N00236.001697
ALAMEDA POINT
SSIC NO. 5090.3

TECHLAW INC.

530 HOWARD STREET, SUITE 400, SAN FRANCISCO, CA 94105
PHONE: (415) 281-8730
FAX: (415) 281-8735

January 13, 2000

Ms. Anna-Marie Cook, SFD-8-2
Federal Facilities Cleanup Branch, Navy Section
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, CA 94105

Mr. Steve Dean, SFD-8-B
Federal Facilities Cleanup Branch, Technical Support
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, CA 94105

Reference: **Contract No. 68-W-98-0220 / WA No. 220-15-H3LW, Northern California Navy Sites, Review of Draft Historical Radiological Assessment, Naval Air Station Alameda, Volume 1, Naval Nuclear Propulsion Program, 1966-1997, Alameda, California, dated June 1998**

Dear Ms. Cook and Mr. Dean:

Attached to this letter is TechLaw's evaluation of the Draft Historical Radiological Assessment, Naval Air Station Alameda, Volume 1, Naval Nuclear Propulsion Program, 1966-1997, dated June 1998 (the HRA).

The HRA evaluates the potential radiological impacts to the environment from Naval Nuclear Propulsion Program (NNPP) activities. The HRA focuses on the operation and maintenance of nuclear-powered ships that were berthed or moored at Naval Air Station Alameda (Alameda Point) between June 1966 and January 1997, and concludes that "the berthing of and work on nuclear-powered ships at NAS Alameda has had no adverse effect on the human population or the environment of the region; and an independent review by the Environmental Protection Agency is consistent with these conclusions. The Navy concludes that no additional characterization and no remedial actions are necessary as a result of NNPP activities at NAS Alameda."

The HRA describes the results of monitoring and surveys since 1966 that show the releases of

AlaPtRadhra.ltr.wpd

radiation from NNPP activities have been small in comparison to natural background radiation. TechLaw's review of the HRA did not identify any information that would indicate these conclusions are in error. However, the HRA, only focused on releases that could occur due to operation and maintenance of the propulsion plants in the ships at Alameda Point. The HRA does not address other potential sources that may or may not have been present at Alameda Point. For example, radiological removal actions have already been conducted at IR sites 2 and 5, even though these sites are not discussed in the HRA. Additionally, radium dials have been detected at the Site 1 landfill, and this site is also not discussed in the HRA.

The HRA does indicate that sediments at several sampling sites had gross gamma levels greater than 4.5 pCi/cm^2 between 1966 and 1970, which exceeds the NNPP standard for wipe samples. However, TechLaw could not identify any screening criteria which might act as applicable, or relevant and approriate requirements for evaluating gross gamma levels in sediments.

This evaluation is being forwarded to you through electronic mail (via Internet) in WordPerfect® Version 6/7/8 format. A hard copy of the evaluation will also be submitted with this cover letter. TechLaw understands you will review and augment the evaluation at your discretion.

Please contact me at (415) 281-8734, ext. 24 if you have any questions regarding this review. We appreciate the opportunity to provide technical oversight services to EPA on this project.

Sincerely,

Adam Klein
Site Manager

cc: Angela Commisso, U.S. EPA Region IX, w/o attachment
Patricia Brown-Derocher/Central Files, TechLaw, Inc.

Attachment

NORTHERN CALIFORNIA NAVY SITES
ALAMEDA POINT
Alameda, California

Historical Radiological Assessment
Naval Air Station Alameda
Draft Volume 1, Naval Nuclear Propulsion Program, 1966-1997

Submitted to:

Ms. Anna-Marie Cook
EPA Work Assignment Manager
and Mr. Steve Dean
Radiation Specialist
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, California 94105

Submitted by:

TechLaw Inc.
530 Howard Street
Suite 400
San Francisco, California 94105

EPA Work Assignment No.	220-15-H3LW
Contract No.	68-W-98-0220
EPA WAM	Ms. Anna-Marie Cook
Telephone No.	(415) 744-2367
TechLaw Site Manager	Adam Klein
Telephone No.	(415) 281-8734 x 24

January 13, 2000

AlaPtRadhra.ltr.wpd

Review of Draft Historical Radiological Assessment
Naval Air Station Alameda
Volume 1, Naval Nuclear Propulsion Program, 1966-1997

GENERAL COMMENTS

1. The Draft Historical Radiological Assessment, Naval Air Station Alameda Volume 1, Naval Nuclear Propulsion Program, 1966-1997 (the HRA) may not fully address all potential sources for radioactive material releases at Alameda Point. The HRA focuses on the potential for releases from naval reactor power plant operation, maintenance, and repair. However, the HRA neither addresses, nor rules out other possible radioactive sources, such as sealed source instruments or luminescent dials. The HRA should indicate whether these sources were present at Alameda Point and address the possibility that these sources may have released radioactivity to Alameda Point.

