhere in the work plan.
8. **Swimming, Sec. 2.2.3.4, p. 27:** Seven events per week for 30 years seems certainly to be a gross overestimation of possible exposure. In addition, we are not familiar with the 20-year-old reference cited. Please propose a lower number to represent a reasonable maximum exposure. Use best professional judgement, if necessary.
9. **Ingestion of Fish, Sec. 2.2.3.5, p. 28:** The value selected requires documentation of the actual habits of local fishers; 54 mg/day may or may not be too low a figure. See Dr. Polisini's comments on the Fish Sampling and Analysis Plan for a full discussion of this topic.
10. **Surface Water, Sec. 2.2.3.6, p. 28:** We do not understand how "chemical concentrations in surface water [can] be estimated using concentrations in fish tissues and BCFs". Even if this indirect method were possible, it is clearly superior to use the results of analysis of surface water for chemicals present in sediment.

11. **Inhalation of Volatile, Sec. 3.1, p. 33:** Inhalation of volatile by terrestrial organisms or exposure to soil-bound particles as "dust" is not considered. Addition justification should be added for excluding these exposure pathways.
12. **Terrestrial Receptors, Sec. 3.2.2., p. 37:** This ecological risk assessment, as presently outlined, may not address the potential risks to Terrestrial ecological receptors, When terrestrial receptors are addressed, we are accustomed to seeing estimates of "dose". Therefore, the statement that "dose is rarely calculated..." should be rephrased. As stated above, potential threat to terrestrial receptors must be addressed, at least at a qualitative level, in this work plan.
13. **Inorganics in Storm Water, Sec. 3.2.2, p. 38:** Some method of evaluating the potential risk associated with dissolved materials in storm water must be included in this work plan. The current plan to not consider potential threats associated with dissolved materials in storm water is unacceptable.
14. **Water Column, Sec. 3.2.2., p. 38:** The work plan must identify the origin of the dilution factor of 12 which appears in the formula shown for evaluating potential threats associated with sediment-bound contaminants to receptors in the water column.
15. **Bioaccumulation, Sec. 3.2.2., p. 38 ff.:** OSA much prefers that estimates of bioaccumulation be based on chemical analyses of tissue concentrations rather than laboratory bioassay. Please provide the basis for deciding that sediment samples with at least 70% biomass are acceptable for direct determination of bioaccumulation via chemical analysis of tissues, whereas sediments with less biomass should be bioassayed. Because the volume of sediment to be sampled is not specified, it is not possible to evaluate the adequacy 100 grams as a minimum sample size for sediment. OSA believes that samples with low biomass might very well be the sites most impacted by contamination and therefore the sites most representative of the potential threat to ecological receptors. The work plan should provide complete justification for choice of the log K., of 3.0 as the cutoff for consideration for contaminants which might bioaccumulate.
16. **Uncertainty Factor, Sec. 3.2.3.1, p. 39:** Please specify the uncertainty factor to be applied to lethal concentration for 50 percent of exposed organisms (LC50) when calculating the hazard quotient.
17. **Water Quality Criteria, Sec. 3.2.3.1, p. 39:** A full range of ecological criteria must be evaluated to assess the potential risk to ecological receptors. Ambient Water Quality Criteria (AWQC) are the only criteria currently specified in the work plan. The methodology used to develop the AWQC does not necessarily address impacts on the most sensitive receptors, unless these receptors are of significant ecological or commercial importance. The lowest available Low Effect Level (LOEL) or No Effect Level (NOEL) may be preferable for evaluating potential impact to water column receptors depending on the quality of the data review.

18. **Equilibrium Considerations, Sec. 3.2.3.1, p. 39:** The proposal to evaluate groundwater with chronic toxicity criteria while evaluating the water column on the basis of acute toxicity rests on the assumption that marked increase in the concentrations of contaminants in the water column result when a vessel begins moving in the harbor (i.e. prop wash). While this may be the case for sediment-bound contaminants which impact on filter-feeding organisms, it is less clear concentrations of materials already in solution are affected by vessel movement. The contention that vessel movement causes episodic increases in the concentrations of contaminants in solution is true only if the harbor sediments are not in equilibrium with the surface water. Storm water presents an additional input to the harbor; the impact of which can only be evaluated when data are available regarding its magnitude. The work plan should detail the development of monitoring data sufficient to support the proposal regarding vessel movement. Overall, the goal here is to evaluate concentrations of contaminants in the water column by the most sensitive criterion.
19. **Cumulative Hazard, Sec. 3.2.3.1, p. 39:** The work plan must specify the evaluation criterion for potential contaminants which might be expected to have a cumulative impact on ecological receptors. For example, OSA could conclude there is cause for concern when a summed hazard quotient for several metals, such as copper, lead, nickel, and zinc exceeds 1.0, even if the hazard quotient of each single metal is less than 1.0.
19. **Bioassays, Sec. 3.2.3.2, p. 40:** The amphipod, *Eohaustorius estuarius*, is misidentified as a mysid, while the mysid, *Holmesernysis costata*, is misidentified as an amphipod. While survival is an appropriate primary endpoint, additional endpoints should be evaluated, such as reburial for *Eohaustorius estuarius* and/or growth for *Nephytys sp.*
20. **Acid Volatile Sulfide, Sec. 3.2.3.2, p. 41:** Evaluation of the bioassay results will be facilitated by expressing the results of analyses for acid volatile sulfide as ratios to the simultaneously extracted metals.

