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**CERTIFIED MAIL – RETURN RECEIPT REQUESTED**

August 24, 2015

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Steve Smith  
USACE FWDA Program Manager  
CESWF-PEC-EF  
819 Taylor Street, Room 3A12  
Fort Worth, TX 76102

**RE: DISAPPROVAL  
FINAL RCRA FACILITY INVESTIGATION WORK PLAN  
PARCEL 2  
FORT WINGATE DEPOT ACTIVITY  
MCKINLEY COUNTY, NEW MEXICO  
EPA ID# NM6213820974  
HWB-FWDA-15-009**

Dear Messrs. Patterson and Smith:

The New Mexico Environment Department (NMED) has reviewed the *Final RCRA Facility Investigation Work Plan, Parcel 2*, (Plan) dated February 20, 2015 for Fort Wingate Depot Activity (Permittee). NMED hereby issues this Disapproval; the Permittee must address the following comments.

**Comments:**

1. **General Comment** – The Plan does not address how site risk will be conducted. For example, the Permittee does not discuss how discrete and incremental data will be used for comparison and to assess overall risk at each site. Revise the Plan to address site risk and discuss cumulative risk calculation for each site. Additionally, the Plan does not address ecological risk. Based on the description of the surface conditions, sufficient vegetation is present to sustain at least some ecological receptors. Revise the Plan to address ecological risk.

**2. Permittee Statement – Section 3.0, Figure 3-3, Geologic Map, Parcel 2 RFI Work Plan. Geology Legend.**

**NMED Comment:**

Revise the geology legend to list formations from youngest to oldest rather than alphabetically.

**3. Permittee Statement – Section 4.1.2 Sampling Data, page 4-1, lines 36-38. “If it is determined that an arsenic concentration is above the background value, the NMED Residential SSL of 4.25 mg/kg (cancer endpoint) is used for assessment of potential risk.”**

**NMED Comment:**

In this case, the incremental risk above background must be calculated. The background risk is based on the site-specific level of 5.6 mg/kg. This value must be compared to the calculated total risk for arsenic in an uncertainty discussion. The incremental risk due to arsenic is the difference between total risk and background risk. Revise the Plan to propose this approach and explain how the comparison of arsenic concentrations to the range of arsenic background levels will be performed.

**4. Permittee Statement – Section 4.1.2 Sampling Data, lines 8-10, page 4-2. “For metals, results were initially compared to background levels based on the *Soil Background Study and Data Evaluation Report, Version 2* (Shaw, 2010), with the exception of arsenic (discussed above).”**

**NMED Comment:**

Incremental (IM) sampling is proposed for delineating the nature and extent of explosives and metals in Areas of Concern (AOCs) 35, 36, 76 and 77 in Parcel 2. The data collected as part of the background study is from grab samples which are discrete data. Discrete sample results provide a measure of the distribution of concentrations in a relatively small volume of soil in a specified area, whereas IM samples provide a measure of the distribution of mean concentrations, each of which is an estimate of the population mean for the entire decision unit. Due to the differences in attributes, a comparison of IM results to discrete background data must not be conducted. Comparison of an IM estimate of the mean to a discrete sample is likely to lead to decision errors (refer to Chapter 4 ITRC Incremental Sampling Methodology: <http://www.itrcweb.org/>). If IM data is used to determine risk, then background IM data must be collected for comparison to the site IM data. If the Permittee does not wish to conduct a background IM study, then the Permittee must propose to collect discrete samples for comparison or retain all detected metals from IM sampling as contaminants of potential concern.

**5. Permittee Statement – Section 4.3 Data Quality Objectives, lines 24-27, page 4-2 and Section X.1.3, Contaminants of Potential Concern. “The process used for development of the data quality objectives (DQO) for additional characterization and/or remediation activities in Parcel 2, as well as quality assurance and quality control (QA/QC) procedures associated with the field activities described in this document are presented in the Quality Assurance Project Plan (QAPP) (Appendix D).”**

**NMED Comment:**

NMED does not review Site-Specific Quality Assurance Project Plans (QAPP). In future submittals, relevant information contained in the QAPP must be included in the appropriate sections of Work Plans and Reports. In addition, Sections 5.1.3, 6.1.3, 8.13 and 9.13 include a table that lists the analytical method, holding times and other laboratory sample information. In future Plans this type of table must be at the end of a section (with other tables) or provided in a general table in an appendix and reference the table within the main text.