2. The HRA focuses on releases of cobalt-60 from the NNPP and its presence in the environment as an indication of whether or not the NNPP has had a significant effect on radiation levels in the environment. The basis for this is that cobalt-60 is the predominate long-lived radionuclide in the propulsion reactor cooling water. However, other sources (e.g., luminescent dials, sealed source equipment) may not have the same mix of radionuclides. The HRA should address the potential for other long-lived radionuclides to be present if there are other sources at Alameda NAS.

SPECIFIC COMMENTS

1. **Section 5.1.3, Table 5-4:** Some inadvertent releases of radioactive materials may have contaminated areas away from the work sites where the material was used. This section of the HRA describes 13 reports related to potential radioactivity releases to the environment and the response actions that were taken. Of the 13 incidents, four (12/8/86, 8/29/89, 2/28/90, and 6/19/92) involved the loss of tools or a potentially radiological component that were never located. The response summaries indicate that surveys were conducted in the areas where the items were used and that there were no elevated radiation levels. However, the 12/8/86 incident does not clearly rule out the possibility that contamination was exported from the work area. The HRA should indicate whether the incident report concluded that the tool was or was not contaminated. If no such conclusion exists, the HRA should state whether or not the loss could be radiologically significant to the public.

2. **Section 6.1.1, Table 6-1:** The conclusion that no remedial work is required does not appear to be consistent with the data in Table 6-1. According to Table 6-1,

sediments at several sampling sites had gross gamma levels greater than 4.5 pCi/cm^2 between 1966 and 1970. (After that time period, results were reported as pCi/g.) The NNPP limits (see HRA section 4.4) for radiologically controlled areas and for Controlled Surface Contamination Areas is 450 pCi/100cm^2 swipe sample (equivalent to 4.5 pCi/cm^2). The HRA should address the current status of the radiation levels at the monitoring locations with respect to the 4.5 pCi/cm^2 limit and explain why no action would be needed (e.g., isolation from the public due to depth below surface, these values do not exceed appropriate screening values for radiation in sediment, no dredging and use of bottom sediments is expected etc.)

3. **Section 6.1.1, page 6-6:** The dredge sampling technique described in the third paragraph does not appear to be adequate to determine the current fate of radiological contamination associated with the release of contaminated water to the San Francisco Bay in 1966. In 1966, a reported 0.187 Curies were released into the Bay (see page 5-6). Sediment sample analytical results presented in Table 6-1 show the highest reported gross gamma concentrations between 1966 and 1969 were higher than during later years. The data show a generally decreasing trend in gross gamma concentrations in sediments over time. This decrease may be attributed to radioactive decay, especially for cobalt-60 with a 5.3 year half-life. However, the decrease may partially be a reflection of the sampling technique, which only samples the top half inch to one inch of the sediments. The sediments monitored between 1966 and 1969 may currently be buried by several inches or feet of sediment deposited over the past 30 years. The current samples would only contain radioactive materials that were deposited in the time period during which one inch of sediment was deposited. The HRA should provide information to show that dredging of the buried layers would not pose a public health concern.

4. **Section 6.3, page 6-20:** The statement in the last sentence of the final paragraph, that radiation exposure to the general public in occupied areas surrounding the base is indistinguishable from natural background, does not appear to be accurate. Data in Table 6-1 indicates that perimeter values may be distinguishable from area-wide background levels, although the significance of the difference may be minor. A review of Table 6-8 shows that, at the low end of the reported ranges, 41 of the 61 quarterly perimeter values beginning in 1981 are higher than the corresponding background value. The perimeter values were as much as 48% higher (3rd quarter 1990). In general, the difference is much smaller, but a pattern of higher perimeter values can be seen beginning in 1981. Prior to 1981, the low, high, and average perimeter values are all less than the corresponding background value. For the average values, 18 of the 61 perimeter values are higher than the background values. For the high end of the range, only 5 of the 61 perimeter values are higher than the background value.

The HRA would be more accurate to indicate the significance of the values rather than stating that the exposures are indistinguishable from background. However, the table does not present enough information to determine if the elevated perimeter values are higher than the lowest background value due to elevated radiation levels at the site perimeter or because the lowest area-wide background values came from a location with low natural background radiation levels.