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MCAS EL TORO
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CLEAN II TRANSMITTAL/DELIVERABLE RECEIPT

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TO: Contracting Officer
Naval Facilities Engineering Command
Southwest Division
Mr. Richard Selby, Code 02R.RS
Building 127, Room 112
1220 Pacific Highway
San Diego, CA 92132-5190

DATE: June 7, 1999
CTO #: 0153
LOCATION: MCAS El Toro

FROM: D. J. Tedaldi, Ph.D., P.E., Project Manager

Program Manager

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CLEAN II Program
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IN REPLY REFERENCE: CTO-0153/0160

June 7, 1999

Contracting Officer
Naval Facilities Engineering Command
Southwest Division
Mr. Richard Selby, Code 02R.RS
Building 127, Room 112
1220 Pacific Highway
San Diego, CA 92132-5190

Attention: G. Tinker, Code 5B02.GT, Contract Specialist

Subject: Response to Comments on the Draft CERCLA Groundwater Monitoring Plan, MCAS El Toro, CA

Dear Mr. Selby:

We are pleased to submit response to comments on the Draft CERCLA Groundwater Monitoring Plan (GMP), MCAS El Toro, California. Review comments on the draft GMP were received from the Navy, the U.S. Environmental Protection Agency (EPA), the California EPA – Department of Toxic Substances Control, and the California Regional Water Quality Control Board – Santa Ana Region. These response to comments incorporate the results of additional discussions held with the regulatory agencies subsequent to the submission of their original comments. The document revisions associated with these comments have been incorporated into the Draft Final CERCLA Groundwater Monitoring Plan which is being transmitted under separate cover.

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 Pat Wiegand at (619) 744-3082, or myself at (619) 744-3080.

Sincerely,

Dante J. Tedaldi, Ph.D., P.E.
Project Manager

DJT/sp

Attachments

RESPONSE TO COMMENTS
DRAFT CERCLA GROUNDWATER MONITORING PLAN
MCAS EL TORO, CALIFORNIA

Originator: Lynn Hornecker, RPM Navy **To:** Dave DeMars, RPM and Andy Piszkin, Lead RPM Navy **Date:** 26 August 1998	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-153** **File Code: 02221**
GENERAL COMMENTS **1. Figure 2-2. The boundary of IRP Site 2 does not coincide with the boundary shown on Figure 4-1. Area D1 – a former area of uncontrolled dumping – located southwest of the Station's property boundary is shown on Figure 4-1 but not on Figure 2-2. CLEAN II Document Control Number CTO-0161/0033 dated 26 March 1998 (attachment) indicates that Area D1 should not be identified as an "Area" of the landfill site. Please revise for consistency and accuracy.**	*RESPONSES TO GENERAL COMMENTS* **RESPONSE 1:** Area D1 will be removed from the version of Figure 4-1 presented in the draft final CERCLA Groundwater Monitoring Plan (GMP). None of the areas of uncontrolled dumping are included in Figure 2-2 because only the actual waste management unit comprises the site, defined in the landfill regulations as the operational landfill. Although they are not part of the operational landfill, the areas of uncontrolled dumping are illustrated on the enlarged view of Site 2 presented in Figure 4-1 because remedial action will be taken in these areas. The base map used for Figure 4-1 will also be updated in the draft final GMP. The current base map will be replaced with a more recent version showing topographic contours that reflect the channel modifications made along Borrego Canyon Wash at Site 2 during the past year.
2. Figure 4-1. Please consider verifying the locations of the "Area" boundaries within IRP Site 2. Figure 4-1 shows that Well 02_DGMW59, identified for continued monitoring, is located within Area D2 – an area planned for excavation and consolidation during the final remedy. Additionally, the figure appears to show part of Area C1 beneath Magazine Road. The base map associated with Figure 4-1 does not show the two large water reservoirs southwest of IRP Site 2. Please consider revising Figure 4-1 for completeness and accuracy.	**RESPONSE 2:** Although associated with IRP Site 2, the areas of uncontrolled dumping are located outside the boundary of Site 2. The boundaries of the uncontrolled dumping areas (including Areas C1 and D2) represent the approximate outer limits of areas where debris was observed on the surface. Although Well 02_DGMW59 is located just inside the boundary of Area D2, the well location is not expected to pose any problems for final remedy implementation. Most of the debris identified in Area D2 was surficial in nature, so only limited excavation is anticipated. The actual limits of excavation within this area will be determined during debris consolidation and removal. In addition, the boundary of Area C1 will be revised to eliminate the small area that appears to extend under Magazine Road and the second water reservoir will be added to the version of Figure 4-1 presented in the draft final GMP.
3. Figure 2-2. The figure does not identify the locations of 02NEW15 and 02NEW16. Please revise for completeness.	**RESPONSE 3:** The location coordinates for these new wells did not become available until after the draft GMP was released. The locations of both wells will be included on all applicable figures and tables presented in the draft final GMP.

