DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 49TH WING (ACC)
HOLLOMAN AIR FORCE BASE NEW MEXICO

13 October 2016

ADAM M. KUSMAK, GS-13, USAF
Chief, Installation Management Flight (49 CES/CEI)
49th Civil Engineer Squadron (49 CES)
Holloman Air Force Base, NM

New Mexico Environment Department
Attn: Mr. John Kieling, Chief
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6063

Re: **Holloman AFB Response to: DISAPPROVAL**
Final Interim Measures Report, Group 1 Former Septic System: TU904 (Building 1194),
Holloman Air Force Base, New Mexico, July 2016
Holloman AFB, EPA ID# NM6572124422
HWB-HAFB-16-017

Dear Mr. Kieling,

Attached are responses to the four comments provided by the New Mexico Environment Department (NMED) in their 9 September 2016 Disapproval letter to Holloman AFB Environmental for the above referenced Interim Measures (IM) Report regarding Site TU904 at Holloman Air Force Base (AFB).

The Disapproval letter requests submittal of a Monitoring Plan to NMED by 28 October 2016 to conduct two years of semi-annual groundwater monitoring (two events per year for two years) at Site TU904. The Permittee intends to submit this Monitoring Plan; however, since the matter of 1,4-Dioxane as an Emerging Issue has yet to be resolved, Holloman AFB formally requests a 90-day extension to allow for our contractor's preparation of the Monitoring Plan.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions regarding this submittal, please contact me at (575) 572-6675 or by email at adam.kusmak@us.af.mil.

Sincerely,

Digitally signed by KUSMAK.ADAM.M.1263331806
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USAF, cn=KUSMAK.ADAM.M.1263331806
Date: 2016.10.20 12:32:31 -06'00'

ADAM M. KUSMAK, GS-13, USAF

Attachment(s): *Responses to Comments*. Hard copy.

cc: Mr. Dave Strasser, NMED HWB (w/Atch)
Mr. Cornelius Amindyas, NMED HWB (w/Atch)
Mr. Chuck Hendrickson, USEPA (w/Atch)
Mr. David Griffin, HAFB (w/Atch)
Mr. Charles Schick, HAFB (w/Atch)
Mr. Brian Renaghan, AFCEC (w/Atch)
Mr. Wayne Bittner, Kirtland AFB (w/Atch)

Common Comment and Response Worksheet (Version 3)

Date		Reviewer					Final Interim Measures Report, Group 1 Former Septic System: TU904 (Building 1194)	Contract/TO Number
28-Sep-16		Strasser (NMED)						
Item	**Source**	**Section**	**Page**	**Para**	**Line**	**Class**	**Comment (Disapproval Letter - 9/9/2016)**	**Response (10/13/2016)**
1							The Report recommended that no further action be required for site TU904 and that it not be added to Table A of Appendix 4-A (sites requiring corrective action) of the Permittee's Hazardous Waste Facility Operating Permit (the Permit) as an Area of Concern (AOC). Due to the groundwater contamination existing at the site and the requirement for additional groundwater monitoring as discussed below, it will be included in the ongoing permit modification process by being added to Table A of Appendix 4-A of the Permit as an Area of Concern (AOC) requiring corrective action. It will be designated as AOC-1194.	It is understood that site TU904 will be incorporated into Table A of Appendix 4-A of the Permit as an AOC requiring corrective action due to existing groundwater contamination. The Permittee will continue working on the site under the Interim Measures (IM) Work Plan approved by NMED on 1 February 2016. An IM Work Plan Addendum will be developed to address the specific NMED comments contained in the 9 September 2016 Disapproval Letter.
2							A qualitative, as opposed to quantitative, risk assessment was performed to identify potential receptors and the pathways by which these receptors may be affected. The risk assessment determined that inhalation of volatile organic compounds (VOCs), specifically trichloroethylene (TCE) in groundwater via vapor intrusion to the indoor air of Building 1194, was the only complete exposure pathway for the current/future on-site worker. NMED agrees with this determination. Of concern, however, is the second paragraph of Section 5.2.3 on Page 5-2 of the Report which provides an inaccurate representation of NMED's July 2015 *Risk Assessment Guidance for Investigations and Remediation* (RAGIR) criteria for when a qualitative evaluation of the vapor intrusion pathway is appropriate. The criteria that more accurately describes the conditions of the site TU904 are shown in the first full paragraph on Page 52 of the RAGIR, as follows: *In addition, if volatile and toxic compounds were present at a site but the source(s) and associated contaminated soil have been removed and the following criteria have been met, only a qualitative assessment of the vapor intrusion pathway will be required:* · *Confirmation Sampling indicates removal of the source with minimal volatile and toxic compounds detected in soil/soil gas or groundwater data,* · *Concentrations are below screening levels (i.e., VISLs for soil-gas and/or groundwater; Table A-3)* · *No evidence to suggest dense/sinking vapors, and* · *Concentrations decrease with depth.* The conditions of the first, third and fourth bulleted criteria have been met. Regarding the second bullet, the qualitative assessment of the vapor intrusion pathway found that the industrial/occupational Vapor Intrusion Screening Level (VISL) for TCE in groundwater (24.3 micrograms per liter [µg/L]) was not exceeded in any of the 20 groundwater samples collected in 2015. The highest TCE result was 16.1 µg/L. However, the residential VISL for TCE in groundwater (5.16 µg/L) was exceeded in four of the samples, ranging from 6.86 µg/L to 16.1 µg/L. Therefore, the results meet the qualitative assessment screening level criteria for industrial/occupational groundwater VISLs for TCE but do not meet the TCE screening level criteria for residential groundwater VISLs.	A quantitative risk assessment will be completed in accordance with the RAGIR in order to evaluate TCE vapor intrusion to potential future residential risk receptors. Additional investigation methods (e.g., soil gas sampling) to complete the risk evaluation that are not described in the IM Work Plan will be addressed in the IM Addendum, if necessary. The results from the quantitative risk assessment will be used to evaluate potential vapor intrusion risks to support a proposal for CAC *without* Controls. The quantitative risk assessment will be included in the report that provides the requested VOC, 1,4-Dioxane, and TDS data discussed in Response 4.
3							As per Comment #1 above, this site is being added to Table A of Appendix 4-A of the Permit. Since the results of the qualitative assessment for vapor intrusion do not meet the TCE screening level criteria for residential groundwater VISLs, this site only qualifies for a qualitative assessment in the Permittee intends to accept a future determination of No Further Action/Corrective Action Complete With Controls to prevent the potential for future and residential use. This would move the site from Table A to Table C of the Permit (sites with corrective action complete with controls). If the Permittee intends to move this site to Table B of the Permit (sites with corrective action complete without controls) after the completion of the monitoring required in Comment #4 below, a quantitative risk assessment may be performed to better determine the residential risk associated with vapor intrusion pathway. In contrast, the results of the bi-annual monitoring may show that the concentration of TCE has decreased sufficiently to conduct another qualitative assessment.	At this time, the Permittee intends to move this site to Table B of the Permit (Corrective Action Complete *without* Controls), following completion of the quantitative risk assessment to better understand the vapor intrusion pathway. Please also refer to the responses to Comment #2 above and #4 below.