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DRAFT TECHNICAL MEMORANDUM
Facility Wide Limited Field Investigation

GENERAL COMMENTS

1. We understand that all wells will be resurveyed due to pipe settlement and missing benchmarks. Benchmarks must be established relative to mean sea level. Benchmark locations and survey dates must be provided to us. We require monitoring wells to be located using Universal Transverse Mercator (UTM) Coordinator.
2. We will require that the five broken and missing Dry Dock 1 piezometer vault lids be replaced prior to being surveyed.
3. All locks missing from monitoring wells on site should be replaced.

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DRAFT TECHNICAL MEMORANDUM
Proposed Modifications to Final RI/FS Plan

GENERAL AND SPECIFIC COMMENTS

1. Section 2.5, page 7, proposes eliminating the two eastern-most well points and replacing them with two of the three "newly discovered" monitoring wells on site. All available data pertaining to the three "newly discovered" monitoring wells (boring logs, method of construction, well design, construction details including casing and screen materials, screen length and placement with respect to the water table, depth and type of annular seal) must be provided to us.
2. Also, regarding sampling frequency, we will require that all three monitoring wells be sampled.

DRAFT FISH SAMPLING AND ANALYSIS PLAN

GENERAL COMMENTS

Except for the requirement to provide the rationale for selection of a fish consumption rate of 54 g/day detailed below, this work plan should provide the information necessary to make an initial evaluation of the potential human health risk associated with consumption of fish from the Long Beach Naval Complex.

SPECIFIC COMMENTS

The last name of one of the Office of Scientific Affairs/participants in the November 22, 1993 conference call is misspelled. The correct spelling is "Polisini" (Section 1.1, page 1).

The discussion of eliminating white croaker from the species to be sampled seems to indicate that the risk associated with consumption of rubberlip surfperch and barred sand bass will be compared with the risk associated with consumption of white croaker (Section 1.1, page 2). If no such comparison is planned, the last sentence of the first paragraph should be amended.

Fish should be frozen with dry ice as soon as possible after collection of preliminary field data and wrapping in aluminum foil. The sampling plan currently calls for the fish to be "kept on ice until shipment". (Section 2.2, page 5) and "kept frozen" at the laboratory.

A fish consumption rate of 54 grams per day (0.054 kg/day) is presented without citation (Section 3.0, page 6). U.S. EPA recommends 54 grams/day (OSWER Directive 9285.6-03, March 25, 1991) as an average fish consumption rate for sport fish consumption. Fish consumption by subsistence fishers may exceed 54 grams/day. The U.S. EPA document "Integrated Risk Assessment for Dioxins and Furans from Chlorine Bleaching in Pulp Mills" (EPA 560/5-90-01 1, July 1990) presents several fish consumption rates, including several for subsistence fishers-

69 g/day - FDA estimated average consumption by subsistence fishers.

116 g/day - FDA estimated 90th percentile consumption by subsistence fishers.

140 g/day - FDA estimated high consumption rate for subsistence fishers or other high-rate consumers.

The Santa Monica Bay Restoration Project Seafood Consumption Study cites a consumption rate of 127 g/day for frequent fishers (those fishing 3 to 7 times per week). One of these fish consumption rates may more accurately reflect the fishers at Long Beach Naval Complex, or perhaps the fish consumption rate used in the white croaker studies could be used in this study. The rationale for choosing a particular fish consumption rate should be included in the work plan regardless of which rate is chosen.

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There are significant toxicological reasons for including mercury as a potential contaminant in this study in addition to the "public interest" due to reports of high mercury levels in tuna 20 years ago (Section 3.0, page 6). Mercury is highly bioaccumulative and also neurotoxic. These properties cause mercury to be included in many investigations of fish consumption.

The incremental cancer risk associated with exposure to carcinogens and the hazard associated with exposure to noncarcinogens in fish is more complex than stated (Section 3.0, page 6). Incremental cancer risk is frequently evaluated in fish consumption studies because it is the most sensitive endpoint for most compounds which tend to accumulate in fish tissue.

The source of the list of chemicals which was evaluated on the basis of octanol-water partition coefficients (K_{ow}) should be presented (Section 3.0, page 6). It appears that the list of chemicals included all the analytes of the standard EPA chemical methods employed in this study.

The word "outlines" appears in the last paragraph of the section (Section 3.0, page 6) where it appears the word "outliers" would be correct.

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DRAFT HEALTH AND SAFETY PLAN SUPPLEMENT

GENERAL COMMENTS

1. A table of contents and acronyms tables should be included at the front of the document.
2. The document was reviewed for content. In general, minor grammatical or typographical errors that do not affect the interpretation have not been noted. However, these should be corrected in the final version of the document.