Originator: Lynn Hornecker, RPM Navy **To:** Dave DeMars, RPM and Andy Piszkin, Lead RPM Navy **Date:** 26 August 1998	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-153** **File Code: 02221**
4. Figure 4-4. The figure does not identify the area(s) to be consolidated at IRP Site 17. The sketches in the proposed plan identify areas to be consolidated. Please consider revising Figure 4-4 for consistency with the proposed plan.	**RESPONSE 4:** The areas to be consolidated at IRP Site 17, as identified in the Site 17 FS, will be added to the version of Figure 4-4 presented in the draft final GMP.
5. Paragraph 4.2.1. The paragraph indicates that TCE and PCE plumes are located downgradient of the former operational landfill (Areas A and B) in saturated bedrock strata, while ground water contours shown on Figure 2-5 do not clearly show that the plumes are located downgradient of the former operational landfill. The text indicates that only the TCE plume is located in a former area of uncontrolled dumping, while Figure 4-1 indicates that the PCE plume is also located in a former area of uncontrolled dumping. Please consider minimal discussions of the final remedies for the landfill sites in the GMP, and allow for complete descriptions of site conditions and groundwater monitoring requirements in the remedial design documents for the landfill sites.	**RESPONSE 5:** Section 4.2.1 will be modified to clarify that groundwater monitoring data suggest that the TCE plume originates in a former area of uncontrolled dumping located south of the former operational landfill (Areas A and B). This conclusion is also supported by groundwater analytical results for Hydropunch samples presented in the draft Technical Memorandum - Site 2 Compliance Well Installation that was issued for review by the regulatory agencies in December 1998. The PCE plume is defined by groundwater data from monitoring wells 02_DGMW61 and 02NEW8A, which are located southwest of the former operational landfill area. Although Well 02_DGMW61 is situated in an area of former uncontrolled dumping, groundwater analytical results for Hydropunch samples presented in the aforementioned draft technical memorandum suggest that the operational landfill area upgradient from that well is a possible source area of the PCE plume. Section 4.2.1 will be revised to indicate that the PCE plume may originate in the former operational landfill or within the former uncontrolled dumping area designated C1 in Figure 4-1. The discussions presented in Sections 4.2.1, 4.2.2, 4.2.3, and 4.2.4 for Sites 2, 3, 5, and 17 respectively are already limited descriptions of the probable final remedy and the monitoring plan details. Reducing these discussions further would eliminate the basis for development of the proposed long-term monitoring program.

RESPONSE TO COMMENTS
DRAFT CERCLA GROUNDWATER MONITORING PLAN
MCAS EL TORO, CALIFORNIA

Originator: Patricia Hannon, RPM RWQCB **To:** Joseph Joyce, BRAC Environmental Coordinator Navy **Date:** 23 September 1998	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-153** **File Code: 02221**
GENERAL COMMENTS **We request that the list of monitoring wells proposed for suspension of monitoring or abandonment not be finalized until the perchlorate sampling information is available. Additional rounds of perchlorate sampling and analysis may be needed to determine if the source is on the base.**	***RESPONSES TO GENERAL COMMENTS*** **RESPONSE** . The Navy will not abandon any wells until the perchlorate investigation is completed and reviewed by the agencies.
SPECIFIC COMMENTS 1. Section 4 Landfill Monitoring Strategies – **The Regional Board disagrees with the proposed modification for a reduction in the suite of chemicals proposed for post-closure semi-annual groundwater monitoring and would like to see clarification as to why the sampling plan was modified. We also request a table which shows all the parameters/chemicals that are proposed for monitoring including field parameters and proposed frequencies for pre-closure and post-closure.**	***RESPONSES TO SPECIFIC COMMENTS*** **RESPONSE 1:** Monitoring will be consistent with what is proposed in the draft Record of Decision for Landfill Sites 2 and 17 (November 1998), the draft Record of Decision for Landfill Sites 3 and 5 (March 1999), and in the primary post-ROD documents (remedial design/remedial action [RD/RA]).
2. Subsection 4-1 Overview paragraph 1, post-closure monitoring frequencies – **A reduction in monitoring frequency after the first five years may be agreeable to the Regional Board, however this will depend on our review of the data collected.**	**RESPONSE 2:** Please see the response to Specific Comment No. 1.
3. Table 4-6 – **Is it sulfide or sulfite concentrations that will be monitored, there appears to be a discrepancy between the text and the table.**	**RESPONSE 3:** The recommended monitoring parameter is sulfide. The fourth column heading "Sulfate/Sulfite" will be revised to "Sulfate/Sulfide" in the draft final GMP.

