



**Opportunity
Ahead**

MCAS EL TORO LOCAL REDEVELOPMENT AUTHORITY • Robert L. Richardson
MCAS EL TORO MASTER DEVELOPMENT PROGRAM • Interim Executive Director

M60050.002737
MCAS EL TORO
SSIC #5090.3

August 31, 2000

Mr. Dean Gould
BRAC Environmental coordinator
Marine Crops Air Station – El Toro
P.O. Box 51718
Irvine, CA 92619-1718

Subject: Draft Radiological Survey Plan

Dear Mr. Gould:

Thank you for the opportunity to comment on the subject document dated July 2000. Our preliminary comments/questions are set forth in the attached memorandum from our consultant Dr. Bert Palmer, PhD, P.E. of GeoSyntec Consultants.

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

Sincerely,

Robert L. Richardson
Interim Executive Director
MCAS El Toro Local Redevelopment Authority

Attachment

cc: Triss Chesney, DTSC
John Brodrick, CRWQCB
Glenn Kistner, USEPA
Steve Sharp, LEA



received
to Sep 00

MEMORANDUM

TO: Polin Modanlou, MCAS El Toro Master Development Program

FROM: Bertrand S. Palmer, Ph.D., P.E., GeoSyntec Consultants

DATE: 31 August 2000

**SUBJECT: Preliminary Review
Draft Radiological Survey Plan
Marine Corps Air Station, El Toro
Orange County, California**

INTRODUCTION

In July of 2000, the Department of Navy/United States Marine Corps (DON/USMC) issued the "Draft Radiological Survey Plan" (Draft Plan) for the Marine Corps Air Station, El Toro, California (MCAS El Toro). The Draft Plan outlines the proposed radiological investigation for buildings and sites at MCAS El Toro. The selection of the buildings and sites to be surveyed is based on the Final Historical Radiological Assessment (HRA) dated May 2000.

The purpose of the Draft Plan is to "...provide the detailed radiological survey methodology required for specific buildings and sites at the [MCAS El Toro]." The DON/USMC proposes to use the data collected during the radiological survey to determine potential risks to human health and the environment.

The purpose of this memorandum is to summarize GeoSyntec's comments, issues, and questions regarding the Draft Plan related to potential land reuse. GeoSyntec's review of the Draft Plan focused on questions and issues related to future remediation and closure of MCAS El Toro. GeoSyntec's review did not address aspects of the Draft Plan related to the health and safety, project logistics, or project management during implementation of the Draft Plan.

GENERAL COMMENTS

First, it would be helpful if the DON/USMC could provide an expanded discussion of the governing regulatory frameworks related to radiological issues. The listing of ten (10) regulations, policies, and guidelines in Chapter 2.0 (see Draft Plan at page 17) is helpful, but the Draft Plan also should include a discussion of the applicability of these regulations, policies, and guidelines to the radiological investigation and remediation at MCAS El Toro. Specifically, the DON/USMC should consider inserting in this section a discussion of the following: i) clean-up goals; ii) screening criteria (existing and derived); iii) survey method guidelines; iv) area classification criteria; v) landfill requirements; and vi) guidelines for removal of radioactive materials.

Second, because of their unique requirements, the landfills at the MCAS El Toro (Installation Restoration Program (IRP) Sites 2, 3, 5, and 17) warrant special discussion. It is recommended that the landfills be treated separately from storage yards or other open areas. The characterization and remediation issues that have already been discussed in previous studies should be referenced in the Draft Plan to guide the survey team. For example, pre-design activities at IRP Sites 3 and 5 should be considered and integrated in the Draft Plan. In addition, the conclusions drawn in the Final HRA regarding landfill issues should be referenced here. Finally, any unique treatment requirements of Anomaly Area #3 – APHO 44 also should be discussed.

Third, the Final HRA and the Draft Plan provide no references to radiological survey experience gained by the DON/USMC at other air bases during clean up operations, where similar historical aviation activities had taken place. It would be helpful to the survey team to understand what has been encountered at other air bases during clean up. If the DON/USMC already has woven that experience into the Draft Plan, it should be mentioned.

DETAILED COMMENTS

Comment No. 1

In the Executive Summary, the DON/USMC reports that the radiological investigation for Buildings 296 and 297 was completed in 1999. It would be helpful if the DON/USMC could provide a summary of the methodologies and results of that investigation, so the reader could assess the effectiveness of the methodologies presented in the Draft Plan.

Comment No. 2

While some quality assurance issues are discussed in the Draft Plan, it does not include a formal Quality Assurance Project Plan (QAPP) that identifies the data quality objectives, criteria and procedures to be used to assure the quality of the data to be collected, and procedures to be used to validate and verify the quality of the data for their intended use. The requirements for a QAPP are identified in Sections 2.2 and 9 of the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), NUREG-1575, EPA 402-R-97-016, dated December 1997. Will DON/USMC develop a QAPP for the radiological survey?

