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PETER MAGGIORE  
SECRETARY

TA55  
November 24, 1998

Mr. W. John Arthur, III  
Assistant Manager for Office  
of Environment / Project Management  
U.S. Department of Energy  
Albuquerque Operations Office  
P.O. Box 5400  
Albuquerque, NM 87502

Dear Mr. Arthur:

Thank you for hand delivering the report ( 11/16/98, 10:45 am ) prepared by LANL/DOE on the information resulting from the sampling and analysis of waste samples collected from waste stream TA-55-43 Lot No. 01. The sampling and analytical procedures were reported as having been done according to procedures in LANL/DOE Confirmatory Sampling Plan, Revision 2 ( SAP, Rev. 2 ) and the conditions stated in the New Mexico Environment Department's ( NMED's ) approval of the plan.

Prior to NMED's determination on the acceptability of the findings in the LANL/DOE report, entitled Sampling and Analysis Project Validates Acceptable Knowledge on TA-55-43, Lot No. 01, the following comments developed by my staff and contractor support on your cover letter and the report should be addressed by LANL/DOE.

1. Any additional sampling / analytical data providing additional or varying results should be submitted to NMED as soon as it is obtained by LANL/DOE.
2. NMED agrees that LANL/DOE had adequate knowledge of process through the actual heating process of the plutonium oxide material and the physical and/or chemical content of that material. NMED had no confidence in the knowledge of process or acceptable knowledge of the introduction of other RCRA regulated waste constituents added to the process residues, after the heating process, which were packaged for disposal purposes. This was in fact the basis for the confirmatory sampling requirement for the debris waste stream.



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3. Based on the report NMED understands that only nine drums and a total of seventy two samples were the basis for the report. None of the samples were obtained from the re-packaged materials and all information developed from the 9 drum/72 sample set was extrapolated to all TA-55-43 Lot No. 01 wastes to include all repackaged wastes.
4. The report states that the "analyses of randomly selected items from five major types of materials in the waste stream show that the entire waste stream does not contain hazardous metals at or above regulated concentrations." NMED takes the position that the sampling and analytical approach provides information which when applied statistically indicates that the probability, within certain parameters, that the wastes TA-55-43 Lot No. 01 do not contain metal concentrations which exceed the RCRA Toxicity Characteristic Leaching Process levels (TCLP). This is true specifically for cadmium, chromium and barium.
5. The LANL/DOE report states that "Due to repackaging some of the progeny drums of the repackaged 36 drums were no longer available for sampling and removed from the sample selection process." LANL/DOE should provide more specific information on this part of the process. NMED is of the opinion based on the report's information that none of the repackaged waste ( progeny ) was included in the sample selection process. Please clarify this issue.
6. The LANL/DOE report states , "Upon receipt of the drums ( samples) at the LANL CMR building, additional radiation monitoring was done on the 6Ms." Is this information available to NMED? Can you include it be referencing specific forms or documents? Please provide this information.
7. The report is titled Sampling and Analysis Project Validates Acceptable Knowledge on TA-55-43, Lot No. 01 in some parts of the submitted report and as Sampling and Analysis Project Validates Acceptable Knowledge on TA-55-43 Lot No. 1 in other parts. NMED suggests that the document be modified to be consistent. NMED will use the "Lot No. 01" assignation.
8. The Analytical Chemistry Results Section III. Consisting of paragraphs III.A. Analytical Procedures, III.B. Analytical Data-TCLP Analyses, III.C. Rust-colored Powder Qualitative Analysis, and III.D Quality Assurance/Quality control was reviewed for conformance to the requirements of the Confirmatory Sampling and Analysis Plan of Acceptable Knowledge for TA-55-43, Lot No. 01, Revision 2, submitted by the Department of Energy (DOE) on September 13, 1998 and approved by the New Mexico Environment Department (NMED) on September 24, 1998.
9. III.A. Analytical Procedures-The below listed analytical procedures meet the requirements of Environmental Protection Agency Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW 846 and NMED approved SAP, Rev, 2, 24 September 1998. NMED personnel observed test methods in process on Oct 2, 5, and 6, 1998.

