



Department of
Toxic Substances
Control

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January 15, 1998

Commanding Officer
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Attn: Mr. George Kikugawa, Code 1831.2
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ALAMEDA POINT
SSIC NO. 5090.3



Pete Wilson
Governor

Peter M. Rooney
Secretary for
Environmental
Protection

**ALAMEDA POINT, ALAMEDA, CALIFORNIA: IR SITES 1, 2, 5,
AND 10 RADIOLOGICAL REMOVAL ACTION DRAFT TECHNICAL WORK
DOCUMENT/PRELIMINARY DRAFT REMOVAL ACTION PLAN
(NOVEMBER 1997)**

Dear Mr. Kikugawa:

The Department of Toxic Substances Control (DTSC), in conjunction with the Department of Health Services (DHS), has reviewed the Radiological Removal Action Draft Technical Work Document/Preliminary Draft Removal Action Plan for Alameda Point, dated November 1997.

DTSC and DHS agree that Alternative 3 - Removal (Excavation) provides the highest degree of protection to human health and the environment compared to the other two alternatives. DTSC and DHS disagree with the Navy's conclusion that the proposed media-specific remediation goals will allow IR Site 1 "to be used without property, access, or deed restrictions." Because discrete sources in subsurface soil will not be removed, controls at the site will be required if the property is transferred out of federal jurisdiction. The specific controls required will need to be discussed with DTSC and DHS. DTSC also has concerns about the content of the proposed Remedial Action Plan.

Mr. George Kikugawa
January 15, 1998
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Specific comments and a table of Applicable or Relevant and Appropriate Regulations are enclosed. If you have any questions regarding this letter, please contact me at (510)540-3814.

Sincerely,



Mary Rose Cassa, R.G.
Engineering Geologist
Office of Military Facilities

enclosures

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DEPARTMENT OF HEALTH SERVICES REVIEW

ACTIVITY: *Review of IR Sites 1, 2, 5, and 10 Radiological Removal Action – Draft Technical Work Document/Preliminary Draft Removal Action Plan, dated November 1997; and, Draft Removal Site Evaluation for Removal Action At IR Sites 1, 2, 5, and 10, dated November 1997 (DTSC/DHS Work Form #360)*

FACILITY: Alameda Point (formerly Alameda Naval Air Station), Alameda, CA

GENERAL COMMENTS:

1. DHS agrees that Alternative 3 – Removal (Excavation) provides the highest degree of protection to human health and the environment compared to the other two options.
2. Table 4-1 could not be completely reviewed by DHS in the allotted time because of the table's complexity and the need for supporting documentation. DHS requests a demonstration on how these numerical goals were derived and more time to consider if these specific numerical goals will meet the overall goal of limiting the potential radiation exposure to the critical group.
3. DHS disagrees with the conclusion that the proposed media specific remediation goals would allow IR Site 1 "to be used without property, access or deed restrictions." (Draft Removal Site Evaluation for Removal Action, page 5, last paragraph.) Because discrete sources in subsurface soil will not be removed, controls at the site will be required if the property is transferred out of federal jurisdiction. The specific controls required will need to be discussed with DHS.

SPECIFIC COMMENTS:

1. Page 1-2, para. 2: It should be noted here that Radium-226 is regulated by the State of California.
2. Page 2-1, para. 2: DHS agrees that the industrial articles used by the DoD, individually, do not differ significantly from commercial radioluminescent watches. However, Site 1 and Site 2 differ from a commercial landfill in that commercial landfills do not normally have routine disposals from a radium paint shop. Therefore, IR Site 1 and IR Site 2 may require more than what is normally required for landfills that may have commercially distributed devices containing radioactive materials disposed by individual users.
3. Page 3-2, last para: How did the Navy conclude that incidental handling of radium would not "present any significant risk to future occupants?" What is

considered a significant risk? What were the occupancy scenarios used to come to this conclusion? DHS agrees that leaving in place devices, which are not detectable from the surface, is not contrary to protection of human health, as long as they remain undetectable and controls are in place to ensure discrete sources are not removed. DHS also agrees with the statement that this analysis must be re-examined during the final remedy for the site.