RESPONSE TO COMMENTS
DRAFT CERCLA GROUNDWATER MONITORING PLAN
MCAS EL TORO, CALIFORNIA

Originator: Herbert Levine, Hydrogeologist USEPA **To:** Glenn Kistner, RPM USEPA **Date:** 22 September 1998	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-153** **File Code: 02221**

GENERAL COMMENTS	*RESPONSES TO GENERAL COMMENTS*
1. Section 3 – **The report states that wells were evaluated to determine if they would be needed for future performance monitoring. It would be helpful to provide the criteria which the Navy used to make this evaluation. Without those criteria EPA can not concur with the well selection presented in Section 3. As example, how was the first diamond in Figure 3-3 evaluated? Sections 3.3.1.1 and 3.3.1.2 claim that the monitoring network presented were evaluated to comply with final remedy monitoring objectives presented in Section 3.1. I can not find those objectives in Section 3.1. EPA has developed a guidance titled Methods for Monitoring Pump-and-Treat Performance (EPA/600/R-94/123, June 1994) which presents remedial action monitoring objectives. It would be useful for the Navy to consider this guidance while revising the monitoring plan. It would be helpful to add the monitoring rationale to Table 3-4.**	**RESPONSE 1:** The evaluation was based on professional judgement following analysis of historical groundwater data (elevations, gradients, water quality, contaminant concentrations, and plume migration). Because final remedies have not been selected for Sites 18 and 24, it is impossible to reliably designate the specific wells that would be used for any as yet undefined future performance monitoring program. Sections 3.3.1.1 and 3.3.1.2 indicate that the shallow groundwater unit and principal aquifer monitoring networks identified in the draft GMP "should satisfy the objectives for pre-ROD monitoring". Monitoring objectives 1 through 9 identified in Section 3.1 pertain to the ongoing pre-ROD monitoring. Section 3.1 indicates that "While potential remedial action monitoring objectives were considered, the monitoring strategies presented in this section have been prepared to provide guidance in meeting the pre-ROD groundwater monitoring needs...." The text of Section 3.1 further indicates that once final remedies are selected, the GMP objectives will be expanded to address performance monitoring (objectives 10 and 11 in Section 3.1). The strategy for addressing the performance and effectiveness of the final remedy and the criteria against which they are going to be evaluated will be determined at that time. These criteria are likely to address many of the factors presented in the referenced EPA guidance document such as horizontal and vertical hydraulic gradients, capture zone analysis, groundwater quality monitoring, and treatment system monitoring (influent/effluent). The last sentence in the first paragraph of Sections 3.3.1.1 and 3.3.1.2 will be revised in the draft final GMP to clarify this point. The intent of the first diamond in Figure 3-3 is to provide a general decision criteria for segregating wells within or in close proximity to the VOC plumes from wells remote from the plumes, not to address performance monitoring issues specifically. The rationale was that all wells located within the footprint of the Site 18 and Site 24 plumes could potentially have some usefulness for performance monitoring when the final remedies are selected. Conversely, wells located far from either plume would have no usefulness for monitoring final remedy performance. As agreed during the 4 February 1999 telephone

