



Cal/EPA

Department of  
Toxic Substances  
Control

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Mr. Joseph Joyce  
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U.S. Marine Corps Air Station - El Toro  
P. O. Box 95001  
Santa Ana, California 92709-5001

November 4, 1996



Pete Wilson  
Governor

James M. Strock  
Secretary for  
Environmental  
Protection

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MCAS EL TORO  
SSIC # 5090.3

**DRAFT FINAL PHASE II REMEDIAL INVESTIGATION REPORT: PERIMETER ROAD  
LANDFILL, SITE 5, OPERABLE UNIT 2C, MARINE CORPS AIR STATION (MCAS)  
EL TORO**

Dear Mr. Joyce:

The California Environmental Protection Agency (Cal/EPA) has completed the review of the above subject document dated October 1996, prepared by Bechtel National, incorporated. The report presents the results of Remedial Investigation (RI) conducted at Site 5, the Perimeter Road Landfill. Site 5 is one of two sites in Operable Unit 2C for the MCAS El Toro.

Cal/EPA will accept the final RI report if the enclosed Department of Toxic Substances Control Staff Toxicologist specific comments that pertain to Site 5 dated October 31, 1996 and California Integrated Waste Management Board (CIWMB) comments dated October 18, 1996 are addressed in the final RI report. I would like to direct your attention to the enclosed CIWMB comments dated October 25, 1996 regarding potential reuse issues associated with the site. If you have any questions, please call Mr. Tayseer Mahmoud at (310) 590-4891.

Sincerely,

FOR John E. Scandura, Chief  
Southern California Operations  
Office of Military Facilities

Enclosures

cc: See Next Page



cc: Ms. Bonnie Arthur  
U. S. Environmental Protection Agency  
Region IX  
Hazardous Waste Management Division, H-9-2  
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Mr. Lawrence Vitale  
Remedial Project Manager  
California Regional Water Quality Control Board  
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Mr. Peter Janicki  
California Integrated Waste Management Board  
8800 Cal Center Drive  
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Mr. Steven Sharp  
County of Orange  
Environmental Health Division  
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Remedial Project Manager  
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**MEMORANDUM**

**TO:** Tayseer Mahmoud  
Office of Military Facilities (OMF)  
Region 4, Long Beach

**FROM:** John P. Christopher, Ph.D., D.A.B.T.  
Staff Toxicologist  
Human and Ecological Risk Division (HERD)

**DATE:** 31 October 1996

**SUBJECT:** MCAS El Toro: Technical Memorandum on Background Levels of Inorganics; Responses to Comments and Draft Final RI Reports for Sites 3 and 5  
PCA: 14740 Site: 400055-47

**Background**

Region 4 OMF has asked HERD for continuing support on issues regarding risk assessment at Marine Corps Air Station (MCAS) El Toro, a closing base in Orange County which is also designated a Federal Superfund site. Remedial activities at this base are being directed by Naval Facilities Engineering Command, Southwest Division (SWDIV).

We had presented our comments on an earlier draft in a memorandum dated 22 July 1996. Sites 3 and 5 are landfills located near the southeast border of the base. We presented our comments in memoranda dated 7 and 10 June 1996 on the baseline risk assessments for these sites which were part of the Phase I Remedial Investigations (RI). Four of the five documents reviewed here are the Navy's responses to those comments and the Draft Final RI Reports (RIR). The fifth document is a technical memorandum on ambient levels of metals in soil.