**5. Permittee Statement –Section 4.4.3 Incremental Soil Sampling, lines 25-30, page 4-3, and Figure 4-1.** “The incremental sampling methodology (ISM) will be used to collect soil samples to delineate the nature and extent of COPCs at some AOCs in Parcel 2. The decision unit (DU) will be divided into four sampling units (SU). Each ISM sample will consist of thirty subsamples for igloos or fifty subsamples for former building areas. Personnel will collect the subsamples from each SU using a decontaminated 7/8-inch-diameter slotted push probe. Personnel will establish subsample locations in a systematic manner when sampling at igloos and former building sites.”

“[f]igure 4-1 lists Scenarios “A” and “B”: A. Sample Locations if igloo apron does not drain over the road (to be determined in the field). B. Sample Locations if igloo apron drains over the road (to be determined in the field).”

**NMED Comment:**

Section 4.4.3 does not speak to the incremental sampling for the igloos as depicted in Figure 4-1. Revise Plan to discuss the sampling protocol proposed for the igloos using the incremental sampling. See Comment 10.

**6. Permittee Statement – Section 5.2.2 Sampling Data, lines 2-5, page 5-2.** “The *Final Remedial Investigation/Feasibility Study Report & RCRA Corrective Action Program Document* (ERM PMC, 1997) described the previous investigation activities conducted at the Western Rifle Range. During the RI, six surface soil samples were collected from the base of the hill directly behind the impact berm and analyzed for lead.”

**NMED Comment:**

NMED believes this to be an incorrect statement as the *Final Remedial Investigation/Feasibility Study (RI/FS) Report & RCRA Corrective Action Program Document* (ERM PMC, 1997) states the following “[f]ive surface soil samples were collected at the base of the hill directly behind the target area, and analyzed for lead.” Revise the text to state “behind the target area”. In addition, it does not appear that representative samples were collected from the impact berm or from the firing line. In a Phase II Plan the Permittee will need to propose characterizing the impact berm and firing line. The Phase II Plan will need to propose collecting discrete samples at the impact berm and firing line and analyze them for RCRA 8 metals by EPA 6020, explosives by EPA Method 8330B and semi-volatile organic compounds (SVOCs) by EPA Method 8270C. Samples will need to be collected at the base, center and at the top of the impact berm or the Permittee may follow guidance provided in *Characterization and Remediation of Soils at Closed*

*Small Arms Firing Ranges*, Interstate Technology and Regulatory Council, January 2003. This comment is also applicable to Section 9 of this Plan.

**7. Permittee Statement –Section 5.3.2 Electromagnetic Detector Survey, Lines 24-26, and 35-37 page 5-3.** “At the starting point of each transect, personnel will use the all-metal detector to screen an area measuring three feet by three feet. [...]. After the screening of each screen area is complete, personnel will move the screen area marker 20 feet to the west to screen the next area along the transect until the entire transect is screened.”

“Each Sample will be sieved through a Number 10 (200 micron) sieve. The number of lead bullets and fragments retained on the Number 10 sieve will be counted and recorded for each soil sample.”

**NMED Comment:**

The intention of this Plan is to define the nature and extent of contamination from the shooting range; therefore, revise the text to state that the impact berm and firing line 1) also will be investigated and 2) will be surveyed on each transect and to state the location of the starting point for the transect survey. This comment is applicable to Section 9.

**8. Permittee Statement – Section 6.2.2 Sampling Data, lines 26-30, page 6-2.** “Three wipe samples were collected from the interior of each of the five igloos to determine if explosives residues were present in the igloos. The first wipe sample was collected from the center of the left floor drainage trough, the second from the middle of the floor and the third from the center of the right floor drainage trough. The wipe samples were analyzed for explosives. Of the 24 wipe samples collected, explosives were detected in two igloos [...].”

**NMED Comment:**

The wipe sample analysis was reviewed by the Agency for Toxic Substance and Disease Registry (ATSDR), Health Consultation for FWDA. The review recommended additional sampling in the igloo interiors after concluding that the existing data appeared inadequate to characterize the extent of contamination. ATSDR issued a report on April 1, 2009 detailing their concerns regarding the inadequacy of the wipe sampling data, along with a suggested sampling approach to resolve the issue. NMED also clarified its position with regard to the igloo interiors in letters dated July 22, 2009 and October 1, 2010. This issue may be addressed with a proposal for an alternative approach (e.g., encapsulation of the igloo interiors) that may be applied facility wide. This comment is applicable to any section in this Plan that references this sampling event.

