

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

REGION 2
700 HEINZ AVE., SUITE 200
BERKELEY, CA 94710-2737



April 18, 1994

Commander
Western Division
Naval Facilities Engineering Command
Attn: Mr. Stephen Chao, Project Manager
900 Commodore Drive, Bldg. 101
San Bruno, California 94066-2402

Dear Mr. Chao:

**SITE WIDE ECOLOGICAL ASSESSMENT MEETING MINUTES-APRIL 1, 1994,
NAVAL AIR STATION MOFFETT FIELD**

Enclosed is the meeting minutes prepared by the Office of Scientific Affairs, Department of Toxic Substances Control. If you have any questions on this document, please contact Joseph Chou at 510-540-3830 or Laura Valoppi at 916-255-2052.

Sincerely,

A handwritten signature in cursive script, appearing to read "C. Joseph Chou".

C. Joseph Chou
Engineering Geologist
Site Mitigation Branch

cc: Laura Valoppi
Office of Scientific Affairs
Department of Toxic Substances Control
8950 Cal Center Dr., Bldg. 3, Suite 101
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DEPARTMENT OF TOXIC SUBSTANCES CONTROL

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MEMORANDUM

TO: Joseph Chou
Site Mitigation Branch
Region 2
700 Heinze Avenue, Suite 200
Berkeley, California 94710

FROM: Laura M. Valoppi, M.S. *LM Valoppi*
Associate Toxicologist
Office of Scientific Affairs

DATE: April 12, 1994

SUBJECT: NAS Moffett Field
PCA = 14650 , Site = 200068-43

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To	Joseph Chou	From	Laura Valoppi
Co.	DTSC Reg-2	Co.	OSA
Dept.		Phone #	
Fax #	8-571-3819	Fax #	

On April 1, 1994 you and I attended a meeting at U.S. Environmental Protection Agency Region IX (EPA) in San Francisco concerning regulatory agency comments on the Draft Phase I Site-Wide Ecological Assessment (Phase I) for the subject site. Representatives from the Navy, their consultants PRC and Montgomery Watson, the San Francisco Regional Water Quality Control Board (SFRWQCB), EPA, National Oceanic and Atmospheric Administration (NOAA), and DTSC, attended. The U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) submitted written comments but were not able to attend the meeting. Prior to this meeting, the ecotoxicologists from the RWQCB, EPA, DTSC, NOAA, and USFWS had a conference call on March 25th to consolidate our technical comments and determine our view of needed changes in the draft Phase I assessment.

The purpose of this memorandum is to document the technical issues discussed and agreements reached at the April 1st meeting, and to formally present the agency ecological assessment specialists' recommendations and suggestions for finalizing Phase I and developing a workplan for Phase II.

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1. Background:

a. Soils - The regulatory agencies indicated the established background levels in soil should be used in the Phase I to eliminate metals/trace elements as contaminants of concern (COCs). These background levels in soil had previously been agreed to by the Navy and the regulatory agencies as being adequate. Organic compounds must not be eliminated as COCs based upon comparison to background, as these compounds are anthropogenic. Consideration of the Scott thesis data may be appropriate in making risk management decisions after the initial screening phase, but the regulatory agencies will need to receive copies of the thesis, and review and evaluate it prior to the Phase II Workplan.

b. Groundwater and surface waters - The regulatory agencies indicated the use of the established background in groundwater is complicated by the brackish nature of waters in the wetland/marsh areas. Therefore it was recommended that the RWQCB Water Quality Objectives (WQO) for freshwater (less than 5 pptousand salinity) and marine waters (greater than or equal to 5 pptousand salinity) be compared to concentrations of metals/trace elements in ground and surface waters. As indicated above for soils, organic compounds should not be eliminated as COCs based on comparison to background.

c. Sediment - There is no established background for metals/trace elements in sediments. Therefore, the regulatory agencies recommended using the effect range-low (ER-Ls) data for metals/trace elements developed by NOAA (MacDonald, et al., 1992; EPA 1992) to compare to site sediment concentrations. The regulatory agencies acknowledged that the ER-Ls for zinc and chromium may not be appropriate since naturally occurring deposits of serpentine minerals in the San Francisco Bay may result in sediment levels greater than the ER-Ls. The regulatory agencies suggested the Phase I report present both the ER-Ls plus one standard deviation, and ambient Bay levels in sediments for inorganic compounds, as justification for elimination of metals/trace elements as COCs. Specific ambient sediment levels in the South Bay are available from the SFRWQCB sediment research database (contact Karen Taberski). As indicated above for soils and waters, organic compounds

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should not be eliminated as COCs based on comparison to background.

