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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

August 4, 2009

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
BACKGROUND STUDY AND GEOCHEMICAL EVALUATION WORK PLAN
FORT WINGATE DEPOT ACTIVITY
EPA ID# NM6213820974
FWDA-09-002**

Dear Messrs. Patterson and Smith:

The New Mexico Environment Department (NMED) received the Department of the Army's (the Permittee) *Background Study and Geochemical Evaluation* dated, January, 2009 (Work Plan). NMED has reviewed the Work Plan and hereby issues this Notice of Disapproval (NOD). The Permittee must address the following comments.

COMMENT 1

In Section 3.0, the Permittee discusses the technical approach for the background screening process. The proposed approach includes evaluating existing geochemical data from previous sampling events. The Permittee states that "[s]ome of the analyzed samples are from background investigations and some are from focused site investigations." The Permittee also presents "steps 1-7" which explain how the data evaluation approach will be completed. During NMED's site visit on June 17, 2009, SHAW, Inc. provided NMED with a figure that included 900 data points, which were the result of the proposed data evaluation approach included in this Work Plan. The Permittee must revise the Work Plan to include the following:

1. The Permittee must exclude the data points located in Parcel 3 and throughout the OB/OD area. This Parcel has been highly impacted and is not an appropriate site for a background study.
2. The Permittee must provide NMED the 900 data points used for the evaluation. The data must include sampling depths and locations, the associated parcel or site where the sample was collected, the stratigraphic unit, soil type, sampling dates, sampling methods, analytical methods, and the laboratory reports.
3. The Permittee must provide a Figure that depicts all of the data mining points.

Upon review of the revised Work Plan, NMED will reevaluate the approach for the geochemical study and for the proposed additional supplemental sampling.

COMMENT 2

In Section 1.0, (Introduction) the Permittee includes a second objective to this sampling plan: "... site-specific DAFs [dilution attenuation factors] or other approved and appropriate models will be developed for "non-naturally" occurring organic compounds, such as 1,2-dichloroethane; toluene; total explosives (based on a list of 14 separate explosive compounds); perchlorate; and other non-naturally occurring organic constituents potentially released to the environment. The objective of developing DAF values for organic constituents is to determine potential impacts to groundwater through release at the surface and migration to groundwater. Hence, the overall objective of this project is to determine whether a release has occurred to the environment above natural background levels, and whether a release has the potential to impact groundwater." While it is understood that a site-specific dilution attenuation factor (DAF) is useful to either reverse calculate protective concentrations in soil, or estimate the concentration of a contaminant in groundwater, the application of the DAF for organics for this study is not clear. In Section 3.1 (Background Metal Concentrations), page 3-2, bullet 4, the Permittee states that samples exhibiting impacts from the presence of organic contaminants will be eliminated from the study. It is understood that no samples will be included as a potentially viable sample representative of background levels if any organic constituent was detected in the sample. This rationale would apply regardless of the sample medium. Therefore, whether the DAF is being used in a forward or reverse calculation, if organics have been detected, the sample(s) should automatically be excluded from the background set. The Permittee must therefore clarify the following:

- a. If an organic constituent is detected in soil, clarify whether the DAF will be used to assess whether contamination in soil could have impacted underlying groundwater. If the DAF does not indicate the potential for migration to groundwater, will the underlying groundwater be considered appropriate for background?
- b. The text indicates that the DAF will be used to assess whether there has been a release above background or natural levels. Given that most organics, especially explosives, toluene, and 1,2-dichloroethane as used in the example, are not natural, any detection would be considered related to site activities. It is not clear how the DAF could be used

to draw another conclusion. Please provide additional clarification as to how the DAFs will be applied.

The Permittee must revise the Work Plan to address the changes listed above.

COMMENT 3

In Section 3.1, (Background Metals Concentrations), page 3-1, the Permittee states, that “[t]he UCLs and UTLs shall be calculated using nonparametric bootstrap methods to maintain consistency and avoid bias (EPA, 1997).” The selection of the bootstrap method is based upon a comparison of various statistical methods against the previous Environmental Protection Agency (EPA) recommended Land Method using the H-statistic. The Land Method was also recommended in subsequent EPA documents including “Supplemental Guidance to RAGS: Calculating the Concentration Term” (EPA, 1992). However, EPA’s current guidance is that concentration limits [including upper confidence levels (UCLs) of the mean] should be calculated based on the specific distribution of the data. While the bootstrap method may be appropriate based upon the distribution of the background data set, selection of the bootstrap method is premature at this time. EPA states, “If a particular statistical procedure has been specified either in the DQO Process, the QA Project Plan, or the particular program or study, the analyst should use the results of the preliminary data review to determine if it is appropriate for the data collected.” (Data Quality Assessment: Statistical Methods for Practitioners EPA QA/G-9S, EPA/240/B-06/003, February 2006). The Permittee must revise the text to indicate that prior to determining either the UCL or the upper tolerance limit (UTL), a review of the data will be conducted to determine whether the bootstrap method is the most appropriate method for evaluating the data population. In addition, it is recommended that an EPA-approved program, such as ProUCL, be used to determine the distribution of the data and selection of the most appropriate method. The Permittee must refer to EPA guidance “Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites” (OSWER 9285.6-10, December 2002). The Permittee must make the appropriate changes to the revised Work Plan.

