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January 31, 2001

Contracting Officer
Naval Facilities Engineering Command
Southwest Division
Mr. Richard Selby, Code 02R1
1220 Pacific Highway
San Diego, CA 92132-5190

Subject: Draft Responsiveness Summary for Operable Unit 3B – No Action Sites 7 and 14 –
Dated January 2001
MCAS El Toro, CA

Dear Mr. Selby:

It is our pleasure to submit this copy of the Draft Responsiveness Summary for Operable Unit (OU) 3B – No Action Sites 7 and 14 – for the Marine Corps Air Station (MCAS) El Toro, California. This document was prepared under Contract Task Order (CTO) 0164 and Contract No. N68711-92-D-4670 and is an Federal Facility Agreement (FFA) deliverable. Comments on this document should be submitted by March 1, 2001 to Mr. Dean Gould, BRAC Environmental Coordinator, goulddda@efdsw.navfac.navy.mil.

The draft Record of Decision (ROD) for Sites 7 and 14 was transmitted under separate cover on November 22, 2000. Once this Responsiveness Summary has been reviewed and finalized, it will be merged with the ROD and issued as an integral part of the draft final version of that document.

We appreciate the opportunity to be of service to you on this project. If you have any questions or would like further information, please contact Jane Wilzbach at (619) 744-3029, or myself at (619) 744-3004.

Sincerely,


Thurman L. Heironimus, R.G.
Project Manager

TLH/sp
Enclosure

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RESPONSIVENESS SUMMARY

**RESPONSE TO WRITTEN COMMENTS
RECEIVED DURING THE PUBLIC COMMENT PERIOD**

RESPONSIVENESS SUMMARY
MARINE CORPS AIR STATION – EL TORO, CALIFORNIA
PROPOSED PLAN, OPERABLE UNIT 3B, SITES 7 AND 14

Letters Received During Public Comment Period

Comments by: *Robert Richardson, Interim Executive Director, MCAS El Toro Master Development Program, in a Letter Dated 08 November 2000*

Number	Comments	Responses
<p style="text-align: center;">1A</p>	<p>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 the Navy/United States Marine Corps (“DON/USMC”) in September 2000.</p> <p>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.</p> <p>1. Selection of Inappropriate “Risk Management Range” for Cancer Risks</p> <p>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 to 10^{-6}, as agreed to by DON/USMC for IRP Sites 8, 11, and 12.</p> <p>First, cancer risks falling within the 10^{-4} to 10^{-6} range are not <i>ipso facto</i> 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,</p> <hr style="width: 20%; margin-left: 0;"/> <p>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 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.</p>	<p>The Department of the Navy (DON) agrees that excess cancer risks within the range of 10^{-4} to 10^{-6} are not always acceptable and that cancer risks falling within this range are not <i>ipso facto</i> protective of human health and the environment. As discussed in the Proposed Plan, cancer risks between 10^{-4} and 10^{-6} and noncancer risks greater than 1 are within the “risk management range/generally allowable risk range.” Risks within this range require further site-specific evaluation to determine whether remedial action is required.</p> <p>Consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) Preamble (<i>Federal Register</i>, Vol. 55, No. 46, page 8717), several factors were considered by the DON and the regulatory agencies in making the no-action recommendation for Installation Restoration Program (IRP) Sites 7 and 14. These factors are discussed in the remedial investigation (RI) Report and the Proposed Plan and are addressed further in the paragraphs that follow.</p> <p>Per the NCP Preamble, “Preliminary remediation goals for carcinogens are set at a 10^{-6} excess cancer risk as a point of departure, but may be revised to a different risk level within the acceptable risk range based on the consideration of appropriate factors including, but not limited to: exposure factors, uncertainty factors, and technical factors.</p> <p>“Included in the exposure factors are: the cumulative effect of multiple contaminants, the potential for human exposure from other pathways at the site, population, sensitivities, potential impacts on environmental receptors, and cross-media impacts of alternatives.</p> <p>“Factors related to uncertainty may include: the reliability of alternatives, the weight of scientific evidence concerning exposures and individual and cumulative health effects, and the reliability of exposure data.</p>

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	<p>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.</p>	<p>“Technical factors may include: detection/quantification limits for contaminants, technical limitations to remediation, the ability to monitor and control movement of contaminants, and background levels of contaminants. The final selection of the appropriate risk level is made when the remedy is selected based on the balancing of criteria”</p> <p>Of the factors enumerated in the NCP, the primary factors considered by the DON and approved by the regulatory agencies in the determination that no action was appropriate for Sites 7 and 14 were: 1) the background level of contaminants, 2) the ability to monitor and control movements of contaminants, and 3) the reliability of exposure data. These are discussed individually below.</p> <p>Point of Departure Evaluation</p> <p>Cancer and noncancer risks at Sites 7 and 14 were estimated for both residential and industrial scenarios. The results were presented in Table ES-1 of the RI and summarized in the Proposed Plan. The residential and industrial cancer risks are shown below.</p> <table border="1"> <thead> <tr> <th>Site/Unit</th> <th>Residential Scenario</th> <th>Industrial Scenario</th> </tr> </thead> <tbody> <tr> <td>Site 7, Unit 1</td> <td>3.3×10^{-5}</td> <td>1.3×10^{-5}</td> </tr> <tr> <td>Site 7, Unit 3</td> <td>1.7×10^{-5}</td> <td>2.7×10^{-6}</td> </tr> <tr> <td>Site 7, Unit 4</td> <td>1.7×10^{-6}</td> <td>3.0×10^{-7}</td> </tr> <tr> <td>Site 7, Unit 5</td> <td>2.3×10^{-5}</td> <td>3.6×10^{-6}</td> </tr> <tr> <td>Site 14, Unit 1</td> <td>4.4×10^{-5}</td> <td>6.5×10^{-6}</td> </tr> <tr> <td>Site 14, Catch Basin</td> <td>6.2×10^{-7}</td> <td>1.0×10^{-7}</td> </tr> </tbody> </table> <p>With the exception of Site 14, Catch Basin, all residential risks were within the risk management range. Risks at the Catch Basin were less than 10^{-6} and were within the range considered acceptable without further evaluation. The remaining risks were subject to a point of departure evaluation using the NCP criteria noted above. The rationale for the no-action recommendation is summarized below.</p>	Site/Unit	Residential Scenario	Industrial Scenario	Site 7, Unit 1	3.3×10^{-5}	1.3×10^{-5}	Site 7, Unit 3	1.7×10^{-5}	2.7×10^{-6}	Site 7, Unit 4	1.7×10^{-6}	3.0×10^{-7}	Site 7, Unit 5	2.3×10^{-5}	3.6×10^{-6}	Site 14, Unit 1	4.4×10^{-5}	6.5×10^{-6}	Site 14, Catch Basin	6.2×10^{-7}	1.0×10^{-7}
Site/Unit	Residential Scenario	Industrial Scenario																					
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		<p>Background Level of Contaminants</p> <p>The largest contributors to cancer risks at Sites 7 and 14 were arsenic and polynuclear aromatic hydrocarbons (PAHs).</p> <p>To evaluate the risk contributions of arsenic, the DON estimated during the RI the total and incremental contributions of arsenic to the carcinogenic risk at Sites 7 and 14. The results are summarized in Attachment A for the industrial and residential scenarios.</p> <p>The tables in Attachment A show that the incremental risk from arsenic is generally less than or only slightly greater than 10^{-6} and that the background risk for arsenic is generally the same order of magnitude as the total risk. This suggests that the concentrations of arsenic reported at both sites may not be the result of site-specific releases or contamination. In addition, there are no known historical site-related activities that involved the use of arsenic.</p> <p>In addition, a background study of metals in soil at Marine Corps Air Station (MCAS) El Toro was performed in 1996 (BNI 1996). Based on this study, which included 43 samples with arsenic concentrations ranging from 0.29 milligrams per kilogram (mg/kg) to 8.5 mg/kg, the background concentration of arsenic was determined to be 6.86 mg/kg. This value represents the 95th quantile, or percentile of the mean population value. Since the background determination is a statistically based approach, it is not unexpected that a certain number of samples will exceed the 95th percentile yet still be within the true population or, in other words, still be indicative of the naturally occurring concentrations.</p> <p>The RI data for arsenic in soil at Site 7 are summarized in Figure 4-4 of Attachment O. These data indicate that approximately 98 percent of the arsenic analytical results are less than the background concentrations for MCAS El Toro. Similarly, the data set from which the MCAS El Toro background value was derived also includes some values greater than the calculated background value.</p>

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		<p>Under industrial conditions, the cumulative hazard index (HI) at Sites 7 and 14 is less than 1.0. Similarly, the HI at Site 14 is less than 1 under residential conditions. For residential land use, the HI at Site 7 equals or exceeds the threshold of 1 for Units 1 (1.4) and 3 (1.0). This exceedance is mainly because of manganese.</p> <p>However, as pointed out by California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC) in the review of the RI (November 1999), the hazard quotient for manganese is an overestimate because the exposure calculated for a resident child was compared to the published inhalation reference dose (U.S. EPA 1998) for an adult in accordance with Region 9 practice. However, use of a more appropriate inhalation reference dose for a child would have reduced the manganese hazard quotient at Sites 7 and 14 by 50 percent. Rather than reperforming the risk assessment using a child-derived inhalation reference dose, this issue was addressed in the uncertainty portion of the risk assessment. The uncertainty discussion was reviewed and accepted by DTSC.</p> <p>In addition, the background for manganese was determined to be 291 mg/kg. This was based on 43 samples with manganese concentrations ranging from nondetect to 574 mg/kg. The RI data for manganese in soil at Site 7 showed that approximately 79 percent of the manganese analytical results are less than the background concentrations. The highest concentration above background, 423 mg/kg, was much lower than the highest concentration measured in the background population sample. In addition, from a risk perspective, the HI for manganese at Units 1 and 3 was only 1.4 and 1.1 times its HI at background. This indicates that the concentration of manganese is not significantly different from background at the site. Finally, there are no known historical site-related activities that involved the use of manganese.</p> <p>Based on these data and risk calculations, it was concluded that the concentrations of arsenic and manganese present at Site 7 reflect natural, background conditions.</p>

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		<p>Ability to Monitor and Control Movements of Contaminants</p> <p>Another factor considered by the DON and approved by the regulators when they made the no action recommendation for Sites 7 and 14 was that PAHs were present at low concentrations and do not have a tendency to migrate off-site or to groundwater. As discussed in the fate and transport evaluation in Section 5 of the Site 7/14 RI (BNI 2000), as a chemical group, PAHs have low water solubility and a high affinity for sorption to organic matter. These are characteristics that limit the potential for leaching through soil as a transport process and cause the chemicals to be relatively immobile.</p> <p>Reliability of Exposure Data</p> <p>The DON also considered the reliability of exposure data when it made the no further action recommendation for Sites 7 and 14. As discussed in the fate and transport evaluation in Section 5 of the draft final RI Report for Sites 7 and 14, shallow soil biodegradation is the most important transformation process affecting the persistence of PAHs. Another potentially important transformation process, photolysis, is limited to areas where surface soils are exposed to sunlight.</p> <p>The chemical concentrations used in the risk assessment were assumed to remain constant for the entire exposure duration. However, it is highly unlikely that the organic concentrations will remain constant, particularly in soil. Benzo(a)pyrene and dibenz(a,h)anthracene, the risk drivers, are biodegradable. Under aerobic conditions, the half-lives of these PAHs have been estimated to be 1.45 and 2.57 years, respectively, with 0.16 and 1 year possible under ideal conditions (Howard et al. 1991). This means that it is likely the risks due to PAHs are overstated.</p> <p>Another area of uncertainty in the exposure assessment is the prediction of human activities that lead to contact with environmental media and exposure to chemicals. The residential risk assessment assumes that an adult is exposed to chemicals present at the site 24 hours a day, 350 days a year for 30 years. In reality, exposure times are likely to be much less, especially because the current anticipated reuse of Sites 7 and 14 is not residential.</p>