2. Screening Criteria: The regulatory agencies consider the screening criteria should be health-conservative for a Phase I assessment, i.e. chemicals should not be eliminated from consideration as COCs except where it can be demonstrated that the chemical is at or below background levels for inorganic compounds, is infrequently detected, is a laboratory or sampling artifact, the detection limits were sufficiently sensitive, and is clearly below a concentration which is not expected to have adverse impacts on environmental receptors over chronic exposure periods. This approach is consistent with guidance for human health risk assessments (EPA, 1989). The rationale for such an approach is to ensure that additive or cumulative impacts from a number of chemicals is adequately considered.

The regulatory agencies recommended the final Phase I report contain summary tables for each medium which would indicate for each chemical eliminated as a COC, the frequency of detection, the number of samples analyzed, the mean and standard deviation, the range of detection limits and frequency of those detection limits, and a summary of the basis for eliminating the compound as a COC. The text should provide supporting documentation; for example, if toxicity is the criterion used to eliminate a chemical as a COC, the text should fully document derivation of a chronic no-observed-effect-level (NOEL) for that compound using appropriate receptors.

3. Indicator Chemicals: The Navy has proposed that an indicator chemical approach be used in Phase II. The regulatory agencies are not necessarily opposed to such an approach, but felt it is best applied to certain metals (e.g. cadmium and zinc), and has limited applicability for organic compounds. As was pointed out in the USFWS comments, the distribution of organic compounds are not necessarily co-located; for example DDT may have been applied to the marsh system for mosquito control, and therefore not necessarily coincident with other organic compounds released with stormwater flows. Any proposal for using indicator chemicals should be thoroughly justified in the Phase II workplan.

4. Elevated Detection Limits: The regulatory agencies in their written comments had expressed concerns regarding the high detection limits in some sediment samples for a number of

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chemicals. The concern is that the detection limits in many instances are above levels of concern for organisms living in the sediment, and therefore the data are limited for drawing conclusion on potential effects on the environment.

The Navy indicated the high detection limits are due to the higher moisture content in sediments, and defended the use of CLP methods. Regulatory agencies had some suggestions such as doubling the sample size, exploring the use of Army Corps of Engineers methods, etc. No resolution was reached on this issue; if the Navy wishes to use non-CLP methods, they should formally request this to the DTSC, RWQCB, and EPA project managers.

5. TPH Fractions: The regulatory agencies had concerns and suggestions for identifying the specific compounds which compose various TPH fractions, and for evaluating the toxicity of these compounds to environmental receptors. It is not clear from the data presented thus far whether the TPH fractions detected in the sediments may be partially reflecting organic compounds naturally found in organic-rich wetland sediments. The regulatory agencies concede this is a possibility, but require documentation and substantiation of such an assertion. The problem lies in the nature of the TPH analysis, which identifies the presence of petroleum compounds based on a series of characteristic peaks on the chromatogram corresponding to certain groups of compounds, and does not quantify or identify the presence of a particular compound.

a. Identification: It was suggested by the regulatory agencies, and agreed to by the Navy, that the final Phase I report will include a discussion of the component compounds in the various TPH fractions. In addition, the chromatograms from the TPH analyses may be examined further to verify the presence of a diesel or gasoline fingerprint. The regulatory agencies also requested clarification in the text of the Phase I report as to why the NASA TPH data were not utilized.

b. Evaluation of Hazard: It was suggested by the regulatory agencies that in Phase II the toxicity of the TPH/petroleum mixtures could be assessed in two distinct ways. For invertebrate organisms residing in sediments and water, bioassays and literature sources on whole mixture toxicity could be used. The rationale for the whole mixture approach is it would directly assess the exposure conditions for

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invertebrate species, and would reflect the available literature data on toxicity to aquatic and benthic organisms. For vertebrate species, critical constituents of the petroleum product such as BTEX and PAHs should be identified, and the toxicity of these critical constituents on vertebrate species be evaluated. The latter approach is consistent with the approach used for human health evaluations, and reflects that the available toxicity data for vertebrate species are predominantly compound-specific.

6. Intent / Focus: An attempt was made during the April 1 meeting to identify some assessment endpoints to guide efforts in Phase II. The following assessment endpoints were identified, other endpoints may be added:

- a. Protection (no adverse impacts) on individuals within a special status species (i.e., California species of special concern; state or federal-listed rare, threatened, or endangered species; species which are proposed or recommended for state or federal listing).
- b. Protection (no adverse impacts) of surface water habitats.
- c. Protection (no adverse impacts) of habitat for migratory birds.