**Documents Reviewed**

We reviewed the following five documents, all prepared by Bechtel National, Inc., contractors to SWDIV:

1. Final Technical Memorandum, Background and Reference Levels, Remedial Investigations, Marine Corps Air Station El Toro, California, CTO-0076/0272". October 1996.
2. "Response to Comments, Draft Phase II Remedial Investigation Report for Site 3, OU-2C, MCAS El Toro", dated 23 September 1996.
3. "Draft Final Phase II Remedial Investigation Report, Operable Unit 2C - Site 3, Marine Corps Air Station El Toro, California, CTO 0076/0243", dated October 1996.
4. "Response to Comments, Draft Phase II Remedial Investigation Report for Site 5, OU-2C, MCAS El Toro", dated 23 September 1996.
5. "Draft Final Phase II Remedial Investigation Report, Operable Unit 2C - Site 5, Marine Corps Air Station El Toro, California, CTO 0076/0244", dated October 1996.

We received requests to review these documents on 7 October (#2-5) and 17 October 1996 for (#1).

### **Scope of Review**

The documents were reviewed for scientific content. Minor grammatical or typographical errors that do not affect interpretation were not noted; however, these should be corrected in future versions of the documents. We assume that sampling of environmental media, analytical chemistry data, and quality assurance procedures have been examined by regional personnel. If inadequacies in these areas with respect to risk assessment were encountered, they are noted below. Future changes or additions to the document should be clearly identified.

### **General Comments**

The Navy's analysis of background metals in soil is acceptable. Responses to our comments and changes in text for the Draft Final RIRs for Sites 3 and 5 are acceptable with two exceptions. First, the Navy must re-examine its conclusions regarding the importance of groundwater as a transport medium, because risks to future off-site residents are driven by chromium which might be hexavalent. Second, the ecological risk assessment for Site 5 omitted three metals as constituents of potential concern (COPC).

### Specific Comments

1. **Technical Memorandum on Background:** The technical memorandum is acceptable. The Navy was correct to remove a few high values for cadmium and nickel from the ambient sets. The approach shown in Figure 2 accurately represents the compromise worked out in San Francisco in May 1996 among the Department, USEPA Region IX, and the Navy.
2. **Exposure Point Concentrations:** Uncertainties associated with using  $C_{MAX}$  as exposure point concentrations are adequately addressed in the sections on uncertainties in the Draft Final RIRs for Sites 3 and 5.
3. **Hexavalent Chromium in Groundwater:** This following refers to the Navy's responses to our comment #14 for Site 3, "Fate and Transport in Groundwater" and our comment #4 for Site 5, "Hexavalent Chromium". Nearly all the estimated risk for a potential future residents at both Sites 3 and 5 comes from groundwater, but the Navy states in conclusions for both sites that fate and transport in this medium is not significant. The Navy did not speciate valence states of chromium, so total chromium was taken to be all hexavalent. Chromium drives the risk estimate, which is  $>1E-04$ , a level customarily thought to be highly significant. Thus, transport of chromium in groundwater is very highly significant. The Navy states that conditions in groundwater at both sites are such that nearly all chromium will be in the less toxic trivalent state, but this remains to be established in a monitoring program. Thus, fate of chromium in groundwater is also crucial. The Navy must change the text of the conclusions in Section 7 of both Draft Final RIRs to reflect the importance of the fate and transport of chromium in groundwater.
4. **Ecological Assessment for Site 5, Sec. 7, App. S:** We agree with the Navy's conclusion, expressed in Section 7.5.3, that Site 5 does not pose a significant risk to wildlife. However, this chapter requires minor revision. Copper, lead and zinc were identified as COPC in Table N-2; however, they do not appear in Table 7-2 and were apparently not evaluated as COPCs. Please include assessment of these metals in the final report. Maximum concentrations detected were within a factor of 2 of the 95th quantile of background (Table N-2); so we do not expect the corrected estimates of hazard to change dramatically for any of the species assessed.
5. **Other Changes to Text:** Except as noted in Comment 3 above, the changes in text from the earlier drafts make the Draft Final RIRs for Sites 3 and 5 acceptable

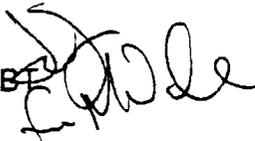
Tayseer Mahmoud  
31 October 1996  
Page 4

with respect to risk assessment. In particular, we note and accept the changes regarding selection of inorganic COPC (Site 3, App. L; Site 5, App. N).