4. Page 3-3, para. 2: What are the "institutional controls that would potentially fail far into the future?" It does not say anywhere else in the document that institutional controls are to be applied for radiation hazards. Please clarify what is meant here.
5. Page 3-3, Section 3.2: Please specify if the boundaries of the survey are subject to expansion if indications show that material may be outside the currently indicated site boundaries.
6. Page 4-1, last para: Because IR Site1 contains discrete sources, the cleanup criteria in 40 CFR 192 would not apply. A presumptive remedy cap at Site 1 would not exempt future non-federal government owners from controls by DHS, unless all discrete sources are removed.
7. Page 4-4, Table 4-1: Will the Navy be responsible for demolition of buildings that have limits higher than NRC RG 1.86? If no, who will be responsible for disposal of contaminated building materials, since levels above RG 1.86 could potentially be considered radioactive waste requiring special disposal?
8. Page A-1, Table A-1: 10 CFR 20.1403 should also be cited in this table. Compliance with 10 CFR 20.1402 only may be difficult to demonstrate if the quantity of discrete sources is unknown. Without knowing the source term, determining whether 15-25 mrem/yr to an average member of a critical group is exceeded will be difficult.
9. Page A-2, Table A-1: Whenever the exemption under 40 CFR 192.21 (c) is applied, DHS needs to be involved in the decision making process since this regulation is subjective in nature, and open to discussion on when it can be applied.

DEPARTMENT OF TOXIC SUBSTANCES CONTROL
IR SITES 1, 2, 5, AND 10 RADIOLOGICAL REMOVAL ACTION - DRAFT
TECHNICAL WORK DOCUMENT/PRELIMINARY DRAFT REMOVAL ACTION PLAN,
ALAMEDA POINT, ALAMEDA, CALIFORNIA (NOVEMBER 1997)

GENERAL COMMENTS REGARDING REMEDIAL ACTION PLAN CONTENT AND
FORMAT

1. A Remedial Action Plan is a public document that should be written in a clear and concise manner (see DTSC Policy #EO-95-007-PP for a recommended outline).
2. The Executive Summary should include a brief statement of the purpose of the RAP, site description, identification of contaminants, and identification of the proposed alternative. It should also include information on how the public can be involved in the remedy selection process. The Administrative Record List should be included in the Executive Summary or as an appendix to the Executive Summary.
3. DTSC policy states that all California Environmental Quality Act documents shall be prepared, noticed, and distributed concurrently with the Draft RAP.

SPECIFIC COMMENTS

1. Title: The State decision document is called a Remedial Action Plan, not Removal Action Plan. Please use the correct title.
2. Section 1.0, Introduction (page 1-1):
 - a. Please clearly state that this document serves as a RAP. Does this document also serve as an EE/CA?
 - b. The text states, "The proposed action will substantially eliminate the identified pathways of exposure to ionizing radiation from radium-226." Is this possible? Would it not be more accurate to state, ". . . substantially reduce and, in many [most] cases, eliminate?"