7. Receptors / Food Chains for Phase II: The Navy proposed that receptors of concern be chosen without consideration to type of habitat (upland, wetland, etc.) because many of the species utilize many habitats. The purpose of identifying receptors of concern is to choose species to represent trophic levels or guilds which would be exposed to contaminants by similar pathways. This allows for simplifying the scope of the Phase II work by grouping organisms into similar categories, and by inferring similarity in toxic impacts. In addition to evaluating food web transfer of contaminants, direct toxicity of contaminants to each species will also be assessed. The following representative species and food chains were agreed to:

- a. Earthworm -> shrew -> kestrel
- b. Earthworm -> shrew -> fox
- c. Benthic invertebrate -> clapper rail

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- d. Algae/plant -> invertebrate -> mallard
- e. Pickleweed -> Saltmarsh harvest mouse
- f. Aquatic invertebrate -> amphibian -> Great blue heron
- g. Burrowing owl

The specific invertebrate species to evaluate in c. and f. has not yet been agreed upon. The regulatory agencies requested that the burrowing owl (a species of special concern found throughout NAS Moffett Field) also be chosen as a representative species, and inhalation and ingestion routes of exposure be evaluated. The Navy has agreed to include this species in the Phase II evaluation, but have not agreed to evaluate inhalation exposure.

The Navy indicated that PRC should be collecting much of the toxicity data on several of these species for other Navy facilities in the San Francisco Bay region, and that these data would be available for the NAS Moffett Field assessment.

8. Assessment of Off-Site Areas: Written comments by the regulatory agencies reflected concerns that off-site areas which may be impacted by transport of contaminants from NAS Moffett Field also be assessed. At minimum, the rationale for why off-site transport is not likely to have occurred or to occur in the future, must be included. The following off-site areas were discussed:

a. Stevens Creek: Anecdotal information indicates the Navy discharged stormwater to Stevens Creek infrequently and only during very high water episodes. It was suggested by the regulatory agencies that the Navy Public Works department be contacted for discharge records to Stevens Creek, which may substantiate eliminating this location from further evaluation.

b. Northern Channel / Moffett Channel: It was agreed that sediment and water samples would be taken in Moffett Channel (the extension of the Northern Channel beyond Patrol Road ditch) downgradient of NAS Moffett Field, but upgradient of the Lockheed property. Concentrations of contaminants in these media would be compared to concentrations in Patrol Road ditch and Northern Channel to determine whether releases off-site have occurred. The regulatory agencies insist that

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more than one location be sampled in order for a concentration gradient to be established, and so that valid statistical analyses can be conducted on the data. In addition, the regulatory agencies indicated stormwater permit bioassay data from the Navy Public Works department should be included in evaluating off-site migration via this channel.

c. Cargill Salt Ponds / Jagel and Devils Sloughs: The regulatory agencies have expressed concerns that chemicals from landfills 1 and 2, the Northern Channel, and the Golf Course Landfill East, may have migrated via lateral migration in the subsurface shallow groundwater, to wildlife habitats (e.g., the Cargill Salt Ponds).

During the April 1 meeting, it was stated that a technical memorandum will be prepared which addresses groundwater flow to Jagels Slough, and to the storm-water retention ponds to the west and northwest of Landfill 1. However, the full nature and extent of contaminants in the groundwater will not be known until more quarterly monitoring data are available. It was agreed at the meeting that the Phase II workplan will include a discussion of these groundwater data in determining migration potential to ecological habitats.

However, other potential sources of contaminants to Cargill Salt Ponds are the Golf Course Landfill East, and the Northern Channel. The draft Phase I Assessment dismissed these potential migration pathways without substantiating information. It was agreed at the meeting that the final Phase I assessment will include an analysis of waterflow and the potential for contamination migration to Cargill Salt Ponds from these sources. The analysis must present a sound technical basis or confirmatory sampling to demonstrate whether migration of contaminants to Cargill Salt Ponds has occurred, or is likely to occur in the future.

9. The U.S. Fish and Wildlife Service, the California Department of Fish and Game, and NOAA have not reviewed this memorandum, therefore these regulatory agencies may have different regulatory requirements and comments that are not reflected in this summary.

If you have any questions on these comments, please contact me at CALNET 494-2052.

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REFERENCES

Long, E.R., D.D. MacDonald, S.L. Smith, F.D. Calder. 1993.
 Incidence of Adverse Biological Effects within Ranges of
 Chemical Concentration in Marine and Estuarine Sediments.
 Manuscript, 22 pp.

U.S. Environmental Protection Agency. September 1992.
 sediment classification Methods Compendium. Office of Water.
 EPA 823-R-92-006.

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U.S. Environmental Protection Agency. 1989a. Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Part A). U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. Washington, D.C. December 1989. EPA-540/1-89/043.