



**Opportunity
Ahead**

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

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MCAS EL TORO
SSIC #5090.3

January 19, 2001

Mr. Dean Gould
BRAC Environmental Coordinator
Environmental Division
Marine Corps Air Station El Toro
P.O. Box 5171
Irvine, CA 92619-1718

SUBJECT: Draft Record of Decision for Operable Unit 3B, Installation Restoration Program Sites 7 and 14

Dear Mr. Gould:

In September of last year, the Department of Navy / United States Marine Corps ("DON/USMC") issued a Proposed Plan for remediation of Operable Unit 3B, Installation Restoration Program Site 7 (Tank Drop Drainage Area No. 2) and Site 14 (Battery Acid Disposal Area), at the former Marine Corps Air Station ("MCAS") El Toro. In the Proposed Plan, DON/USMC concluded that these sites did not pose a threat to human health or the environment and, accordingly, proposed no further action at these two sites.

This conclusion was based on a risk assessment which reportedly showed that excess cancer risks were less than 10^{-4} . Moreover, according to DON/USMC, the main contributors to this cancer risk were arsenic and polynuclear aromatic hydrocarbons ("PAHs"), the first of which purportedly did not result from its historical activities as the base and the second of which does not have a tendency to migrate in soils. In a similar vein, DON/USMC asserted that while non-cancer risks exceeded 1 at one of the areas of Site 7, the largest contributors to this risk were the naturally-occurring metals manganese and arsenic. Again, DON/USMC claimed that no site-related activities involved use of these metals.

On November 8, 2000, the Orange County Local Redevelopment Authority ("LRA") transmitted to DON/USMC a written memorandum prepared by the LRA's technical consultant in which a number of issues and concerns regarding the Proposed Plan were raised. In particular, this memorandum raised serious concerns about DON/USMC's decision to (1) use a 10^{-4} risk level to evaluate the significance of cancer risks, and (2) not to remediate Site 7, despite the fact that the contamination present poses a non-cancer risk in excess of 1.0. In addition, the memorandum raised questions about the accuracy of and basis for DON/USMC's claim that the largest contributors to the cancer and non-cancer risks



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posed at Sites 7 and 14 are contaminants that did not come from any historical activities at the base. Finally, the memorandum also raised concerns about the high levels of total petroleum hydrocarbons and lead present at these sites, which were dismissed by DON/USMC in its analysis of proposed remedies for Sites 7 and 14.

On November 22, just two weeks after the close of the public comment period for the Proposed Plan, DON/USMC issued a Draft Record of Decision for Sites 7 and 14. Noticeably absent from the contents of the Draft ROD was any discussion of comments submitted by the LRA or other members of the public on the Proposed Plan. Rather, the Draft ROD simply noted that DON/USMC's response to these comments, i.e., the Responsiveness Summary, would be mailed under separate cover. Yet, to date, no such response has been provided to the LRA or to any other members of the public. Despite this, DON/USMC once again concludes in the Draft ROD that "no remedial action is necessary to assure the protection of human health and the environment at Sites 7 and 14."

As DON/USMC is aware, National Contingency Plan regulations specifically require that the lead agency "[p]repare a written summary of significant comments, criticisms, and new relevant information submitted during the public comment period and the lead agency response to each issue." 40 C.F.R. § 300.430(f). Furthermore, these regulations require that the summary "be made available with the record of decision." *Id.* The reason for these requirements is clear -- only by providing such a summary can the public be assured that its comments, questions and concerns regarding a proposed plan for remediation of contamination have been taken into account by the lead agency.

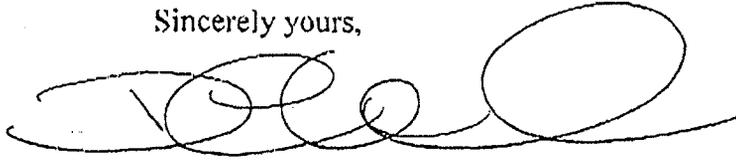
Here, it is clear that DON/USMC did not fully consider any of the comments that were submitted on the Proposed Plan. Indeed, DON/USMC issued the Draft ROD just two weeks following the close of the public comment period. Thus, it is not surprising that the Draft ROD contains all the same flaws and raises all the same concerns as the Proposed Plan.