3. Section 2.0, Site Conditions and Background (page 2-1):
 - a. 2nd sentence of 2nd paragraph: Insert comma after "watches."
 - b. Please explain the two sentences beginning with "Individually . . ." Does this document cover all articles and devices from 1930 through early 1970's, or only the early ones?
4. Section 2.1.2, Type of Facility and Operational Status (page 2-2):
 - a. The text states, ". . . all radiological operations in Building 400 were conducted in a controlled booth and were carefully monitored." Please describe the standards of the booth controls and monitoring.
 - b. Please provide the closure status of the landfills (closed pursuant to CA regulations?). What happened to refuse after 1978?
 - c. Please explain the relationship between the West Beach Wetland and IR Site 2. Do the same radiological issues exist in the wetlands?
5. Section 2.1.3, Structures and Topography (page 2-2): Please show the jogging trail on Figure 2-2. This description gives the impression that the IR sites contain most of the jogging trail, instead of indicating that the trail incidentally meanders through the sites. Is the jogging trail the same as "Perimeter Road?"
6. Section 2.1.4, Geology and Hydrogeology (page 2-5): Please delete "layer" after San Francisco Bay Mud. In the storm drain description, please clarify that storm drains collect rainwater in paved or developed areas. Please describe what happens in areas like Sites 1 and 2.
7. Section 2.1.6, Meteorology (page 2-5): Most meteorological descriptions for the Oakland-Alameda area cite an average of 18 inches of rain per year.
8. Section 2.2, Other Actions to Date (page 2-6): Please briefly describe how the radiation survey was conducted. Please describe the recovered radioactive material and its

disposition. (Some of this information may be provided in the following sections; if so, please so indicate.)

9. Section 3.1, Threats to Public Health or Welfare (page 3-2): Please reword the first sentence of the first full paragraph on page 3-2 ("Military and civilian users produced . . ."). It would be helpful if the Navy could provide one or two examples of "other sites" where the Navy has similar experience.
10. Section 3.2, Threats to the Environment (page 3-3): Please replace "criteria" with "criterion" (first line).
11. Section 4.0, Removal Action Goals (page 4-1):
 - a. Second paragraph: For the lay reader, please select another word to replace "primordial," and explain the relationship between uranium and radium-226. Please replace "geologic structure" with "geology."
 - b. Third paragraph: Please explain what a free-release certification is.
 - c. Fourth paragraph: Please explain what a presumptive-remedy cap is. Is it premature to state that IR Site 1 will receive a cap? Perhaps better to state that the likely remedy will be a cap.
12. Section 5.0, Evaluation and Comparative Analysis of Removal Action Alternatives (page 5-1):
 - a. The names selected for alternatives 2 and 3 do not accurately reflect the nature and scope of these alternatives. Alternative 2 (called "close in-place") meets requirements for close-in-place, but involves removal of radioactive anomalies from soil at sites 1 and 2 and removal of radioactively contaminated surfaces and equipment at IR Sites 5 and 10. The name assigned to this alternative should reflect the removal aspects as well as the close-in-place aspects. Similarly, Alternative 3 (called "removal" on page 5-2 and "removal and off-site disposal" on page 5-5) involves significantly more removal than Alternative 2 and should be assigned a name that reflects the scope of the removal and disposal activities.

- b. The description of Alternative 2 beginning on page 5-1 should include explicit information as to whether or not any decontamination will take place. It is implied that no decontamination will take place, based on information presented later in this chapter.
 - c. The discussion of each removal action alternative should include information about disposal of any material that is removed.
13. Section 6.1.5, Project Implementation Documents (page 6-4): The text states that this is an interim action for the sites. This contradicts the statement in Section 5.2.3, Cost (page 5-3): "The removal action . . . is intended to be a final action with respect to radioactive contamination." Please correct as appropriate.
14. Section 6.2, Estimated Cost (page 6-4): It does not seem reasonable to calculate zero cost for operation and maintenance. Would not ongoing monitoring (especially in the landfills) be required to ensure that no more anomalies are detected in the near-surface?
15. Section 7.0, Public Involvement (page 7-1): This section should be rewritten to accurately reflect the relationship between this "technical work document" and a Remedial Action Plan. The Navy may circulate the Draft Final TWD for public comment as a Draft RAP, provided the function of both documents is understood by the public. The BRAC Cleanup Team may need to revisit the nomenclature for this document.