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		<p>Considering these factors, the risk levels present at Sites 7 and 14 were evaluated and found to be an acceptable departure from the 10⁻⁶ point of departure in the NCP. No action is required.</p> <p>The site-specific circumstances/risk management considerations on which the no-further-action recommendations were based are discussed in the Proposed Plan under the section "Characterizing Site Risks and Results" on pages 4 and 5 and are summarized for each unit at Sites 7 and 14 in Table 2 on page 6. The discussion in the Proposed Plan is intended to provide an overview for the general public and does not go into the level of detail of this response or the evaluation of risks in the RI or the Record of Decision (ROD).</p> <p>Future Use of Sites 7 and 14</p> <p>It should also be noted that the NCP allows future use of the site to be considered when a risk assessment is performed. The future uses of Sites 7 and 14 are cargo and terminal complex, respectively. Had the risk assessment been performed solely for an industrial use, risk at every unit would have been lower than the residential risk values discussed above. However, had the sites been evaluated only for industrial use, it would have been necessary to place land-use controls on the property prohibiting residential use. To avoid the need for these controls, the DON made a business decision to evaluate risks for both the industrial and residential scenarios and determine whether the risks were acceptable. This evaluation concluded that the risks were acceptable under both residential and industrial scenarios. Therefore, no institutional controls were required under either scenario.</p> <p>Evaluation of the Need for Remedial Action at Sites 8, 11, and 12</p> <p>Human-health risks at several units at Sites 8, 11, and 12 were also within the generally acceptable/risk management range. As such, they were evaluated on a site-specific basis to determine whether remedial action was required using a point-of-departure evaluation similar to the one described above. The factors that were considered in this evaluation included the extent of contamination, mobility and persistence of the</p>

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		<p>chemicals contributing to the risk, and whether these chemicals were present as a result of site-related activities. Based upon this evaluation, it was determined that remedial action should be taken at five of the eight units at Sites 8, 11, and 12.</p> <p>The baseline human-health risk assessment for Sites 8, 11, and 12 was performed during the Phase II RI in accordance with the final Risk Assessment Work Plan for MCAS El Toro (BNI 1995) using a cancer slope factor of 7.7 and very conservative adherence factors and dermal absorption factors. Exposure-point concentrations that were calculated in the Phase II RI used both 95 percent upper confidence limits and maximum concentrations. Maximum values are typically used in cases where the data set is relatively small or there is a low frequency of detection.</p> <p>Since the risk assessment was performed, the cancer slope factor and several of the exposure parameters used in the risk assessment have changed. On the basis of the analytical data and currently published toxicity values and exposure parameters, the DON has proposed that the risk estimation for Sites 8, 11, and 12 be updated and that the following criteria be used to evaluate the results.</p> <ul style="list-style-type: none"> • If any of the revised estimated cancer risks exceed 1×10^{-4} or the hazard indices exceed 1, then cleanup goals will be revised on the basis of the updated risk-based concentrations. • If the revised estimated cancer risk is between 1×10^{-4} and 1×10^{-6} and the hazard index is 1, then risk management options will be evaluated. • If the revised estimated cancer risk is below 1×10^{-6} and the hazard index does not exceed 1, then a new Proposed Plan will be prepared and no further action will be proposed.

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1B	<p>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.</p> <hr/> <p>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.</p>	<p>The DON conducted an RI at IRP Sites 7 and 14 at MCAS El Toro using the United States Environmental Protection Agency (U.S. EPA) data quality objective process. Data collection and analysis were performed with the concurrence and approval of the Base Realignment and Closure Cleanup Team (BCT). As indicated in the Phase II RI Report, Attachments O and P, 140 soil samples were collected from 43 locations at Site 7, and 13 soil samples were collected from 6 locations at Site 14. These locations were randomly positioned within each unit at each site to produce an unbiased configuration of sampling locations. This sampling methodology was designed to provide a high level of confidence (95 percent) that the number of locations and soil samples collected were appropriate to determine the nature and extent of contamination and conduct a human-health risk assessment.</p> <p>As noted in the response to Comment 1A, even though the current proposed reuses of Sites 7 and 14 are cargo and terminal complexes, respectively, the human-health risk assessment was performed for both residential and industrial scenarios. The results were evaluated by the DON using a point-of-departure evaluation as discussed in the NCP, and the risks were found to be acceptable under both scenarios.</p> <p>The following is in response to the specific issues raised in footnotes.</p> <p>1. The DON disagrees with this statement. No Site 14 lead concentrations were dismissed because they were "outliers." The highest concentration of lead (923 mg/kg) at Site 14 was identified at Unit 1. The Cal-EPA pharmacokinetic model was utilized to estimate the blood lead concentration for a resident child and an adult exposed to lead in the shallow soils. Lead was evaluated by comparing resulting blood lead concentrations (50th, 90th, 95th, 98th, and 99th percentile) with the benchmark of 10 µg/L, which has been established by U.S. EPA as a level below which the most serious effects of lead are unlikely to occur. The concentration of lead used in the estimation was the maximum detected value at the unit. No values were dismissed as "outliers."</p>

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		<p>The DON believes that the reference to an "outlier" may be a reference to Site 7, Unit 5, rather than Site 14. The RI Report reference to this value as an outlier is on page O6-36, Section 6.5.8 of the Risk Analysis (Attachment O). This discussion refers to this result in terms of its fit into the statistical distribution of data. It does not in any way imply that the lead result was dismissed when the need for further evaluation or remediation was determined. Exposure to lead at Site 7, Unit 5 was assessed both with and without the outlier. In both cases (when the outlier was included and when it was not) the estimated concentrations of lead in the blood of the resident adult and child were such that potential adverse health effects from exposure to lead concentrations at Unit 5 are considered unlikely.</p> <p>2. While it is recognized that three lead concentrations in surface soil at Site 7, Unit 5 were greater than 130 mg/kg, it should be noted that, per U.S. EPA guidance, exposure is not evaluated by use of a single sample because that is considered unrealistic and not representative of site conditions. Exposure is assessed by estimates of the central tendency of the data set and not by the individual data points. Lead was assessed by comparing resulting blood lead concentrations (50th, 90th, 95th, 98th, and 99th percentiles) with the benchmark of 10 micrograms per deciliter, which has been established by U.S. EPA as a level below which the most serious effects of lead are unlikely to occur. The estimated concentrations of lead in the blood of the resident adult and child did not exceed this threshold value. Hence, potential adverse health effects from exposure to lead concentrations at Site 7, Unit 5 are considered unlikely.</p> <p>3. As noted in the response to LRA Comment 1, a background study of metals in soil at MCAS El Toro was performed in 1996 (BNI 1996). Based on this study, which included 43 samples with arsenic concentrations ranging from 0.29 to 8.5 mg/kg, the background concentration of arsenic was determined to be 6.86 mg/kg. The RI data for arsenic in soil at Site 7 are summarized in Figure 4-4 of Attachment O (BNI 2000). These data indicate approximately 98 percent of the arsenic analytical</p>

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		<p>results are less than the background concentration for MCAS El Toro. While approximately 2 percent of the Site 7 arsenic concentrations exceeded the MCAS El Toro background, these values are indicative of the variation present in nature and in the background study cited above. Furthermore, arsenic concentrations at Site 7 fall within the range of background values of typical California soils (Bradford et al. 1996) and are comparable to arsenic concentrations for other western United States soils (Shacklette and Boerngen 1984). As a last point, the data set from which the MCAS El Toro background value was derived (which had arsenic concentrations ranging from 0.29 to 8.5 mg/kg) also includes some values greater than the calculated background value.</p> <p>4. Like arsenic addressed above, the manganese concentrations in soil are consistent with background levels found throughout MCAS El Toro. (See the response to LRA Comment 1 for further detail.) Further, historical information pertaining to Sites 7 and 14 does not support the hypothetical activities/sources for manganese cited in this footnote. Part of the RI process includes review of historical activities. These were researched and not found to include the activities that the LRA suggests may have occurred at the sites.</p> <p>5. An evaluation of the potential presence of hexavalent chromium in soil at the Operable Unit (OU)-3 sites (including sampling at Site 7) was conducted as part of the OU-3A RI performed at MCAS El Toro (BNI 1997). Contrary to the footnote assertion regarding the presence or absence of "significant amounts," hexavalent chromium was not identified in any of the soil samples collected and analyzed for this analyte.</p>

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1C	<p>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 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</p> <p>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.</p> <p>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}.</p> <p>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."</p> <p>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</p>	<p>It is the DON's intent to allow unrestricted use of the property at Sites 7 and 14 with the exception of any restrictions that may need to be imposed because of the presence of contaminated groundwater beneath both sites that originates at Site 24. The need for restrictions associated with groundwater will be discussed in the Proposed Plan for Sites 18 and 24. This Proposed Plan is expected to be issued to the public in the first half of 2001.</p> <p>As noted in the response to Comment 1A, although the proposed reuses of Sites 7 and 14 (cargo and terminal complex, respectively) are industrial, the DON has evaluated the conditions at Sites 7 and 14 through human-health risk assessments performed assuming both residential and industrial use scenarios and has determined that they are protective of human health and the environment under either future-use scenario. The basis for the risk management recommendation is presented in Table 2 of the Proposed Plan and further elaborated in the response to Comment 1A. Because the risks were evaluated and found to be acceptable under both residential and industrial scenarios, the property is considered available for unrestricted use.</p> <p>In making this risk management recommendation, the DON has not applied a "new standard" for evaluating risk different from that applied at Site 11. As discussed in the response to Comment 1A, the recommendation as to whether to perform remediation at a site where the risks fall between 10^{-4} and 10^{-6} is made on a site-by-site basis in accordance with criteria provided in the NCP. The risk management considerations for Site 11 were summarized in the table "Site-by-Site Summary: Risk Assessment Results and Recommended Actions," presented on page 5 in the Proposed Plan for this site. One of the primary factors in this recommendation was that the predominant chemicals present at Site 11 were polychlorinated biphenyls (PCBs). These chemicals are not naturally occurring and are persistent in the environment. Therefore, unlike the presence of arsenic and manganese at Sites 7 and 14, the presence of PCBs at Site 11 cannot be attributed to background conditions. In addition, PCBs do not readily biodegrade in soil like PAHs at Sites 7 and 14. Therefore, use of constant concentrations of PCBs over the 30-year period of the risk assessment</p>

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	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.	is much more realistic than assuming that the concentrations of PAHs remain constant over this time. Footnote 4 states that, at Site 11, the DON/USMC agreed that any contamination would be remediated such that residual cancer risks would not exceed 10 ⁻⁶ . As noted in the response to Comment 1A, the DON is reevaluating the baseline human-health risk at Site 11 to determine whether remediation is required in view of current toxicity and exposure parameters.
	2. 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.	The DON does not agree that there are significant data gaps concerning the nature and scope of the noncancer risks. As discussed previously in the response to Comment 1B, the data collection efforts were designed to provide a high level of confidence (95 percent) that the number of locations and soil samples were appropriate to determine the nature and extent of contamination and to conduct a human-health risk assessment. As stated in the response to Comment 1C, the DON does not intend to impose restrictions on reuse of these sites.
1E	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/USMCs 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	The DON does not agree with the LRA's statement that the DON/USMC is attempting to absolve itself of responsibility for contamination at IRP Sites 7 and 14 by segmenting the data. The methodology used to calculate the HI has been reviewed and approved by the U.S. EPA and DTSC and is designed to provide a reasonable maximum exposure. The methodology used to review the resulting noncancer risk has also been approved by U.S. EPA and DTSC and is the same methodology used at other BRAC bases to evaluate noncancer risks. The DON disagrees with the LRA's statement that "the non-cancer risks present at Units 1 and 3 . . . exceed the regulatory levels requiring remediation. U.S. EPA guidance (U.S. EPA 1989) states that "when the hazard index exceeds unity, there may be a concern for potential health effects." Noncancer risks do not automatically indicate the need for remediation because they equal or exceed 1. Rather, as noted in the Proposed Plan, such HI values indicate that a lifetime of exposure may have potential adverse health effects and should be evaluated further. Further evaluation takes into account, among other factors, historical

