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MCB CAMP LEJEUNE  
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U S NAVY RESPONSES TO NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND  
NATURAL RESOURCES AND U S EPA REGION IV COMMENTS ON THE DRAFT  
TECHNICAL MEMORANDUM SUPPLEMENTAL GROUNDWATER INVESTIGATION FOR  
OPERABLE UNIT 1 (OU 1) SITE 78 MCB CAMP LEJEUNE NC

3/12/2014  
CH2M HILL

**Response to Comments**  
**Draft Supplemental Groundwater Investigation Technical Memorandum**  
**Operable Unit 1, Site 78**  
**Marine Corps Installations East – Marine Corps Base Camp Lejeune**  
**(MCIEAST-MCB CAMLEJ), North Carolina**

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## **Introduction**

The purpose of this document is to address comments on the Draft Supplemental Groundwater Investigation Technical Memorandum for Site 78, Operable Unit (OU) No. 1. The North Carolina Department of Environment and Natural Resources (NCDENR) and United States Environmental Protection Agency (USEPA) provided the comments listed below. The responses to comments are provided in bold.

## **NCDENR Comments**

**(dated January 24, 2014)**

1. Not sure why RW-14 is considered an up-gradient well as discussed in the last paragraph on page 16.

**The text will be updated to indicate IR78-RW14 is upgradient of Building 1603, not Building 1601.**

A lot of my comments are in regard to Figures 15 and 16. The figures do not appear to be updated to reflect the most recent analytical data or there may be some other confusion on my part. Please clarify this issue.

**The contaminant plumes were generated using data collected as part of the Supplemental Groundwater Investigation conducted between September 2011 and March 2012. The recent LTM data was not included. Based on recommendations in the Supplemental Groundwater Investigation Technical Memorandum, the LTM network was revised for Fiscal Year 2014 to better reflect the extent of the plume.**

2. The plume, as shown on Figure 15, Low concentration data for BTEX in monitoring well MW-58R is confusing and inconsistent. According to the text at the bottom of page 16

and the top of page 17, this well contains LNAPL. The plume figure shows low levels of BTEX. Please make appropriate corrections or clarification.

**Comment noted. A groundwater sample was not collected from IR78-MW58R; therefore, BTEX concentrations were not estimated at this location. The well symbol is different from the other monitoring wells to indicate the presence of LNAPL, as defined in the figure legend.**

3. Monitoring well GW-63 as shown on Figure 16 has 10 – 100 µg/l CVOCs and several other wells show 0-10 µg/l. Please clarify why these wells would represent the absence of CVOCs as stated in the first bullet on page 17.

**As stated in the text, the "...CVOC plume is delineated as indicated by the absence of CVOCs at concentrations exceeding NCGWQS/MCLs..." Monitoring well IR78-GW63 contains TCE at a concentration of 2 µg/L and cis-1,2-DCE at a concentration of 16 µg/L; therefore, the total CVOC concentration in this well is in the 10 – 100 µg/L range. Neither of these concentrations represent an exceedance of NCGWQS/MCLs; therefore, the plume is considered delineated. All of the plume figures in the Supplemental Groundwater Investigation Technical Memorandum will be updated to more clearly identify the areas of NCGWQS/MCL exceedances (see attached example). A note will be added to the legend of the final figure that says "Detections of BTEX/CVOCs below NCGWQS are shown to further refine the conceptual site model."**

4. The plume as shown at recovery well RW-07 on Figure 16 doesn't define the down-gradient extent of the CVOC plume as stated in the second tick mark of bullet two on page 18. Please clarify or make appropriate changes.

**As stated in the text, "...the downgradient extent of CVOC concentrations exceeding NCGWQS/MCLs is defined, as indicated by the absence of CVOCs at concentrations exceeding NCGWQS/MCLs ..." Recovery well IR78-RW07 contains cis-1,2-DCE at a concentration of 1.2 µg/L, below the NCGWQS/MCL; therefore, the plume is considered delineated. All of the plume figures in the Supplemental Groundwater Investigation Technical Memorandum will be updated to more clearly identify the areas of NCGWQS/MCL exceedances (see attached example). A note will be added to the legend of the final figure that says "Detections of BTEX/CVOCs below NCGWQS are shown to further refine the conceptual site model." Further, Figure 16 will be revised so that recovery well IR78-RW07 is shown within the 0-10 µg/L range instead of the 10 – 100 µg/L range.**

5. Monitoring well GW110 MCH and GW111 MCH are not shown on Figures 15 and 16 as stated in the fifth bullet on page 19. Please make appropriate corrections in text or figures.

**Figures 15 and 16 will be updated to show monitoring wells IR78-GW110MCH and IR78-GW111MCH.**

6. The NC Superfund Section concurs with the conclusions and recommendations but would like to review the down-gradient monitoring well data at the February Partnering meeting.

