

**DEPARTMENT OF TOXIC SUBSTANCES CONTROL**

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ALAMEDA POINT  
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May 23, 1995

Commander  
Western Division  
Naval Facilities Engineering Command  
Attn.: Mr. Gary Munekawa, Engineer in Charge  
Code 09ER3GM  
900 Commodore Drive  
San Bruno, California 94066-2402

Dear Mr. Munekawa:

**BASELINE HUMAN HEALTH RISK ASSESSMENT WORKPLAN, DRAFT, NAVAL AIR STATION, ALAMEDA**

The California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) has reviewed the draft Baseline Human Health Risk Assessment Workplan dated April 10, 1994. The enclosed comments were prepared by James M. Polisini, Ph.D., DTSC Staff Toxicologist.

If you have any questions regarding these comments, please call me at (510) 540-3809.

Sincerely,

A handwritten signature in cursive script that reads "Thomas Lanphar".

Thomas . Lanphar  
Project Manager  
Base Closure Branch

Enclosure

cc: See next page

1195



Mr. Gary Munekawa  
May 23, 1995  
Page Two

cc. Mr. James Nusrala  
Regional Water Quality Control Board  
2101 Webster Street, Suite 500  
Oakland, California 94612

Lt. Mike Petouhoff  
Base Environmental Coordinator  
Alameda Naval Air Station  
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Mr. James Risks  
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**DEPARTMENT OF TOXIC SUBSTANCES CONTROL**

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**MEMORANDUM**

**TO:** Tom Lanphar, Project Manager  
Office Military Facilities, Region 2  
700 Heinz, Building F, Second Floor  
Berkeley, CA 94710

**FROM:** James M. Polisini, Ph.D.  
Staff Toxicologist  
Office of Scientific Affairs  
Human and Ecological Risk Section 

**DATE:** May 19, 1995

**SUBJECT:** NAVAL STATION ALAMEDA DRAFT BASELINE HUMAN HEALTH RISK  
ASSESSMENT WORK PLAN  
[PCA 14740, SITE 200004-45 OC 2:20]

**Background**

We have reviewed the document titled *Naval Air Station, Alameda, Alameda, California Draft Baseline Human Health Risk Assessment Work Plan*, dated April 10, 1995 and prepared by PRC Environmental Management, Inc. of Denver, Colorado in response to your written request dated April 13, 1995.

Naval Air Station (NAS) Alameda occupies the western third of Alameda Island and has been a military installation since 1930. NAS Alameda occupies 2842 acres of land, water and airspace easement, including 1734 acres of land. The majority of the land at NAS Alameda was created by filling existing tidelands with dredged material from San Francisco Bay and the Oakland Inner Harbor.

**General Comments**

Some measure of 'background' concentration is proposed as a criterion for developing a list of contaminants of concern (Section 4.1, page 18). Incremental cancer risk and hazard should be evaluated based on total concentration with an additional calculation for 'background' or 'ambient'. Regardless of how the 'background' or 'ambient' concentration term is used a more site-specific data on 'background' or 'ambient' is required than currently exists. The Navy and Navy contractors should prepare and submit a work plan for determination of site-specific 'background' or 'ambient' concentration at NAS Alameda.

This work plan completely ignores the base-wide human health risk assessment which will be required for NAS Alameda. The work plan should describe how the results of the individual site risk assessments will be incorporated into a cohesive base-wide risk assessment.



### Specific Comments

There may be complete human exposure pathways for sites 17, 18 and 20, contrary to the stated conclusion (Section 2.1, page 2). If fishing is not prohibited in the Seaplane Lagoon or the Estuary human exposure via ingestion of contaminated fish or shellfish must be evaluated.

What are plans to evaluate the potential health effects associated with 'low-level radiological material' deposited in site 1 (Section 3.3.1, page 5)?

Is the skeet range (Section 3.3.1, page 5) which occupies a portion of site 1 active? We understood that the San Francisco Regional Water Quality Control Board had issued a cease and desist order for the skeet range. If the skeet range is not active it should be so noted in this work plan.