The LRA is very concerned that DON/USMC has short-circuited the process for selecting an appropriate remedy at Sites 7 and 14. Any remedy selected by DON/USMC for these sites must be selected in light of, not in spite of the comments submitted by the LRA and other members of the public regarding the adequacy of that remedy. Accordingly, the LRA hereby re-submits its comments concerning the Proposed Plan for Sites 7 and 14 as its comments on the Draft ROD for these two sites. Furthermore, the LRA requests that DON/USMC not take any action to finalize the Draft ROD for Sites 7 and 14 until it has fully responded to the comments submitted by the LRA and any other members of the public concerning the proposed remedy *and* the LRA and the public have had an opportunity to review such response.

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We appreciate your consideration in this matter. If you have any questions, please do not hesitate to contact Polin Modanlou of my staff at (714) 834-3156.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Gary Simon', with a large, stylized flourish at the end.

FOR Gary Simon
Executive Director
MCAS El Toro Redevelopment Authority

Enclosure

cc: Members, Board of Supervisors
Mr. Michael Schumacher, Ph. D., CEO
Mr. Glenn Kistner, US EPA
Ms. Tris Chesney, DTSC
Mr. John Broderick, CRWQCB
Mr. Michael Wochnick, CIWMB
Mr. Steve Sharp, HCA



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

November 8, 2000

Mr. Dean Gould
BRAC Environmental Coordinator
Environmental Division
Marine Corps Air Station El Toro
P.O. Box 51718
Irvine, CA 92619-1718

Subject: Comments on Proposed Plan for Operable Unit 3, IRP Sites 7 and 14
Marine Corps Air Station El Toro

Dear Mr. Gould:

Thank you for the opportunity to provide comments on the Final Proposed Plan ("Proposed Plan") for Operable Unit 3, Installation Restoration Program ("IRP") Sites 7 and 14, at the former Marine Corps Air Station ("MCAS") El Toro, which was issued by the Department of Navy/United States Marine Corps ("DON/USMC") in September 2000.

Discussed below are the areas of most concern to the LRA regarding the Proposed Plan for IRP Sites 7 and 14; the attached memorandum prepared by GeoSyntec Consultants ("GeoSyntec") provides more detail.

1. Selection of Inappropriate "Risk Management Range" for Cancer Risks

The LRA is extremely concerned that DON/USMC is promoting an excess cancer risk range of 10^{-4} to 10^{-6} as being "acceptable" for these two IRP sites. For several reasons, we believe that all cancer risks associated with hazardous substances at the MCAS El Toro property should be reduced to less than or equal 10^{-6} , as agreed to by DON/USMC for IRP Sites 8, 11 and 12.

First, cancer risks falling within the 10^{-4} to 10^{-6} range are not *ipso facto* protective of human health and the environment. Rather, as stated in the Proposed Plan, risks in this range "may not require remediation, depending on site-specific circumstances." Proposed Plan, p. 1.¹ Yet,

¹ In fact, in its comments on the draft Proposed Plan the United States Environmental Protection Agency ("EPA") took issue with DON/USMC stating that cancer risks falling within the 10^{-4} to 10^{-6} range were always acceptable, and specifically recommended that the

(Footnote Continued on Next Page.)



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nowhere in the Proposed Plan does DON/USMC discuss any circumstances which justify leaving contamination in a place that, with only one exception, presents a risk exceeding 10^{-6} at all units within IRP Sites 7 and 14.

Second, as noted in the attached memorandum prepared by GeoSyntec, the LRA has serious questions about the adequacy of the data collection and analysis that was performed to identify risks associated with historical storage, use and disposal of hazardous substances at IRP Sites 7 and 14.² In the absence of a complete resolution of such questions, DON/USMC should adopt a conservative standard for acceptable cancer risks at these two sites. This is particularly true in instances such as this one where the installation property may be reused for a variety of purposes, including residential-type facilities.

Third, it is not clear whether by using a cancer risk range of 10^{-4} to 10^{-6} to support its "No Further Action" determination DON/USMC is intending to allow unrestricted use of the property on which IRP Sites 7 and 14 are located. In this regard, the "Interim Policy on Land Use Controls Associated with Environmental Restoration Activities" ("LUC Policy"), issued by the United States Department of Defense ("DOD") on August 31, 2000, states that "LUCs [Land Use Controls] may be needed where containment or treatment of contaminants is not necessary

(Footnote continued from Previous Page.)

quoted language be included in the text of the revised Proposed Plan. See Response to Comments on Draft Proposed Plan for IRP Sites 7 and 14, dated July 10, 2000.