### **Conclusions and Recommendations**

Document 1 is acceptable. Documents 2 through 5 require minor revisions to address hexavalent chromium in groundwater at both sites and inorganic COPCs at Site 5.

Reviewer: Michael J. Wade, PhD, DABT  
Senior Toxicologist, HERD

A handwritten signature in black ink, appearing to read "M. Wade", is written over the printed name of the reviewer.

cc: Mr. J. Paull, USEPA Region IX  
Dr. C. Callahan, USEPA Region IX



Pete Wilson  
*Governor*

James M. Strock  
*Secretary for  
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Mr. Tayseer Mahmoud  
California Environmental Protection Agency  
Department of Toxic Substances Control  
Office of Military Facilities  
Southern California Operations  
245 W. Broadway, Suite 350  
Long Beach, California 90802-4444

Subject: Responses to Comments on Draft Phase II Remedial Investigation  
Report for Operable Unit 2C - Site 5, Marine Corps Air Station, El  
Toro, California

Dear Mr. Mahmoud:

California Integrated Waste Management Board (Board) Closure and Remediation staff have reviewed the responses to Board staff comments transmitted in the letter of June 3, 1996, which were submitted with two volumes of Draft Final Phase II Remedial Investigation Report. The submittal, dated October 3, 1996, was received on October 7, 1996. The aforementioned documents were prepared by Bechtel National, Inc., on behalf of the Department of the Navy, for conformance with Title 14, California Code of Regulations (14 CCR), Division 7, Chapter 3, Article 7.8. These regulations consist of potential applicable or relevant and appropriate requirements for the Site 5 Landfill.

Based on our review we are providing the following comments:

General Comments

1. Generally, the responses do not address fully Board staff comments which were included in the letter of June 3, 1996. Adequate responses should answer all issues stated in the review letter including all necessary justification, and inform, where applicable, that appropriate changes have been made in the body of the document. The latest responses appear to address certain parts of the comments and only in a surficial manner.

If necessary, Board staff are available to provide assistance in clarifying any issues related to their comments.

2. The response document lacks a table of contents and continuous page numeration, both of which make review of this document difficult and cumbersome. It is recommended that the format of the response document be revised to expedite its review.
3. The response document mistakenly associates Mr. Peter Janicki not with CAL EPA but with the U.S. EPA.
4. Comments included in the letter of June 3, 1996, are identified as "General Comments." No such terminology was used in the original letter.

Specific Comments

5. The response to comment 1 does not address the request for site exploration data relevant to the disturbed ground areas. Also, a statement explaining why these land features do not appear on the drawings should be inserted in the text.
6. In comment 2, Board staff inquired not only about previous geophysical studies but also about exploratory trenching. This part of Board staff inquiry has not been answered. Also unanswered remains the issue of more rigorous study on the vertical extent of the landfill. All relevant drawings depicting vertical cross sections of the landfill show the bottom of the landfill using "?" symbol, which implies inconclusive information.

Additionally, Board staff requested that the terminology be unified for identifying areas covered in Phase I Site Investigation and Phase II Site Investigation.

7. The response to comment 3 does not address issues raised by Board staff in regards to using 14 CCR 17783.5 as a guide for the subsurface gas survey. The response does not explain which elements of this regulation were used and to what extent. In the letter of June 3, 1996, Board staff have pointed out that this regulation applies to permanent monitoring structures with monitoring depths reflecting the actual vertical configuration of the landfill. Also, as previously mentioned, site investigation did not yield conclusive findings. Thus, unless satisfactory justification along with conclusive landfill vertical extent documentation are provided, it is requested that the reference to 14 CCR 17783.5 be removed from the text.

Mr. Tayseer Mahmoud  
Page 3

8. The response to comment 4, which suggested clean closure of this waste management unit, should be substantiated by volumetric and cost effectiveness analyses (they may be included as a part of feasibility study).