**9. Permittee Statement – Section 6.3.1 Discrete Soil Sampling of Igloo Drains, lines 21-25, page 6-4.** “Following sample collection, personnel will remove and plug the drain pipes from each of the igloos located within Parcel 2. Once analytical results are received, approximately ¼ cubic yard of soil will be removed from under each drain outlet where the soil contains explosives or RCRA 8 metals at concentrations above applicable screening levels [...].”

**NMED Comment:**

Discrete samples must be collected after the drains are removed to ensure any cuttings are captured prior to soil removal. This comment is applicable to any section in this Plan regarding the sampling a removal of drain pipes at igloos.

**10. Permittee Statement – Section 6.3.2 Incremental Surface Soil Sampling of Igloo Drainage Areas, lines 30-39, page 6-4.** “ISM DUs for the igloos will include the drainage areas from both drain outlets and from the paved aprons at each igloo. The drainage areas are in the unpaved areas on both sides of the paved igloo aprons (Figure 4-1). Personnel will collect thirty subsamples from the lowest areas or points in the drainage swales of each side of the igloo drain outlets and from the drainage directly across the paved road from the apron if indicated by field observation. If the access road acts as a drainage divide and no water from the apron runs over it, then the incremental sample will consist of 15 subsamples collected on each side of the apron beginning at the drain outlet and roughly equally spaced to the ditch at the road. If water runs across the road from the apron, then personnel will collect ten subsamples evenly spaced from each drain to the ditch at the road and subsamples across the road in a line between the ends of the igloo wing walls.”

**NMED Comment:**

The proposed scenarios may lead to insufficient data collection because the natural surface slope does not appear to be considered. If the igloos are located at a higher elevation relative to the road then surface water flow potentially carries contaminants down-gradient. Whether or not an apron is sloping must not be the only determining factor to sample across the road. Propose use scenario B for Igloo Blocks that have surface sloping in the direction of the road; utilize two decision units (DUs) to collect 15 subsamples from the left and 15 subsamples from the right sides of the apron/slab and 30 subsamples from directly across the road. Propose to collect a total of 2 multi-incremental (MI) samples for each igloo. In addition, correct the Legend in Figure 4-1 to state “discrete sample” rather than “composite”. Propose using scenario A for Igloo Blocks that are located on a flat surface.

The proposed sampling for the igloos consists of collection of subsamples from both sides of the apron as well as across the road in the ditch, if the analytical results show elevated levels, the location (side of apron or ditch) of contamination will not be apparent. In the event incremental sample data result in unacceptable risk, the Plan must include a step out approach for determining the specific area(s) of concern. Revise the Plan to include a step out approach for determining a specific area of concern or state that a step-out approach will be implemented in the event sample data results in unacceptable risk in a Phase II Work Plan. This comment is applicable to any section in this Plan that references this type of sampling protocol for igloos.

**11. NMED Comment– Section 7, Igloo Block J.** Since the magazines in Igloo Block J stored rockets and rocket motors, analysis for relevant [e.g., perchlorate] propellant constituents must be added to the sample analytical list.

**12. Permittee Statement – Section 8.0, Table 8-1 Propose Sampling and Analyses for AOC 76 (Former Building Site), page 8-3.** Table 8-1 lists two samples to be collected in sampling unit (SU) 4 sample identification (ID): 276-BSF194B-SS-I-SO two 0-6 inches below ground surface (inches-bgs) and one matrix spike/matrix spike duplicate at 6-12 inches-bgs.

**NMED Comment:**

Revise the table to propose collecting one sample at 0-6 inches-bgs; one sample at 6-12 inches-bgs; and another at 6-12 inches-bgs matrix spike/matrix spike duplicate. This comment applies to Section 9 Table 9-1 (Sampling Unit 4 sample ID: 277-Z426X254B-SS-ISO and 277-Z427X264B-SS-I-SO) as well.

**12. Permittee Statement – Section 10.2 Previous Investigations and Sampling Data Evaluation, First Bullet lines 6-7, page 10-2.** “No samples contained explosives, nitrate/nitrite, or total phosphorus at concentrations above background levels.”

**NMED Comment:**

There is no background concentration for explosives. Revise the text to remove references related to explosives compared to background.

**13. Permittee Statement – Section 10.2 Previous Investigations and Sampling Data Evaluation, lines 24-30, page 10-2.** “ERM PMC excavated two trenches at the smaller disposal area. The trenches were 26 feet and 35 feet long, and had maximum depths ranging from 5 feet to 9 feet bgs. The trenches penetrated the full thickness of the waste in both the horizontal and vertical planes. ERM PMC collected two samples of soil from within the waste and two samples of native soil beneath the waste and sent the samples to an analytical laboratory for analysis. Bedrock was encountered at 11 feet bgs. Groundwater was not encountered.”

