

Memorandum

Chuin Kao
North Coast California Section
Toxic Substances Control Division

Date : October 26, 1987
Subject: Hunters Point -
Galley Site (draft)

Via: Bill Quan *BQ*

From : James A. Frampton
Environmental Assessment Unit
Technical Services Section, PP&E
Toxic Substances Control Division
(916)322-0507

The following comments and recommendations are directed toward the remedial investigations (RI) of the proposed and alternate Galley site locations at Hunters Point Naval Shipyard (HPNS). Documents referenced include the following:

"Confirmation Study, Verification Step, Hunters Point Naval Shipyard (Disestablished), San Francisco, California, Volume I: Report," March 19, 1987, EMCON Associates.

"Hunters Point Naval Shipyard Soil & Water Sampling near Proposed Galley," June 1987, ERM-WEST.

"Subsurface Investigations, Proposed Galley, Hunters Point Naval Shipyard," July 30, 1987, Harding Lawson Associates.

Declaration by William Troy Hord.

The comments and recommendations are addressed in the following sequence: 1) Identification of contaminants of concern, 2) Identification of potential biological receptors, 3) Review of exposure criteria for contaminants of concern for potential biological receptors, 4) Identification of potential routes of exposure, 5) Characterization of site, 6) Risk appraisal, and 7) Identifying possible remedial actions.

1) IDENTIFICATION OF CONTAMINANTS OF CONCERN

Comments:

The EMCON and ERM-WEST studies did extensive testing for a wide range of possible contaminants at locations at or near the proposed galley sites. Extensive analysis of soils by ERM-WEST suggests that the risk from VOCs and SOCs (Methods 625/8270) is minimal since concentrations were below detection limits.

Several groups of potential contaminants, however, were not

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References

Hunters Point Naval Shipyard documents reviewed by TSU staff:

1. "Confirmation Study, Verification Step, Hunters Point Naval Shipyard (Disestablished), San Francisco, California Volume I: Report", March 19, 1987, EMCON Associates.
2. "Hunters Point Naval Shipyard Soil and Water Sampling Near Proposed Galley", June 1987, ERM-WEST.
3. "Subsurface Investigations, Proposed Galley, Hunters Point Naval Shipyard", July 30, 1987, Harding Lawson Associates.
4. Declaration by William Troy Hord, February 1987.

investigated, including organochlorine pesticides and PCBS (Method 8080, EPA SW-846 for wastes and soils or EPA Method 608 for waters) and benzene and hexavalent chromium in soils and ground waters. That these chemicals may be of concern is indicated by their presence at elevated concentrations at many other locations across HPNS.

Several potential locations of contaminants identified by witnesses in the vicinity of the proposed and alternate Galley sites have not been adequately surveyed for potential contaminants of concern.

Recommendation:

Based on the above, near surface soil samples should be obtained and analyzed for organochlorine pesticides and PCBS using EPA Methods 8080 or 608. The soil sampling strategy should be developed in cooperation with DHS headquarters staff. Elements of concern in the sampling strategy should include the depth increments sampled and locations of samples.

DHS staff toxicologists and chemists should be consulted to determine whether other suspected contaminants of concern have been surveyed based on toxicological hazard and likelihood of occurrence in the industrial waste stream.

Further testing of soils and groundwaters should be conducted at those locations near the proposed Galley site and alternate Galley site that were identified in declarations and affidavits available from the District Attorney.

Groundwater samples should be taken and analyzed for hexavalent chromium and benzene.

2) IDENTIFICATION OF POTENTIAL BIOLOGICAL RECEPTORS

Comments:

There was no reference to potential biological receptors in any of the three reports. Potential biological receptors should include Galley site construction workers, Navy personnel using the dining facilities, and terrestrial and marine organisms.

Recommendations:

Clearly identify biological receptors. If there is none, then there is no problem.

3) REVIEW OF EXPOSURE CRITERIA FOR CONTAMINANTS OF CONCERN FOR POTENTIAL BIOLOGICAL RECEPTORS

Comments:

It is observed in reports by EMCON and Harding Lawson that a soil is determined to be "hazardous" or "nonhazardous" based on regulatory thresholds (STLC and TTLC) given in Sec. 66699, Title 22, Calif. Adm. Code. These regulatory thresholds are criteria to determine whether a material defined as "waste" (see Sec. 25124, Health & Safety Code) is a "hazardous waste" (see Sec. 25117, H&S Code) for purposes of disposal in a landfill. Since the soil at the Galley site has not been determined to be a "waste," the regulatory thresholds cited are inappropriate.

STLC and TTLC threshold criteria are not exposure criteria and thus should not be used to determine whether a soil material is hazardous or non-hazardous. The assumption that a substance which has a total concentration in soil exceeding 10 times the STLC value "has the potential to leach into groundwater at hazardous levels" may be appropriate under limited circumstances, but should not be used as a screening criteria.