Originator: Herbert Levine, Hydrogeologist USEPA **To:** Glenn Kistner, RPM USEPA **Date:** 22 September 1998	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-153** **File Code: 02221**
	conference with U.S. EPA on GMP issues, the text of the first diamond will be revised as follows to reflect the focus on well location – "Is well located within or immediately adjacent to the Site 18 or 24 VOC plumes?" The data quality objectives (DQOs) for groundwater monitoring are summarized in Section 3.2 while the criteria used for selection of monitoring wells to meet the DQOs are addressed in Section 3.3. Tables 3-3 and 3-4 include a brief description of the rationale for inclusion of each selected well in the groundwater monitoring networks for the principal aquifer and shallow groundwater unit respectively.
2. <u>Section 3.3.1 Wells for VOC Plume Migration Monitoring, page 3-7</u> – **EPA concurs with the first bullet however, I recommend that the words "at least one well..." be changed to "wells sufficient to define the leading edge of each plume be monitored to track further down gradient migration." The Navy should define in this document which those wells are. For Site 18 there is not even one clearly defined well down gradient of the plume for monitoring purposes. The Navy will need to add monitoring wells at the leading down gradient edge of the off-site plume. These could be placed to be used for water level measurements as well to attempt to confirm capture of the plume by N. Lake well. The information provided on well IRWD-78 (Table F6-1) does not support its use as a water quality monitoring well. There is no provided data on how this well is sampled (nor in the CDM reports) however based on screen length this well is not appropriate for water quality data. Figure 2-8 indicates that we will need similar data down gradient of the North Lake well as provided by 18_MCAS07. Also, Figure 2-8 might need to be modified with regards to where the contamination exists within the North Lake well. I suggest adding pump location (North Lake well) to this Figure and then reconsidering how the plume is interpreted.**	**RESPONSE 2:** The text of the first bullet in Section 3.3.1 will be revised in the draft final GMP to incorporate the recommended change. The U.S. EPA has previously agreed that provision of additional monitoring wells downgradient of Site 18 by the Navy would only be required if the Navy proceeded alone on groundwater remediation. If a joint project were undertaken (Navy and local municipal agencies), installation of downgradient wells by the Navy would not be required. Although a decision on the type of joint project to be implemented is yet to be made, the Navy has agreed to participate in a joint project (Irvine Desalter Project). Monitoring required to demonstrate effective final remedy performance, including the necessity for installation of monitoring wells at the leading edge of the off-Station VOC plume, will be addressed during remedial design in concert with the Orange County Water District (OCWD), the Irvine Ranch Water District (IRWD), and the regulatory agencies. Desalter Project design and the monitoring of its impact will be performed by the local water agencies (OCWD and IRWD). During the 4 February 1999 telephone conference on GMP issues, U.S. EPA agreed that on the basis of the information presented above, the necessity for new monitoring wells downgradient from the leading edge of the off-Station plume could be deferred until the remedial design. The pump depth in the North Lake well will be added to Figures 2-4 (Conceptual Hydrogeologic Model) and 2-8 (TCE Concentrations in Groundwater – Cross-section). The interpretation of the plume at the North Lake well location will then be evaluated and modified if appropriate.

Originator: Herbert Levine, Hydrogeologist USEPA **To:** Glenn Kistner, RPM USEPA **Date:** 22 September 1998	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-153** **File Code: 02221**
3. The pumping data from the production wells in the vicinity of the edge of the off-site plume will need observation wells nearby to confirm the extent of drawdown. EPA guidance (see above) prefers that gradient and flow paths be interpreted based on head measurement in observation wells or piezometers. The Navy could attempt to make an estimate of the heads in the vicinity of the pumping wells using well hydraulics equations, however there will be uncertainty associated with this.	**RESPONSE 3:** Although drawdown measured in the off-Station production wells may not accurately reflect aquifer drawdown to the nearest foot, it is a reliable approximation of the magnitude of aquifer drawdown that occurs in the immediate vicinity of these wells. The groundwater elevations measured in existing observation wells, including several Westbay multiport wells, clearly indicate that operation of the off-Station production wells produces significant drawdown in the principal aquifer. For example, measured drawdown of up to 80 feet is observed at several ports of Westbay multiport well 18_MCAS07 when production wells 18_NLAKE and 18_ET1 are in operation. Well 18_MCAS07 is located intermediate between the two production wells, approximately 3,000 feet from both wells. If drawdown of 80 feet is observed at a distance of 3,000 feet, drawdown of 190-290 feet measured in well 18_NLAKE during operation is not an unreasonable estimate for drawdown in the aquifer at that well. The magnitude of drawdown during production well operation is also supported by the residual drawdown observed at the off-Station production wells during the intermittent periods when pumping ceases. Furthermore, the Irvine Desalter Project plans call for construction of two 1,000 gallon per minute (gpm) extraction wells downgradient from well 18_NLAKE. Any future expansion of monitoring capabilities to determine the extent of drawdown should focus on these wells. The Desalter Project operations are projected to have a significant impact on local groundwater flow conditions. Based on the discussion of this issue during the 4 February 1999 telephone conference and the information presented in Comment No. 2, U.S. EPA agreed to postpone a decision on the necessity for additional monitoring wells until the remedial design.
4. It would be useful to have plume maps with potentiometric elevations overlain.	**RESPONSE 4:** The shallow groundwater unit and principal aquifer plume configurations presented on Figure 2-7 will be added to Figures 2-5 and 2-6 respectively in the draft final GMP.

