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RON CURRY  
Secretary

SARAH COTTRELL  
Deputy Secretary

**CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

August 27, 2010

Mark Patterson  
Ravenna Army Ammunition Plant  
Building 1037  
8451 State Route 5  
Ravenna, OH 44266

Steve Smith  
CESWF-PER-DD  
819 Taylor Street, Room 3A12  
PO Box 17300  
Fort Worth, TX 76102-0300

**RE: NOTICE OF DISAPPROVAL  
SOIL BACKGROUND STUDY AND  
DATA EVALUATION REPORT  
FORT WINGATE DEPOT ACTIVITY, NEW MEXICO  
EPA ID# NM6213820974  
FWDA-10-004**



Dear Messrs. Patterson and Smith:

The New Mexico Environment Department (NMED) received the Department of the Army's (the Permittee) *Soil Background Study and Data Evaluation Report*, (Report) dated March 2010 submitted pursuant to Section VII.L of the Fort Wingate Hazardous Waste Facility Permit. Based on the information presented in the Report, NMED hereby issues this Notice of Disapproval (NOD). The Permittee must address the following comments:

**COMMENT 1**

Based on the data presented in Table 7-1 (Relative Percent Difference for Field Duplicate Sample Results), it appears that there is a large degree of variability between samples and duplicates, with relative percent differences ranging upwards of 134%. By definition, representative background is assumed to be based on homogenous soil and soils collected from non-impacted site activities. Due to the high degree of variability seen between the sample and the duplicates,

it appears that some sampling procedures and sample preparations may have a large impact on the sample results. The Permittee must ensure that sample collection, sample preparations (e.g., screening samples using same size sieve), and analytical procedures are consistent with the methods applied in this background study for all future activities. No revisions to the Report are necessary.

### COMMENT 2

As shown in Table 8-1 (Background Screening Values Compared with Evaluation Criteria) the Permittee applied the EPA Region 6 data, carcinogenic screening levels of  $1.0E-06$  when developing the EPA Region 6 Human Health Medium Specific Soil Screening Levels (HHMSSLs) rather than applying NMEDs target risk level of  $1.0E-05$  for the soil screening levels (SSLs). The HHMSSLs must be modified to reflect the NMED target risk level of  $1.0E-05$ . Although the overall impact on the assessment of the background data is not impacted by modifying the Region 6 HHMSSLs to reflect the appropriate risk level, the Permittee must revise the Report to incorporate this modification. The Permittee must also ensure that all regulatory data applied are based upon the appropriate NMED risk and/or hazard levels.

### COMMENT 3

The Permittee "pooled" background data to represent the entire background population; based on this data for the shallow surface soil (0 to 2 feet) as well as for the Ponderosa woodland Eco Zone, there appears to be elevated levels of arsenic, cobalt, silver, and thallium when compared to the other soil subgroups and Eco Zones. In addition, cadmium concentrations appear to be skewed higher for the Ponderosa woodland zone compared to the other Eco Zones. The Permittee must clarify in the revised Report if any of the data from either the shallow surface soil or Ponderosa woodland zone were identified as outliers when all data were combined.

While there are some differences in the range of concentrations for some metals, especially for shallow surface soil and for the Ponderosa woodland Eco Zone, the culling of all data appears to be acceptable. However, a tiered approach may be warranted in the event that site data, and specifically arsenic, cobalt, silver, thallium, and/or cadmium in either shallow soil or the Ponderosa Eco Zone, exceeds background. Some suggestions include:

- Compare the maximum site concentration to the background reference value. If site maximum exceeds background, statistically compare the two data sets.
- If the results of the statistical comparison of site data to background indicate the site data to be above background, evaluate the data against the specific data for its Eco Zone and/or soil subgroup.
- If the site data are statistically different from specific background, retain the metal as a constituent of potential concern.

The Permittee must reevaluate the data and, if warranted, apply the tiered approach using the suggestions listed above. The appropriate changes must be included in the revised Report.