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	<p>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 the constituents contributing to these risks and, as such, DON/USMC must take steps to address the contamination present at Site 7.</p>	<p>activities that occurred at the site, the background levels of the chemicals that contribute to the risk, and persistence of chemicals in the environment.</p> <p>Background levels of chemicals are considered because it is not necessary to include naturally occurring inorganic chemicals (metals) in the risk assessment when the concentrations are within the range considered normal for the area.</p> <p>As explained on page O6-37 of the RI:</p> <p>Under industrial conditions, the cumulative HI is less than 1.0. For residential land use, the HI equals or exceeds the threshold of 1 for Units 1 (HI = 1.4) and 3 (HI = 1.0). This exceedance is mainly due to manganese identified at 46 and 51 percent for Units 1 and 3, respectively. However, the levels of manganese at these two units are within background levels. The HI for manganese at Units 1 and 3 is only 1.4 and 1.1 times its HI at background. This indicates that the concentrations of manganese are not significantly different from background at the site. Therefore, noncancer hazards at these units are not considered significant.</p> <p>Furthermore, per response to Comment 1A, hazard quotients presented are overestimates because they were calculated in accordance with Region 9 practice using an adult-derived inhalation toxicity criteria rather than child-derived toxicity criteria. Because some of the hazard quotients calculated in this manner exceeded 1, the DON performed a risk management evaluation considering factors that may have led to an overestimation of risk. The adult-derived inhalation toxicity factor was one such factor. Use of a child-derived inhalation reference dose, as suggested by DTSC toxicologist John Christopher, would have reduced the manganese hazard quotients by approximately 50 percent. Rather than reperform the calculation, this was discussed in the uncertainty portion of the RI.</p>

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<p>1F</p>	<p>3. Failure to Consider Threats Posed by Petroleum Hydrocarbons</p> <p>One of the more glaring omissions in the Proposed Plan is 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.</p> <p>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.</p> <p>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.</p> <p>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. Give this, it makes no sense for DON/USMC to defer 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.</p>	<p>Contrary to the contention in this comment, the 32,091 mg/kg reported for a Site 7 sample does not represent total petroleum hydrocarbons (TPH). Rather, the reported concentration represents total recoverable petroleum hydrocarbons (TRPH), as the RI indicates. TPH analyses conducted during the RI were performed using the California Leaking Underground Fuel Tank method and U.S. EPA Method 8015-M (equivalent methods). TRPH analyses were performed using U.S. EPA Method 418.1. This distinction is important because the types of results reported by these methods are significantly different. The TPH methods are chromatographic, which allow for identification of specific alkane (i.e., petroleum hydrocarbon) compounds (e.g., gasoline) and for determination of compound-specific concentrations. In contrast, TRPH is an infrared method that provides only a gross measure of the combined concentrations of any alkanes and alkane-like materials present. Because the TRPH method is nonchromatographic, it cannot distinguish individual compounds nor can it differentiate between petroleum hydrocarbons and biogenic compounds or other compounds from nonpetroleum sources. Therefore, if biogenic or other nonpetroleum compounds are present in a sample, they are included in the measured TRPH concentration, and an inaccurate result is reported. Thus, the reported TRPH concentrations can serve as a gross screening tool but are not a suitable basis for evaluating the presence and concentrations of petroleum hydrocarbons in soil.</p> <p>The TRPH, TPH, and volatile organic compound (VOC) results for the surface soil sample in question suggest that the TRPH result may be indicative of nonpetroleum compounds. The concentrations of actual speciated TPH compounds are low (approximately 426 mg/kg), while common VOC constituents associated with TPH compounds either were not detected or were detected at trace (less than 4 micrograms per liter concentrations). Further, visual observations during the RI taken in the sample area did not identify any evidence suggesting that a large surface release had occurred while TRPH, TPH, and VOC concentrations in a sample collected at a depth of 2 feet from the same location were significantly lower.</p>

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		<p>When risk is assessed, the constituents included in petroleum compounds (e.g., benzene and toluene) are addressed, but a generalized petroleum compound, itself (e.g., gasoline), is not because there are no established health-risk-based toxicity criteria for TPH as a general compound group. A major factor in cleanup decisions is the likelihood of impact to ground-water quality. The DON's recommendation for no action for Site 7 was not based on the "petroleum exclusion" but, rather, on the fact that risks were evaluated and found to be acceptable and that data collected during the RI indicated that the samples addressed in this comment have limited lateral and vertical extent with no potential to impact groundwater.</p> <p>Since the DON has evaluated the impacts associated with petroleum hydrocarbons at Sites 7 and 14 and has determined that they will not negatively impact human health or the environment, the DON disagrees with the LRA's implication that consideration of the impact is being deferred until property transfer occurs. It should be noted that the regulatory agency members of the BCT, including the California Regional Water Quality Control Board (RWQCB), which has enforcement authority for contamination by petroleum hydrocarbons, have concurred with the DON's determination at these sites.</p> <p>Once the ROD for Sites 7 and 14 has been finalized, these sites will be eligible for transfer. Should Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) contamination be found at a future time, the DON would have responsibility under CERCLA Section 120(h) to return to perform such additional cleanup as would be generally required by the regulatory agencies of any responsible party in a similar situation.</p>
1G	<p>4. Concurrence of Regulatory Agencies</p> <p>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.</p>	<p>The DON disagrees with the implication that the Proposed Plan does not incorporate BCT comments or that the regulatory agencies do not support the no further action recommendation. The Proposed Plan accurately reflects comments from U.S. EPA and DTSC. Both regulatory agencies support the DON recommendation for no further action at Sites 7 and 14 as outlined in the Proposed Plan.</p>

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	<p>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.</p> <p>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} an acceptable risk range." Rather it "considers a one in one million or 10^{-6} 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.</p>	<p>As the comment acknowledges, U.S. EPA indicated in its review of the draft Phase II RI Report that risks within the range of 10^{-4} to 10^{-6} may not require remediation, depending on a variety of site-specific factors. As discussed in the response to Comment 1A, the DON and regulatory agencies considered factors provided in the NCP when they performed a point-of-departure evaluation before they arrived at the no further action recommendation. A summary of the rationale for the no action recommendation is in the response to Comment 1A and the Proposed Plan, "Characterizing Site Risks and Results" section (page 5).</p> <p>U.S. EPA, in Comment 22 on the draft Phase II RI Report, stated that "EPA recommends risks in the 10^{-6} to 10^{-4} range be carefully evaluated for remediation" and that "a more appropriate term for the 10^{-6} to 10^{-4} range would be the 'risk management range.' U.S. EPA considers a 10^{-6} risk as the point of departure for considering remediation of risks in this range." The draft final Phase II RI Report, the ROD, and the Proposed Plan use the U.S. EPA's recommended "risk management range" terminology. The comment from Alice Gimeno in the DTSC review of the draft Phase II RI Report (08 November 1999) made the identical point, stating "DTSC does not consider 10^{-4} to 10^{-6} an acceptable risk range. DTSC considers a one in one million or 10^{-6} risk as the point of departure for considering remediation of risks." Nowhere in U.S. EPA and DTSC comments or in regulatory guidance documents is 10^{-6} referenced as a "risk standard." Therefore, contrary to the LRA characterization presented here, the DTSC (and U.S. EPA) positions have remained consistent throughout the progression from RI to Proposed Plan. Risks within the range from 10^{-4} to 10^{-6} require evaluation of multiple site factors before a no further action or remedial action decision is made. The DON conducted the necessary evaluation, and recommended no further action, and the regulatory agencies concurred with the recommendations based on the evaluation results.</p> <p>With regard to the LRA's statement that the Proposed Plan should provide a full discussion of the specific circumstances that justify deviating from the 10^{-6} risk standard, the DON would like to point out that the Proposed Plan is prepared in a fact sheet format following U.S. EPA's recommended guidance (U.S. EPA 1999). The plan is</p>

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		intended to summarize the background of the sites, the results of the remedial investigation and risk assessment, and the rationale for taking or not taking remedial action in language that is clearly understandable to the public. The detailed backup for the recommendation whether to take or not to take action at the site is contained in the RI Report. Table 2 in the Proposed Plan is intended by the DON to convey the rationale for the no action recommendation in a format and language that would be easily comprehended by the public. It is not intended to substitute for the more detailed discussion in the RI and in the ROD.
1H	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 groundwater 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.	The RWQCB reviewed both the draft and draft final versions of the Proposed Plan and had no comments on either version. In the case of the draft Proposed Plan, California RWQCB representative Patricia Hannon indicated verbally during a 22 May 2000 meeting that RWQCB had no comments on the Proposed Plan. A subsequent 07 August 2000 letter from RWQCB pertaining to its review of the draft final Proposed Plan stated "We do not have significant comments on this document." RWQCB also reviewed the RI for Sites 7 and 14 and found that document acceptable.
1I	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 <i>fait accompli</i> . 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 in 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.	<p>The statement regarding the BCT is meant to convey the current position of the regulatory agencies on the proposed remedy. This is not meant to imply that the final remedy is being selected without consideration of public comments. All public comments received during the public comment period are addressed in the Responsiveness Summary portion of the ROD and are taken into consideration in finalizing the remedy selection.</p> <p>As an example, the Navy's preferred alternative for remediation of landfill Sites 3 and 5 was a monolithic soil cap. This remedy was modified to a single-barrier cap with a flexible membrane liner, based on the public comments received during the public comment period on the Proposed Plan.</p>

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	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.	

**RESPONSIVENESS SUMMARY
MARINE CORPS AIR STATION – EL TORO, CALIFORNIA
PROPOSED PLAN, OPERABLE UNIT 3B, SITES 7 AND 14**

Letters Received During Public Comment Period

Comments by: Bernard S. Palmer, Ph.D., P.E., GeoSyntec Consultants, in a Memorandum Dated 04 November 2000

Number	Comments	Responses
2A	<p>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 Units-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 assessments 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).</p> <p>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.</p> <p>[Background information on Sites 7 and 14 is not reproduced in this summary.]</p> <p>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 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.</p>	<p>The DON’s responses to GeoSyntec’s comments follow.</p>

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2B	<p><u>Issue/Concern No. 1</u></p> <p>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?</p>	<p>The DON did not test the soil for pH at Site 14 because it consists of Sorrento loam. This soil is moderately alkaline and calcareous. These conditions in the near-surface soil horizons would effectively neutralize the battery acid disposed at this site between 1977 and 1983. The natural ability of the soil to effectively neutralize acid wastes disposed at this site is also evidenced in the condition of vegetation observed during numerous visual inspections. The grass that covers the site does not exhibit any evidence of stress that would occur if acidic soil conditions were present. The DON groundwater analyses did include measurement of pH. The results indicated that groundwater pH is neutral (6.8 to 7.2). Finally, analytical data collected during the RI do not suggest that the historical activities conducted at this site adversely impacted soil or groundwater. Metals concentrations in soil and groundwater are consistent with background levels, and groundwater pH is neutral rather than low (i.e., acidic).</p>
2C	<p><u>Issue/Concern No. 2</u></p> <p>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 samples at these locations?</p> <p>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?</p>	<p>The arrows refer to the entire area within the dashed blue lines. As the information in Figure 4-2 indicates, sampling was conducted in all of the areas where historical waste disposal activities occurred. The DON plans no additional sampling activities within these areas or beneath the pavement at Site 14. Building 246 and the associated asphalt adjacent to Site 14 were constructed prior to 1971. The disposal activities at this site occurred between 1977 and 1983. Therefore, there is no reason to expect that the area beneath the pavement would be contaminated. Similarly, waste disposal activities at Site 7 occurred along the edges of the concrete aircraft parking aprons. Sampling along the present and former apron edges was conducted during the RI.</p> <p>Samples were collected throughout the pavement edge areas where waste disposal activities were known to have occurred and along the adjacent drainage ditches (topographically low areas) at both sites.</p> <p>The DON disagrees with the suggestion that the RI sampling efforts and coverage were insufficient. The BCT also concurred with the sampling methodology used at these sites. Sampling locations were randomly positioned within each unit at each site to produce an unbiased configuration. This sampling methodology was designed to provide a</p>

