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ALAMEDA POINT
SSIC NO. 5090.3

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

September 7, 2000

VIA FACSIMILE
(619) 532-0940

Mr. Rick Weissenborn
EFD Southwest BRAC Offices
1230 Columbia Street, Suite 1100
San Diego, CA 92101-8517

Re: U.S. EPA Review of Draft Radiation Human Health Risk Assessment, Alameda Naval Air Station

Dear Mr. Weissenborn:

The U.S. Environmental Protection Agency (U.S. EPA) has received and reviewed "Draft Human Health Risk Assessment in Support of Remedial Action Objectives for Radiological Material at Operable Unit 3 Alameda Point, Alameda, California"(draft Radiation Risk Assessment), dated May 22, 2000.

Based upon U.S. EPA's review of the subject document, we have several general concerns with the Navy's draft Radiation Risk Assessment including: (1) concern that the Navy has not supported a primary assumption that radiactive waste was disposed randomly throughout OU3; (2) concern that the Navy has not fully characterized the site for consolidated subsurface radioactive waste; (3) concern that the radiation risk assessment does not evaluate a total combined radiological and chemical risk nor indicate how the Navy will evaluate total combined risks; and (4) concern with evaluating long-term effectiveness and permanence of landfill caps covering radiactive waste. Please see the enclosure for additional U.S. EPA comments.

If you have any questions concerning this matter, please do not hesitate to contact me at (415) 744-2365.

Sincerely,

Phillip Ramsey

Phillip Ramsey
Remedial Project Manager

Enclosure

cc: see next page

cc: Mr. Michael McClelland, BRAC Environmental Coordinator
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Mr. Brad Job
California Regional Water Quality Control Board - San Francisco Bay Region
1515 Clay Street, Suite 1400
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Ms. Liz Dodge
City of Alameda Community Development Department
950 West Mall Square
Alameda, CA 94501

Ms. Elizabeth Johnson
City of Alameda Community Development Department
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Ms. Mary Sutter
Alameda Naval Air Station Restoration Advisory Board
2415 Roosevelt Drive
Alameda, CA 94501

August 31, 2000

MEMORANDUM

SUBJECT: Comments on OU-3 Radiological Survey and Proposed Action Summary

FROM: Steve M. Dean (SFD-8-B)
Superfund Technical Support Team

TO: Phillip Ramsey/ Anna-Marie Cook (SFD-8-3)
Navy Section

General Comments:

I have three major concerns regarding this risk assessment document.

1) This **Human Health Risk Assessment In Support of Remedial Action Objectives for Radiological Materials at Operable Unit 3 Alameda Point, Alameda, California** is predicated on an assumption that radium 226 in small, discrete sources along with a small number of strontium deck markers are dispersed randomly throughout OU-3. There may be other radionuclides of concern, as well, buried deep enough to avoid detection by surface surveys yet may possess different chemical and physical properties from radium and strontium. Placing a three feet thick cap over dispersed sources may offer an acceptable degree of safety. I am not convinced that the Navy has fully characterized the site for consolidated subsurface radioactive waste. If such areas exist in OU-3 then additional steps will be necessary to minimize long-term health risks regardless of the proposed capping and reuse plans.

2) This risk assessment assumes that radioactive contamination is the only contaminant posing health risk. There are also risks associated with toxic chemicals and heavy metals, as well as, unexploded ordinance present at OU-3. Since risks for radiation and chemicals are additive they both must be considered together as total health risk. The total combined risk approach, which is required under CERCLA, is absent from this document.

3) The long-term integrity of a protective cap over the landfill cannot be adequately quantified in terms of long term radiation exposure and cancer risk. Burrowing animals, weathering (erosion), tree growth, and seismic activity, are just a few of the natural forces that will impact the protectiveness of a clay cap over OU-3 landfill. Radium 226, assumed to be the most abundant radionuclide of concern, has a half-life of 1600 years. Therefore it will take approximately 10,000 years for a one microCurie radium source to decay to a typical background level. In conjunction with capping OU-3, what other possible risk reduction measures will be implemented to insure the cap's long-term integrity?

Specific Comments:

Page 3, Section 2.1.1, paragraph 2: Under CERCLA a concentration of 5 pCi/g of Ra226 averaged over 100 square meters is not sufficiently health protective for free release unrestricted land use. This is an Uranium Mill Tailings Radiation Control Act standard for uranium mill tailing sites.

Page 3, Section 2.1.1, paragraph 3: Using CERCLA's Risk Assessment Guidance for Superfund Part B, the residential scenario Preliminary Remediation Goal (PRG) for Strontium-90 is 14 picoCuries per gram (pCi/g) in soil, the commercial scenario PRG is 57 pCi/g.

Page 4, Section 2.1.2, paragraph 2: The Navy must demonstrate using the available literature on burrowing animals that this cap will sufficiently prevent receptors such as ground squirrels from piercing and ultimately compromising the cap's integrity over the long-term. This document does not adequately address the health risks from factors which contribute to the cap's degradation.

Page 4, Section 2.1.2, paragraph 3: Using 20 microRoentgen per hour (uR/hr) as an RAO for this dose/ risk assessment is not sufficiently health protective. This dose rate generates an annual dose of 40 millirem per year using an eight hour, 250 days per work year. This dose rate also ignores the gamma dose rate from background which measures typically between 5 and 10 uR/hr. The assumption that all receptors will always move randomly over contaminated areas is not sufficiently health protective.

Page 7, Section 3.3, paragraph 1: The EPA's Office of Radiation and Indoor Air recommended EDE of 15 millirem per year above ambient is a screening guidance. EPA Superfund does not endorse a dose based cleanup standard for two reasons. first, because 15 millirem/yr equates to a lifetime cancer incidence of 3 x 10-4 which exceeds the CERCLA cancer risk range. Secondly, dose assessment is not compatible with chemical risk assessment; thus, making combined risk assessment, which is required under CERCLA, extremely difficult.

Page 8, Section 3.3, paragraph 1, last sentence: The most appropriate method is to calculate net risks both with and without background subtraction. Total risk includes accumulative risks from all toxic materials including their background levels.

Page 9, Section 4.1, paragraph 2: "A thin a layer of topsoil and vegetation layer" does not meet the appropriate engineering requirements to be considered a RCRA equivalent cap.

Page 9, Section 4.1, paragraph 4: The term "occupational redevelopment" sounds a bit ambiguous. The document needs to state clearly the intended occupants; be they commercial or residential.

Page 10, Section 4.1, bullet item #1: The acronym "ACF" is undefined in this document.

Page 11, Section 4.2, paragraph 2: While radon (Rn222) should not be evaluated in this RRA, any permanent building erected at OU-3 should meet radon compliance building codes. However, limiting construction on OU-3 is the most desirable option and should be incorporated into the institutional controls for OU-3.

Page 14, Table 4-1: Please provide a definition of the Strontium Adjustment Factor (SAF) and an explanation of how it is being applied to the risk calculations.

Page 16, Section 5.1, paragraph 2: The latest HEAST was revised in 1997 and published in 1998.

Page B-5, Table B-1: This table serves little if any useful purpose. The radium devices have likely been in place long enough for the entire compliment of decay products to have established secular equilibrium with Ra226.

If you need clarification or have any questions regarding these comments please contact me at 4-2391. Thank you.

cc: Penny Leinwander (CA DHS)