Recommendations:

Screening for contaminants of concern in soils should not be based upon whether or not a contaminant exceeds a regulatory threshold that is meant for material defined as "waste". Any hazardous substance that is detected in soils at levels suspected to be in excess of "background" are potential contaminants of concern. The data for the Galley site indicates that naturally occurring substances are at or near levels considered typical for soils derived from similar geologic strata. For example, elevated concentrations of Ni, Cr and asbestos are not unusual for fill material derived from nearby serpentine rocks and soils. It should be noted, however, that "background" concentrations of naturally occurring hazardous substances in soils may still pose a potential threat to human health or the environment. One example is the asbestos-laden soils of the Clear Creek Management Area near Coalinga, California.

The selection of appropriate exposure criteria (water, soil and air) should be based on recommendations by DHS-TSCD staff toxicologists.

4) IDENTIFICATION OF POTENTIAL ROUTES OF EXPOSURE

Comments:

Routes of exposure by toxic substances include the ingestion of drinking water, the ingestion of food, the ingestion of soil, the inhalation of vapors and particulates, radiation, and dermal contact. In the referenced reports, no potential routes of

exposure were clearly identified.

Recommendations:

Identify potential routes of exposure, such as inhalation of contaminated vapors and dusts, dermal contact with contaminated substances, electromagnetic radiation, and ingestion of contaminated water, soils or foodstuffs.

5) CHARACTERIZATION OF SITE

Comments:

The proposed Galley sites have not been fully characterized. Based on available laboratory data, however, little additional work may be required to obtain information necessary to make proper risk appraisals for the various biological receptors, e.g., workers at the site and Navy personnel using the dining facilities. An example of additional data required would be soil characteristics and climatic conditions necessary to estimate the concentration of contaminants in resuspended dust generated during construction activities at the site. Further work should be based on the recommendations given below.

Recommendations:

Data requirements for site characterization will be governed by the preceding information. Such information includes a listing of the potential contaminants of concern, the potential biological receptors, and the potential exposure pathways. This information is necessary to determine what site characteristics must be measured or analyzed to make a proper risk appraisal for contaminants of concern.

With few exceptions, the spatial distribution of the contaminant must be determined at a point in time. The soil sampling strategy necessary to obtain a map of the distribution of contaminants should be developed in cooperation with DHS headquarters staff.

Secondly, factors controlling the migration of contaminants to points of exposure must be obtained. Where inhalation has been determined to be a potential route of exposure, soil characteristics and climatic conditions related to the resuspension of dusts may have to be considered. Where potential contamination of groundwater used as a source of drinking water is of concern, it is necessary to estimate the partitioning coefficients between soil phases for the contaminant of concern, and to measure hydraulic properties of soils affecting the leaching of the contaminant to groundwater.

6) RISK APPRAISAL

Comments:

The low concentrations of metals in groundwater samples confirmed that metals are largely precipitated or adsorbed within the fill material, and thus do not present a potential threat to marine organisms in San Francisco Bay.

No risk appraisal may be necessary for VOCs and SOCs if these compounds are not detectable by EPA standard methods of analysis.

Recommendations:

The contractor needs to perform a risk appraisal. The California Site Mitigation Decision Tree should be consulted for guidance in this matter. The nature of the risk appraisal will be governed by the nature of the contaminants of concern, the potential biological receptors, and the available exposure pathways.

For example, if groundwater is not expected to be a source of drinking water or will not migrate to surface waters where it would impact aquatic organisms now or in the future, then it may not be necessary to evaluate soil factors affecting the migration of contaminants to groundwater. As another example, if a substance that may pose a threat to human health via ingestion or dermal contact occurs at depth in the soil, then it may not be necessary to do an exposure assessment.

7) IDENTIFYING POSSIBLE REMEDIAL ACTIONS

Comments:

None proposed at this time.

Recommendations:

None given at this time.

✓ To: Bill Quan
Environmental Assessment Unit
Technical Services
Toxic Substances Control Division

Date: Oct. 26, 1987

Subject: Hunters Point
Naval Shipyard, Galley

via: Elgar Stephens *ES* —
Sr. Engr. Geologist

From: Allen R. Winans
Assoc. Engr. Geologist
Geotechnical Assessment Unit
Toxic Substances Control Division

Introduction

On Sept. 29, 1987, I received a copy of the Subsurface Investigation, Proposed Galley, Hunters Point Naval Shipyard, by Harding Lawson Associates, dated July 30, 1987. This document describes the study done in an attempt to verify that the site of the proposed galley is not so contaminated as to proscribe construction.

