

DEPARTMENT OF TOXIC SUBSTANCES CONTROL



Region 4
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N60258.000729
NSY LONG BEACH
SSIC #5090.3

February 18, 1993

Ms. Andrea Muckerman
Project Manager
Southwest Division Naval Facilities
Engineering Command
1220 Pacific Highway
San Diego, California 92132-5181

Dear Ms. Muckerman:

RISK ASSESSMENT GUIDELINES FOR RI/FS WORKPLAN: LONG BEACH NAVAL
COMPLEX

The attached memorandum from Dr. James M. Polisini of the Human and Ecological Risk Section of the Office of Scientific Affairs contains specific comments and recommendations to be incorporated into the the risk assessment portion of the RI/FS Workplan for Long Beach Naval Complex. Please review this information and implement it accordingly.

If you have any questions, I can be reached at (310) 590-4875.

A handwritten signature in black ink, appearing to read "Craig A. O'Rourke".

Craig A. O'Rourke
Hazardous Materials Specialist



Memorandum

Craig O'Rourke
Site Mitigation Branch
Region 4
245 West Broadway, Suite 350
Long Beach, CA 90802

Date: February 5, 1993

From : Office of Scientific Affairs
400 P Street, 4th Floor
P.O. Box 806
Sacramento, CA 95812-0806

Subject: Long Beach Naval Complex RI/FS Work Plan
[PCA 14615, Site 400289-43]

Background

I have reviewed the plan for assessing the risk posed by sediments in the Long Beach Naval Center contained in a document titled Long Beach Naval Complex Proposed Approach for Sediment Toxicity Evaluation dated 26 January 1993. This approach was presented and discussed at a project meeting on January 26, 1993 at Department of Toxic Substances Control, Region 4 Headquarters in Long Beach. Human and Ecological Section (HERS) has previously provided the Navy contractors with a list of appropriate guidance documents for human health and ecological risk assessment at the Long Beach Naval Complex.

General Comments

The phased approach of this work plan is, in general, the approach favored by HERS. The U.S. EPA/U.S. Army Corps of Engineers "Green Book", however, is not an appropriate evaluation method for in place sediments. Reference to the "Green Book" should be removed from the work plan, except in the specific case of evaluating dredge spoil for ocean disposal.

Specific Comments

Analytes should not be eliminated from the planned chemical analysis based on a decision of whether or not those analytes are thought to be associated with activities at Naval Center (NC) Long Beach. An assessment of the risk associated with in place sediments must first address the risk due to total contaminant concentration. An additional assessment of the risk associated with NC Long Beach activities can be made, but both estimates of risk must be supplied to the risk

manager.

A selection process for chemicals of concern (COCs) analogous to the selection process applied in a human health risk assessment may be appropriate. HERS will evaluate that selection process and the chemicals of concern when sediment data are available for review.

Discussion of the appropriate level of detection for organotins at the January 26, 1993 meeting led to a shared opinion that the Navy may have sufficient sediment bioeffect data to develop a protective detection limit.

National Oceanic and Atmospheric Administration (NOAA) Exposure Range-Low (ER-L) values are the screening level of choice and detection limits should attempt to reach ER-L levels.

The Los Angeles Regional Water Quality Control Board should be consulted to determine whether Puget Sound sediment criteria are appropriate at NC Long Beach.

Lack of toxicity in the superficial sediments (upper 2 cm) is not sufficient to designate these sediments as capping material. Samples must be taken at depth to evaluate the potential toxicity of sediments which would be exposed should some sediment layer be removed. Aquatic toxicity testing may be required to evaluate the potential toxicity of sediments which would be exposed.

The microcomputer model furnished with the "Green Book" to determine whether the "limiting potential concentration" (LPC) would be exceeded in marine waters should be used only to evaluate the threat during ocean disposal of dredge spoil.

Bioaccumulation will be evaluated based on sampling of biota from the NC Long Beach. The ongoing enumeration of fish caught in the drydock operation offers the potential to measure bioaccumulation in fish which would serve as food items for non-human receptors higher on the food web as well as fish which would likely serve as food items for humans. Lipid content of these fish should be measured during the contaminant analysis.

Screening levels should not be modified to "account for widespread regional contamination". Assessment of "regional contamination" should be addressed through selection of appropriate reference stations for the bioassay studies.

Bioassay studies should incorporate species normally in direct contact with sediments as well as species exposed to pore-water extracted from these same sediments. A range of endpoints should be measured to address acute and chronic mortality as well as more subtle endpoints such as growth or reproduction. Potential bioassay organisms and endpoints are:

Pore Water Bioassays

| | | |
|---------------|--------------------------------------|------------------------------|
| Topsmelt | <i>Antherinops affinis</i> | 7 day survival |
| Silverside | <i>Menidia beryllina</i> | 7 day survival |
| | | 7 day growth |
| Mysid | <i>Holmesimysis costata</i> | 96 hour survival |
| Bivalve larva | <i>Crassostrea gigas</i> | 96 hour survival |
| | | 96 hour abnormal development |
| Diatom | <i>Skeletonema costatum</i> | 96 hour growth |
| Sea Urchin | <i>Strongylocentrotus purpuratus</i> | percent fertilization |

Whole Sediment Bioassays

| | | |
|------------|-------------------------------|-----------------|
| Polychaete | <i>Nephyts sp.</i> | 10 day survival |
| | | 10 day growth |
| Mysid | <i>Holmesimysis costata</i> | 10 day survival |
| Amphipod | <i>Eohaustorius estuarius</i> | 10 day survival |

Conclusions

A revised work plan should be prepared incorporating the items discussed at the January 26, 1993 meeting as well as any written comments supplied by regulatory agencies. Work should not commence until the revised work plan has been reviewed and approved.



James M. Polisini, Ph.D.
Associate Toxicologist
Human and Ecological Risk Section

Reviewed by : John P. Christopher, Ph.D., DABT
Staff Toxicologist
Human and Ecological Risk Section



cc: Michael J. Wade, Ph.D., DABT
HERS