² For example, with respect to the presence of heavy metals DON/USMC: (1) dismisses a soil sample taken from IRP Site 14 with lead concentrations of nearly 1000 mg/kg as being an "outlier"; (2) ignores the fact that 3 out of 10 soil samples had lead levels in excess of the 290 mg/kg, the remediation goal needed to ensure the blood levels in children do not exceed regulatory criteria; (3) asserts that arsenic is naturally occurring and not attributable to historical activities at the base, despite the fact that the "background" levels of arsenic at Site 7 are higher than background levels found elsewhere at the MCAS El Toro property; (4) asserts that manganese also is naturally occurring and not attributable to historical activities, with no apparent consideration given to the fact that manganese is present in many metal alloys and welding materials used for aviation purposes; and (5) ignores the potential presence of and threat from hexavalent chromium at IRP Sites 7 and 14 based solely on data from other sites indicating that this form of chromium is not present in significant amounts.

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to protect human health and the environment.”³ Thus, DON/USMC needs to discuss in the Proposed Plan whether its use of new standards⁴ for evaluating cancer risks will necessitate the imposition of use restrictions on these two IRP sites.⁵

2. Improper Segmentation of Data for Non-Cancer Risks

Many of the concerns discussed above are equally applicable to DON/USMC's conclusions regarding non-cancer risks presented by contamination at IRP Sites 7 and 14. There are significant data gaps concerning the nature and scope of non-cancer risks associated with contamination at these two sites, which counsel in favor of using a conservative approach to determine whether additional remediation is needed. Moreover, these gaps cannot be addressed merely by imposing restrictions on the permissible reuse of these IRP sites.

³ Of course, the LRA disagrees that allowing contamination presenting an excess cancer risk between 10^{-4} to 10^{-6} to remain at IRP Sites 7 and 14 would be protective of human health and the environment.

⁴ DON/USMC's use of a cancer "risk range" represents a marked departure from its approach at other IRP sites. For example, at IRP Site 11, DON/USMC agreed that any contamination would be remediated such that residual cancer risks would not exceed 10^{-6} .

⁵ Of course, as stated in the context of other remedial actions being conducted at this facility, the LRA strongly believes that land use controls are not an appropriate means of managing contamination at the MCAS El Toro property. Rather, such controls should be used only where a more permanent remedy is infeasible. See 40 C.F.R. § 300.430(f). In this instance, "[t]he extent of contamination at Sites 7 and 14 is confined to shallow soil (soil less than 10 feet below ground surface)." Proposed Plan, p. 1. Thus, it would not be infeasible or impractical to implement a more permanent remedy at these two IRP sites, if in fact DON anticipates using use restrictions to protect its "remedy."

Furthermore, imposition of any land use controls on IRP Sites 7 and 14 would be antithetical to the obligations imposed under the Defense Base Closure and Realignment Acts of 1988 and 1990 ("BRAC") and the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"). Discussed in detail in the comments submitted by the LRA in July 1998 concerning the proposed remediation plan for the landfills at the MCAS El Toro property, these laws make clear that any remediation and restoration activities must be conducted in a manner that expedites and enhances beneficial reuse of the environmentally impaired site. DOD's LUC Policy likewise states that "[t]he goal is to facilitate community redevelopment efforts." LUC Policy, Attachment p. 2.

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Beyond this, the LRA is very concerned by DON/USMC's attempt to absolve itself of responsibility for contamination at IRP Sites 7 and 14 by segmenting the data. For several of the units within IRP Sites 7 and 14, DON/USMC notes that the risk drivers present include arsenic, manganese and polynuclear aromatic hydrocarbons ("PAHs"). However, DON/USMC then goes on to dismiss the risks posed by arsenic and manganese, claiming that these metals are naturally occurring and are not attributable to any historical activities at the base. And since the relative contribution of PAHs to the non-cancer risks present at IRP Sites 7 and 14 are less than one on the Hazard Index, DON/USMC asserts that no further action is warranted.

As discussed in more detail in the attached memorandum, the LRA questions the accuracy of DON/USMC's claim that arsenic and manganese are naturally occurring and are not the result of its prior use of the MCAS El Toro property. However, even if this is true, DON/USMC cannot escape its responsibility to address contamination that poses a risk to human health and the environment, simply because its contribution to such contamination, standing alone, would not trigger the need for remediation. The fact remains that the non-cancer risks present at Units 1 and 3 of IRP Site 7 (1.4 and 1.0 on the Hazard Index, respectively) exceed the regulatory levels requiring remediation. PAHs are one of constituents contributing to these risks and, as such, DON/USMC must take steps to address the contamination present at Site 7.