The report does not address the larger issues of characterizing the Hunters Point Naval Shipyard (HPNS) hydrogeology or how the various other identified hazardous waste units impact the galley site.

The hydrogeology of the HPNS (and the galley site) is known only to a conceptual degree. No piezometric data is available other than portions of the water table as measured in open holes and 'fully' screened monitoring wells. Hence, no data is available regarding the vertical gradients of ground water flow. Based on topography, tidal influence of some wells and reasonable assumptions about regional ground water flow, I assume local flow of ground water has an upward vertical gradient (discharge) at the immediate vicinity of the proposed galley.

If 40 CFR 300 is applied, the HPNS will have a hydrogeologic characterization performed which will include adequate devices to obtain depth-discrete piezometric data (short screens, porous stones or transducers, sealed over short intervals). The anticipated Remedial Action Order (RAO) will specify a Remedial Investigation (RI) that includes a section requiring a hydrogeologic investigation.

My comments regarding the adequacy of the current knowledge of ground water flow direction and rate, and the proposals to determine such, will be part of my review of the RI plan.

My comments here are thus restricted to: 1) The adequacy of the soil sampling and analysis performed to date considering all the data available about potential contamination of the proposed galley site area and 2) whether the soil sampling and analysis can be representative considering the nature of random fill materials.

Comments

The proposed galley site is within an area identified as a hazardous waste unit designated 'Bay Fill'. The 'Bay Fill' is not a structural fill, rather, it is random fill from HPNS grading operations and wastes from HPNS sand-blasting. In the vicinity of the proposed galley site fill material is approximately 12 to 40 feet deep, and was placed over bay muds.

Based on the above, it is likely that the 'Bay Fill' is not formed of uniform, gradational or otherwise predictable units. Soil sampling here will, at best, determine only the probable range of contaminant concentrations within a small volume of soil.

Heavy metals and asbestos are identified. It should be noted that chrysotile asbestos is a naturally occurring constituent of the serpentine bedrock at the HPNS that was used as random fill. Asbestos lagging (insulation) has also been identified in soil samples. Air-borne individual fibers cannot be distinguished as 'natural' or 'insulation' derived.

Prior to the site visit of Oct. 15, 1987, the TSU staff was provided with copies of the San Francisco District Attorney's Exhibit E which is a deposition by an employee of the primary private lease holder that occupied the site from the mid-1970's to 1986. In Exhibit E are descriptions of waste sites that are adjacent to the proposed galley site. These sites may not interfere with the placement of the galley but may be a hazard during construction of underground utilities. The locations of the waste sites may be erroneous. Migration of contaminants from these waste sites may have occurred.

Recommendation

The waste sites described in the San Francisco District Attorney's Exhibit E must be verified. The deposer should locate the sites in person to speed the process. The sites need to have soil sampling and testing for the contaminants suspected. The sampling program should be in two phases; first, locate and identify the contamination and, second, quantify the contamination by determining the limits of contamination. During the first phase, drill at least two borings at each suspected waste site. Borings should penetrate to at least five feet below the water table and continuous samples should be taken. The samples should be photographed and logged, then analyzed for the suspected contamination. If contamination is found, place at least one more boring at the limit of the galley site construction easement nearest to the waste site. Drill, sample and analyze as above. If contamination is found here as well, a risk assessment should be made and decision should be made whether to build the galley at the proposed site.

Memorandum

To : Bill Quan
Environmental Assessment

Via: Jeff Wong, ph.D. *JW*
Lead Staff Toxicologist

From : Michael Wade, ph.D., DABT *MW*
Cheng Liao, ph.D., DABT *CL*
Toxicology and Risk Assessment

Date : OCT 20 1987

Subject: Hunters Point
Naval Shipyard,
Harding, Lawson
Report on Proposed
Galley Site

As requested in your memorandum of October 16, 1987, we have reviewed the report on the proposed Galley site and have the following comments:

1. It appears that the analytical effort was focused almost entirely on metals; results for organics should be made available as well.
2. Because areas immediately surrounding the site may be contaminated and could lead to exposure of personnel both during construction and during use of the Galley afterwards; the extent of contamination of immediately adjoining areas should be investigated. In the same light, the extent of contamination of the soil through which utility lines (sewer, gas, water, and electricity will pass should be investigated as well.
3. We have concerns about worker exposure during the Galley construction. Upon completion of all additional analyses, the exposure and potential health impacts should be estimated for exposed construction workers and personnel using the completed Galley.
4. Aquatic Applied Action Levels (AAL's) for Cu and Zn were not included in the report.
5. The statement in the report that barium is "non-toxic" is erroneous. *The comment that barium sulfate was not observed to be toxic to marine life is irrelevant, the compound is insoluble in water, whereas any barium measured in ground water is presumably in solution and bioavailable*

Memorandum

Bill Quan
Environmental Assessment

Date : OCT 26 1987

Subject: Hunter's Point
Galley

Via: Judy Tracy
Property Evaluation Unit

From : Barbara Marcotte *BDM*
Property Evaluation Unit

The following comments pertain to the Hunter's Point Galley site and are based on a review of the Harding Lawson Associates Subsurface Investigation for the proposed Galley at Hunter's Point:

1. The Harding Lawson report does not address potential human exposure from inhalation of contaminated dust, soil particles, and volatile organic compounds (VOC's) which may be emanating from the surrounding area.