Originator: Herbert Levine, Hydrogeologist USEPA **To:** Glenn Kistner, RPM USEPA **Date:** 22 September 1998	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-153** **File Code: 02221**
5. I do not think that the Navy has presented compelling evidence to discontinue monitoring at the following wells: 18_TIC117, 18_TIC74, 18_TIC47, 18_TIC55, and TIC-82.	**RESPONSE 5:** The five wells identified in this comment have never been sampled by the Navy. The data evaluated for each of these locations during preparation of the draft GMP were obtained from the Orange County Water District (OCWD). The records provided by OCWD indicate that wells 18_TIC74 and 18_TIC117 continue to be sampled on a roughly annual basis, so it should be possible to include OCWD data for these locations in future annual monitoring reports. The draft final GMP will be modified to indicate that analytical data reported by OCWD for these two wells will be included in the groundwater monitoring reports. OCWD records also indicate that well 18_TIC47 has not been sampled since 1993, well 18_TIC55 has not been sampled since 1995, and well TIC-82 has not been sampled since 1985. Further, analytical data from these wells duplicates data from other nearby wells already included in the monitoring program. Well 18_MCAS04 and Westbay multiport well 18_BGMP08 provide plume boundary coverage in the vicinity of well 18_TIC47; cluster wells 18_DW135, 18_DW250, 18_DW350, 18_DW450, and 18_DW540 located 300 feet from 18_TIC55 provide monitoring coverage for that on-Station location; and well 18_TIC113 located 200 feet from TIC-82 provides monitoring coverage for that off-Station location.
6. Table 3-1, page 3-6. Objective number 3 should include leading edge of plume well(s) which will be needed to evaluate objective 5.	**RESPONSE 6:** The phrase "along the critical migration path(s)" was intended to cover both wells within the plume, at the leading edge, and downgradient of the plume. However, this data quality objective will be expanded to clarify that the monitoring well network would include wells at background, in-plume, cross-gradient, leading edge, and downgradient locations.
7. Wells which confirm plume stability and boundaries should be sampled semi-annually. The pumping rates for the production wells North Lake, 18_ET1, 18_TIC106, 18_TIC113 should be obtained monthly. The water quality near the production wells will need to be confirmed with monitoring well data.	**RESPONSE 7:** The graphical and tabular presentations of monitoring data in the draft GMP clearly support the conclusion that TCE concentrations and the configuration of the off-Station plume have remained relatively stable over time. Furthermore, the variation between individual analytical results reported at a well is generally greater than any year-to-year change in the concentration trend for that location. And nothing in the existing data suggest that significant changes in TCE concentrations or the relative position and configuration of the plume would be anticipated during the period remaining until the Irvine