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	<p>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.</p>	<p>high level of confidence (95 percent) that the number of locations and soil samples collected were appropriate to determine the nature and extent of contamination and conduct a human-health risk assessment. Further, risk assessment was conducted on a unit-specific basis, not the "overall site risks" that the comment implies.</p> <p>Although the lead concentration example discussed in this comment identifies Site 14, it is apparent from the specified concentration that it is actually in reference to Site 7, Unit 5. The risk to a resident receptor presented by lead in surface soil (0 to 2 feet below ground surface [bgs]) at Site 7, Unit 5 was assessed. Lead concentrations ranged from 1.5 to 931 mg/kg. Seven of the ten lead sample results were measured below 130 mg/kg. The remaining three were measured at 323, 495, and 931 mg/kg. The GeoSyntec comment regarding the 931 mg/kg lead result is taken out of context. The RI Report reference to this result as an "outlier" is on page O6-36, Section 6.5.8 of the Risk Analysis. This discussion refers to this result in terms of its fit into the statistical distribution of data. It does not in any way imply that the lead result was dismissed in assessing the need for further evaluation or remediation. Exposure to lead at Site 7, Unit 5 was assessed both with and without the outlier. The risk from exposure to lead was evaluated on the basis of the average concentration, estimated at 191 mg/kg with the outlier included and at 109 mg/kg without it. Lead was assessed by comparing resulting blood lead concentrations (50th, 90th, 95th, 98th, and 99th percentiles) with the benchmark of 10 µg/dL, which has been established by U.S. EPA as a level below which the most serious effects of lead are unlikely to occur. In both cases (when the outlier was included and when it was not) the estimated concentrations of lead in the blood of the resident adult and child did not exceed this threshold value. Hence, potential adverse health effects from exposure to lead concentrations at Unit 5 are considered unlikely.</p>

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2D	<p><u>Issue/Concern No. 3</u></p> <p>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?</p>	<p>The maximum reported TPH concentration in surface soil at Site 7, Unit 5 was 426 mg/kg. The 32,091 mg/kg concentration cited in this comment represents TRPH. Please see the response to MCAS El Toro Master Development Program Comment 1F for further discussion of the distinction between TPH and TRPH analyses. The DON does not intend to remediate soil at Sites 7 or 14 because the data collected during the RI clearly indicated that TPH in soil has limited lateral and vertical extent with no potential to impact groundwater and because the risk assessment indicated that the constituents included in the petroleum compounds will not negatively impact human health or the environment.</p>
2E	<p><u>Issue/Concern No. 4</u></p> <p>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?</p> <p>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?</p>	<p>The DON reaffirms the RI conclusion that arsenic concentrations in soil at Sites 7 and 14 reflect natural background conditions in soil and are not attributable to known historic activities conducted at either site. This conclusion is fully supported by the data collected during the RI. At Site 7, approximately 98 percent (121 samples) of the arsenic analytical results are less than the statistically calculated background concentration for MCAS El Toro. The remaining 2 percent (3 samples) are slightly above background and appear to be indicative of the variation present in nature. Similarly, the data set from which the background value was derived also includes some values greater than the calculated background value. At Site 14, none of the arsenic concentrations exceed the 6.86 mg/kg MCAS El Toro background concentration.</p> <p>The potential for arsenic to be present at elevated concentrations via a site-related release mechanism such as alloy additives was evaluated through the RI soil sampling evaluation. The DON also acknowledged in the RI (pages O6-54 and P6-31) that pesticides or herbicides containing arsenic compounds could potentially have been used for agricultural or pest control purposes prior to construction and expansion of MCAS El Toro or for weed control and insect or animal abatement in industrial areas on the station. However, in this case, as discussed in the previous paragraph, the sample results did not support the presence of arsenic contamination at either site.</p> <p>The historical uses of Sites 7 and 14 do not support the hypothetical types of activities identified in this comment in reference to manganese.</p>

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Number	Comments	Responses
		For obvious safety reasons, it is unlikely that activities requiring use of welding or cutting torches would have been conducted at Site 7, where flammable jet fuel was drained from aircraft drop tanks during cleaning operations, or at Site 14, where potentially explosive fumes from battery acid or flammable solvents and paint wastes were handled and disposed. In addition, even if these activities were to have occurred, it is not expected that welding or cutting would have released manganese in any significant amounts from metals where it was an alloy additive.
2F	<p><u>Issue/Concern No. 5</u></p> <p>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, 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?</p>	<p>This comment mixes two separate issues pertaining to risk. They are 1) risks calculated for a unit or site based on a comprehensive risk assessment using data collected during field investigations and 2) the risk threshold used to establish chemical-specific action levels for a site cleanup. The DON has and continues to maintain a consistent position on these two distinct issues at MCAS El Toro.</p> <p>As the RI and the Proposed Plan indicate, unit-specific cancer risks in the range of 10^{-4} to 10^{-6} and hazard indices exceeding 1 calculated during the RI do not automatically necessitate remedial action. Rather, such risks fall within the risk management range/generally allowable risk range where further, site-specific point of departure evaluation is required to determine whether remedial action is necessary. The criteria used by the DON in the point-of-departure evaluation are discussed in the response to LRA Comment 1A. In the case of Sites 7 and 14, on the basis of the point-of-departure evaluation, the DON concluded that the risks present at both sites were acceptable and that no further action was necessary.</p> <p>At Sites 8, 11, and 12, human-health risks also fell with the range of 10^{-4} and 10^{-6}. In this case, the risks were evaluated on the basis of the site-specific data, and remedial action was recommended for several units. The excess cancer risk of 10^{-6} referred to in this comment is associated with the cleanup level established for each chemical at the site.</p> <p>As noted in the response to Comment 1A, the DON plans to reevaluate the baseline human-health risk at these sites to determine whether remediation is required in view of current toxicity and exposure parameters.</p>

Letters Received During Public Comment Period		
Comments by: <i>Bernard S. Palmer, Ph.D., P.E., GeoSyntec Consultants, in a Memorandum Dated 04 November 2000</i>		
Number	Comments	Responses
2G	<p><u>Issue/Concern No. 7</u></p> <p>Given that some of the calculated risks for Sites 7 and 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 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. risk including all potential pathways) for Sites 7 and 14?</p>	<p>The DON does not intend to evaluate the contribution of groundwater to risk at Sites 7 and 14 because, as the fate and transport analyses in the RI for Sites 7 and 14 indicate, downward contaminant migration to groundwater is a negligible potential contaminant migration pathway, and the RI data clearly indicate that historic activities at these sites did not impact groundwater.</p> <p>Contaminated groundwater present beneath these sites is clearly associated with Site 24 and is being addressed as part of the remedial action for that site. The Site 24 groundwater plume was not considered during the Sites 7 and 14 risk assessments because it does not originate at these sites and because a pathway for exposure to contaminated groundwater is not available now and is expected not to be available in the future. Remedial action for groundwater will be addressed in the ROD for Sites 18 and 24. This action is anticipated to include prohibition on extraction or use of groundwater. Prohibitions on extraction of groundwater would sever the potential exposure pathway and eliminate risks associated with this medium. The assumption that prohibitions on use of groundwater will render this pathway incomplete was discussed with the BCT, and concurrence was received to not evaluate risks that are due to groundwater in the Site 7/14 RI.</p>
2H	<p><u>Issue/Concern No. 8</u></p> <p>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.</p> <p>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 outliers, but 3 of 10 (30%) of the measured values that exceed this remedial goal. Thus, children's exposures at 30% of the locations</p>	<p>The issue of elevated lead concentrations is discussed in the response to Comment 2C. As that response indicates, three lead concentrations in surface soil at Site 7, Unit 5 were greater than 130 mg/kg. However, per U.S. EPA guidance, exposure is not evaluated on the basis of single samples because that is considered unrealistic and not representative of site conditions. The accepted methodology is to assess exposure on the basis of estimates of the central tendency of the data set rather than on the individual data points. As noted previously in Comment 2C, calculation of the risk from lead, using U.S. EPA methodology, showed that the estimated lead concentrations in the blood of both the resident adult and resident child did not exceed the U.S. EPA benchmark of 10 µg/dL. These results, which are supported by the regulatory agencies, indicate that potential adverse health effects from exposure to lead in soil at Unit 5 are unlikely.</p>

Letters Received During Public Comment Period		
<i>Comments by: Bernard S. Palmer, Ph.D., P.E., GeoSyntec Consultants, in a Memorandum Dated 04 November 2000</i>		
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	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.	
21	<p><u>Issue/Concern No. 9</u></p> <p>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.</p>	<p>The DON did not ignore hexavalent chromium during the risk assessment as implied by this comment. Hexavalent chromium was not included because that form of chromium was not reported in any of the soil samples collected during the RI, including soil at Site 7. Although no historical information documents the use of hexavalent chromium at MCAS El Toro, sampling was conducted with concurrence of the BCT at locations that included tank washout sites (Sites 6 and 7) and the former-industrial (metal plating wastes) and municipal wastewater treatment plants (Site 12), again with no reported detections. Finally, hexavalent chromium is not expected in the absence of a continuing source because it is inherently unstable in the natural environment and reduces rapidly to the noncarcinogenic trivalent form in the surface or near-surface environment.</p>

Letters Received During Public Comment Period

Comments by: Bernard S. Palmer, Ph.D., P.E., GeoSyntec Consultants, in a Memorandum Dated 04 November 2000

Number	Comments	Responses															
2J	<p><u>Issue/Concern No. 10</u></p> <p>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 (See RI at Table I1-6) versus those for 0 to 10 feet soils (See RI at Table I1-7) are illustrative as shown below:</p> <table border="1" data-bbox="352 743 1142 927"> <thead> <tr> <th>Chemical</th> <th>Shallow EPC</th> <th>Deep EPC</th> </tr> </thead> <tbody> <tr> <td>Arsenic</td> <td>6.98 mg/kg</td> <td>4.9 mg/kg</td> </tr> <tr> <td>Benzo(a)pyrene</td> <td>1.39 mg/kg</td> <td>0.36 mg/kg</td> </tr> <tr> <td>Benzo(a)anthracene</td> <td>1.09 mg/kg</td> <td>0.26 mg/kg</td> </tr> <tr> <td>Dibenz(a,h)anthracene</td> <td>0.62 mg/kg</td> <td>0.35 mg/kg</td> </tr> </tbody> </table> <p>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.</p> <p>In response to DTSC's comment on the RI on this issue, DON/USMC points out that an approved work plan 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.</p>	Chemical	Shallow EPC	Deep EPC	Arsenic	6.98 mg/kg	4.9 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	<p>The DON used a 0- to 10-foot-bgs depth interval for evaluating residential risk because this is the standard that U.S. EPA Region 9 and DTSC suggest for residential risk. The rationale is that soil down to 10 feet bgs may be disturbed and brought to the surface during grading, construction, and installation of utilities. Although a 2-foot interval in this particular case may be more conservative, it would not change the order of magnitude of the total risk or modify the DON's conclusions about the need for further action at these sites.</p> <p>The soil interval from 0 to 2 feet was used in calculating the industrial risk for Sites 7 and 14 because this is the standard that U.S. EPA Region 9 and DTSC suggest for industrial risk. The results of this evaluation are in the RI Report and Proposed Plan. Although the risk assumptions are different for residential and industrial and these two values cannot, therefore, be compared directly, the industrial was lower than residential risk at all units.</p>
Chemical	Shallow EPC	Deep EPC															
Arsenic	6.98 mg/kg	4.9 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															

Letters Received During Public Comment Period		
Comments by: <i>Bernard S. Palmer, Ph.D., P.E., GeoSyntec Consultants, in a Memorandum Dated 04 November 2000</i>		
Number	Comments	Responses
2K	<p><u>CONCLUSIONS</u></p> <p>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:</p> <ul style="list-style-type: none"> • The excess cancer risk is less than 10^{-4}. • Arsenic and manganese are naturally occurring. <p>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 HI 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.</p>	<p>It is accurate to state that the ultimate conclusion of the RI, which underwent public and regulatory agency review, is that no further action is required at either Site 7 or 14. This conclusion is based on a point of departure evaluation using site-specific criteria as mandated by the NCP.</p> <p>The primary factors that were considered in the point-of-departure evaluation for Sites 7 and 14 were the background level of contaminants, the ability to monitor and control movements of contaminants, and the reliability of exposure data. These factors are discussed individually in the response to Comment 1A. Based on the results of the point-of-departure evaluation, the conclusion was reached that the risks present at Sites 7 and 14 are acceptable without further action.</p> <p>It is not correct to state, however, that an excess cancer risk of 1×10^{-6} has historically been used as a standard for residential risk at MCAS El Toro. Several sites with risks exceeding 1×10^{-6} (e.g., Sites 4, 6, 9, 10, 13, 15, 19, 20, 21, and 22) were evaluated in the OU-2A and OU-3A ROD, dated September 1997, and were found to require no further action.</p> <p>For responses to additional concerns regarding arsenic, HI in excess of 1, lead, and TPH, please see the responses to Comments 2E, 1E, 2C, and 2D, respectively.</p> <p>The DON recognizes and appreciates the effort spent in the preparation of these review comments. The DON trusts that our responses to your questions will communicate that the RI was conducted in a comprehensive and thorough manner that recognized the important factors present at Sites 7 and 14 and that the subsequent recommendation for no further action is a technically sound, regulatory-agency-supported risk management decision.</p>

Reference:

- Bechtel National, Inc. 1995. Final Risk Assessment Work Plan, Marine Corps Air Station El Toro, CA. August.
- . 1996. Final Technical Memorandum, Background and Reference Levels Remedial Investigations, Marine Corps Air Station El Toro, CA. October.
- . 1997. Draft Final Phase II Remedial Investigation Report, OU-3A Sites, Marine Corps Air Station El Toro, CA. June.
- . 2000. Draft Final Phase II Remedial Investigation Report, Attachments O and P, Operable Unit-3B, Sites 7 and 14, Marine Corps Air Station El Toro, CA. March.
- BNI. See Bechtel National, Inc.
- Bradford, G.R., A.C. Chang, A.L. Page, D. Bakhtar, J. A. Frampton, and H. Wright. 1996. Background Concentrations of Trace and Major Elements in California Soils. Kearney Foundation of Soil Science. Division of Agriculture and Natural Resources. University of California. March.
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- Schaklette, H.T., and J.G. Boerngen. 1984. Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States. U.S. Geological Survey Professional Paper 1270.
- United States Environmental Protection Agency. 1989. Risk Assessment Guidance for Superfund. Volume 1. Human Health Evaluation Manual (Part A). Interim Final. December.
- . 1998. Region 9 Preliminary Remediation Goals. EPA/540/R-99/005.
- . 1999. A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents. July.
- U.S. EPA. See United States Environmental Protection Agency.