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4							The U.S. Air Force, under its Emerging Issues Program, has acknowledged that there is a known co-occurrence of 1,4-dioxane with TCE in chlorinated solvent-related groundwater contamination plumes. TCE is the major contributor to the groundwater contamination at site TU904 and there is no historical evidence of analyzing for the presence of 1,4-dioxane. Therefore, the Permittee shall submit a groundwater Monitoring Plan that includes analyses of I,4-dioxane using EPA Method 8270 C SIM, VOCs using EPA Method 8260B, and total dissolved solids. This Monitoring Plan shall include four bi-annual sampling events (two per year for two years) from the following 17 permanent monitoring wells at the site: TU-904-MW-01, MW02, MW03, MW04, MW06, MW07, MW08, MW10, MW11, MW13, MW14. MW15, MW16, MW17, MW18, MW20 and MW21. The following 4 outlying, upgradient wells will not require sampling: TU904-MW05. MW09, MW12 and MW19. The reporting limit for 1,4-dioxane shall not exceed 1 µg/L. All 21 permanent wells shall be gauged for water level measurements at the time of sampling. At the first year of monitoring, NMED will determine if the frequency and locations of sampling and analysis need to be revised.	It is understood that 1,4-Dioxane has been incorporated into the USAF Emerging Issues Program; however, no regulatory value has been established for this compound, and 1,4-Dioxane does not present a vapor intrusion risk. As demonstrated in the IM Report, ingestion and direct exposure to groundwater are not viable exposure pathways at TU904 due to elevated TDS and depth to water. Since no MCL or NMWQCC value has been established, the tap water value provided for 1,4-Dioxane in the RAGIR is not applicable to groundwater with an incomplete exposure pathway, and there has been no VISL established for 1,4-Dioxane in the RAGIR (the Henry's Law constant is only 4.80×10^{-6}, below the threshold for volatility), the rationale for incorporating 1,4-Dioxane into the TU904 analyte list is unclear. 1,4-Dioxane has historically been used as a stabilizer for bulk quantities of chlorinated solvents such as 1,1,1-TCA and TCE, and is generally a very minor constituent in the solvent solution. The solvent composition varies depending on grade, producer and application; however, in general, stabilizers comprise less than 1% of TCE solutions and range from 0 to approximately 5% in 1,1,1-TCA (Mohr 2001). TCA has been evaluated at TU904 since 2012 and has not been detected at RLs of 1.0 and 0.5 µg/L in any site monitoring wells. TCE has been detected at a maximum value of 16.1 µg/L (TU904-MW13. November 2015). Given these low-levels of chlorinated solvents, it is unlikely that 1,4-Dioxane would be present in groundwater at TU904 in any significant concentration. However, URS and AFCEC will develop an Addendum to the existing TU904 IM Work Plan that will include analysis of 1,4-Dioxane via 8270C, VOCs via EPA Method 8260B, and Total Dissolved Solids at the monitoring wells specified in the Disapproval Letter. The laboratory in use under the current environmental restoration contract is unable to analyze for 1,4-Dioxane in groundwater by Method 8270C-SIM, or to concentrations below 18 µg/L using Method 8270C. The use of alternative methods with potentially lower reporting limits for 1,4-Dioxane is not within the current contract scope of work.

Column A: Comment Identifier Number
Column B: Source (Commenter/Authority)
Column C: Section Number of Comment
Column D: Page Number of Comment (first page associated with comment)
Column E: Paragraph number, on page, of Comment
Column F: Line Number (within Paragraph above) of Comment
Column G: Comment Classification
Column H: Comment
Column I: Response

Notes: Comments must be actionable ("add the following text:…", "delete…", "change text to:")
Place only one comment per row.
Classify comment as C, M, S, or A.

Comment Classifications

(C) Critical: Critical comments will result in a critical issue. Provide convincing support.
(M) Major: Major comments are significant concerns that may result in a major issue. This category may be used with a general statement of concern followed by a detailed comment on the specific entries in the document that, considered in total, constitute the concern.
(S) Substantive: An entry in the document that appears to be or is potentially unnecessary, misleading, incorrect, or confusing.
(A) Administrative: Administrative comments correct inconsistencies between different sections, typographical and grammatical errors.