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	Desalter Project comes on line. All of these factors suggest that annual monitoring is sufficient for documenting plume conditions during the period remaining until final remedy implementation. Once the final remedy is implemented, the monitoring frequency (quarterly, semi-annual, or annual) will be determined on the basis of the criteria presented in the groundwater monitoring frequency decision tree (Figure 3-5). As noted in Comment No. 5, monitoring data for many off-Station wells are obtained from OCWD. The Navy does not sample the wells owned and/or operated by OCWD, IRWD, and The Irvine Company (TIC). While the Navy has agreed to incorporate all OCWD data into the groundwater monitoring reports, a majority of the wells are only sampled annually. During the 4 February 1999 telephone conference on GMP issues, U.S. EPA indicated that annual sampling during the period remaining until final remedy implementation would be sufficient with the incorporation of monitoring data collected by OCWD. Production information for Wells 18_ET1, 18_TIC106, and 18_TIC113 is compiled by OCWD and consists of total monthly pumped volumes. The draft final GMP will be revised to indicate that well production data obtained from OCWD will be included in the annual groundwater monitoring reports. The North Lake well is operated by the Woodridge Village Association and groundwater production information available through this organization will also be included in the annual groundwater monitoring reports.
8. The North Lake well and 18_ET1 production wells present an interesting situation. The information presented in F4.2.1 indicates that about 30 lb/year of TCE is being removed by these wells. This raises the question of whether TCE is accumulating in the lake. I suggest sampling of the lake to determine an impact. What is the fate of the water from 18_ET1? This should be presented here as well.	**RESPONSE 8:** We will evaluate whether obtaining samples from North Lake would provide any useful information. Well 18_ET1 was constructed by OCWD as a test well for the Irvine Desalter Project. It is presently operated by the Irvine Ranch Water District, which uses the groundwater (after airstripping) as a source of non-potable water for irrigation (e.g., agriculture) and reclamation (e.g., landscaping) purposes. This information will be incorporated into Appendix F of the draft final GMP.

Originator: Herbert Levine, Hydrogeologist USEPA **To:** Glenn Kistner, RPM USEPA **Date:** 22 September 1998	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-153** **File Code: 02221**
9. I suggest that the Navy perform a capture zone analysis at North Lake well to aid the interpretation of plume capture.	**RESPONSE 9:** The necessity for a capture zone analysis will be determined during remedial design, but would most likely focus on the wells that will comprise the Irvine Desalter Project such as the two 1,000 gpm extraction wells planned for installation downgradient from well 18_NLAKE. Groundwater modeling of Desalter Project operations indicates that full capture of the plume will be achieved by these wells. In view of this information, a capture zone analysis for well 18_NLAKE is unnecessary. Recent information received from OCWD and IRWD indicates that wells 18_NLAKE and IRWD-78 operate intermittently during the winter months and continuously during the spring and summer. Although this type of operation suggests that the leading edge of the TCE plume may advance past well 18_NLAKE when it is not operating, it would be drawn back toward the well when operation resumed. This scenario is supported by the consistently non-detect or trace TCE concentrations (1 µg/L or less) reported in wells downgradient from 18_NLAKE. However, because of the intermittent operation during parts of each year, Section F4 in Appendix F of the draft final GMP will be revised to indicate that the operation of well 18_NLAKE has a significant impact on the leading edge of the off-Station plume but plume capture by this well is not complete. The conceptual hydrogeologic model (Figure 2-4 and Figure F1-4) will also be revised to reflect this change.

RESPONSE TO COMMENTS
DRAFT CERCLA GROUNDWATER MONITORING PLAN
MCAS EL TORO, CALIFORNIA

Originator: Tayseer Mahmoud, RPM DTSC **To:** Joseph Joyce, BRAC Environmental Coordinator Navy **Date:** 22 September 1998	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-153** **File Code: 02221**
GENERAL COMMENTS	***RESPONSES TO GENERAL COMMENTS***
1. The Navy proposes to abandon or reduce monitoring (i.e., groundwater level measurement only) of numerous monitoring wells that are not considered necessary for evaluating groundwater parameters or contamination. DTSC agrees with the proposal; however, we request that this decision be delayed until the perchlorate investigation has been completed. **The Orange County Water District notified the Navy in 1998 that groundwater samples from off-base wells adjacent to MCAS El Toro had detectable concentrations of perchlorate. The Marines analyzed groundwater samples from the western portion of the base and detected perchlorate. In August 1998, the Navy submitted a Field Sampling Plan (FSP) for groundwater monitoring of perchlorate. The objective of the FSP is to determine the concentration and distribution of perchlorate in the shallow groundwater unit and the principal aquifer from off–station wells, on–station wells and upgradient wells. The Marines intend to collect groundwater samples from 50 monitoring wells or monitoring ports to determine whether MCAS El Toro is the source of the perchlorate. Many well locations chosen for the perchlorate investigation are proposed for "no further monitoring" in the draft GMP. If the investigation shows that MCAS El Toro is the source of the perchlorate contaminating the groundwater, additional rounds of groundwater samples may be required. Since this may change the recommendation in the draft GMP, any decision to discontinue monitoring a well should wait until the analytical results for the perchlorate investigation are available for review.**	**RESPONSE 1.** The Navy will not abandon any wells until the perchlorate investigation has been completed and reviewed by the agencies.
2. As discussed during our April 16, 1998 meeting in San Francisco, please submit the groundwater data on CD-ROM.	**RESPONSE 2:** A CD-ROM containing the MCAS El Toro groundwater monitoring database used to develop the groundwater monitoring recommendations will be included with each copy of the draft final GMP.