California Environmental Protection Agency
 Department of Toxic Substances Control
 Applicable or Relevant and Appropriate Requirements (ARARs) for
 Remediation of Radium-226 Contamination at Alameda Point
 (former Alameda Naval Air Station), Alameda, California

Note: DTSC reserves the right to amend this list pursuant to the intent of the Superfund Amendments and Reauthorization Act.

ARAR	Type	Description	Comment
California Code or Regulations (CCR), Title 22, Chapter 11, Articles 1, 2, 3, 4, & 5	Chemical Specific	Identification and listing of hazardous waste. Article 2 includes criteria not found in Code of Federal Regulations (CFR), Title 40. Specifically, Sections 66261.24(a)(2), (3), (4), (5), (6), (7), & (8) and 66261.24(b)&(c) define non-RCRA waste.	This regulation is applicable if radium is mixed with a hazardous waste (mixed waste).
CCR, Title 22, Chapter 12, Article 1	Action Specific	Requires a generator to determine if waste is hazardous and obtain an identification number	Whenever waste is generated in remediation process, the Navy must determine if the waste is a hazardous waste. Because the Navy will generate a waste, this regulation is applicable.
CCR, Title 22, Chapter 12, Articles 2, 3, 4,	Action Specific	These articles identify generator requirements, including pre-transport labeling requirements; limits on accumulation time; manifest requirements; and record keeping and reporting.	If the waste is determined to be a mixed waste these regulations are applicable.

**ARARs for Remediation of Radium-226 Contamination at Alameda Point
(former Alameda Naval Air Station), Alameda, California**

ARAR	Type	Description	Comment
CCR, Title 22, Chapter 18, Land Disposal Restrictions	Action Specific and Chemical Specific	Identifies wastes that are restricted from land disposal, schedule for implementation, prohibitions, and treatment standards. Articles 10 and 11 apply to non-RCRA (California) waste.	If waste is determined to be a mixed waste, then Land Disposal Restrictions may apply, depending on the type of waste.
California Health and Safety Code (H&SC), Chapter 6.8, Article 5, Sections 25356.1(d), (e), and (f)	Action Specific	Remedial Action Plans cannot require a less stringent level of cleanup than would be required by NCP. Section 25356.1(e) identifies community involvement requirements.	NCP (40 CFR, Chapter 1, Section 300.430(e)(2)(i)(A)(2)). Defines acceptable exposure levels as between 10^{-4} and 10^{-6} . 10^{-6} will be used as point of departure for determining remediation goals when ARARs are not available or not sufficiently protective.
CCR, Title 17, Section 30253	Action Specific	California version of Title 10, Code of Federal Regulations (CFR), Section 20.2202(a)(iii)	A significant change in the regulations, as adopted by California, is that the federal term "licensee" is replaced by "user" as defined in Title 17, CCR, section 30100.

**ARARs for Remediation of Radium-226 Contamination at Alameda Point
(former Alameda Naval Air Station), Alameda, California**

ARAR	Type	Description	Comment
CFR, Title 10 Sections 20.1402 and 20.1404, Radiological Criteria for Licence Termination: Final Rule	Action Specific and Chemical Specific	These regulations establish an upper dose limit of 25 millirem per year Total Effective Dose Equivalent (TEDE) for sites/facilities released for unrestricted use.	As an agreement State, California must adopt regulations as stringent as these no later than 3 years from the effective date of the NRC regulations. The 25 millirem per year TEDE is not sufficiently protective to meet health protective standards found in H&SC, Chapter 6.8 and NCP. Although it may be applicable to licencing, the Rule is not applicable to cleanup under H&SC, Chapter 6.8.
California Health and Safety Code, Chapter 6.6, Section 25249.5: Safe Drinking Water and Toxic Enforcement Act of 1986 (Prop. 65)	Chemical Specific and Action Specific	Prohibits a release of carcinogens, including radionuclides, unless the resulting exposure poses no significant lifetime risk, which is defined as 10^{-5} . If an individual's exposure exceeds this level, "clear and reasonable warning" must be given.	If residual cleanup levels provide a risks greater than 10^{-5} , the posting of warning signs is required.
Guidance for Cleanup of Radioactivity on Closing Military Bases for Unrestricted Public Use of Property	Action and Chemical To-Be- Considered	Guidance in the evaluation of levels of environmental radioactivity on closing military bases. Direction on managing potential risks from radionuclides for the purpose of site cleanup.	Specifies concentration of radionuclides and the corresponding lifetime cancer risk. For example: The 10^{-6} lifetime cancer risk from Radium-226 in soil corresponds to a concentration of 0.002 pCi/g.