3. Failure to Consider Threats Posed by Petroleum Hydrocarbons

One of the more glaring omissions in the Proposed Plan in any discussion of the threat posed by petroleum hydrocarbons, which were detected in many of the soil samples collected from IRP Sites 7 and 14. In fact, at IRP Site 7, total petroleum hydrocarbons ("TPH") as high as 32,091 kg/mg (3.2%) were detected, which is significantly in excess of the typical action levels established by the Orange County Health Care Agency for reuse of former oil production sites.

Though not stated in the Proposed Plan, DON/USMC's decision to ignore these impacts appears to be based on CERCLA's "petroleum exclusion," under which crude petroleum and its fractions are excluded from the definition of a hazardous substance and, in turn, exempt from the strictures of this statute. However, any reliance on this exclusion is both short-sighted and misplaced.

In light of the levels at issue, leaving petroleum hydrocarbons in place at IRP Sites 7 and 14 necessarily will impede reuse of these sites. Thus, even if DON/USMC has no obligation under CERCLA to remediate the petroleum hydrocarbons present at IRP Sites 7 and 14, it nonetheless does have a duty to address such contamination under applicable BRAC law.

In addition, pursuant to Public Law 102-190, DON/USMC is required to indemnify the recipients of base property for any claims relating to or arising out of the release or threatened release of hazardous substances, pollutants, contaminants and petroleum products that occurred during its tenure on the property. Given this, it makes no sense for DON/USMC to defer

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consideration of the impacts associated with petroleum hydrocarbons at IRP Sites 7 and 14 until actual transfer of the MCAS El Toro property occurs, and doing so will only serve to delay this transition.

4. Concurrence of Regulatory Agencies

The Proposed Plan emphasizes that the members of the Base Cleanup Team ("BCT"), which is composed of DON/USMC, EPA, DTSC and the Santa Ana Regional Water Quality Control Board ("Regional Board"), have concurred that the risks posed by contaminants at IRP Sites 7 and 14 are within the allowable or risk management/generally allowable range and, therefore, that "no further evaluations or cleanup actions are required." Proposed Plan, p. 6.

First, the LRA is concerned that this section of the Proposed Plan does not accurately reflect the comments previously made by EPA and DTSC concerning the draft Proposed Plan and its supporting documents. For example, as noted above, EPA stated that excess cancer risks in the range of 10^{-4} to 10^{-6} "may not require remediation, depending on site-specific circumstances." DON/USMC cannot and should not claim that the contamination at IRP Sites 7 and 14 requires no further action without providing a full discussion in the Proposed Plan of the specific circumstances that justify deviating from the 10^{-6} risk standard.

Similarly, DTSC stated in its comments on the draft Phase II Remedial Investigation ("RI") Report for IRP Sites 7 and 14 that it "does not consider 10^{-4} to 10^{-6} and acceptable risk range." Rather it "considers a one in one million or 10^{-6} risk as the point of departure for considering remediation of risks." See Letter from Alice Gimeno, Southern California Branch, Office of Military Facilities, DTSC, to Dean Gould, BRAC Environmental Coordinator, USMC, dated November 8, 1999. Moreover, in none of the written comments submitted by DTSC on the draft Proposed Plan, does DTSC expressly rescind its prior comment on the RI Report. Thus, if in fact DTSC has retreated from its prior position concerning what constitutes an acceptable cancer risk, then the rationale for this change must be discussed in detail in the Proposed Plan.

Second, the LRA is not aware of any formal comments submitted by the Regional Board on the draft Proposed Plan for IRP Sites 7 and 14. This absence of comments is surprising given the high levels of petroleum hydrocarbons detected at these sites and the potential for ground water to be impacted by such contaminants. As above, it is imperative for DON/USMC to summarize the discussions it had with the Regional Board concerning IRP Sites 7 and 14 and to explain the reasons given by the Regional Board for concluding that no further action is warranted.

Third, even if some members of the BCT believe that no additional investigation or remediation of IRP Sites 7 and 14 is necessary, the LRA does not believe it is appropriate to emphasize this as part of the Proposed Plan. In doing so, DON/USMC is giving the impression that its decision on the Proposed Plan is a *fait accompli*.

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However, there is still the issue of the community's acceptance of the Proposed Plan, which is one of the criteria that must be considered before selecting a remedy. 40 C.F.R. § 300.430. As the ultimate recipient of the MCAS El Toro property, the County constitutes a key stakeholder in the community that will be affected by this transfer. As such, DON/USMC has a duty to fully address the concerns raised by the LRA in this letter and the attached memorandum.