ATTACHMENT A

Attachment A

Table 1
Contribution of Arsenic to Carcinogenic Risk in the Industrial Scenario

Site and Unit	Total Site Risk ^a	Risk Due to Arsenic	Background Risk Due to Arsenic	Incremental Arsenic Risk
Site 7				
Unit 1	1.3×10^{-5}	2.4×10^{-6}	6.8×10^{-7}	1.7×10^{-6}
Unit 3	2.7×10^{-6}	9.9×10^{-7}	6.8×10^{-7}	3.1×10^{-7}
Unit 4	3.0×10^{-7}	NA ^b	NA ^b	NA ^b
Unit 5	3.4×10^{-6}	1.3×10^{-6}	6.8×10^{-7}	6.2×10^{-7}
Site 14				
Unit 1	6.5×10^{-6}	1.9×10^{-6}	6.8×10^{-7}	1.2×10^{-6}
Catch basin	1.0×10^{-7}	NA ^b	NA ^b	NA ^b

Notes:

^a the value shown is the higher of the U.S. EPA or Cal-EPA carcinogenic risk and represents the sum of the contributions from all COPCs

^b arsenic was not a COPC at this unit

Acronyms/Abbreviations:

Cal-EPA – California Environmental Protection Agency

COPC – chemical of potential concern

NA – not applicable

U.S. EPA – United States Environmental Protection Agency

Table 2
Contribution of Arsenic to Carcinogenic Risk in the Residential Scenario

Site and Unit	Total Risk ^a	Risk Due to Arsenic	Background Risk Due to Arsenic	Incremental Risk Due to Arsenic
Site 7				
Unit 1	3.3×10^{-5}	1.3×10^{-5}	5.2×10^{-6}	7.8×10^{-6}
Unit 3	1.7×10^{-5}	7.7×10^{-6}	5.2×10^{-6}	2.5×10^{-6}
Unit 4	1.7×10^{-6}	NA ^b	NA ^b	NA ^b
Unit 5	2.2×10^{-5}	9.3×10^{-6}	5.2×10^{-6}	4.1×10^{-6}
Site 14				
Unit 1	4.4×10^{-5}	1.4×10^{-5}	5.2×10^{-6}	8.8×10^{-6}
Catch Basin	6.2×10^{-7}	NA ^b	NA ^b	NA ^b

Notes:

^a the value shown is the higher of the U.S. EPA or Cal-EPA carcinogenic risk and represents the sum of the contributions from all COPCs

^b arsenic was not a COPC at this unit

Acronyms/Abbreviations:

Cal-EPA – California Environmental Protection Agency

COPC – chemical of potential concern

NA – not applicable

U.S. EPA – United States Environmental Protection Agency

**RESPONSE TO COMMENTS
RECEIVED AT THE PUBLIC MEETING**

RESPONSIVENESS SUMMARY
MARINE CORPS AIR STATION – EL TORO, CALIFORNIA
PROPOSED PLAN, OPERABLE UNIT 3B, NO FURTHER ACTION SITES 7 AND 14

Comments Received During Public Meeting Held 25 October 2000

Comments by: *Dr. Charles Bennett, MCAS El Toro RAB Subcommittee Chair*

Number	Comments	Responses
<p style="text-align: center;">1a</p>	<p>In a gas station cleanup, where the soil [contamination] was greater than ten thousand parts per million, would that be – would the closure of that be dependent upon a risk assessment, as we see here, or are there other criteria at play for that kind of remediation? Or either of our other people. I'm using that as an example, because it's really a California-driven thing, when you're talking about closing gas stations. So it may not be as easily answered by the –</p> <p>The question would [relate] more to 7 and 14, but it was looking at criteria being used and applied to 7 and 14 and comparing it to other sites that might have similarities.</p>	<p>The California Regional Water Quality Control Board (RWQCB) does not apply fixed, uniform cleanup criteria to all petroleum-impacted sites. Rather, RWQCB evaluates the necessity for cleanup and the requirements for site closure on a case-by-case basis. In this case, Sites 7 and 14 are subject to cleanup in accordance with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and National Oil and Hazardous Substances Pollution Contingency Plan requirements, which require a risk assessment to evaluate potential impacts to human health.</p> <p>Petroleum hydrocarbons, such as gasoline, diesel, and motor oil, are complex mixtures that include hundreds of constituents, many of which cannot be quantified using available analytical techniques. The risk associated with petroleum hydrocarbons is calculated on the basis of the contributions from each of the constituents. That is, when the risk is assessed, the evaluation addresses the constituents included in petroleum (e.g., benzene and toluene) but not a generalized petroleum compound itself (e.g., gasoline), which would not have established health-based risk criteria.</p> <p>California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC) and RWQCB recognize that some of the constituents cannot be quantified and that toxicological information is not available for all constituents, but they are confident that the risks associated with petroleum hydrocarbons can be adequately estimated by assessing their most toxic constituents as was done in the risk assessment for Sites 7 and 14.</p> <p>In addition to risk, a major factor in cleanup decisions is also the likelihood of impact to groundwater quality. The DON's recommendation that no action be required at Sites 7 and 14 was also based on the fact that the data collected during the RI indicated that the very low levels of contaminants present at the site have limited lateral and vertical extent with no potential to impact groundwater.</p>

Comments Received During Public Meeting Held 25 October 2000

Comments by: *Dr. Charles Bennett, MCAS El Toro RAB Subcommittee Chair*

Number	Comments	Responses
<p>1b</p>	<p>How were the COCs chosen, or selected?</p>	<p>Soil at Sites 7 and 14 was analyzed for a broad range of chemicals based on the historical use of these sites as a drop tank drainage area and a battery acid disposal area, respectively. Based on the historical use, soil at both sites was analyzed at a fixed-base laboratory during the remedial investigation (RI) for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH), total recoverable petroleum hydrocarbons (TRPH), polynuclear aromatic hydrocarbons (PAHs), pesticides/polychlorinated biphenyls (PCBs), target analyte list (TAL) metals, and total organic carbon. Some soil samples from Site 7 were also screened in the field for VOCs, TPH, and PAHs. All of these chemical analyses were established in the RI Work Plan, which was reviewed and approved by the regulatory agencies.</p> <p>Based on the results of these analyses, several analytes were identified as chemicals of potential concern (COPCs) at the sites. Selection of COPCs included in each risk assessment was a multistep process. First, all chemicals that were identified in at least one sample were selected as COPCs. Then inorganic nutrients (calcium, magnesium, potassium, and sodium) known to be trace elements were eliminated as COPCs. Finally, a statistical comparison was performed and metals that were identified at background levels through the statistical comparison were also eliminated as COPCs.</p>
<p>1c</p>	<p>In regards to my earlier questions with COCs – This is not a question. My concern is not for sins of commission; it's for sins of omission. And the concern is whether there have been species that have been neglected, for one reason or another. I'm quite confident that your risk assessment is correctly done, soundly done, by standard methods, particularly because they indicate that the manganese and the arsenic are drivers. And my concern is there may be other things that, for reasons I don't completely understand why, are not included as potential contaminants of concern, and the methods that were used to say what's there and what was not there.</p>	<p>As noted in this response to Comment 1b, soil at Site 7 was analyzed for a broad range of chemicals, including VOCs, SVOCs, TPH, TRPH, PAHs, pesticides/PCBs, TAL metals, and total organic carbon. The DON is confident that the analyses that were performed were sufficient to identify any chemicals of concern likely to be present.</p> <p>Chlorinated solvents in particular would have been identified and reported, if present, as part of the various VOC analytical methods used during the RI. These methods, identified in the final RI Report for Sites 7 and 14, included the U.S. EPA CLP OLM 01.5 and Methods 8010/8020 and 8021B.</p>

Comments Received During Public Meeting Held 25 October 2000		
Comments by: <i>Mr. Jerry Werner, MCAS El Toro RAB Member</i>		
Number	Comments	Responses
	<p>Specifically, my concern is in the analysis at Site 7, at Unit 4 and at Unit 1, was adequate testing done to determine the presence of other potential contaminants of concern?</p> <p>These would include, obviously, the chlorinated solvents that could have been in those areas. There were small amounts of samples that showed these things present. And they – I do not know whether they were put into the computation for the risk assessment or not.</p> <p>So, that is my comment.</p>	<p>All chlorinated solvents reported in soil samples were included in the risk assessment.</p> <p>SVOCs, PAHs, and pesticides/PCBs were also included. As the response to Comment 1a indicates, the petroleum hydrocarbons are addressed on the basis of the individual constituents (e.g., VOCs and PAHs) that make up each hydrocarbon mixture.</p>
1d	<p>I'm looking at specifically Unit 1 of Site 7. And the analysis on Table 4-2 of the RI/FS – or, appears to be RI/FS, regarding TRPH analysis. TRPH is total recoverable hydrocarbons. And there were values on the surface of the drainage ditch of TRPH over 3,000 parts per million.</p> <p>Now, what that indicates is that petroleum hydrocarbons went down the drainage ditch. And Don is absolutely right, the drainage ditch feeds into the Agua Chion. So what the data shows, there are high hydrocarbons that could lead from Site 7 to Site 25, the drainage ditch.</p> <p>But I'm supporting his position in that regard. Really, that's just a comment on the data at hand.</p>	<p>Unit 1 at Site 7 is the North Pavement Edge. As noted, TRPH was reported at Unit 1 in surface soil at concentrations over 3,000 parts per million (equivalent to the mg/kg units used in the RI). However, no TRPH concentrations “over 3,000 parts per million” were reported for any samples collected along the drainage ditch. (Unit 4, rather than Unit 1, is the drainage ditch at Site 7.) At Unit 4, TRPH was identified only in a single sample at a reported concentration of 206 parts per million. Because TRPH was reported in the drainage ditch in only one sample at a relatively low concentration, the DON concluded that TRPH migration is not occurring from Site 7 to Site 25.</p>
1e	<p>This public meeting is a step forward from the previous public meeting. It's allowed a degree of interaction that is an improvement on the past ones.</p>	<p>The Base Realignment and Closure (BRAC) Cleanup Team (BCT) modified the format of this meeting from a display type of meeting to a more interactive meeting in response to comments from the public. The BCT appreciates the number of comments that were received from the public as a result of the format change and hopes for increased public participation at future public meetings.</p>

