



Opportunity
Ahead

MCAS EL TORO LOCAL REDEVELOPMENT AUTHORITY • Janice M. Mittermeier, Executive Director
MCAS EL TORO MASTER DEVELOPMENT PROGRAM • Michael L. Lapin, Manager

January 5, 2000

Mr. Dean Gould
BRAC Environmental Coordinator
Navy facilities Engineering Division
Southwest Division – Code 05BM-DG
1220 Pacific Highway
San Diego, California 92132-5187

Subject: Draft Final Historical Radiological Assessment (HRA)

Dear Mr. Gould,

Thank you for the opportunity to comment on the subject document. The attached memorandum from our consultant Bert Palmer, Ph.D, P.E., of GeoSyntec Consultants represents the Program Office's comments on the subject document dated 12 November 1999. We would appreciate the opportunity to review and comment once the additional radiological investigation work is complete.

Should you have any questions, please feel free to call Polin Modanlou at (714) 834-3156.

Sincerely,

Michael Lapin, Manager
El Toro Master Development Program

Attachment

cc: Triss Chesney, DTSC
Glenn Kistner, USEPA
Patricia Hannon, RWQCB
Michael Wochnick, IWMB
Steve Sharp, LEA



M E M O R A N D U M

TO: Polin Modanlou, MCAS El Toro Master Development Program

FROM: Bert Palmer, Ph.D., P.E., GeoSyntec Consultants

DATE: 4 January 2000

SUBJECT: **Review of Draft Final Historical Radiological Assessment
Marine Corps Air Station, El Toro
Orange County, California**

BACKGROUND

In May 1999, the Department of Navy / United States Marine Corps (DON/USMC) issued a document titled "Draft Historical Radiological Assessment, Marine Corps Air Station, El Toro (draft HRA)" prepared by Supervisor of Shipbuilding, Portsmouth (SSPORTS), Virginia, Environmental Detachment, Vallejo, California for Naval Sea Systems Command Detachment, Radiological Affairs Support Office and Naval Facilities Engineering Command, Southwest Division. The draft HRA identified and provided a preliminary evaluation of potentially radiologically-contaminated areas at Marine Corps Air Station, (MCAS) El Toro.

At the request of the MCAS El Toro Master Development Program (MDP), GeoSyntec Consultants (GeoSyntec) performed a preliminary review of the draft HRA. GeoSyntec's comments on the draft HRA were presented to the MDP in a memorandum dated 20 June 1999, which subsequently was provided to DON/USMC. In addition, other organizations, including the National Association of Atomic Veterans, the California Department of Toxic Substances Control (DTSC), and the Restoration Advisory Board (RAB), submitted review comments on the draft HRA to the DON/USMC.

DON/USMC responded to these comments in a document sent to the MDP by electronic mail on 15 September 1999. On 12 November 1999, DON/USMC also

issued a draft Final HRA prepared by Roy F. Weston, Inc., Mare Island Office, Vallejo, California and dated October 1999.

At the request of MDP, GeoSyntec reviewed DON/USMC's response to comments and the draft Final HRA. The purpose of this memorandum is to summarize GeoSyntec's review of these two documents.

GENERAL REVIEW COMMENTS

The issues raised by GeoSyntec in its memorandum dated 20 June 1999 were generally discussed, but not fully addressed, in DON/USMC's response to comments and the draft Final HRA. Therefore, most of the issues identified by GeoSyntec are still pending. DON/USMC indicated that these issues will be addressed when additional radiological work is conducted at MCAS El Toro. Section 2.2 and Section 8 of the Draft Final HRA indicates that DON/USMC plans to complete such additional work, however no time frame for completion is stated. The draft Final HRA further indicates that this work will include radiological survey, radiological sampling, and radiological remediation as needed, to address the potential presence of radiological material at various locations at MCAS El Toro (see draft Final HRA at Page 62). In light of this, GeoSyntec recommends that the MDP request an opportunity for review and comment once this additional radiological investigation work is completed.

DON/USMC also indicated that approved or draft remediation plans for MCAS El Toro Installation Restoration Program (IRP) sites, such as those outlined in Record of Decisions, would be modified as needed to remediate potential presence of radiological materials (see Response to Questions Received to the Draft El Toro HRA from the El Toro Master Development Program Manager at page 3).

GeoSyntec understands that DON/USMC is in the process of developing a work plan for a radiological survey at the MCAS El Toro to implement the recommendations of the Final HRA. However, the scope (including location and

procedures) of the radiological survey is not described the draft Final HRA. As such, the complete scope of work should be included in the work plan. In addition, documents (work plans) describing the scope of the radiological survey at MCAS El Toro should be provided for review before implementation.