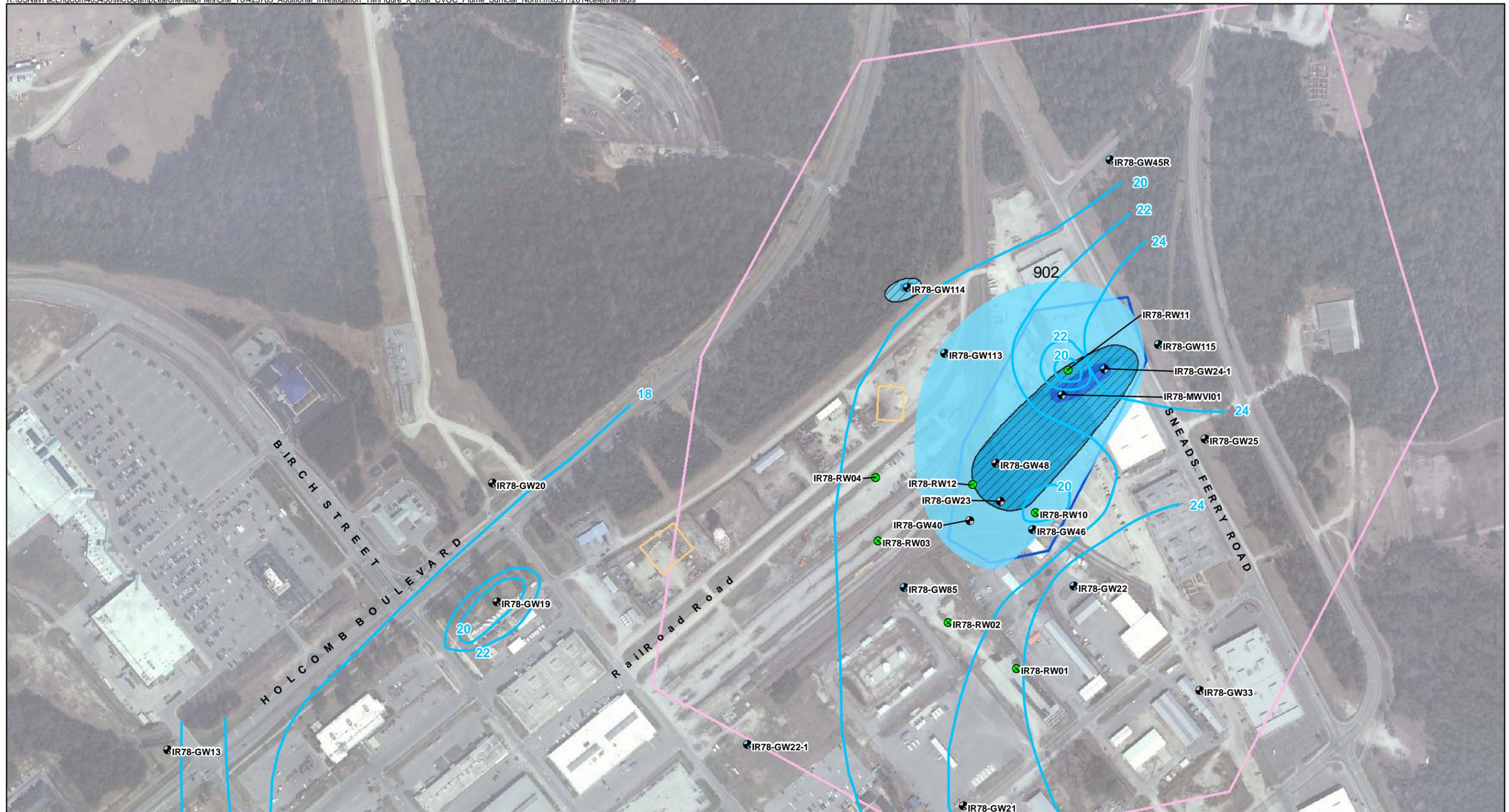
**Comment noted. This information was reviewed at the Partnering Team Meeting on February 26, 2014.**

## **USEPA Comment**

**(during Partnering Team Meeting on February 26, 2014)**

1. Recommended more clearly presenting the exceedances vs. detections on the groundwater plume maps.

**All of the plume figures in the Supplemental Groundwater Investigation Technical Memorandum will be updated to more clearly identify the areas of NCGWQS/MCL exceedances (see attached example). A note will be added to the legend of the final figure that says “Detections of BTEX/CVOCs below NCGWQS are shown to further refine the conceptual site model.”**



**Legend**  
**Monitoring Wells**  
 ● Surficial  
 ● Surficial - not in LTM  
 ● Recovery Wells  
 → Estimated direction of groundwater flow  
 - - - Potentiometric surface contour (dashed where inferred)

**Land Use Control Boundaries**  
 □ Aquifer Use Control Boundary  
 □ Non-Industrial Use Control Boundary  
 □ Intrusive Activities Control Boundary (Groundwater)

**Total CVOC Concentration Plumes**  
 0-10 µg/L  
 10-100 µg/L  
 100-1,000 µg/L  
 Exceeds NCGWQS

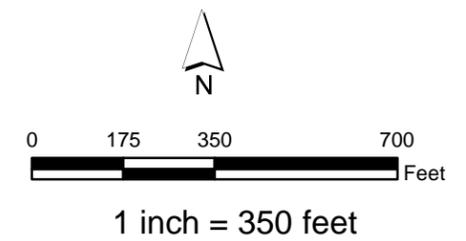


Figure X  
 Total CVOC Plume Map - North  
 Surficial Aquifer  
 Site 78 Technical Memorandum  
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