Comments Received During Public Meeting Held 25 October 2000

Comments by: *Mr. Jerry Werner, MCAS El Toro RAB Member*

Number	Comments	Responses
2a	Question is – There's another obvious method of ingestion. And this would be from a vegetable garden, where the contaminants would get into the food supply that a person would have. Has that been considered in the risk assessment?	<p>The exposure pathways evaluated in the risk assessment are considered to be the primary/most likely pathways of exposure. Minor or secondary pathways often cannot be accurately estimated from available data and were not included in the exposure calculations. The contribution of these secondary routes to the overall risk is not likely to be significant. Plant uptake exposures, in particular, were addressed in the RI Report on pages O6-57 and P6-33. But they were not included in the risk assessment calculation because of the large degree of uncertainty associated with this pathway and the fact that the primary exposure pathways were already addressed. The decision to not address plant uptake was discussed with DTSC toxicologist John Christopher who agreed with the DON's approach. A discussion of the rationale follows.</p> <p>Bioconcentration factors used to estimate aboveground and belowground plant uptake of COPCs could potentially overestimate the COPC concentration in plant tissues, thus overestimating the resultant risk. The bioconcentration factors for aboveground and belowground plants assume that a plant raised on chemically contaminated soil will absorb COPCs through its roots, and COPCs then become distributed throughout the body of the plant. However, few data exist concerning bioconcentration of COPCs, and equations used to estimate bioconcentration of COPCs in plants are based on two small data sets that may not accurately represent actual bioconcentration in home gardens. Algorithms relating chemical uptake by plants to the log K_{ow} (octanol-water partitioning coefficient) of each compound have been developed. However, these algorithms may overestimate actual COPC concentrations in plant tissues because they do not take biotransformation and/or chemical elimination into account. Consequently, uncertainty does exist and could result in the overestimation of risk.</p>
2b	For the record, are you contemplating any land-use controls over the restrictions of the use of property?	No land-use controls are required for Sites 7 and 14 as a result of site-related contamination. Although shallow groundwater underlying these sites is contaminated by VOCs, including trichloroethene, carbon tetrachloride, and tetrachloroethene at Site 7 and trichloroethene and carbon tetrachloride at Site 14, remedial investigations have shown that the contamination present in groundwater does not originate from Sites 7 or 14 but lies within the Site 24, Volatile Organic Compound Source

Comments Received During Public Meeting Held 25 October 2000		
Comments by: <i>Mr. Jerry Werner, MCAS El Toro RAB Member</i>		
Number	Comments	Responses
		Area, groundwater plume. Groundwater cleanup, including use restrictions that prohibit drilling of wells and/or extraction of groundwater and allow access for groundwater monitoring and maintenance of equipment associated with groundwater remediation, will be addressed in the Proposed Plan and Record of Decision (ROD) for Sites 18 and 24. If such controls are necessary, the DON will work with the future owners of the property to minimize the impact of the controls on future land development.
2c	With respect to the issue of the Record of Decision that goes along with a no further action, is that sort of the last step that needs to be taken before property transfer, or are there some additional steps beyond the Record of Decision?	There are several additional steps beyond the no further action ROD when property is being transferred. First, a Finding of Suitability for Transfer (FOST) is prepared to document the conclusion that real property made available through the BRAC process is environmentally suitable for transfer by deed under Section 120(h) of CERCLA. The FOST is reviewed by the regulatory agencies, revised as appropriate on the basis of review comments, and then signed by the DON. The regulatory agencies and the public are notified of the intent to sign a FOST at least 30 days prior to transfer of the property. Once the FOST has been signed, the DON conducts negotiations with the transferee to convey the property by deed.
2d	<p>One last one, I think.</p> <p>What is the correlation between the chemical levels in the soil and the concentration plugged?</p> <p>I assume the ultimate question will tell the effect on the mortality is related to the concentration as measured in the blood sample.</p> <p>Is there – What’s the correlation?</p>	<p>The exposure-point concentration (EPC) (i.e., the concentration plugged into the risk assessment) is the concentration of a chemical in the contaminated medium (e.g., soil). Under reasonable maximum exposure conditions, U.S. EPA specifies using the 95 percent upper confidence limit (UCL) of the averaged measured chemical concentrations (i.e., “the chemical levels in the soil”). Under certain conditions, the maximum reported concentration in soil for selected chemicals is used as the EPC rather than the 95 percent UCL. The maximum concentration is used when 1) the 95 percent UCL of a chemical exceeds its highest measured concentration and 2) the chemical is infrequently detected.</p> <p>As discussed in the risk assessment for each site, lead is the only chemical that is evaluated in relation to the concentration measured in blood. That evaluation is performed using the Cal-EPA pharmacokinetic model (Lead Risk Assessment Spreadsheet), and the lead concentration in blood is compared to the acceptable concentration of 10 µg/dL.</p>

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		<p>All other chemicals are evaluated on the basis of toxicological effects they are capable of producing in humans. Based on the toxicological effects, chemicals fall into two categories: those that could potentially cause cancer (carcinogens) and those that cause other types of health effects, e.g., liver damage (noncarcinogens). Carcinogenic risks are measured in terms of probability of contracting cancer. A cancer risk probability of 1×10^{-6} means that the estimated increase in an individual normal or baseline cancer risk is no greater than one in a million for a lifetime of exposure and may be considerably less.</p> <p>Noncarcinogenic risks are measured in terms of a hazard index (HI). An HI value of 1 indicates that lifetime exposure has a limited potential for causing an adverse effect in sensitive populations.</p>

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Comments by: *Mr. Don Zweifel, MCAS El Toro RAB Member*

Number	Comments	Responses
<p>3a</p>	<p>Well, I've got a comment to make, just a clarification. Let me read this, if I might. Now, this is from the Proposed Plan. Now, please note this – I'm quoting on page 6, in the footnote: "Over half of the risk associated with the hazard index at Site 7, Unit 1 is attributed to manganese and arsenic" – Not just manganese, but "and arsenic." Maybe it's a misprint, or something. But that's what I read in here. And, by the way, I disagree. I think – If I may say this, I think Chuck Bennett and I both disagree that we do not concur that they are naturally occurring. I imagine they are naturally occurring. But we think there is a – There has been additional contamination over and above and beyond what is naturally occurring in the soil sampling. Anyway, it says: "which are naturally occurring metals in native soil on and off MCAS El Toro property, and are not associated with past site activities." I think we have to disagree with that, respectfully. I believe we do have some evidence – and I believe you do, too – that they are more – that they are not just – Well, see: We don't know precisely know the disposal effect. I've talked to employees on the base, on the former base. And they told me that they disposed of all kinds of things in these landfills. And I'm talking specifically about Site 7 and all the other sites. There are many chemicals disposed of. And these employees – I can name you names – that – Millard Jackson. He was the – worked in the physical plant. Remember that name. He told me where the – As you probably heard this before, Dean, forgive me. There was – If you remember, they would have the annual IG inspections. They would bury a lot of chemicals and other items. Because if they did – If they had them during the inspection, that means that they wouldn't – Let's say it's half full, a half-full barrel of arsenic, let's say, for instance. Then, they would have to dispose of that, or else they wouldn't get it the next time around. There are annual appropriations.</p>	<p>Background concentrations for metals and reference levels for herbicides and pesticides at MCAS El Toro were evaluated in 1996. The results of this evaluation were presented in a technical memorandum issued in October of that year. The memorandum notes that two sets of data were used to evaluate the background concentrations of metals in soil. The first set of data was collected from 11 soil sample locations in the foothills above MCAS El Toro. The second set of background metal data was compiled from a series of soil borings that were completed upgradient from the Installation Restoration Program (IRP) sites. These locations were selected because they reflect areas that are not contaminated by activities that may have taken place at a particular IRP site. The methodology and results of the background evaluation were reviewed by the BCT.</p> <p>Soil samples collected at Site 7 were compared with background for the full suite of metals addressed in the RI Report. In the case of arsenic cited in this comment, the soil sample data for Site 7 clearly support the conclusion that the concentrations reflect natural background conditions. Approximately 98 percent (121 of 124 samples) contained arsenic at concentrations less than the MCAS El Toro statistically derived background value (95 UCL). The remaining 2 percent (three samples) are slightly above the background. It should be noted that the statistically derived background value was not the highest concentration reported during background sampling. Hence, the background sample data set includes some arsenic concentrations that are also greater than the 95 UCL. Such conditions are indicative of the variation present in nature. At Site 14, also included in this Proposed Plan, 100 percent of the arsenic concentrations in soil were less than the MCAS El Toro background 95 UCL.</p> <p>In the RI Report for each site, the DON has acknowledged that pesticides and herbicides containing arsenic compounds could potentially have been used for agricultural or pest-control purposes prior to construction and expansion of MCAS El Toro, or for weed control and insect or animal abatement in industrial areas on the station. However, as discussed in the previous paragraph, the sample results do not support the presence of arsenic contamination at either site.</p>

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Comments by: *Mr. Don Zweifel, MCAS El Toro RAB Member*

Number	Comments	Responses
	<p>That's the problem, you see. So what I'm saying tonight, just before maybe a week or two before the actual IG inspection, they would go – every year, they would do this. Millard Jackson was on this base for many years. Now, you know it and I know it. That happened.</p>	<p>The DON, in conjunction with the regulatory agencies, conducted interviews of current and former employees to support the identification of sites and historical practices that may have contributed to soil and/or groundwater contamination at MCAS El Toro. None of the information obtained during these interviews indicated or implied that packaged or drummed “chemicals and other items” might have been buried at Site 7 or 14.</p>
<p>3b</p>	<p>In regards to the arsenic that was utilized on citrus orchards and fields – Well, see: We have to have farmers. And as you know, this base wasn't built till 1943. Now, maybe, perhaps – I don't know how long we've had – Now, here's a good question: How long have we had tenant farmers on the base; since 1943, when the base was built?</p> <p>And how long has arsenic, how long was arsenic utilized for agricultural uses?</p> <p>Now, the thing is, here's a great way for SWDIV to get off the hook. And it may be Irvine Company in particular; maybe they're culpable. I've said this for years, you know, that – Dean, and others in this room – The Irvine Company could be liable on this, could be guilty.</p> <p>And also, your tenant farmers, if they've used arsenic agriculturally, then, by God, this could be a contributing factor. Then, SWDIV is not culpable, unless you did not monitor your tenant farmers in their insecticides, fungicides, herbicides that they put down.</p> <p>Maybe the Department of Navy is culpable. You know – I mean, you have to consider somebody's got to be culpable.</p> <p>Thank you.</p>	<p>As the discussion in the second and third paragraphs of the previous response indicate, the sample results for Sites 7 and 14 indicate that arsenic concentrations in soil are comparable to or less than the MCAS El Toro background. As discussed in the response to Comment 3a, the areas where the background samples were taken were on- and off-station in areas that were not impacted by site activities. Since the concentrations at Sites 7 and 14 are comparable to background, the soil data do not suggest that elevated arsenic is present at either Site 7 or 14 as a result of past site operations or activities.</p>