COMMENT 4

In Section 3.4 (Additional Sample Collection), page 3-5, the Permittee states that additional samples may be collected using multi-incremental (MI) sampling and much discussion on how the MI samples would be collected is presented in the Work Plan. The Permittee must understand, and take into consideration, that data collected via MI sampling may be difficult to incorporate into a statistical analysis that also uses data collected via more traditional technique (e.g., discrete samples). The Permittee must also provide a discussion of how data collected from MI samples will be combined with the existing database and how exposure point concentrations and other statistical descriptions for a mixed database (discrete plus MI) will be determined.

In this Section the Permittee also states that “[a] sampling and analysis plan will be prepared outlining the details of the methods to be employed for the supplemental sample collection.” The

Permittee must ensure that figures depicting the proposed sample locations and depths are included in this plan. Note that, this plan will be subject to NMED review and approval.

COMMENT 5

The Permittee must address the following comments related specifically to Table 3-1, (Advisory Evaluation Criteria Background Study and Geochemical Evaluation):

- a. The table lists Region 6 Medium Specific Screening Levels (MSSLs). Please note that the new Regional Screening Levels (RSLs) supersede the Region 6 MSSLs and should be used in place of the MSSLs. This correction should be made to this table and all associated appendices and attachments.
- b. A screening level of 0.39 mg/kg is listed for arsenic. Please note that this level is based upon a cancer risk level of 1E-06. New Mexico Environment Department (NMED) applies a target cancer risk level of 1E-05. The screening levels provided in the table must be revised to reflect the NMED target risk level (3.9 mg/kg).
- c. EPA has revised the toxicological source hierarchy, where NCEA data are no longer a preferred basis for toxicity data when assessing risk. As noted in the Regional Screening Level (RSL) tables, the toxicology data for cobalt has been updated to reflect Provisional Peer-Reviewed Toxicity Values (PPTRVs), resulting in a residential screening level of 23 mg/kg. This datum must be applied to the NMED screening datum, as the NMED soil screening levels (SSLs) have not yet been updated to reflect the new toxicological hierarchy preferred by EPA (the anticipated update to the NMED SSLs is September 2009).
 - a. The RSL for copper is 3100 mg/kg.
 - b. The RSL for manganese (1800 mg/kg) is based upon water ingestion. A screening level based upon the food pathway may be calculated if this is a more appropriate pathway for Ft. Wingate.
 - c. The RSL for thallium is 5.1 mg/kg.

The Permittee must revise the Work Plan to incorporate the above changes.

COMMENT 6

In Appendix B, (Field Sampling and Analysis Plan), Section 1.0, (Project Background), it is not clear why the report specifically indicates that data will be collected to support the determination of dilution attenuation factors (DAFs) only for organics. If soil samples are being evaluated to determine whether the data represent background levels, another line of evidence to examine is the comparison of the soil concentrations to DAFs to determine if there is an indication of whether the inorganics concentrations may potentially contribute to elevated levels of inorganics in underlying groundwater. While determining concentrations in soil and groundwater may be sufficient, it is not clear whether calculating site-specific DAFs for inorganics is useful since inorganic contamination is not likely at the areas being investigated. If this assumption is

inaccurate, and significant levels of elevated metals concentrations are detected in soil, how will the potential for naturally-occurring constituents (inorganics) to migrate to groundwater be evaluated? While site-specific groundwater data may be available, the potential that elevated levels of inorganics in soil could have contributed to groundwater contamination must be considered in assessing whether the potentially impacted groundwater sample locations are appropriate for establishing natural background levels. The Permittee must address this issue in the revised Work Plan.

COMMENT 7

Appendix C includes the Site and Safety Health Plan (SSHP). NMED does not review or approve SSHPs as part of the Work Plan submittal. The Permittee must exclude the SSHP from the revised Work Plan.

COMMENT 8

Appendix B includes a "Sample Analysis Plan" which provides information for supplemental soil and/or sediment sampling. This information must be included in the text of the Work Plan as an alternative to the "data mining approach" rather than in an Appendix. The Permittee must revise the Work Plan accordingly.

COMMENT 9

In Section 3.1.2 (Supplemental Soil and/or Sediment Sampling) in Appendix B, pages 3-1 & 3-2, the Permittee did not propose supplemental sampling locations nor was a figure provided that includes proposed supplemental sampling locations. NMED will provide the Permittee with input regarding proposed supplemental sampling locations under separate cover. Based on the results from the data mining approach and the information provided as referenced in Comment 1, the Permittee may be required to collect additional samples from locations throughout the Facility.

COMMENT 10

In Section 3.1.3 (Groundwater Sampling-Appendix B) page 3-2, the Permittee states that "[g]roundwater may be sampled from indicated monitoring wells at FWDA." Previous groundwater background studies have not been approved by NMED and may not provide representative data for use in calculating background. Based on the data, sample locations, and procedures, the Permittee may be required to collect additional groundwater samples.

In addition, the Permittee must include a Figure that depicts the proposed sampling well locations, and details for the proposed sampling. This information must be included either in the revised Work Plan or in the proposed "supplemental analysis plan" to be submitted as a separate document.

The Permittee must address all comments contained in this NOD and submit a revised Work Plan

no later than September 30, 2009. The cover page must indicate that the submittal is a revision and was prepared for NMED. The revised Work Plan 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 Work Plan with all edits and modifications shown in redline-strikeout format.

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

Sincerely,



James P. Bearzi
Chief
Hazardous Waste Bureau

cc: Tammy Diaz-Martinez, NMED HWB
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