Originator: Tayseer Mahmoud, RPM DTSC **To:** Joseph Joyce, BRAC Environmental Coordinator Navy **Date:** 22 September 1998	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-153** **File Code: 02221**
SPECIFIC COMMENTS	***RESPONSES TO SPECIFIC COMMENTS***
1. Section 1.1 Monitoring Plan Focus, page 1-1 **a. The last sentence of the second paragraph states: "…. groundwater monitoring conducted to date at Site 1 suggests that activities at this site have not adversely impacted local groundwater conditions there." Site 1 is a former and operating open burn/open detonation area. The recent detection of perchlorate in groundwater samples in the western portion of the base makes Site 1 a potential source area. Previous groundwater analyses at Site 1 did not include perchlorate. The results of the perchlorate investigation should be reviewed before any decision is made on discontinuing monitoring wells associated with Site 1. Since Site 1 is still active, monitoring should continue until the Remedial Investigation (RI) is complete.**	**RESPONSE 1a:** The recommendation to suspend groundwater monitoring at the Site 1 wells will be removed from the draft final GMP and the last sentence in the second paragraph of Section 1.1 will be removed from the draft final GMP.
b. Groundwater contamination due to a release from Site 16 is mentioned; however, the status and plan for Site 16 is not clearly stated. The following sentence from Section 2.6, Future Investigations and Potential Remedial Actions, should be repeated here: "The necessity for and the requirements associated with any long-term groundwater monitoring at Site 16 cannot be determined until a Feasibility Study (FS) has been completed and a final remedy is selected."	**b:** The discussion of Site 16 in Section 1.1 in the draft final GMP will be expanded to include the cited sentence from Section 2.6.
2. Section 1.2 Monitoring Plan Purpose, page 1-2 **The GMP states that the plan will be "reviewed and updated annually or more frequently, as needed, to remain consistent with the RI/FS and remedial action phases at each site." The following sentence should be added to clarify the process: "Modifications to the GMP will be proposed to the regulatory agencies and implemented upon approval of the recommendation."**	**RESPONSE 2:** Section 1.2 in the draft final GMP will be expanded to indicate that any recommended modifications to the plan will only be incorporated and implemented upon concurrence by the regulatory agencies.

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3. <u>Section 4 Landfill Monitoring Strategies</u> **Throughout this section of the GMP, there are proposals to discontinue groundwater monitoring of Landfills 2, 3, 5, and 17 for SVOCs, PCBs, pesticides, herbicides, metals, and in one case (Landfill 17), radionuclides. Also, the frequency of sampling has been changed from semiannual to once every five years. DTSC disagrees with discontinuing the monitoring and the revisions to the frequency. I want to point out that the final Feasibility Study Reports for Landfills 2, 3, 5, and 17, as approved by the regulatory agencies, specify the frequency of sampling and above suites of chemicals of potential concern (COPCs). In addition, the groundwater monitoring analyses for the landfills were public-noticed in the Proposed Plan for the landfills. The intent of groundwater monitoring is to detect landfill leachate if there is a release in the future. The long-term groundwater monitoring program for the landfills should include all COPCs listed in the Feasibility Study Reports to ensure protectiveness of the groundwater.**	**RESPONSE 3:** Monitoring will be consistent with what is proposed in the draft Record of Decision for Landfill Sites 2 and 17 (November 1998), the draft Record of Decision for Landfill Sites 3 and 5 (March 1999), and in the primary post-ROD documents (remedial design/remedial action [RD/RA]).
4. <u>Section 4.4.2.7 Radionuclides</u> **See the enclosed memorandum dated August 20, 1998 from DHS regarding testing requirements and the appropriate test methods for radionuclides in groundwater.**	**RESPONSE 4:** The draft final GMP will be modified to indicate that radionuclide analyses of groundwater samples from the Sites 2, 3, and 5 landfills will be analyzed using the methods specified in the referenced DHS memorandum or their functional equivalents.
5. <u>Appendix A, Section 2.2.2 Recent Base Operations, page A2-1, third paragraph</u> **Please delete the third sentence beginning with "The on-Station RCRA Interim Status Storage Facility ....." MCAS El Toro in not an interim status storage facility. MCAS El Toro closed its RCRA permitted hazardous waste storage area in 1996. DTSC and U.S. EPA recognize MCAS El Toro as a generator of hazardous wastes which are stored onsite for less than 90 days. Currently, hazardous materials/wastes are managed under appropriate Federal, State, Local, and DoN requirements.**	**RESPONSE 5:** This sentence will be removed from Section 2.2.2 in Appendix A to the draft final GMP.

