



BILL RICHARDSON  
GOVERNOR

State of New Mexico  
**ENVIRONMENT DEPARTMENT**

Hazardous Waste Bureau  
2905 Rodeo Park Drive East, Building 1  
Santa Fe, New Mexico 87505-6303  
Telephone (505) 428-2500  
Fax (505) 428-2567  
www.nmenv.state.nm.us

FB 06 ENTERED



RON CURRY  
SECRETARY

**CERTIFIED MAIL  
RETURN RECEIPT REQUESTED**

May 15, 2006

Keith Landreth  
Director of Environment  
Department of the Army  
Headquarters, U.S. Army Garrison Command  
1773 Pleasonton Road  
Fort Bliss, Texas 79916-6812

**SUBJECT: NOTICE OF DEFICIENCY  
CLOSURE CERTIFICATION REPORT  
MCGREGOR RANGE OPEN, OPEN DETONATION (OD) UNIT  
EPA ID NO. NM4213720101  
FB-05-006**

Dear Colonel Posner:

The New Mexico Environment Department (NMED) has completed its review of Fort Bliss's (FB) 2005 "Closure Certification Report, McGregor Range Open Detonation (OD) Unit." After review of this report, NMED has determined that the closure of the OD Unit is not completed and additional work is necessary to achieve clean closure.

**GENERAL COMMENTS**

1. The data presentation in the report does not allow for a clear understanding of the analytical results. A summary table with appropriate data statistics, including the minimum, maximum, mean, and 95 percent upper confidence limit of the mean (95% UCL) should be provided. Please provide a data summary table (for all constituents) that includes this information.
2. The maximum detected concentration for arsenic (20.3 mg/kg) is above both the residential NMED SSL and the background 95% UCL. The 95% UCL for arsenic was calculated to be

4.83 mg/kg (presented in Table 2-5). Because some areas contained elevated arsenic concentrations, targeted soil removal was conducted. Upon completion of this soil removal activity, 95% UCL for arsenic was calculated (3.66 mg/kg), which still exceeds the background value (3.38 mg/kg). As stated in Permit Attachment F (Closure Plan) the cleanup level for arsenic is the background level of arsenic, not the Residential NMSSL. Although stated in Appendix F that background levels should be used rather than residential, arsenic levels have been detected above the background level but less than the Residential NMSSL. Therefore, NMED recommends that FB submit a permit modification request stating that the cleanup level for arsenic be the Residential NMSSL rather than the background level.

3. In Section 5, page 5-1, the last paragraph states “the presence of arsenic may represent natural conditions since the soils excavated from the OD Unit were placed around the perimeter.” Fort Bliss must clarify whether the excavated soils were placed there during the initial construction of the OD unit or if the excavated soils are from an excavation that occurred during remediation or other activities.

Since some sample locations outside of the OD perimeter contain arsenic concentrations above both NMSSL and background levels, Fort Bliss must remove all previously transported soils located outside of the OD perimeter where arsenic was detected at concentrations greater than the Residential NMSSL. The soil must be disposed of appropriately. In Appendix F of the approved Closure Plan, page 1 of 17, NMED requires that contaminated soil removed during remediation activities be transported to a permitted facility for disposal.

4. Results from verification sampling (page 4-2) demonstrate that three of the fifteen soil samples collected and analyzed contain arsenic levels greater than the NMED SSL (3.9 mg/kg). Fort Bliss must remove all soils containing elevated arsenic levels. The excavated soil must be disposed as required in Closure Plan Appendix F.

### **SPECIFIC COMMENTS**

1. **Section 2.6.1, Evaluation Methods, page 2-6.** The last paragraph in this section indicates that site characterization results were compared to the SSLs to evaluate significance and overall human health risk. However, the text does not discuss how the site data were compared to the SSLs (e.g., the maximum detected site concentration used or the 95% UCL). For a screening assessment, the maximum site concentration is compared to the SSL. In the event that the screening results pose an unacceptable risk, then additional analysis may be warranted. Clarify how it was determined whether site data meet the release criteria (SSLs). In addition, provide a table that clearly shows what site data were used to compare to the SSLs and include the corresponding risk/hazard levels.

2. **Section 2.6.3, Background Calculations, page 2-7.** Background soil samples were analyzed for explosive compounds as well as eight RCRA metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). It is not clear why the background samples were analyzed for these eight specific RCRA metals. Permit Attachment F, Closure Plan, page 10 of 17, indicates that background soil samples will only be analyzed for explosives and arsenic; therefore, the analysis for metals other than arsenic was not required. If additional analyses were conducted, it is not clear why only these metals were included in the analysis and not all metals that were being analyzed for in the detonation unit. Please state the rationale for the additional analyses of background metals other than arsenic.
  