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Comments by: <i>Mr. Don Zweifel, MCAS El Toro RAB Member</i>		
Number	Comments	Responses
3c	<p>Chuck Bennett just pointed out to me, a minute ago, that in regards to Site 7 – evidently Unit 4, the drainage ditch; the Unit 1, the north pavement; Unit 3, the old – new east pavement edge; Unit 4 – Unit 5, the open dirt area – and, in particular, the Unit 4, drainage ditch – all dumped into the Agua Chinon Wash.</p> <p>Now, the thing is, I believe – It is my opinion that there are contaminants in that wash. Now, the thing is, of course, there have been many rains since. And the chances are – What I’m referring to is the Upper Newport Bay. All of this contamination will ultimately end up in Upper Newport Bay. Ultimately, it’s a fact.</p> <p>I say that the Navy has an obligation to examine – In fact, I think I told you, Dean, earlier, that I have a hydrographic survey of Upper Newport Bay provided to me by the county that I would like to know if you have. And if you do – If you have that survey, I won’t – But do you have it? Would you like to see it?</p> <p>What I’m referring to – What I’d like to do is have the Department of the Navy do some samplings of the soils, of the sludge in Upper Newport Bay. And, hopefully, it’s still there. Of course, there’s been a lot of tidal action – my, God – over the years.</p> <p>What I’m saying is ultimately, the point-source contamination eventually will end up in Upper Newport Bay, from the Marine Corps Station El Toro, from Site 7 and other sites. The Borrego Canyon one, I know.</p> <p>What I’m saying is I believe – and maybe I’m a lone voice here. But I think that the Upper Newport Bay needs to be sampled. Because ultimately – You know what I’m referring to, the City of Irvine.</p>	<p>Site 7, Unit 4 (Drainage Ditch) was identified specifically to assess potential surface runoff from other areas of Site 7 toward Agua Chinon Wash. However, the RI data indicate that only low levels of contaminants were identified in soil at Unit 4. As discussed in the response to Comment 1d, these results support the conclusion that contaminants in soil at adjacent Site 7 units are not mobile and that Site 7, Unit 4 is not a conduit for movement of contaminants into Agua Chinon Wash.</p> <p>There are four major drainage channels that flow through or are adjacent to the station. These channels are Agua Chinon Wash, Bee Canyon Wash, Borrego Canyon Wash, and Marshburn Channel. These drainage channels pass through MCAS El Toro, where they collect surface drainage from the hills and runoff generated from extensive paved surfaces on the station. The channels drain to San Diego Creek, which ultimately discharges to Upper Newport Bay.</p> <p>The drainage channels were once thought to be a potential source of regional VOC groundwater contamination in the Irvine Groundwater Subbasin and were, therefore, investigated as part of the Phase I and Phase II remedial investigations. These investigations concluded that the channels (designated Site 25) were not a source of contamination, and no action was recommended for the channels. Site 25 was included in the no further action Proposed Plan for 11 sites that was reviewed by the public in 1997. The no further action ROD was signed in September 1997.</p> <p>Because no significant contamination was found in the four drainage channels, the DON does not consider it necessary or appropriate to conduct further sampling off station.</p>
3d	<p>You held us up on the Q-and-A part. During the dog-and-pony show, you couldn’t do Q and A. You know you said that. Ladies and gentlemen, you know how I feel about this. Triss, you know how I feel, perhaps.</p> <p>What I’m referring to specifically, if we can ask questions during the presentation, then it jogs our memory. We can make notes. Then, if we</p>	<p>The public was asked to withhold questions about Sites 7 and 14 until after the Navy’s presentation in order to assure that all questions could be recorded by the court reporter present at the meeting, compiled into a responsiveness summary, and responded to formally in the ROD. The public is welcome to make notes during the presentations and use these notes as the basis of questions in order to ensure that all comments and concerns are addressed in the most efficient manner possible.</p>

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	<p>hold the questions until after the dog-and-pony show is over, then I forget to ask.</p> <p>I do apologize to the reporter. I probably forgot some of the questions I was going to ask and, thereby, make a statement in those questions.</p>	
3e	<p>Having to do with my – she said – quote – migration is very limited. And in regards to Site 14, I believe –</p> <p>Didn't you say the battery acid?</p> <p>And I would be very concerned. I would like to see – I would like to see more proof that that might – that there hasn't been some vertical or horizontal migration in regards to that.</p> <p>Now, Content is saying there's very limited.</p> <p>But what does "very limited" mean?</p> <p>You didn't say. So maybe Content could clarify.</p> <p>What does "very limited" mean; 100 feet, 1,000 feet, 10,000 feet, 30,000 feet?</p> <p>I mean, the question is what is "very limited."</p> <p>And so, that really doesn't – If you'll forgive me, Content, I'd sure like to have a clarification.</p>	<p>"Very limited" refers to the fact that contamination at Site 14 is limited to shallow soil (i.e., soil that extends from the surface to a depth of 10 feet). The RI Report concluded that contamination was essentially limited to the upper 2 feet of that 10-foot shallow-soil interval.</p> <p>With regard to horizontal migration, a finding of "very limited" extent for soil contamination was based on a series of physical and chemical factors, including review of historical documents and aerial photographs, discussions with station personnel regarding the types of activities conducted at Site 14, the physical characteristics of the site, the chemical characteristics of the shallow soil, and the analytical results for the soil samples collected during the RI. Historical information indicates that waste disposal activities at this site were limited to the area immediately adjacent to the edge of the asphalt pavement along the southwest side of Building 245. The topography of the site also imposes some physical constraints on the site because the drainage ditch is the low point for the area adjacent to the pavement edge. Wastes disposed at the edge of the pavement could potentially move southward to the bottom of the drainage ditch but then only laterally along the ditch toward the catch basin. As shown on Figures 4-3 and 4-4 in Attachment P of the Site 7/14 RI Report, only trace to low concentrations of contaminants are present in soil along the pavement edge and the drainage ditch. In addition, as the figures illustrate, samples collected very close to each other did not show similar concentrations of analytes. That is, for example, some samples contained low concentrations of PAHs while adjacent samples or samples taken at a slightly greater depth contained no PAHs above detection limits. This indicates that any contamination that is present is limited in extent.</p>

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Comments by: <i>Mr. Don Zweifel, MCAS El Toro RAB Member</i>		
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		On the specific issue of battery acid, the soil at Site 14 is moderately alkaline and calcareous. These conditions in the near-surface soil horizons would effectively neutralize the battery acid disposed at this site between 1977 and 1983. The natural ability of the soil to effectively neutralize acid wastes disposed at the site is also evidenced in the condition of vegetation observed during numerous visual inspections. The grass that covers the site does not exhibit any evidence of stress that would result were acidic soil conditions present.
3f	Content said one thing, by the way. I have a quote from her in regards to factors considered when making the risk management decision. And maybe this goes to Dr. Temeshy, also, regarding planned future uses – quote – potential – The potential residential risk scenarios will be implemented. And I think that – In other words, if – I guess, the question is if we’re going to have – if the risk assessment is going to be all over the base or, in particular, these particular sites will be for the dirt-eating kid. Is that what you’re referring to? Is that what you’re attesting to? Is that correct?	The risk assessments for Sites 7 and 14 were performed using a residential scenario. This scenario assumed that a resident is present at the site from age 0 to age 30 (6 years as a child and 24 years as an adult). The resident is exposed to contaminants in soil through ingestion, dermal contact, and inhalation. In the case of a child, it is assumed that the child consumes 200 milligrams of dirt per day for 6 years (age 0 to age 6.) This same assumption would be made at all MCAS El Toro sites that were evaluated under a residential risk assessment scenario.
3g	I had one here regarding Site 7, Unit 4, two additional cases of one million under cancer risk residential scenario. It looks like – There’s a statement here: “The only risk driver present is one PAH, benzo(a)pyrene. Benzo(a)pyrene is present in low concentrations and is not mobile.” I don’t – I don’t know how you can come to the conclusion that it’s not mobile. I mean, it’s assumed to nonmobile. It is stationary. It cannot – Is precipitation going to cause mobility, downgrading? Is it going to cause a horizontal? Is it going to hydraulic horizontally? These are important questions.	PAHs are discussed in the fate and transport portion of the RI Report for Sites 7 and 14 as follows. PAHs are the predominant class of SVOCs reported at Site 7, perhaps because they are most persistent in the environment. As a chemical group, PAHs have low water solubility and a high affinity for sorption to organic matter (high K_{oc} [organic carbon-to-water partitioning coefficient]), characteristics that limit the potential for leaching through soil as a transport process and cause the chemicals to be relatively immobile. Because PAHs do not tend to dissolve in water and do tend to sorb to soil, they do not tend to migrate downward in soil as a result of leaching during infiltration of precipitation or horizontally across the site in surface runoff.

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Comments by: Ms. Marcia Rudolph, MCAS El Toro RAB Member

Number	Comments	Responses
<p>4a</p>	<p>Okay. Marsha Rudolph.</p> <p>Couple things:</p> <p>No. 1, the two hazard index – cancer risk and noncancer risk, and hypothetical residential use, and all, that it would be nice if the two tables would compute together. I’m trying to find a relationship. I’m not. Maybe I’m looking at the wrong thing.</p> <p>No. 2, I note that in the notes to index, noncancer risk for Site 14 – or, basically, for both of them, I guess, it states that manganese and arsenic are attributed to being naturally occurring metals in soil on and off base.</p> <p>Where was the assessment done off base?</p> <p>I thought the Navy didn’t do any assessments off base.</p> <p>And the third point: On your on-site exposure risk table, it says that the contaminants in the soil did not extend to groundwater.</p> <p>Is that specific to this site, or is that a general observation?</p> <p>If it’s a general observation – Excuse me?</p> <p>I think – Whatever.</p>	<p>With regard to the first comment, the cancer and noncancer risks are discussed separately and shown in separate tables because these risks are not directly related. Human-health risk assessments are performed for two types of risks: risks associated with acquiring cancer and risks associated with other types of health effects such as liver damage. A chemical that is known to cause noncancer effects (noncarcinogen) may not cause cancer in a human. Examples associated with Sites 7 and 14 include some metals, such as mercury; VOCs, such as 1,1,1-trichloroethane; SVOCs/PAHs, such as fluoranthene; and pesticides, such as endosulfan sulfate. These chemicals are not known to cause cancer, but they can produce noncancer effects in humans. Alternatively, the PAH compound benzo(a)pyrene can simultaneously cause cancer and noncancer effects in humans. Therefore, both cancer and noncancer risks are calculated separately for benzo(a)pyrene.</p> <p>With regard to the second comment, manganese and arsenic are common components of the minerals, soil, and rocks that constitute the earth. As such, they are typically identified when soil samples are analyzed for metals. They are considered naturally occurring at Sites 7 and 14 because the concentrations that were present in soil at both sites were comparable to the concentrations of these metals present throughout the station (i.e., the concentrations were at background) and because there are no known site-related activities that would cause the concentrations of these chemicals to be elevated above natural background levels.</p> <p>As discussed in the response to Comment 3a (from Mr. Don Zweifel), background samples were collected from soil sample locations in the foothills north and east of MCAS El Toro and from sample locations upgradient of the IRP sites. It is not typically DoD’s policy to sample off-base, but such a decision is made occasionally on a site-by-site basis. In this case, the DON elected to collect background samples off-station in undeveloped areas in the foothills because these areas had not been impacted by either on- or off-station operations.</p> <p>Finally, the statement that contaminants in the soil do not extend to groundwater is specific to Sites 7 and 14 and is based on the results of site-specific sampling, which showed that contamination present at these sites does not extend below 10 feet below the ground surface.</p>

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Comments by: Ms. Marcia Rudolph, MCAS El Toro RAB Member		
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4b	<p>One more. Then – When I'm looking at the overmap that was given, sort of risk management. I'm looking at Site 7. And it states – Since I didn't have the document, and I just – it's not an intelligent question.</p> <p>It mentions a drainage ditch.</p> <p>Is this drainage ditch one that would be connected to one of the washes that was Site 25, no further action? Or is there a relationship between those?</p> <p>I mean, I see drainage, I think – Then, we think of solvent studies. But I won't even go there.</p> <p>But I'm concerned about drainage ditch. And is this close to Agua Chinon?</p> <p>I mean, it seems consistent that you can have no further action in drainage ditch and no further action here.</p> <p>Is that where this is, or am I seeing it in the wrong place?</p>	<p>As noted previously in the response to Comment 3c (from Mr. Don Zweifel), Unit 4 at Site 7 is a drainage ditch that could potentially receive surface runoff from other areas of Site 7 and potentially convey such runoff to Agua Chinon Wash. Agua Chinon Wash is approximately 1,100 feet south of Site 7, Unit 4.</p> <p>The RI data indicated that only low levels of contaminants were identified in soil at Unit 4. In addition, as shown in Figures 4-3 and 4-4 of Attachment O of the Site 7/14 RI Report, samples collected very close to each other at Unit 4 did not show similar concentrations of analytes. That is, for example, some samples contained low concentrations of PAHs while adjacent samples contained no PAHs above detection limits. These results supported the RI conclusion that contaminants in soil at Site 7 were not mobile and that Unit 4 was not a conduit for movement of contaminants into Agua Chinon Wash.</p> <p>The no further action recommendation for Site 7 (including Unit 4) was based on the low contaminant concentrations present, their limited horizontal and vertical extent, and their lack of mobility. Also, as noted in this comment, the finding of no action for Site 7 is consistent with the no action ROD signed in September 1997 for 11 sites that included Site 25 (Agua Chinon Wash, Bee Canyon Wash, Borrego Canyon Wash, and Marshburn Channel).</p>
4c	<p>It was unclear – Perhaps, this is something you will actually answer – what will happen to these questions.</p> <p>Are we going to get some kind of a document that will tell us the answers, or are you just going to have the court reporter list all the questions?</p> <p>I think a lot of us, because we live in California, are used to the CEQA process, where those answers are put someplace and they're required to be there.</p> <p>Will we see these answers before the document is RODed?</p>	<p>The questions that were raised at the public meeting were recorded by a court reporter. These questions were then copied from the transcript into this Responsiveness Summary format. This Responsiveness Summary is the means by which the Navy is providing responses to each question presented.</p> <p>The Responsiveness Summary will be submitted to the BCT and the Restoration Advisory Board (RAB) for review under separate cover from the draft ROD for Sites 7 and 14. Once the responses have been reviewed, comments will be incorporated as appropriate, and the Responsiveness Summary will be made part of the draft final ROD. The ROD will be placed in the Administrative Record for MCAS El Toro. This record is available at the station. A duplicate file is also maintained at Southwest Division Naval Facilities Engineering Command in San Diego.</p>