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6. <u>Appendix A, Section 6.1.4 Access to Sensitive Military Areas, page A6-2</u> **Since the GMP will be used after the base is transferred to the Local Redevelopment Authority, it would be more appropriate to have a generic title such as "Access to Groundwater Monitoring Wells." As the base is transferred to the private sector, agreements, easements or covenants will be emplaced to ensure access to groundwater monitoring wells for inspection, maintenance and sampling. This section requires revisions to direct the field team of the procedure to gain access to the monitoring wells on non-military property in addition to military property.**	**RESPONSE 6:** This section as written was intended to reflect the procedures currently required during the period remaining until the Station closes. The GMP indicates that the reviews will be conducted on an as needed basis to evaluate the need for modifications or revisions. Access issues resulting from any agreements, easements, or covenants that may be associated with property transfers would be incorporated into the plan when the property transfers begin. However, Section 6.1.4 in Appendix A of the draft final GMP will be retitled as suggested and revised to indicate that access to the monitoring wells must be incorporated into any future agreements, easements, or covenants.
7. <u>Figure F4-5 Integrated Hydrograph Map</u> **Figure F4-5 contains the hydrographs for several monitoring wells in the western portion of the base. The hydrographs of multiport monitoring wells 18_MCAS01, 18_MCAS02, 18_MCAS03, 18_MCAS07 and IDM-1 are cluttered by the number of water level elevations depicted. Similar symbols are used for different depth intervals and the water level for specific levels are either missing or obscured by the other plots. Please provide hydrographs of the above mentioned wells at an appropriate scale and color to distinguish between the different port levels.**	**RESPONSE 7:** The Navy recognizes the complexity of Figure F4-5 and will strive to make future iterations more readable. The figure is presented primarily for illustrative purposes to visually highlight differences in response of the shallow and principal aquifers to pumping by the off-Station wells. Copies of these hydrographs are also presented in Section 4 to Attachment A of Appendix F. To improve their usefulness, the copies of these same hydrographs presented in Section 4 of Appendix A will be enlarged and reproduced in color to make differentiating the various well ports easier.
8. <u>Appendix F, Section F5.2.3 Explosives, page F5-38</u> **Previous groundwater investigations for potential releases of chemicals used in explosives did not include perchlorate. Recently, perchlorate has been identified as a contaminant that may be originating from the base or upgradient of the base. Since a release on-base may require future groundwater monitoring, the results of the perchlorate in groundwater study should be evaluated before this section of the GMP is finalized.**	**RESPONSE 8:** Section F5.2.3 of Appendix F will be expanded in the draft final GMP to address perchlorate in groundwater at MCAS El Toro. A table summarizing the perchlorate analytical results will also be added to Appendix F, Attachment B, Section 2 (Analytical Data Summary Tables). This section will be revised as new perchlorate data are collected and evaluated.

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9. **Appendix F, Section F6.2 Recommendations, page F6-3, third full paragraph** **The GMP proposes to cease monitoring a large number of groundwater wells associated with existing and former sites. DTSC agrees with the proposal to abandon specific wells or collect only water level measurements only. However, this recommendation in the GMP is being made before perchlorate was discovered in groundwater samples collected in the western portion of the base. The Navy intends to collect groundwater samples from 50 monitoring wells/ports to determine whether MCAS El Toro is the source of the perchlorate. Many of the well locations used for perchlorate investigation are wells listed in the draft GMP as not requiring future monitoring. The agencies should be given time to review the analytical results of the perchlorate investigation before the proposal to discontinue monitoring wells is considered.**	**RESPONSE 9:** The Navy will not abandon any wells until the perchlorate investigation has been completed and reviewed by the agencies.