Again, we appreciate the opportunity to comment on the Final Proposed Plan for IRP Sites 7 and 14 and look forward to discussing our issues and concerns with you in more detail in the near future. In the interim, if you have any questions, please do not hesitate to contact Polin Modanlou of my staff at (714) 834-3156.

Sincerely,



FOR Robert Richardson
Interim Executive Director
MCAS El Toro Local Redevelopment Authority

Attachment

cc: Members, Board of Supervisors
Michael Schumacher, Ph.D, Interim CEO
Glenn Kistner, USEPA
Triss Chesney, DTSC
John Brodrick, RWQCB
Steve Sharp, LEA

M E M O R A N D U M

TO: Polin Modanlou, MCAS El Toro Master Development Program

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

DATE: 8 November 2000

SUBJECT: Review of
(1) Final Phase II Remedial Investigation Report
Attachments O, OU-3B Site 7 Drop Tank Drainage Area No. 2,
Attachment P, OU-3B Site 14, Battery Acid Disposal Area; and
(2) Final Proposed Plan for Operable Unit 3B Sites 7 and 14
Marine Corps Air Station, El Toro
Orange County, California

INTRODUCTION

GeoSyntec Consultants (GeoSyntec) performed a preliminary review of two documents related to Sites 7 and 14 prepared by the Department of Navy/United States Marine Corps (DON/USMC). These documents are the "Phase II Remedial Investigation Report, Attachments O and P, Operable Unit-3B, Sites 7 and 14, Marine Corps Air Station (MCAS), El Toro, California" (RI), dated March 2000 and the "Proposed Plan for Operable Unit 3B, Sites 7 and 14 at Marine Corps Air Station El Toro" (Proposed Plan), dated September 2000. The RI provides a summary of the nature and extent of contamination at Operable Unit (OU)-3B, Site 7, Drop Tank Drainage Area No. 2 and Site 14, Battery Acid Disposal Area, and provides fate-and-transport and human-health risk assessment for chemicals of potential concern at these sites. The RI also includes recommendations for future work and potential remediation at these sites. The Proposed Plan is a summary of the work performed in the RI and is designed to be given to the public for comments before publication of the Record of Decision (ROD).

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The purpose of this memorandum is to provide a brief review of the information regarding Sites 7 and 14 included in the RI and Proposed Plan and to summarize GeoSyntec's comments, issues, and questions regarding the RI and Proposed Plan.

BACKGROUND

The information presented in this background section is based on the work performed and reported by DON/USMC.

Site 7, Drop Tank Drainage Area No. 2, reportedly was used for aircraft drop tank storage and drainage from approximately 1969 to 1983. Aircraft drop tanks were drained and washed on a concrete apron. The mixture of residual fuel and washwater drained off the edge of concrete apron onto the adjacent grassy areas. In addition, between 1972 and 1983, soil areas near the aircraft hangars (Buildings 296 and 297) are suspected to have been sprayed with lubrication oil and JP-5 jet fuel for dust control. A drainage ditch conveyed surface drainage from the site to the south towards Agua Chinon Wash. Another area of Site 7 served as an unpaved parking lot from 1972 to 1978 and also was sprayed with lubricant oils for dust control.

Site 14, Battery Acid Disposal Area, consists of a former battery acid disposal area associated with Building 245 and a separate catch basin. Building 245 was used as a heavy equipment maintenance shop. An asphalt parking area extends from Building 245 south to the edge of Site 14. From 1977 through 1983, fluids from batteries from facility vehicles, paints, and associated paint wastes were drained onto the unpaved ground surface beyond the edge of the parking area. Suspected contaminants included lead, other metals, waste oils, and solvents from paint products and paint strippers. When the asphalt parking area was washed down, contaminated surface water runoff drained over the edge of the pavement onto an unpaved area. The

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unpaved area sloped to a culvert that drains to Marshburn Channel. A separate catch basin near the battery acid disposal area also was investigated.

Based on DON/USMC's analysis, the remedial investigation of Sites 7 and 14 showed that low levels of contaminants were present in shallow soil at each site. Chemicals of potential concern considered by DON/USMC at both Sites 7 and 14 included total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) including polynuclear aromatic hydrocarbons (PAHs), and metals. Pesticides also were present in shallow soil throughout Site 7. At both sites, PAHs and metals are the most widely distributed classes of chemicals in shallow soil. The highest concentrations of contamination generally were limited to areas very near the surface, usually between 0 to 4 feet bgs. Concentrations of PAHs were reported to a depth of approximately 4 feet bgs. Except for metals, these chemicals generally diminished to trace concentrations at depths greater than 5 feet bgs.