**NMED Comment:**

Two trenches were excavated in the smaller disposal area and groundwater was not encountered at those trenches. However, the equipment utilized to dig the trenches is inappropriate for groundwater investigation. Groundwater at SWMU 22 must be evaluated to see if any impact from these landfills occurred. Propose to install two monitoring wells, one up-gradient and one down-gradient from SWMU 22 using an appropriate drilling method as described in the Permit such as hollow stem auger. If groundwater is detected it must be analyzed for RCRA 8 metals using EPA Method 6010C/6020 and Method 7471B; PCBs using EPA Method 8082; PAHs using EPA Method 8270 SIM; SVOCs using EPA Method 8270D; VOCs using EPA Method 8260C; pesticides using EPA Method 8081B; and diesel and oil range organics using modified EPA Method 8015

**14. Permittee Statement – Section 10.3.2 Fate and Transport, lines 16-18, page 10-5.** “Based on the review of historical analytical data, no COPCs are present at SWMU 22 at concentrations that present a cumulative cancer risk greater than the threshold value or produce a cumulative hazard quotient greater than one. Thus, there is no threat to human health through exposure to contaminated surface or near-surface soils.”

**NMED Comment:**  
See Comment 1.

**14. Permittee Statement – Section 10.2 Previous Investigations and Sampling Data Evaluation, lines 16-26, page 10-4.** “Because the site had been graded and exact locations and depths of the previously collected samples could not be determined, TEAD collected the additional samples at 25-foot intervals, with sampling depths alternative from one location to another at 1 foot, 3 feet, and 5 feet bgs. These sampling depths were selected because they would satisfy human health or ecological risk assessments if analytical results indicated that an evaluation of risk was necessary. Seven sample locations were selected. Samples identified as C001, C003, C005, and C007 were analyzed for TAL metals, target compound list (TCL) VOCs, TCL SVOCs, pesticides, PCBs, explosives, and herbicides. Samples identified as C002, C004, and C006 were only analyzed for arsenic, selenium, and thallium because the bottom excavation samples collected in 1999 had concentrations of these three metals at less than detection limits but greater than background levels.”

**NMED Comment:**

The comparison detailed above is not appropriate, as the samples collected in 1999 were from the bottom of the excavation (i.e., 9-11 ft-bgs). From the description, it appears that samples C001 through C007 were actually collected in newly graded material or materials potentially not impacted by SWMU 22 activities and are not representative of the bottom of the excavation. The Permittee must propose to advance soil borings every to depths twenty-five feet along the length of the final excavation and collect soil samples starting at the base of the excavation to twenty feet below the base of the disposal units at SWMU 22. Samples must be collected samples at five-ft intervals and analyzed for RCRA 8 metals using EPA Method 6010C/6020 and Method 7471B; PCBs using EPA Method 8082; SVOCs using EPA Method 8270D; VOCs using EPA Method 8260C; and pesticides using EPA Method 8081B.

**15. Permittee Statement - Section 11.1, Project Scheduling and Reporting Requirements, page 11-1.** “The projected schedule for conducting the RFI activities at Parcel 9 is located in the QAPP (Appendix D).

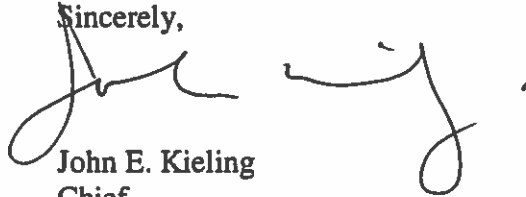
**NMED Comment:**

A project schedule must be included within the Plan. Revise the Plan to include a project schedule.

The Permittee must submit a revised Plan to address all comments contained in this Disapproval. In addition, the Permittee must include a response letter that details where each comment was addressed, cross-referencing NMED's numbered comments. The Permittee must also submit an electronic redline-strikeout version of the revised Plan. The revised Plan must be submitted on or before **December 30, 2015**.

If you have any questions regarding this letter, please contact Vicky Baca at (505) 476-6059.

Sincerely,



John E. Kieling  
Chief  
Hazardous Waste Bureau

cc: Dave Cobrain, NMED, HWB  
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File: FWDA 2015 and Reading  
FWDA-15-009