Comment No. 3

Survey strategies are typically based on the data needs identified through the Data Quality Objectives (DQO) process, as discussed in Sections 2.2 and 2.3.1 of the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), NUREG-1575, EPA 402-R-97-016, dated December 1997. Has or does DON/USMC intend to prepare a DPO for the radiological survey?

Comment No. 4

The DON/USMC's response (in the letter to the National Association of Atomic Veterans, dated 13 September 1999) to Comment #1 in the Department of Toxic Substance Control'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 future site use.

Comment No. 5

There was one unsubstantiated report that low-level radioactive waste may have been disposed of at IRP Site 1 (see Draft Plan at Page 14). Could DON/USMC provide additional information regarding this unsubstantiated report including the type of radioactive waste and potential level of radioactivity? Will the radioisotopes suspected to be present in the low-level radioactive waste be tested as part of the radiological survey?

Comment No. 6

The concrete storage structure inside the NBC building is reported to have been removed (see Draft Plan at Page 15). Does DON/USMC have information regarding the potential radioactivity of the removed structure as well as the ultimate fate of the removed concrete structure?

Comment No. 7

In Section 1.3.10 of the Draft Plan, the DON/USMC should provide the basis for concluding that the isotopes of concern at Buildings 787 and 1803 are gamma emitters. The check sources that reportedly were stored in Building 1789 could have

potentially included alpha and beta check sources, in addition to gamma check sources. On that basis, would the DON/USMC consider expanding the scope of its survey?

Comment No. 8

In Section 3.2.5 of the Draft Plan, the DON/USMC states that “[a]ll radiological material will be properly contained, stored, labeled, and dispositioned” (see Draft Plan at page 18). The DON/USMC should consider inserting an explanation of how radiological materials will be handled with appropriate references to applicable laws and regulations.

Comment No. 9

In Section 5.1.1 of the Draft Plan, the DON/USMC sets forth a proposed “Classification” framework for radiological materials (see Draft Plan at page 21). The regulatory basis for this “Classification” framework should consider referencing applicable MARSSIM guidelines. In addition, the DON/USMC could summarize or reference the results from the Final HRA classification analysis in this section of the Draft Plan.

Comment No. 10

In Section 5.2 of the Draft Plan, the DON/USMC states that there are “no remaining” Class 1 and Class 2 sites (see Draft Plan at page 21). These statements lead the reader to believe that there were such sites at the MCAS El Toro at some point in time. If true, then the DON/USMC should discuss or reference these sites and their declassification in detail in the Draft Plan (i.e. location, types of radiological contamination, and remediation efforts).

Comment No. 11

In Section 5.2.3 of the Draft Plan, the DON/USMC states that the survey will routinely be recorded (unless manual survey readings are above investigation levels) on "every other" floor grid (see Draft Plan at page 21). For the purposes of providing fuller documentation of the results of the radiological survey for Class 3 Area buildings for future reviewers, the DON/USMC should consider recording data at "every," rather than "every other" floor grid.

Comment No. 12

In Section 5.2.3.2 of the Draft Plan, the DON/USMC states, "[a] one-minute stationary beta/gamma (pancake) reading may be taken." It is recommended that "may" be changed to "will." Whenever elevated scan readings are obtained in an area, one-minute stationary beta-gamma (pancake) readings are recommended to be taken in potential areas of dirt/solids accumulation in that area (i.e., shelves, low points, drains, cracks, etc.).

Comment No. 13

Section 5.2.4 of the Draft Plan, which parallels Section 5.2.3 of the Draft Plan, includes a discussion on establishing "background" levels (see Draft Plan at Page 23), while Section 5.2.3 does not include a discussion of "background" levels. Does DON/USMC intend to include a paragraph discussing "background" in Section 5.2.3?

Comment No. 14

In Section 5.2.4.1 of the Draft Plan, the DON/USMC states that the effectiveness of detection equipment is reduced when ground covering, such as gravel, concrete, and/or asphalt, is present (see Draft Plan at page 23). To avoid future site use restriction, the DON/USMC should consider removal of gravel, concrete, and/or asphalt prior to conducting the radiological survey. Based on the results of the surface radiological survey in such areas, a subsurface radiological survey of borings or test pits

(conducted to the depths of potential future construction) may need to be considered as a second phase.

Comment No. 15

In Section 5.2.4.2 of the Draft Plan, the DON/USMC state that the 2 in. x 2 in. NaI detector to be used for outdoor grid radiological surveys will not be shielded (see Draft Plan at page 24). In order to help clarify the methodologies, the DON/USMC should consider providing an explanation as why an “unshielded” detector is proposed, rather than a “shielded” detector.