DON/USMC performed a risk assessment at Sites 7 and 14. The risk assessment showed that excess cancer risks were less than 10^{-4} . Arsenic and PAHs were reportedly the main contributors to cancer risk at these sites. Non-cancer risks exceeded 1 at one of the areas of Site 7. According to DON/USMC, the largest contributors to non-cancer risk were the naturally occurring metals manganese and arsenic. DON/USMC reported that no site-related activities involved use of these metals. According to DON/USMC, PAHs were present at low concentrations and do not have a tendency to move off-site. For these reasons, DON/USMC has recommended no further action at both of these sites.

DISCUSSION

GeoSyntec noted a number of issues in the RI and in the Proposed Plan that need to be addressed by DON/USMC. In addition, GeoSyntec has a number of

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questions regarding issues discussed in the RI. Obtaining a response to these questions will help the MCAS El Toro Master Redevelopment Program (MRP) in planning reuse of MCAS El Toro. The following is the description of issues and questions identified by GeoSyntec:

Issue/Concern No. 1

DON/USMC indicates that battery fluids from facility vehicles were drained onto the ground surface at Site 14. DON/USMC further states that the volume of battery acid (sulfuric acid) disposed at the site is estimated at 210 gallons (see RI at page P1-2). Battery acid has a very low pH. Therefore, the soil on which the battery acid was spilled would likely also have a low pH. Did DON/USMC test the soil and the groundwater for pH at Site 14? Did DON/USMC evaluate the impact of potentially low pH in the soil and groundwater on the presence and mobility of other contaminants (such as metals) in the vadose zone and groundwater?

Issue/Concern No. 2

Figures 3-1 and 4-2 (see RI at pages P3-3 and P4-7, respectively) show two arrows labeled "acid disposal and paint waste stain area." It is unclear whether these arrows designate the area delineated by the blue dashed line or simply a smaller localized area at the end of the arrow. If the arrows designate a small-localized area, then, based on the sampling location shown in Figure 4-2 (see RI at page 4-7), no samples were collected specifically in the "acid disposal and paint waste stain area." Does DON/USMC intend to collect and chemically analyze soil samples at the "acid disposal and paint waste stain area" noted on Figures 3-1 and 4-2? In addition, could the soil below the pavement at Sites 7 and 14 and the soil next to the culvert that drains to Marshburn Channel at Site 14 have been chemically impacted. Does DON/USMC intend to collect and analyze soil sample at these locations?

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Generally speaking, it does not appear that the soil sampling locations at Sites 7 and 14 were selected based on the anticipated location of releases nor on the location of low topographic points where spilled liquids may have accumulated. Does DON/USMC intend to sample these areas?

In addition, the corresponding risk assessments do not make note of the lack of sample coverage in areas that had been used for waste disposal. This factor should have been a prominent topic in the characterization of uncertainties presented with risk estimates, since it is critical information for risk managers interpreting the significance of estimated risks in the context of a "No-Further-Action" recommendation. While the risk estimates based on sampled locations may be adequate for characterizing overall site risks, the inability to identify localized areas with potentially much higher concentrations (due to the lack of sampling) is a substantial limitation with regard to determining the appropriateness of future land uses in particular locations. As a specific example, in its responses to DTSC and EPA comments on the Draft RI and the final RI, DON/USMC has presented the highest soil lead concentration (931 mg/kg) observed at Site 14 as an outlier and not considered this as an indicator of the need for further evaluation or remediation. Dismissing such levels is premature in light of the uncertainty as to whether the lead concentrations in the specific locations where batteries were drained have been characterized.

Issue/Concern No. 3

Petroleum hydrocarbon was detected in many of the samples collected at Sites 7 and 14. For example, TPH concentrations as high as 32,091 mg/kg (3.2 percent) were detected in surface soil samples at Unit 5 of Site 7. Such TPH concentrations in surface soil typically have required site remediation (for example, typical TPH action levels established by the Orange County Health Care Agency for former oil production sites range from 100 to 1,000 ppm depending on location and site reuse). Does DON/USMC intend to remediate TPH-impacted soil at Sites 7 and 14?