Should you have any questions regarding this matter, please call me at (916) 255-1195.

Sincerely,

A handwritten signature in cursive script, appearing to read "Janicki".

Peter M. Janicki  
Closure and Remediation South  
Permitting and Enforcement Division



Pete Wilson  
Governor

James M. Strock  
Secretary for  
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Mr. Tayseer Mahmoud  
California Environmental Protection Agency  
Department of Toxic Substances Control  
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Southern California Operations  
245 W. Broadway, Suite 350  
Long Beach, California 90802-4444

Subject: Potential Reuse Issues Associated with Operable Unit 2C - Site 5,  
Marine Corps Air Station (MCAS), El Toro, California

Dear Mr. Mahmoud:

During a telephone conversation on October 21, 1996, California Integrated Waste Management Board (Board) staff were informed that an irrigated postclosure land use (golf course extension) had been proposed as the final land use for the Site 5 landfill. In addition to the verbal information we have also received a facsimile copy of excerpts from the draft of MCAS El Toro Community Reuse Plan, originated by MCAS El Toro Local Redevelopment Authority and dated August 1996.

In Board staff letter of June 3, 1996, it was stated that the extent of our review and the subsequent approval of the investigation program was limited by the assumption that the site will be closed under presumptive remedy method and final postclosure land use of the site will be a non-irrigated open space. It was also indicated that both the site investigation and design of the final cover may have to be upgraded in an event when the final site use would involve irrigation (e.g., a park or golf course).

In order for Board staff to consider Site 5 suitable for the proposed golf course expansion, a more rigorous site investigation and/or analyses of appropriate existing data are required. The site investigation (or existing site information) should address the following:

1. Comprehensive landfill extent delineation survey for both the vertical and lateral limits of the waste fill.
2. Waste characterization study including types of waste, age of waste, moisture content and saturation capacity.

3. Comprehensive landfill gas survey with samples collected from the fill area at several representative depths. The laboratory analyses would have to include both fixed gases and organic compounds analyses.
4. Landfill gas generation potential study based on gas monitoring results collected over a period of one year from perimeter probes constructed in accordance with 14 CCR 17783.5.
5. Modified HELP model infiltration analyses based on the proposed irrigation and approved final cover design.

In addition to the site investigation requirements and based on its results, modifications to the design of the final cover may be required as well. The modifications may include the following elements:

6. Modified final cover design which would include a synthetic impermeable membrane along with a subsurface drainage layer connected to the runoff collection system.
7. In addition to the final cover design modification or in lieu of , a subsurface moisture sensing system synchronized with the onsite irrigation system may be required.
8. Landfill gas monitoring and collection systems and audible gas detection devices (for onsite enclosed structures) may be required, based on the results of the landfill gas survey.
9. Special design consideration should be given to allow ease of all monitoring and control systems related to the landfill postclosure maintenance.

As an alternative to constructing actual irrigated golf course areas over the fill, the project proponent may consider designating the landfill for golf course related functions such as parking lot, restrooms, etc. By eliminating site irrigation, the site investigation and closure requirements may be then reduced.

It should be pointed out that the extent of site investigation may have a direct effect on the final cover and other closure related requirements for this project. Should the site investigation supply sufficient information about the landfill's low environmental threat potential, the extent of the closure and, subsequently, construction and postclosure maintenance costs may be greatly reduced.

Mr. Tayseer Mahmoud  
Page 3

Conversely, should the proposed design address all potential public health and safety and environmental impacts (worst case scenario), the necessity for a comprehensive site investigation will be reduced.

Should you have any questions regarding this matter, please call me at (916) 255-1195.

Sincerely,

A handwritten signature in black ink, appearing to read "Janicki". The signature is written in a cursive style with a large initial "J".

Peter M. Janicki  
Closure and Remediation South  
Permitting and Enforcement Division