#### **COMMENT 4**

In Appendix D (Complete Soil Analytical Results), Table D-1 (Complete Soil Results), the Permittee includes a footnote that references groundwater standards provided in Appendix B. This appears to be a relic from another document and is not consistent with the document. The Permittee must correct Table D-1 to include the correct reference to the standard criteria used in the analysis. This change must be included in the revised Report.

#### **COMMENT 5**

The Permittee must note that for all risk evaluations, the most recent NMED SSLs (currently December 2009) must be applied. In the event that there is no NMED SSLs available, the most current Regional Screening Level (RSL) must be applied. If a carcinogenic RSL is applied, the Permittee must ensure that the datum is modified to reflect the appropriate target cancer level. No changes to the Report are necessary.

#### **COMMENT 6**

In Section 5.3 (Handling of Outliers), the Permittee states, "[f]or each element, the concentration data is rank-ordered and the maximum value is flagged if it is greater than five times the second-highest value (EPA, 1989). Samples flagged as outliers are further examined to determine whether there is an error in the recorded concentration. Statistical outliers will be eliminated from consideration only if there are additional reasons to suspect either errors in the data or site-related contamination in the sample. Results of the outlier testing are provided in Section 6.1." Based on the information provided in Section 6.1 (Results of Outlier Testing), it does not appear that any statistical evaluation of outliers was conducted given that none of the data were more than five times the second highest value. This methodology is outdated and must not be relied upon when evaluating data sets for outliers. Graphical analyses, including box plots provide a visual representation of the data and determine the presence of outliers or other anomalous data that might affect statistical results and interpretations. Based upon the histograms provided in Appendix B, it appears that there may potentially be outliers for arsenic, cadmium, and cobalt.

Datasets often contain outliers, so the fact that the Report's evaluation found no outliers lends more suspicion on the utility of the method used. Therefore, the Permittee must use more current guidance and conduct statistical testing of datasets to determine if there are any outliers (EPA 540-R-01-003, Background Comparison Guidance, September 2002; EPA QC/G-9, July 2000; ProUCL ver. 4.00.04 Technical Guide, July 2009, Section 4.2.1).

The Permittee must revise the Report to apply the changes listed above as well as update the methodology in Section 5.3 to reflect current methods for testing datasets for outliers. The Permittee must also revise the evaluation of the data using current guidance to ensure that no outliers were retained.

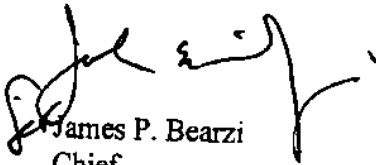
**COMMENT 7**

Table 8-1 (Background Screening Values Compared with Evaluation Criteria), the "Evaluation Criteria" for arsenic is listed as 0.39 mg/kg. This value is incorrect, the Permittee must revise the Report to include and apply the correct value for arsenic which is 3.90 mg/kg.

The Permittee must address all comments contained in this letter and submit a revised Report. The cover page must indicate that the submittal is a revision and was prepared for NMED. The revised Report must be accompanied with a response letter that details where all revisions have been made, cross-referencing NMED's numbered comments. The Permittee must also submit an electronic copy of the Revised Report with all edits and modifications shown in redline-strikeout format. The revised Report must be submitted to NMED no later than October 15, 2010.

If you have any questions regarding this letter, please contact Tammy Diaz-Martinez of at (505) 476-6056.

Sincerely,



James P. Bearzi  
Chief  
Hazardous Waste Bureau

cc: Tammy Diaz-Martinez, NMED HWB  
Dave Cobrain, NMED HWB  
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Laurie King, U.S EPA Region 6  
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Clayton Scoutewa, Southwest Region BIA  
Rose Duwyenie, Navajo BIA  
Judith Wilson, BIA  
Eldine Stevens, BIA  
Ben Burshia, BIA

File: FWDA 2010 and Reading  
FWDA-10-004