**ARARs for Remediation of Radium-226 Contamination at Alameda Point
(former Alameda Naval Air Station), Alameda, California**

ARAR	Type	Description	Comment
Bay Area Air Quality Management District, Regulation 6	Action Specific	Particulate Matter and Visible Emissions	Describes practices which must be implemented to reduce particulates
California Endangered Species Act of 1973	Location Specific	Fish and Game Code, Section 1900 <u>et seq.</u> ; 2050 <u>et seq.</u> to 2068; 2070; 2080; 2090 <u>et seq.</u> to 2096.	Endangered Species are present at NAS Alameda. The site will become a National Wildlife Refuge. Species protection must be considered.
Federal Coastal Zone Management Act (16 USC 1456 (c) (3) (A))	Location Specific	Federal actions or federally funded or approved actions that affect the coastal zone must be consistent with the policies of the San Francisco Bay Conservation and Development Commission's federally approved coastal management program.	To the greatest extent feasible, remaining marshes and mudflats around the Bay, the remaining water volume and surface area of the Bay, and adequate freshwater inflow to the Bay should be maintained. Specific habitats that are needed to prevent the extinction of any species, or to maintain or increase any species that would provide substantial public benefits, should be protected, whether in the Bay or on the shoreline.

**ARARs for Remediation of Radium-226 Contamination at Alameda Point
(former Alameda Naval Air Station), Alameda, California**

ARAR	Type	Description	Comment
CCR, Title 22, Chapter 15, Domestic Water Quality Criteria and Monitoring.	Chemical Specific	Article 4: Primary Standard - Inorganic Chemicals. Identifies Maximum Contaminant Levels in drinking water supplies. 64431.0-64437.0 Radium-226 + -228: California Primary Water Maximum contaminant Level (MCL) is 5 pCi/l (CA Dept. Health Services) Gross Alpha radioactivity: 15 pCi/l Gross Beta radioactivity: 50 pCi/l	Regulation is applicable if radium has impacted groundwater and groundwater is a drinking water source. Radium contamination has affected soil and storm sewers. Previous investigations have not shown that the groundwater has been affected by radium releases.
State Water Resources Control Board Resolution Number 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California), October 28, 1968	Chemical Specific and Action Specific	Requires the continued maintenance of high quality waters of the state even where that quality is better than needed to protect beneficial uses, unless specific findings are made.	Radium release cannot adversely affect the quality of waters of the State of California.

**ARARs for Remediation of Radium-226 Contamination at Alameda Point
(former Alameda Naval Air Station), Alameda, California**

ARAR	Type	Description	Comment
State Water Resources Control Board, California Ocean Plan, Numerical Water Quality Objectives	Chemical Specific	Instantaneous Maximum Radium-226 + -228: 5 pCi/l Gross Alpha radioactivity: 15 pCi/l Gross Beta radioactivity: 50 pCi/l	Although the Ocean Plan applies outside of bays and estuaries, the requirement is relevant and appropriate. Radium contamination in storm drains may affect San Francisco Bay. Cleanup level of 5pCi/l in storm drains.
State Water Resources Control Board Resolution 92-49 (as amended April 21, 1994)	Action Specific	Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304.	Radium contamination is in storm drains that connect to the bay.