Comment No. 16

In Sections 5.4.1, 5.4.2, and 5.4.3.1 of the Draft Plan, the DON/USMC states that for a number of units (such as the landfill sites, various buildings, Explosive Ordinance Range, and Site Anomaly Area #3), Sr-90 and Th-232 will be detectable in the gamma survey from Bremsstrahlung effects (see Draft Plan pages 24 through 28). However, the detection efficiency for such Bremsstrahlung radiation and the ability to differentiate such radiation may be low for the proposed NaI detector to be used for the gamma radiation survey. Thus, only a very strong, near surface Sr-90 or Th-232 source would be detected. Thus, the DON/USMC should consider using a pancake geometry beta/gamma detector, in addition to the NaI gamma detector in the radiological surveys for such areas (including outside areas).

Comment No. 17

The Draft Plan often indicates that the radiological survey equipment can generally detect certain isotopes, such as Ra-226 and Co-60, to a depth of approximately 18 inches using gamma detection equipment (see, Draft Plan at Page 26). However, this depth of detection will vary depending on the type of material tested and the type of detection equipment used in the survey. Could DON/USMC provide a discussion or a table of the ability of each survey equipment to detect various isotopes within or below

various types of materials (i.e., soil, gravel, concrete), including maximum depth of detection?

Comment No. 18

In Section 5.4.3.1 of the Draft Plan, the DON/USMC states that Site Anomaly Area #3 (MSC-R1) was used for construction debris disposal (see Draft Plan at page 27). Does the DON/USMC plan to treat this anomaly area as a landfill with respect to future land use planning? Does the DON/USMC plan more rigorous investigative methods?

Comment No. 19

The DON/USMC should provide the technical basis and assumptions for the Derived Concentration Guideline Limits (DGCLs) presented in Table 5-1 and Table 5-3 (see Draft Plan at pages 28 and 29, respectively).

Comment No. 20

Could the DON/USMC clarify whether or not the DCGL for soil contamination, described in Table 5-3 refer to concentrations exceeding soil background levels (see Draft Plan at page 29). In addition, it would be helpful to explain the technical basis for the identified soil DCGL values.

Comment No. 21

In Section 5.4.3.1 of the Draft Plan, the DON/USMC uses the terminology "survey protocol" (see Draft Plan at page 27). Could the DON/USMC define this protocol. Furthermore, it is not clear how NUREG 1575, Reference 2.6 is being applied here.

Comment No. 22

In Section 5.4.3.2 of the Draft Plan, the DON/USMC uses the terminology “low level radioactive material” (see Draft Plan at page 28). The DON/USMC should define “low level radiological material” (see Draft Plan at page 28). Are the “certain areas located on the Station” mentioned in Section 5.4.3.2 of the Draft Plan different from any of the specifically identified areas covered in the Draft Plan? If, so the DON/USMC should clearly define these areas.

Comment No. 23

In Section 5.4.3.2 of the Draft Plan, it is not clear how elevated survey meter readings for soil will be assessed (see Draft Plan at page 29). Will the contributions to elevated readings of specific target radionuclides be initially measured in the field with survey instruments (per Table 1-1) and/or will a radioisotopic analysis be performed at a laboratory (as implied in Section 5.4.3)? What instrumentation will be used and what assumptions will be made for calculation of soil radionuclide activity concentrations based on survey meter measurements?

Comment No. 24

In Section 5.4.3.2 of the Draft Plan, the DON/USMC states that a soil sample will be collected for radioisotopic analysis in the area of elevated survey readings (see Draft Plan at page 29). Will the soil sampling frequency consider the size and geometry of the area of elevated readings, as well as statistical data needs for comparison to DCGLs and background levels?

Comment No. 25

Section 5.4.4.1 of the Draft Plan (see Draft Plan at Page 29) refers to “recent guidelines.” Could DON/USMC specify and provide references to the “recent guidelines” mentioned in this section?

Comment No. 26

What technical rationale did the DON/USMC use to determine the criteria for identifying areas of elevated reading criteria for gamma level readings (1.5x background) and beta/gamma level detector readings (50% of DCGL or 1.5 times background) described in Section 5.4.4.1 of the Draft Plan (see Draft Plan at page 29)?

Comment No. 27

In Section 5.4.4, an explanation should be provided as to how the DON/USMC will determine that 50% or more of the DCGL has been reached based on the beta/gamma (pancake) probe and alpha/beta scintillation probe readings (see Draft Plan at page 29 and 30). The DCGLs in Table 5-1 are specific to particular radionuclides. The DON/USMC should present the method to be used for differentiating and assessing the activity levels of each of the subject radionuclides for comparison to the DCGL.