The Office of Environmental Health Hazard Assessment Criteria for Carcinogens is incorrectly attributed to the Department of Toxic Substances Control (DTSC) (Section 4.0, page 15 and Section 4.3, page 24). The citations and entry in the reference section should be corrected.

The methodology and results of the data validation in selecting chemicals of concern for the human health risk assessment (Section 4.1, page 16) should be discussed with regulatory agencies prior to proceeding with the human health exposure calculations. We propose a technical memorandum be submitted for regulatory agency approval once the preliminary steps of 1) data review; 2) definition of regions of 'likely exposure' (Section 4.1, page 16); 3) calculation of descriptive statistics; and, 4) identification of contaminants for use of the UNCENSOR computer program (Section 4.1, page 17) have been completed.

It is difficult to determine how 'criteria will be applied separately' but chemicals will be 'eliminated only after all site-specific factors are considered as a whole' (section 4.1, page 17). The selection of chemicals of concern should be an integrated process which considers all pertinent criteria, not a criterion-by-criterion elimination of potential contaminants. For example, the 5 percent frequency of detection criterion for selection of chemicals of concern must be considered in combination with other criteria. The 5 percent level is referred to in Risk Assessment Guidance for Superfund (RAGS) only as an example, not a recommendation. Chemicals which are detected at less than 5 percent may still be included in the list of chemicals of concern based on other criteria such as concentration or potency. In general, we recommend that chemicals not be eliminated unless the number of contaminants exceeds approximately 50 contaminants and makes use of spreadsheets unwieldy.

The current draft proposes to eliminate contaminants which are present at background levels (Section 4.1, page 18). Evaluation of the incremental cancer risk and hazard should be based on total concentration with an additional calculation of the risk or hazard associated with 'background' or 'ambient' concentrations. A discussion of the site-related contribution to incremental cancer risk or hazard associated with 'ambient' concentrations should be contained in the uncertainty section.

We agree that it is appropriate to determine whether the groundwater is potable and therefore a presents a complete exposure pathway for each site (Section 4.2, page 19). Designation of a groundwater zone of non-attainment by the San Francisco Regional Water Quality Control Board or the State Water Resources Control Board at the time the human health risk assessment is being prepared may make consideration of chloride content unnecessary.

Regulatory agencies should be consulted once the preliminary determination has been made regarding which sites will be evaluated with a residential use scenario (Section 4.2, page 20). As stated, we would normally require a residential use scenario for sites which do not have a lease restriction in place forbidding residential use, but will consider site-specific characteristics in making this determination. A wetland adjacent to San Francisco Bay, for instance, is unlikely to be developed for residential use. We do not believe, however, that a 1000 feet coastal zone prohibition is a valid criterion.

If fishing is not prohibited, human exposure via ingestion of contaminated fish or shellfish must be evaluated. The work plan should include a statement that this exposure pathway will be evaluated if potentially complete (Section 4.2, page 20).

The work plan should describe the 'EPA-approved' fate and transport models proposed for use at each site (Section 4.2, page 21).

The work plan should detail the planned use for the chemical concentration data collected during reuse evaluations at NAS Alameda, such as the Environmental Baseline Survey (EBS) or Finding of Suitability to Lease (FOSL) (Section 4.2, page 21).

The work plan should state that the maximum media concentration may be used for the exposure point concentration in cases where the upper 95 percent confidence limit on the mean is greater than the maximum detected value (Section 4.2, page 21).

The default dermal absorption factors listed in the Preliminary Endangerment Assessment (PEA) Manual should be used for those contaminants for which chemical-specific absorption factors are not available (Section 4.2, page 22)

Rather than develop site-specific occupational and recreational exposure parameters individually for each base (Section 4.2, page 22), the exposure parameters already reviewed and approved for Mare Island Naval Shipyard should be used in the human health risk assessment for NAS Alameda and other EFA-WEST facilities. If an exposure scenario at NAS Alameda requires site-specific exposure parameters, beyond those developed for Mare Island, their derivation should be fully documented.

Monte Carlo probabilistic assessment of uncertainty (Section 4.2, page 22) must be accompanied by the 'standard' point estimate risk assessment calculations as outlined in RAGS and presented in this work plan.