3. **Table 2-3, Summary of Dioxin/Furan Detections.** The Environmental Protection Agency (EPA) toxicity equivalency factors (TEFs) from EPA 1989 were applied. First, this reference was not provided in the reference list in Section 6. Please revise the reference list for completeness. Second, the TEFs for dioxin/furans have subsequently been updated as summarized in the World Health Organization's (WHO) "Toxicity Equivalency Factors (TEFs) for Dioxin-like Compounds for Humans and Wildlife" (June 1997, [http://www.dioxinfacts.org/dioxin\\_health/dioxin\\_tissues/dioxin\\_toxicity.html](http://www.dioxinfacts.org/dioxin_health/dioxin_tissues/dioxin_toxicity.html)). These 1997 values were used in reviewing the TEFs presented in the table. The following discrepancies were noted:

<b><u>Dioxin/Furan Isomer</u></b>	<b><u>1989 EPA TEF</u></b>	<b><u>1997 WHO TEF</u></b>
1,2,3,7,8-PeCDD	0.5	1
1,2,3,4,6,7,8,9-OCDD	0.001	0.0001
1,2,3,4,6,7,8,9-OCDF	0.001	0.0001

In reviewing the driving isomers for the data, it appears that in most cases, 1,2,3,4,6,7,8,9-OCDD and 1,2,3,4,6,7,8,9-OCDF contributed the most to the total toxicity equivalency (TEQ) that was compared to EPA Region 6 SSL. As such, the TEFs applied, which are more conservative than the WHO TEFs for these two isomers. This results in a more conservative estimation of TEQ. Therefore, while the most recent TEFs were not applied, the use of the 1989 TEFs does not appear to greatly impact the assessment for closure. No modifications to the tables are required concerning the TEFs.

However, a second comment concerning Table 2-3 is that the EPA Region 6 screening level for dioxin (2,3,7,8-TCDD) was used. It should be noted that the Region 6 screening level for dioxin as presented in Table 2-3 of the report is based upon a risk level of 1E-06. As New Mexico enforces a target risk level of 1E-05 for clean closure (resulting SSL is 39 pg/g), the analysis of dioxins as presented in the report is conservative. When the above modifications to the TEFs and the SSL for 2,3,7,8-TCDD based on a 1E-05 risk are applied, all of the site dioxin/furan data are below acceptable limits for clean closure. No modifications to the

report concerning this issue are required.

Finally concerning Table 2-3, NMED Residential Soil Screening Levels for TCDD should be presented in milligrams per kilogram (mg/kg) or parts per million (ppm). No modifications to this report are required at this time.

4. **Table 2-5, 95% UCL for Arsenic.** It is noted that when a duplicate is available, both the sample and the duplicate sample were used in determining the UCL. Typically, either the maximum concentration or the average of the two samples is used to represent the sample location, but both samples are not applied. Please clarify whether including both the sample and the duplicate represents and over- or under-estimation of the UCL.
5. **Appendix E, 95% UCL Calculation for Mercury.** The table for the calculation of the 95% UCL indicates that a normal distribution was assumed and that the Students T-test was applied. However, when ProUCL (version 3.00.02) was applied to the data in the table, the model indicated that the data were not normally distributed (using both the Shapiro-Wilk test and the Liliefors test, 0.05 confidence). ProUCL indicated that the dataset was actually lognormal distributed and that a lognormal test should be used in determining the 95% UCL. When using the lognormal test, the 95% UCL was calculated as 0.0127 mg/kg. It is noted that the difference between the normal and lognormal 95% UCL is not significant and therefore has no impact on the comparison of site data to the background concentrations. However, the correct distribution should be applied. Please modify accordingly.
6. **Appendix E, 95% UCL Calculation for Selenium.** The table for the calculation of the 95% UCL indicates that a normal distribution was applied for selenium. However, when ProUCL was run, the results of the distribution analysis indicated that the data are non-parametrically distributed. However, when the 95% UCL was calculated, the model indicated that there were insufficient unique observations to derive an accurate bootstrap estimate and that it recommended that either the Students T- test or modified T-test should be applied. The result of the 95% UCL using the modified T-test was 0.5077 mg/kg. As there is not a significant difference between the Students T-test and modified T-test results, and the Students T-test was applied, no modifications to the methodology must be provided. Fort Bliss should discuss the above, as it is misleading to indicate that the data were normally distributed. Fort Bliss must also discuss the distribution of the data set for selenium and why the 95% UCL was estimated using a normal distribution.
7. **Appendix E, 95% UCL Calculation for Silver.** The table for the calculation of the 95% UCL indicates that a normal distribution was applied for silver. However, all of the data points in the data set are identical, and therefore there is no variation in the dataset. Therefore, the 95% UCL is meaningless. It is unclear how the Students T-test was applied to

Keith Landreth  
May 15, 2006  
Page 5

a dataset with no variation. When ProUCL was run using this data set, the model indicated that there was insufficient variation. Please clarify how the 95% UCL was determined, and more importantly, why a 95% UCL was identified.

Within 90 days of receipt of this letter Fort Bliss must submit a work plan describing supplemental closure excavation and confirmation sampling activities. The work plan must also include a response letter that addresses the remainder of the comments in this letter cross-referencing NMED's numbered comments with the appropriate parts of the Closure Certification Report.

If you have any questions concerning this letter, please contact Tammy Diaz of my staff at 505-428-2552.

Sincerely,



James P. Bearzi  
Chief  
Hazardous Waste Bureau

JPB:td

cc: J. Kieling, NMED HWB  
D. Cobrain, NMED HWB  
T. Diaz, NMED HWB  
C. Frischkorn, NMED HWB  
L. King, EPA Region 6 (6 PD-N)  
R. Baca, Fort Bliss DoD  
P. Mckernan, Fort Bliss DoD  
File: Reading & FB 2006