Comment No. 28

The technical basis for the criteria for identifying areas of elevated reading criteria for alpha/beta surface contamination readings (50% of DCGL) presented in Section 5.4.4.3 is not clearly explained (see Draft Plan at page 30). Could DON/USMC provide additional information?

Comment No. 29

Section 5.6.2.2 defines Land Background and References Areas at the MCAS El Toro. The DON/USMC should provide the maps identifying these

background and reference areas. Also, what rationale did the DON/USMC use to determine which specific areas at MCAS El Toro as background references? Should off-site areas (i.e. areas outside MCAS El Toro, in the County of Orange) also be evaluated for Land Background and Reference Areas?

With regards to establishing background radiation levels, DON/USMC sometimes states that background levels will be measured at land sites separated from potentially impacted sites and be located "up-gradient" from the site whenever possible (see Draft Plan at Page 32). Could DON/USMC explain what is meant by "up-gradient?"

Comment No. 30

A description of the statistical approach for comparison of survey results and soil radionuclide analyses to DCGL and background levels does not appear to be included in the Draft Plan. In addition, the detailed description of the procedures and technical basis for such procedures is not provided for confirmation of survey results for storage yards and landfill areas that exceed 1.5 times the mean site levels (such as are briefly summarized in Sections 7.2.1.1.5.3 and 7.5.1.5, respectively). Does DON/USMC intend to provide such description?

Comment No. 31

In Section 7.4.1.1.2, and Section 7.4.1.2.2, the DON/USMC states that when anomalies are located in soil they may (i) be removed if shallow; or (ii) be evaluated and controlled if at depth or under asphalt or crushed rock surfaces (see Draft Plan at pages 45 and 46). The DON/USMC should consider for evaluation, all identified anomalies, through identification of the radionuclides contributing to the anomalies. The levels of each elevated radionuclide detected also should be compared to the sum of the identified DCGL and background level for that radionuclide. In order to assist in this comparison,

the DON/USMC should consider collecting (at the time of anomaly identification) background soil samples from an appropriate unaffected area, and analyzing subject radionuclides by gamma spectroscopy.

Comment No. 32

Should the DON/USMC reference Figures 18a and 18b, as Figures 19a and 19b (see Draft Plan at page 48)?

Comment No. 33

As noted in Section 7.5.1, the DON/USMC has chosen not to survey the Aqua Chinon Wash. Has the Aqua Chinon Wash been previously surveyed? If not, what is the rationale for excluding this area from the proposed survey?

Comment No. 34

Figure 19a shows that the area of IRP Site 3 east of the Aqua Chinon Wash where a concrete slab is present will not be surveyed. This may be in contradiction with the Project Work Plan for pre-design activities at IRP Sites 3 and 5 dated August 4, 2000 (Project Work Plan) which indicates that the concrete biopile pad at Site 3 would be removed to prepare the site for the radiological survey (see Project Work Plan at Page 4-6). Could DON/USMC clarify this aspect of the proposed work?

Comment No. 35

Figures 19a, 19b, and 20 of the Draft Plan show the radiological survey areas at IRP Sites 3 and 5. These survey areas are generally defined by the potential extent of refuse at the landfill. Will the survey areas be expanded should the pre-design activities at IRP Sites 3 and 5 reveal the presence of refuse or waste outside the radiological survey areas shown in Figures 19a, 19b, and 20?

Comment No. 36

In Section 7.5.1.4.1 of the Draft Plan, the DON/USMC states that areas that are not accessible (over 60%) will not be surveyed. How will this lack of surveying be taken in account during future land reuse? Does the DON/USMC intend to prepare institutional controls on future land reuse in the areas that are defined by the Final HRA yet are not surveyed?

Comment No. 37

In Section 7.7.1 of the Draft Plan, DON/USMC states that radioactive isotopes have been discovered in the drains and sinks of the Industrial Waste Treatment (IWT). Has the DON/USMC considered what the implications are for the MCAS El Toro's sewer system if radioactive materials are found at the IWT? Will the Station's sewer system need to be surveyed?

Comment No. 38

Appendix B of the Draft Plan, includes minimum detectable concentrations (MDCs) in units of pCi/g for Ra-226, Co-60, and Th-232 for the Ludlum 44-103, Ludlum 44-10, and Eberline SPA-3 gamma probes? What are the assumptions and basis for the estimated MDCs in the table, including media type and geometry? Will such probes be calibrated for these radionuclides and utilized in a mode (with the Eberline E-600) such that these radionuclides will be able to be separately measured (in different channels of the E-600)? If so, what will be the calibration and check procedures, frequency, and calibration sources used for this mode of operation? What are the assumptions and bases for the minimum detectable scan activities for the other survey instruments?

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