The work plan should specify the course of action when the U.S. EPA IRIS cancer slope factor differs from the cancer slope factor provided by the California Office of Environmental Health Hazard Assessment (OEHHA) Standards and Criteria Work Group (Section 4.3, page 24). Either the incremental cancer risk can be 1) calculated separately using the IRIS value for one calculation and the OEHHA value for the second or 2) calculated using the most health-protective slope factor regardless of source.

Cross route extrapolation (Section 4.3, page 25) of oral reference doses (RfDs) or cancer slope factor (CSFs) to dermal routes of exposure requires absorption data for both routes of exposure. As oral absorption is rarely presented, we suggest that the oral RfD or CSF be used without adjustment in the dermal exposure calculations. Any cross-route extrapolation should be submitted for approval prior to proceeding with the human health risk assessment calculations.

It is unclear how non-carcinogenic hazard can be evaluated in the construction work scenario (Section 4.2, page 20 and Figure 4) is '...hazard indices will be calculated for chronic

exposures because shorter exposure periods are not anticipated at NAS Alameda.' (Section 4.4, page 27). The average exposure duration of 1 year for the construction worker scenario would seem indicative of subchronic exposure.

The fact that the '...bay is not part of the base.' (Table 4) is not sufficient to exclude the ingestion of fish and seafood exposure pathway. If fishing is not prohibited human exposure via ingestion of contaminated fish or shellfish must be evaluated.

Many exposure parameters are listed as 'site specific' (Tables 5 through 16) for the occupational and recreational use scenarios. Rather than develop site-specific exposure parameters for NAS Alameda the exposure parameters approved for Mare Island Naval Shipyard should be used in this risk assessment and others under oversight of EFA-WEST.

Is the ingestion rate of 50 mg/day for current occupational workers and recreational users exposed to surface water (Table 10 and Table 16) a site-specific value and should the units be mg/day? If so the source should be provided in the footnotes.

The default dermal absorption factors listed in the Preliminary Endangerment Assessment (PEA) Manual should be used for those contaminants for which chemical-specific absorption factors are not available (Table 14).

An RME inhalation rate of 0.83 m<sup>3</sup>/hr is listed for residential inhalation of vapor (Table 17) while an RME inhalation rate of 1.25 m<sup>3</sup>/hr is listed for recreational exposure (Table 13). An RME inhalation rate of 2.5 m<sup>3</sup>/hr is has been agreed upon for joggers at Moffet Field. Use of the jogging path at site 1 should be evaluated to determine whether the 2.5 m<sup>3</sup>/hr inhalation rate is appropriate for NAS Alameda.

The standard mean value of 9 years should be used for exposure duration in the average residential exposure calculations (Tables 17 through Table 22). A site-specific calculation may be provided in addition to the standard RME and average calculations if desired.

### Conclusions

Once the comments above are addressed the work plan presents an outline for a human health risk assessment to submit to the risk managers for NAS Alameda. The main areas of concern are:

1. Contaminants should not be eliminated as contaminants of concern unless the number of chemicals makes spreadsheet calculations unwieldy;
2. The consumption of fish and seafood pathway should be evaluated unless fishing is prohibited;
3. Site-specific exposure parameters should not be developed for NAS Alameda if similar exposure parameters have been developed and approved for Mare Island Naval Shipyard;
4. An evaluation of 'background' or 'ambient' concentration should be initiated for NAS Alameda;
5. Incremental cancer risk or hazard should be calculated based on total concentration together with an additional calculation of either 'background' or site-related risk and hazard; and,
6. The lack of a plan for incorporating the individual site risk assessments into a base-wide risk assessment.

We cannot stress too strongly the importance of the consultative interaction between Navy contractors and regulatory agencies in preparing this human health risk assessment. We support the proposal contained in this work plan for discussion at critical decision points.

Reviewed by : Michael J. Wade, Ph.D., DABT   
Senior Toxicologist  
Human and Ecological Risk Section

cc: Deborah J. Oudiz, Ph.D., Senior Toxicologist, Northern California Liaison, HERS

Ms. Sophia Serda, Ph.D.  
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