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Issue/Concern No. 4

DON/USMC states in the RI that arsenic is responsible for a large part (50 percent at Site 7 and 40 percent at Site 14) of the carcinogenic risks at Sites 7 and 14 (see RI at pages O7-5 and P7-2). DON/USMC adds that the arsenic concentrations at Site 7 are not attributable to known historical site activities and that Sites 7 and 14 may have a higher background concentration than the statistically calculated background concentrations of arsenic for MCAS El Toro. Has DON/USMC evaluated the potential for arsenic to originate from alloy additives used, for example, in battery grids (see Hawley's Condensed Chemical Dictionary, 11th Edition at page 98)? Similarly, has DON/USMC evaluated the potential for presence of arsenic in the pesticides and herbicides used at MCAS El Toro as part of base operations?

DON/USMC states in the RI (see RI at page O7-6) that manganese is responsible for the hazard index (HI) being greater than 1 at Unit 1, Site 14. DON/USMC states that manganese is present in background and is not attributable to MCAS El Toro activities. Has DON/USMC considered that presence of manganese could be associated with aviation activities because manganese is used in many metal alloys used in aviation and in welding and cutting torches used in repair or maintenance shops?

Issue/Concern No. 5

DON/USMC calculated the excess cancer risk and the HI for Sites 7 and 14. The maximum cancer risk calculated by DON/USMC is 4.4×10^{-5} at Unit 1 of Site 14 for a future resident and the maximum HI is 1.4 for Unit 1 of Site 7 for a future resident. In previous documents, DON/USMC indicated that the acceptable excess cancer risk was 10^{-6} following site remediation (see Responsiveness Summary to Proposed Plan,

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Sites 8, 11, and 12, dated July 1999, at pages 3 and 4). Has DON/USMC modified the acceptable risk level to be used for remediation at MCAS El Toro? If so, why?

Issue/Concern No. 6

It is not clear from the proposed plan whether DON/USMC will require institutional controls for Sites 7 and 14. Does DON/USMC intend to release Sites 7 and 14 for unrestricted use?

This issue is important to consider in evaluating the appropriateness of the submitted risk assessment for supporting risk management decisions. The current risk assessment specifically omits calculation of risks associated with groundwater-associated chemicals. Thus, in order for the subsequent risk assessment results to be used to document the overall lack of risks requiring remediation, the underlying exposure assumption (i.e., no groundwater-related risks) must be maintained. So, the risk assessment results may be appropriate if groundwater exposure is definitely controlled through institutional or engineering controls. Conversely, if the risk assessment was updated to consider potential groundwater risks, it would be suitable for supporting the appropriateness of unrestricted future uses.

Issue/Concern No. 7

Given that some of the calculated risks for Sites 7 & 14 exceed standard threshold for non-cancer risks and reach to within approximately a factor of two (i.e., 0.44×10^{-4}) of the least conservative end of the "risk management" range for excess cancer risk (10^{-6} to 10^{-4}), the approach of using a single media (soil) risk assessment gives rise to significant uncertainties with regard to supporting a recommendation of no further action. In previous reviews of the RI, DTSC has pointed out that risks from all pathways should be accumulated to present an overall estimate of potential site risks. This would include potential risks from groundwater. DON/USMC has responded that

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groundwater risks are evaluated under a separate assessment. Under this approach, however, overall risks at Sites 7 and 14 are not disclosed to decision-makers evaluating these particular locations for future uses. The relative "closeness" of the overall soil risk estimates to the least conservative "risk management" criterion indicates that it would not take much additional contribution from omitted pathways to potentially change risk management recommendations. Does DON/USMC intend to evaluate total risk (i.e. risks including all potential pathways) for Sites 7 and 14?

Issue/Concern No. 8

Other factors in the risk assessments noted to create uncertainties leading to underestimates of potential risks have been pointed out earlier by DTSC. This review provides additional questions/concerns related to other similar uncertainties.

The handling of indications of elevated lead concentrations was mentioned above. In addition to such questions about localization of lead impacts, the issue of the protectiveness of other measured concentrations still has not been clearly resolved. The results of CAL-EPA LeadSpread model presented by DON/USMC indicate that a remedial goal of 290 mg/kg would be needed to maintain 99% confidence that children's blood lead would not exceed regulatory criteria. It is not just one potential outlier, but 3 of 10 (30%) of the measured values that exceed this remedial goal. Thus, children's exposures at 30% of the locations evaluated could lead to unacceptable blood lead levels. So, while from the perspective of overall site risks, measured lead levels may not be expected to result in significant risks, the picture at a substantial proportion of individual locations may be much different. Indeed, with uncertainties regarding the characterization of specific waste disposal locations, the areas with the highest risks may not even be identified. These area-specific issues are important from the perspective of evaluating future uses for particular areas.

