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Naval Facilities Engineering Command
Southwest Division
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Building 127, Room 112
1220 Pacific Highway
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FROM:

Project Manager

Program Manager

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**RESPONSE TO COMMENTS
DRAFT EVALUATION OF PERCHLORATE IN GROUNDWATER
MCAS EL TORO, CALIFORNIA**

<p>Originator: Tayseer Mahmoud, RPM DTSC</p> <p>To: Joseph Joyce, BRAC Environmental coordinator Navy</p> <p>Date: 18 May 1999</p>	<p style="text-align: right;">CLEAN II Program Contract No. N68-711-92-D-4670 CTO-171 File Code: 0222</p>
<p><u>SPECIFIC COMMENTS</u></p> <p>1. <u>Section 1 INTRODUCTION, Page 1-1</u></p> <p>Please describe in the introductory statement the scope of work that was conducted. At a minimum, the introduction should discuss the number of monitoring wells sampled and total number of groundwater samples collected for perchlorate analysis.</p>	<p><u>RESPONSES TO SPECIFIC COMMENTS</u></p> <p>RESPONSE 1: The introductory paragraph of Section 1 will be revised in the final Evaluation of Perchlorate in Groundwater to incorporate the requested information. The following statements will be added: "Groundwater samples were collected at 50 locations that provided comprehensive coverage of conditions in the shallow groundwater unit and the principal aquifer on-Station and in the off-Station area downgradient to the west. The investigation involved analysis of 54 groundwater samples and 23 quality assurance samples."</p>
<p>2. <u>Section 3.1 PERCHLORATE CONCENTRATIONS IN GROUNDWATER, Page 3-1</u></p> <p>a. The second paragraph within this section discusses the elevated perchlorate value (280 µg/L) detected at monitoring well 01MW201 located at Site 1. The Report states that perchlorate was not detected at the downgradient well (01_DGMW57) from Site 1. The Report should clarify whether well 01_DGMW57 is screened at the same depths as well 01MW201. Additional wells/monitoring points are needed downgradient of 01MW201 to determine the extent of contamination and groundwater flow direction.</p> <p>b. The detection of perchlorate adjacent to Site 3 may indicate disposal of perchlorate-containing materials at the Site 3 landfill. The perchlorate detected at Site 3 could also originate from Site 1. The groundwater flow direction southwest of Site 1 has not been determined. Prior investigations assumed that groundwater flow follows the general path of the Borrego Canyon Wash. A portion of the groundwater may be flowing to the south-southwest, in the direction of Site 3. The groundwater potentiometric elevation map in the CERCLA Groundwater Monitoring Plan for MCAS El Toro (Figure F4-1) shows the groundwater elevation contours southwest of Site 1 as estimated contours (dashed lines). No groundwater monitoring wells are located between 01MW201 at Site 1 and the</p>	<p>RESPONSE 2a: The Navy is aware that the current configuration of monitoring wells is insufficient to fully characterize the hydrogeologic conditions at Site 1 as they pertain to groundwater flow and potential off-site migration of perchlorate. A plan to further characterize the hydrogeology, delineate the extent of perchlorate contamination, and evaluate potential source areas at Site 1 is currently under development.</p> <p>RESPONSE 2b: At this time it is not clear if the perchlorate detections adjacent to Site 3 are a result of disposal practices at Site 3 or from a source area at Site 1. The study mentioned above to further characterize and evaluate the hydrogeology at Site 1 will either confirm or rule out Site 1 as a possible source. Site 3 will continue to be monitored for at least 2 additional sampling rounds (April and July 1999).</p>