- A. SOP ANC 101, "Cold Vapor Atomic Fluorescence Spectroscopy Using the PS Analytical CVAF HG Analyzer"
  - B. SOP ANC 134, "Toxicity Characteristic Leaching Procedure on Radiological Material."
  - C. SOP ANC 142, "Trace-Element Analysis Microwave-Assisted Sample Preparation."
  - D. SOP ANC 189, "Inductive Coupled Plasma-Atomic Emission Spectroscopy Using the Thermo Jarrel Ash IRIS Spectrometer."
10. IIIB. Analytical Data-TCLP Analyses. The requirements of SOP ANC 101, SOP ANC 134, SOP ANC 142, and SOP 189 were met and the results of the analyses showed no metals exceeding regulatory thresholds.
  11. Rust-colored Powdered Qualitative Analysis-NMED personnel concur with the finding that the material was common iron oxide (rust), based on the analytical data.
  12. Quality Assurance/Quality Control-NMED personnel found that the quality assurance/quality control methods are acceptable.
  13. The sampling report did not clearly indicate the analytical sample size. Examination of the analytical data package indicates that a 10 gram sample was used. However, there was no discussion about how the 10 gram sub-sample was obtained from the various composite samples. (This was observed and verified by NMED representatives onsite at LANL.) Documentation should be provided or referenced in the report to substantiate the 10 gram sub sample size.
  14. The "Los Alamos Confirmatory Sampling and Analysis Plan for Waste Stream TA-55-43, Lot No. 01, Revision 2" indicated that sample means should be determined using the instrument detection limit value as non-detected results. The instrument detection limit is the concentration at which instrument signal noise is discernable from the indication of the actual presence of an element. Los Alamos should recalculate the means using the instrument detection limit and resubmit the results to NMED.
  15. The sampling results document did not include a "worst case scenario" as requested by the NMED. In this evaluation, the concentration of the analyte closest to the regulatory threshold in any single matrix is conservatively assumed to constitute the entirety of the waste stream lot. For example, if the mercury concentration found in the rubber matrix was closest to the regulatory threshold, then the waste stream should have been evaluated assuming that the entire waste stream was composed of rubber. TechLaw performed a quick analysis of the worse case scenario, and found that (based upon the actual sampling results) cadmium results in HEPA filters would constitute the worst case scenario. The Upper Confidence Interval of Cadmium in the HEPA filters with 1 degree of freedom would be


1.55 ppm, which is above the regulatory threshold of 1 ppm. That is, if the TA-55-43, Lot No. 01 waste were entirely composed of HEPA filters and the upper confidence interval value were true, the TA-55-43, Lot No. 01 waste stream would be hazardous. However, HEPA filters constitute only 1% of the entire waste stream, and this percentage would be further lowered during repackaging due to addition of additional packaging material. It has been pointed out that the actual quantities of waste material within TA-55-43 could change upon repackaging. Realistically, however, the plastic matrix is the only matrix that would be expected to increase as a percentage of the total waste based upon the use of plastic as a packaging material. Examination of the plastics materials indicate that all the compounds are still below the regulatory thresholds. Matrix specific concentrations and standard deviations indicate that cadmium in HEPA filters is the only analyte/matrix combination that would exceed a regulatory threshold if the waste stream was composed entirely of a single matrix, but this waste constitutes such a small portion of the entire waste stream, the presence of cadmium in HEPA filters would not render the TA-55-43, Lot No. 01 waste hazardous. Please provide the scenarios as previously requested.

16. The sampling report did not indicate the severity or the bias direction of the qualification of chromium or silver results, as indicated through the data validation process. Severe negative bias could have an impact on the true means and subsequent upper confidence intervals. The validation results would likely indicate the extent of the bias. Please indicate your evaluation of the severity or the bias direction of the qualification of chromium and silver results.
17. Examination of the analytical data package SDG WIPP-B indicated an extremely low matrix spike recovery for silver in one of the sample data packages (0.0%). The associated data validation report indicated that silver was flagged "J" (estimated). EPA functional guidelines indicate that non-detected results associated with matrix spike results less than 30% should be rejected as unusable. Therefore it appears that the silver results are inconclusive because an inadequate number of usable data points were obtained. It is suggested that Los Alamos provide further explanation or justification for the use of the silver results in SDG WIPP-B.
18. Further items that warrant review at this time are:
  - Verify the accuracy of the data validation report. Based on the incorrect qualification identified in item 6 above, the adequacy of the validation process should be reviewed.
  - Ensure through review of the data package that analytical data were properly reduced and that correct sample and extract weight and volumes were used.

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Please provide your concurrence with NMED comments 2, 3, 4, 8, 9, 10, 11, and 12 and provide the information necessary to resolve all other comments as soon as possible to allow NMED to proceed to make a determination on the acceptability of LANL/DOE report Sampling and Analysis Project Validates Acceptable Knowledge on TA-55-43 Lot No. 01.

Sincerely,

  
Benito J. Garcia

cc: Peter Maggiore, Secretary, NMED  
Susan McMichael, WIPP Project Manager  
John Tymkowych, Manager, RCRA Inspection/Enforcement Program  
Ed Acosta, Environmental Specialist, RCRA I/E Program  
Inez Triay, LANL  
Connie Walker, TechLaw