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Excluding potential carcinogenic risks from chromium also leads to unaddressed uncertainties and would lead to underestimates of potential risk. In the risk assessment, DON/USMC uses the justification that samples analyzed from other sites have not contained a significant proportion of the carcinogenic (hexavalent) form of chromium. Absent site-specific information on chromium speciation, the default requirement for risk assessment is to treat the entire concentration as the more toxic, carcinogenic form. The use of sampling results from other sites to support an alternative assumption that none of the chromium is in the hexavalent form is subject to considerable uncertainty for sites where metals were directly disposed. There is clear potential for the chromium found at battery acid disposal sites and tank washout sites to differ from other types of sites and natural background with regard to the proportion of chromium in the hexavalent form. This is the reason that site-specific measurement is typically required to support reducing the fraction considered carcinogenic in risk assessment. Since the risk assessments considered none of the chromium to be carcinogenic, there was no discussion of the potential risks or the uncertainty of the approach that was used.

The potential uncertainties associated with using a depth interval from 0 to 10 feet, inclusive, for estimating potential residential risks were raised by DTSC. The risk assessments used all of the results obtained from various depths down to 10 feet in estimating the average (mean) and subsequent 95% upper confidence limit of the mean used to represent potential exposure. Since the RI points out that the highest concentrations were measured near the soil surface, including results from deeper samples (0 to 10 feet) tends to "average out" the concentrations used for residential exposures. Some comparisons between the exposure point concentrations (EPCs) calculated for 0 to 2 foot soils at Site 7 Unit 1 (See RI at Table II-6) versus those for 0 to 10 feet soils (See RI at Table II-7) are illustrative as shown below:

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<u>Chemical</u>	<u>Shallow EPC</u>	<u>Deep EPC</u>
Arsenic	6.98 mg/kg	4.99 mg/kg
Benzo(a)pyrene	1.39 mg/kg	0.36 mg/kg
Benzo(a)anthracene	1.09 mg/kg	0.26 mg/kg
Dibenz(a,h)anthracene	0.62 mg/kg	0.35 mg/kg

Note that the corresponding risk estimates for 0 to 2 feet soil would have been higher than those presented for future residents by approximately 30% for arsenic, approximately four-fold for benzo(a)pyrene, and approximately two-fold for benzo(a,h)anthracene.

In response to DTSC's comment on the RI on this issue, DON/USMC points out that an approved workplan stipulated that future residential exposures would assume exposure to soil mixed over the 0 to 10 foot depth interval. While this is a standard assumption with regard to soils that may be excavated, turned, and mixed in the process of installing a building with a basement, the applicability of this scenario to future land uses is not clear. Unless activities involving such soil mixing are necessary (or mandated), it is difficult to ensure that future users would not be exposed to the surficial concentrations. Failing to estimate such surficial soil risks for potential future residents limits the information available to decision-makers with regard to the suitability of certain future uses.

CONCLUSION

The ultimate conclusion of the RI (see RI at pages O7-9 and P7-8) and the Proposed Plan (see Proposed Plan at page 5) is that no further action is required at either Site 7 or 14. This conclusion appears to be based, in part, on the following assumptions by DON/USMC:

- The excess cancer risk is less than 10^{-4} .

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- Arsenic and manganese are naturally occurring.

However, an excess cancer risk of 1×10^{-6} historically has been used as the standard for residential risk at the MCAS El Toro. A no-further-action approach at Sites 7 and 14 would leave a residential excess cancer risk greater than 10^{-6} . In addition, one of the risk drivers, arsenic, in fact, may not be naturally occurring at Sites 7 and 14 as assured by DON/USMC. Further, non-cancer risks were above the threshold III of 1 that is typically the trigger for further evaluation or remediation. And, there were clearly areas of lead contamination substantially exceeding both the default CAL-EPA residential criterion and the remedial goals calculated in the site-specific risk assessment. The limitations and readily identifiable factors that may result in the reported risk estimates underestimating potential risks for these sites under certain future uses means that risk management decisions should make use of the risk assessment finding conservatively. Finally, it appears that concentrations of TPH well in excess of typical action levels are present at Sites 7 and 14. In light of these factors, DON/USMC's conclusion that no remediation of Sites 7 and 14 is required does not appear to be valid and, therefore, must be re-evaluated.

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