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Comments by: Mr. Michael Brown, Consultant to City of Irvine

Number	Comments	Responses
		<p>Since the individuals who made comments at the public meeting are members of the RAB, they will have the opportunity to review the responses at the draft stage before the ROD is finalized. In addition, once the Responsiveness Summary has been reviewed by the BCT and the RAB and their comments have been incorporated, a copy will be mailed to all individuals who submitted comments.</p>
<p>5a</p>	<p>Couple questions: One, what about, in particular, the arsenic issue? And where is the comparison with the off-site concentrations of arsenic? Are those, in particular, agricultural sites? Arsenic was used very commonly prior to World War II as a pesticide, particularly in this area, particularly in citrus use – orchards. Also, given that you do have risks greater than one in a million, does that trigger a Prop 65 warning? And would that require the Navy to extend a warning to – upon transfer, under Prop 65?</p>	<p>Please see the response to Comment 3a (from Mr. Don Zweifel) for a discussion of how the background concentrations for metals were developed and where the on- and off-station samples used for this evaluation were collected. The final Technical Memorandum, Background and Reference Levels, Remedial Investigations, Marine Corps Air Station El Toro, California (BNI 1996) includes a map illustrating the locations of all soil samples used for the metals background analysis. As the cited comment indicates, off-station samples were collected in foothill areas north and northeast of MCAS El Toro. One on-station sample and a duplicate were collected upgradient of Site 5 adjacent to the agricultural area on the east side of Perimeter Road. The reported arsenic concentrations for these samples were 1.5 and 1.9 mg/kg, well below the calculated MCAS El Toro background for arsenic of 6.86 mg/kg.</p> <p>In the RI Report for each site, the DON has acknowledged that pesticides and herbicides containing arsenic compounds could potentially have been used for agricultural or pest-control purposes prior to construction and expansion of MCAS El Toro or for weed control and insect or animal abatement in industrial areas on the station. However, as discussed in the response to Comment 3a, the sample results do not support the presence of arsenic contamination at either Site 7 or 14.</p> <p>The DON has performed a thorough evaluation of the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) and the regulations implementing it (<i>California Code of Regulations</i> [CCR], Title 22, Section [§] 12000 et seq.) and has determined that the statute is not directly applicable to the federal government. The definition of covered “person” in California Health and Safety Code § 25249.11(a) does not include governmental entities, including the federal government.</p>

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		<p>See also the definition of “person in the course of doing business” at California Health and Safety Code § 25249.11(b).</p> <p>On the issue of whether a risk greater than one in a million triggers a Proposition 65 warning, CCR Title 22, § 12703(b) states: “For chemicals assessed in accordance with this section, the risk level which represents no significant risk shall be one which is calculated to result in one excess case of cancer in an exposed population of 100,000, assuming lifetime exposure at the level in question” Although the DON will not be issuing a Proposition 65 warning upon property transfer, the deed will contain a hazardous substances notification, identifying hazardous substances that were stored for 1 year or more, known to have been released or disposed on the property.</p>
5b	<p>One more, just the issue of lead at Site 14. And there’s one significant hit along – a little over 900 milligrams – or kilograms, and whether or not that is a significant level –</p> <p>It’s Table 4.2 for Site 14.</p> <p>Appendix B.</p> <p>And in the context of lead – Lead, in particular, is over background in just about every sample taken. So even whether or not above the action level, it appears that there’s certainly extensive lead contamination at that site.</p> <p>And again, we were very curious, listening to the presentation, that it was not considered to be a risk driver, and particularly in the hazard index.</p> <p>Again, lead, being a reproductive toxin, under normal circumstances, would trigger a Prop 65 warning.</p> <p>So I’m not clear why this isn’t a significant issue on your risk assessment.</p>	<p>As the comment correctly notes, the reported concentrations of lead in surface soil samples (0 foot) and some samples collected at a depth of 2 feet at Site 14 exceeded the MCAS El Toro background concentration for lead. This was recognized in the RI Report and is addressed in the risk assessment for Site 14 (Section 6 in Attachment P of the RI Report).</p> <p>The risk for lead is assessed differently from the cancer and noncancer risks developed for other chemicals. While risks for other chemicals are based on whether they potentially cause cancer or other types of health effects (e.g., liver damage), lead is evaluated in relationship to the concentration measured in blood. The evaluation process is as follows.</p> <p>Like all chemicals evaluated in the risk assessment, an EPC for lead was calculated. U.S. EPA specifies using the 95 percent UCL of the average measured chemical concentrations. In lieu of the 95 percent UCL, the maximum reported concentration is used as the EPC if 1) the 95 percent UCL exceeds the highest reported lead concentration or 2) there are fewer than four reported concentrations (those greater than the detection limit). For the residential scenario (resident child and adult), shallow-soil concentrations were used to derive an EPC. For the industrial scenario (industrial workers), surface-soil concentrations were used to derive an EPC. However, for both scenarios, the maximum reported concentration of 923 mg/kg was ultimately used as the EPC because of the exceptions identified above.</p>

Comments Received During Public Meeting Held 25 October 2000

Comments by: *Mr. Michael Brown, Consultant to City of Irvine*

Number	Comments	Responses
		<p>The surface- and shallow-soil EPCs for lead are then compared to established preliminary remediation goals (PRGs). For residential land use (shallow soil), the concentration of lead was compared with the residential Cal-EPA PRG of 130 mg/kg rather than the U.S. EPA PRG of 400 mg/kg because the California PRG was lower and more stringent. For industrial land use (surface soil), the EPC was compared with the corresponding industrial U.S. EPA PRG of 1,000 mg/kg. If the EPC exceeds the PRG for any scenario, the California pharmacokinetic model is utilized to estimate the lead concentration in blood.</p> <p>For Site 14 data, only the residential scenario EPC exceeded the applicable PRG. For this scenario, the California pharmacokinetic model was utilized to estimate the lead concentration in blood for a resident child and adult. The estimated levels of lead in the blood of a resident adult did not exceed the benchmark of 10 µg/dL established by U.S. EPA. For a resident child, this threshold was exceeded at the 90th, 95th, 98th, and 99th percentiles, indicating a potential for adverse health effects from exposure. However, these results were based on use of the maximum reported concentration, which was more than twice as high as the next highest reported concentration. Assuming long-term contact with the maximum concentration is a very conservative approach that results in overestimates of exposure and risk.</p> <p>As noted in the response to the previous comment, the DON has determined that Proposition 65 requirements are not applicable to this site.</p>

Reference:

Bechtel National, Inc. 1996. Final Technical Memorandum, Background and Reference Levels, Remedial Investigations, Marine Corps Air Station El Toro, California

**RESPONSE TO COMMENTS
SUBMITTED TO COURT REPORTER
DURING PUBLIC MEETING**

RESPONSIVENESS SUMMARY
MARINE CORPS AIR STATION – EL TORO, CALIFORNIA
PROPOSED PLAN, OPERABLE UNIT 3B, NO FURTHER ACTION SITES 7 AND 14

Comments Submitted to Court Reporter During Public Meeting Held 25 October 2000

Comments by: *Ms. Marcia Rudolph, MCAS El Toro RAB Member*

Number	Comments	Responses
1	<p>The Navy has categorically refused to do off-site background testing of radionuclides. Yet, in the summary on Sites 7 and 14, as I've seen tonight, the comment was made relative to arsenic and manganese, that these are natural based upon off-site numbers. The genesis of those numbers is not given.</p> <p>I believe it is incumbent upon the Navy to provide the source for their opinion that the arsenic and manganese, as seen in the numbers that they generated for Site 7 and 14, are indeed consistent with those numbers off-site, especially giving a map showing location of those off-site sources that they are using for their reference points.</p> <p>I continue to be suspicious of the location of Site 7 in relation to the Agua Chinon Wash, and the fact that the Navy has – had decided in 1997, on a no further action for that site, along with the other two washes that come off the base.</p> <p>I continue to believe that a reexamination of Site 25 at the washes is prudent in light of TMDL and the issues of contamination runoff from MCAS El Toro.</p> <p>(This concludes the comments submitted to reporter.)</p>	<p>Background concentrations for metals and reference levels for herbicides and pesticides at MCAS El Toro were evaluated in October 1996. The results of this evaluation were presented in a Technical Memorandum issued in October of that year. A copy of the Technical Memorandum can be found in the Administrative Record for MCAS El Toro (Record No. 001710). The memorandum notes that two sets of data were used to evaluate metal backgrounds in soil. The first set of data was collected from 11 soil sample locations in the foothills above MCAS El Toro. The second set of background metal data was compiled from a series of soil borings that were completed upgradient of the Installation Restoration Program (IRP) sites. These locations were selected because they reflect areas that are not contaminated by activities that may have taken place at a particular IRP site. A figure depicting the locations of the background samples was presented on page 1-11 of the Technical Memorandum.</p> <p>As noted in the response to Comment 3c, Site 7, Unit 4 (Drainage Ditch) was identified specifically to assess potential surface runoff from other areas of Site 7 toward Agua Chinon Wash. However, the RI data indicate that only low levels of contaminants were identified in soil at Unit 4. These results support the conclusion that contaminants in soil at adjacent Site 7 units are not mobile and that Site 7 Unit 4 is not a conduit for movement of contaminants into Agua Chinon Wash.</p> <p>Further, as noted in the response to Comment 3c, there are four major drainage channels that flow through or are adjacent to the station. These channels are Agua Chinon Wash, Bee Canyon Wash, Borrego Canyon Wash, and Marshburn Channel. These drainage channels pass through MCAS El Toro, where they collect surface drainage from the hills and runoff generated from extensive paved surfaces on the station.</p> <p>The drainage channels were once thought to be a source of regional volatile organic compound groundwater contamination in the Irvine Groundwater Subbasin and were, therefore, investigated as part of the Phase I and Phase II remedial investigations. These investigations,</p>

Comments Submitted to Court Reporter During Public Meeting Held 25 October 2000

Comments by: *Ms. Marcia Rudolph, MCAS El Toro RAB Member*

Number	Comments	Responses
		<p>conducted using work plans approved by the Base Realignment and Closure Cleanup Team, concluded that the channels were not a source of contamination. As a result, the drainage channels (designated as Site 25) were included in a no-action record of decision that was signed in September 1997.</p> <p>Please see the responses to Comments 3c and 4b in this Responsiveness Summary for discussion of Site 7 in relation to Agua Chinon Wash.</p> <p>With regard to the issue of reexamining Site 25, the DON has no plans to conduct further evaluations of the four washes. This decision is supported by the regulatory agencies. At the 27 September 2000 Restoration Advisory Board (RAB) meeting in response to a question from Dr. Bennett, Mr. John Broderick (MCAS El Toro, California Regional Water Quality Control Board [RWQCB] Remedial Project Manager) indicated he was personally involved early in the Comprehensive Environmental Response, Compensation, and Liability Act investigation at MCAS El Toro. At that time, the RWQCB believed that Agua Chinon Wash would be very contaminated, based on discharges from work areas at MCAS El Toro in the area including and adjacent to Site 7 (i.e., the area of the two large hangars). Because RWQCB expected to find contamination, they “worked over the DON’s shoulders,” reviewing and approving the work plan for the investigation and reviewing the investigation results. However, in contrast to the RWQCB expectations, significant contamination was not identified in the washes. Therefore, the RWQCB agrees with the recommendation for no further action because the investigation was done under agency oversight.</p> <p>MCAS El Toro currently has a National Pollution Discharge Elimination System (NPDES) permit for stormwater contributions to surface water flow in the four washes. The analytical data collected in conjunction with this NPDES permit are reviewed by RWQCB. RWQCB has not expressed concern about total maximum daily load in the washes at MCAS El Toro. If they do so in the future, the DON would be pleased to meet with RWQCB to address any concerns.</p>



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Southwest Division
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DATE: January 31, 2001
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DTD January 2001

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