DETAILED COMMENTS ON DRAFT FINAL HRA

In addition to the general comments provided above, GeoSyntec offers the following additional questions and comments on the draft Final HRA:

- In Section 1 of the draft Final HRA, DON/USMC states, "These investigations had not revealed any evidence of adverse effect on the population or on the environment of the region." (see draft Final HRA at Page 4). This statement implies that DON/USMC has studied potential adverse effects of radiological materials on the population or the environment of the region. DON/USMC should provide the studies and/or data substantiating this statement. In addition, DON/USMC should define the region studied.
- The draft Final HRA lists the MCAS El Toro sites that will require radiological surveys prior to release of those sites for "unrestricted use" (see draft Final HRA at Page 4). Yet, regardless of the results of such surveys, specific land uses (e.g., residential) on some of the sites (e.g., landfills) may not be allowed. Thus, it would be beneficial to clarify the terminology "unrestricted use" in the final HRA.
- The draft Final HRA presents the results of informal radiation surveys conducted as part of 1997-1999 inspections of selected sites by SSPORTS (see draft Final HRA on Table 5-1). A more detailed description of the locations and methodology for the survey is needed to better understand the tabulated readings and their significance.

- Investigation and remedial work for Ra-226 was conducted in Building 296 by SSPORTS (see draft Final HRA at Page 36). Other investigation and remedial work may have been conducted in other facilities or areas of MCAS El Toro. Documentation that (1) summarizes the methodology and results of the radiological investigation and remedial work already conducted at MCAS El Toro for Building 296 and other facilities and (2) provides certification of completion of any necessary remediation, should be referenced in the Final HRA and made available for review and comment.
- The evaluation of the soil exposure pathway in Section 6.3.1 (see draft Final HRA at Page 55) does not appear to consider construction workers who may be excavating in areas of potential Ra-226 bearing material. Such workers could be exposed to Ra-226 and its decay products through dermal contact, inhalation of soil particulates and gaseous Rn-222 (a first decay product of Ra-226), incidental ingestion, and direct irradiation. The evaluation also does not appear to consider exposure to Ra-226 or its progeny by future users of the property such as tenants, recreational users, and residents (including children) who have the potential to ingest, inhale, or come into contact with contaminated soil. GeoSyntec recommends that this evaluation be expanded to address such populations.
- Section 7.3.3 of the HRA provides an evaluation of the groundwater exposure pathway and Section 6.2.2.2 and Tables 7-1 through 7-3 of the HRA provide a summary of the scope and results of radiological groundwater quality data collection. Further efforts should be made to assess whether various sites, including the landfills, are contributing significant radioactivity to groundwater. Some of the explanation in the HRA regarding the origin of the radioactivity in

groundwater does not appear to be accurate. For example, presence of naturally-occurring potassium cannot explain gross alpha activity, as potassium is not an alpha emitter (see draft Final HRA in Table 7.3). Assessment of radioactivity in groundwater should include sampling and measurements for specific radionuclides, including U-238, U-234, Th-232, Th-230, Ra-226, Rn-222, Po-210, and Pb-210. In addition to the potential impact on groundwater quality from radionuclides in landfill leachate, Rn-222 in landfill gas has the potential to adversely affect groundwater quality. The U.S. Environmental Protection Agency has proposed a maximum contaminant level (MCL) for radon in municipal water supplies of 300 pCi/L. In light of this, potential radon impacts need to be considered.

- The draft Final HRA concludes that potential G-RAM release from MCAS El Toro into the air does not pose a potential health risk (see draft Final HRA at Pages 57 and 58). However, the evaluation does not consider the potential for migration of Rn-222 into potential future structures built over areas in which Ra-226 bearing material may have been buried. This oversight needs to be addressed in the Final HRA.
- DON/USMC's response to DTSC Comment #1 of DTSC's letter, dated 18 June 1999, stated that no radiological surveys are necessary for the ammunition assembly area and storage bunkers. Since records and other evidence of storage of ammunition containing radioisotopes may be incomplete, it is recommended that a radiological survey be conducted in the ammunition assembly area and ammunition storage bunkers to verify that such areas do not pose a radiological hazard to human health and the environment based on future site use.

- There is a significant change regarding the reported use of radium paint in Building 296 between the DON/USMC's draft HRA and the draft Final HRA. This seems to indicate that records concerning the historical use of radium paint are imprecise or incomplete. Given this, it is recommended that a radiological survey be conducted in Building 296 and other parts of MCAS El Toro under the most conservative assumption regarding the use of Radium paint and potential presence of a "Radium room" at MCAS El Toro.
- The radiological survey should include a survey of areas that are not listed in Section 2.2 or Section 8 of the draft Final HRA to confirm the validity of the draft Final HRA. The radiological survey also should include an evaluation of background radiation data on-base and off-base.

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