It is possible that the Galley construction site may not pose a health threat due to inhalation or dermal contact with contaminants in the soil. However, Galley users may be exposed to airborne contaminants while entering or exiting the facility. Air monitoring may be necessary to adequately address this issue. Wind speed, wind direction, and temperature should be monitored in conjunction with air sampling.

2. This study focuses only on the potential health threat due to the presence of metals in the soil and groundwater. Is there enough evidence in the previous investigations to discount the presence of other contaminants such as VOC's and PCB's?
3. The galley site is located in the Bay Fill Area which has received hazardous waste from both Navy activities and illegal dumping by Triple A. The nature and extent of this contamination has not been fully characterized.

The Harding Lawson report suggests that metal concentrations present in the soil and groundwater pose no potential threat to human health. It is planned that much of the Galley site would be paved and encapsulated(?). However, this report does not address whether Galley users would occupy only paved/encapsulated areas. Should a reasonable "exposure area" be identified and additional samples taken? I question the practicality of initiating new construction in the Bay Fill Area when the nature and extent of contamination has not been adequately characterized.

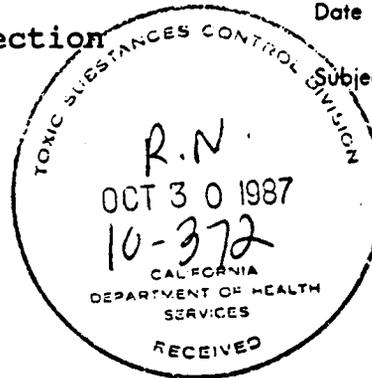
Memorandum

Ric Notini
North Coast California Section

Date : October 28, 1987

Subject: Hunters Point
Naval Shipyard (HPNS) -
Galley Site

From : Bill Quan *BQ*
Technical Services Unit



In your September 21, 1987 memo to the Technical Services Unit (TSU), you requested that TSU review the Navy's proposal to construct a dining facility at the Galley Site while the RI/FS for the entire site proceeds. It was our understanding that the questions you have concerning the proposal were:

1. Would construction of the dining facility impede the ongoing RI/FS?
2. If the answer to question number one is no, is the Galley Site sufficiently contaminant free so that a dining facility can be built there?

At the October 23rd meeting in your Emeryville office, HPNS personnel stated, according to our recollection, that the RI might be finished before the dining facility is constructed. If this is the case then, of course, the above first question becomes moot. In any case, TSU's response to question number one is no. However, TSU does not believe, based on the list of documents made available to TSU (attached), that the Galley Site and relevant adjoining areas (e.g., alleged Triple A sites as stated in the William Troy Hord declaration) have been adequately characterized in terms of exposure to construction workers and potential users of the proposed dining facility. TSU also recommends that after these areas have been sampled that a comprehensive air monitoring study for the Galley Site be implemented. The study will help answer the question of occupancy of the proposed dining facility. TSU staff is available to assist in the development of investigative techniques to characterize the Galley Site and adjoining areas.

Finally, attached are the specific comments in regard to the subject site from TSU staff. If there are any questions concerning TSU's comments, please do not hesitate to contact us. If your office concurs with our comments, then I recommend that we send a joint memo under your and my signatures to the Navy or whomever.

Attachment

cc: Jim Frampton	Cheng Liao
Eugene Shirai	Michael Wade
Allen Winans	Barbara Marcotte
Allen Wolfenden	Andy Burow, SMU

The second phase, with a goal of quantifying the contamination should be part of the RI.

Depth-discrete ground water sampling may also be required if the contamination has migrated to the water table. If this is the case, then it will be necessary to determine the ground water flow direction and rate prior to construction of the galley.

Any piezometers or monitoring wells installed should be constructed per the DHS Decision Tree process.

Dust control should be specified to minimize asbestos exposure during construction of the galley. Methods to minimize or eliminate exposure to asbestos at HPNS (including natural sources) should be incorporated into the Navy's master plan for the shipyard.

Use the soil sample analysis that indicates the highest risk from exposure. Since soil properties are so variable and contaminants are not uniformly or gradationally distributed, the most conservative approach is indicated.

cc: Allen Wolfenden, TSU
Laura Yoshii, PPE