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<p>wells adjacent to Site 3 to determine groundwater flow direction. A groundwater investigation between Sites 1 and 3 is needed to resolve this data gap.</p>	
<p>3. <u>Section 4 CONCLUSION, Page 4-1</u></p> <p>a. DTSC agrees with the recommendation to conduct further monitoring at Sites 1, 2, 3, 5, 17, and all other wells where perchlorate was reported in October 1998. As mentioned in comment 2.b., groundwater investigation is needed southwest of Site 1 and northeast of Site 3. In addition, groundwater monitoring wells along the north-south runway should be sampled to determine whether perchlorate extends farther east of monitoring wells 19_DGMW86 and 07_DBMW100.</p> <p>b. MCAS El Toro has several ordnance storage bunkers that trend in a north-northeast direction from near the Golf Course area to Site 1. These bunkers may have been used for storage of perchlorate-containing ordnance. The Marines have not disclosed the type of ordnance stored in the bunkers nor conducted an inspection for spills or releases. An investigation of these ordnance storage bunkers should be conducted to determine whether a release or disposal of rocket propellant had occurred.</p>	<p>RESPONSE 3a. The monitoring of perchlorate at Site 1 and the four inactive landfills (Sites 2, 3, 5, and 17) will continue for at least 2 more sampling rounds (April and July 1999). In addition, a plan to further characterize the hydrogeology, delineate the extent of perchlorate contamination, and evaluate potential source areas at Site 1 is currently under development.</p> <p>Similarly, wells at which perchlorate was reported during the October 1998 groundwater monitoring event will be sampled for at least 2 more rounds (April and July 1999). The results from these additional rounds of monitoring will be evaluated to determine if there is a source of perchlorate at MCAS El Toro and if the distribution of perchlorate in groundwater can be delineated. Based on this evaluation, the Navy will then develop recommendations that address the need for continued long-term monitoring of perchlorate.</p> <p>Additional wells can be added to the perchlorate monitoring program. Please provide us with a list of the specific wells you would like to see monitored.</p> <p>RESPONSE 3b: Although there is no groundwater monitoring well in the immediate vicinity of the bunkers in question, a limited number of soil samples could be collected to determine if a release or disposal has occurred. These soil samples could be taken as part of the Site 1 study mentioned in the response to Comment # 2a.</p>

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<p>Originator: Herbert Levine, Hydrogeologist USEPA</p> <p>To: Glenn Kistner, RPM USEPA</p> <p>Date: 24 May 1999</p>	<p style="text-align: right;">CLEAN II Program Contract No. N68-711-92-D-4670 CTO-171 File Code: 0222</p>
<p><u>GENERAL COMMENT</u></p> <p>1. I have reviewed the evaluation of perchlorate in groundwater document from the Navy and found it to be well written. This document provides an excellent assessment of the observance of perchlorate at groundwater wells on station and off station. The correlation between laboratories appears to be very good. I agree with the conclusions posed by the navy and recommend that the EPA accept those conclusions. I would also ask for some clarification regarding the recommendation for future monitoring. From reading Section 4 it looks as if the Navy will be making a change to the long term document to include perchlorate as an analyte for the locations outside of Site 1 and the four landfills. This could be stated more clearly and the Navy might want to consider sampling for perchlorate on a limited basis if after a determined time period the concentrations do not change or increase.</p>	<p><u>RESPONSE TO GENERAL COMMENT</u></p> <p>RESPONSE 1: The Navy appreciates the U.S. EPA's positive response to this document and the investigation effort it represents.</p> <p>The monitoring of perchlorate at Site 1 and the four inactive landfills (Sites 2, 3, 5, and 17) will continue for at least 2 more sampling rounds (April and July 1999). In addition, a plan to further characterize the hydrogeology, delineate the extent of perchlorate contamination, and evaluate potential source areas at Site 1 is currently under development.</p> <p>Similarly, wells at which perchlorate was reported during the October 1998 groundwater monitoring event will be sampled for at least 2 more rounds (April and July 1999). The results from these additional rounds of monitoring will be evaluated to determine if there is a source of perchlorate at MCAS El Toro and if the distribution of perchlorate in groundwater can be delineated. Based on this evaluation, the Navy will then develop recommendations that address the need for continued long-term monitoring of perchlorate.</p>

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<p>Originator: Patricia Hannon, RPM RWQCB</p> <p>To: Joseph Joyce, BRAC Environmental Coordinator Navy</p> <p>Date: 20 May 1999</p>	<p style="text-align: right;">CLEAN II Program Contract No. N68-711-92-D-4670 CTO-171 File Code: 0222</p>
<p><u>GENERAL COMMENT</u></p> <p>1. We have completed our review of the above document dated April 1999. We concur with your conclusions for further monitoring of the wells where perchlorate was detected in the water samples collected. In addition, we request further groundwater investigation at Site 1.</p>	<p><u>RESPONSE TO GENERAL COMMENT</u></p> <p>RESPONSE 1: The Navy appreciates the RWQCB's positive response to this document and the investigation effort it represents.</p> <p>The monitoring of perchlorate at Site 1 and the four inactive landfills (Sites 2, 3, 5, and 17) will continue for at least 2 more sampling rounds (April and July 1999). In addition, a plan to further characterize the hydrogeology, delineate the extent of perchlorate contamination, and evaluate potential source areas at Site 1 is currently under development.</p> <p>Similarly, wells at which perchlorate was reported during the October 1998 groundwater monitoring event will be sampled for at least 2 more rounds (April and July 1999). The results from these additional rounds of monitoring will be evaluated to determine if there is a source of perchlorate at MCAS El Toro and if the distribution of perchlorate in groundwater can be delineated. Based on this evaluation, the Navy will then develop recommendations that address the need for continued long-term monitoring of perchlorate.</p>