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September 19, 1997

Michael J. Koerner, Colonel, USAF
Commander
100 S DL Ingram Blvd., Suite 100
Cannon Air Force Base, NM 88103-5714



Subject: Notice of Deficiency (NOD): Technical Adequacy, Cannon Air Force Base (CAFB) Phase II RCRA Facility Investigation Report (Report) for Appendix II & III SWMU's
SWMU #'s 1-11, 16, 32A, 33B, 38, 39, 48A, 48B, 49, 50, 71, 79, 83, 108, 110, 124, 126
EPA ID No. NM7572124454

Dear Colonel Koerner:

The Hazardous and Radioactive Materials Bureau (HRMB) of the New Mexico Environment Department (NMED) has reviewed for technical adequacy the above-referenced Report, as required under the New Mexico Hazardous Waste Management Regulations.

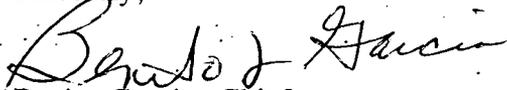
After reviewing the Report, the NMED has found the Report to be technically deficient. The deficiencies that must be addressed before NMED can declare the Report technically adequate are described in Attachment A.

A response with a proposed schedule for completion of the revised Report must be submitted to NMED within thirty (30) days of receipt of this NOD. Failure to respond within this designated time may result in issuance of a Letter of Disapproval of the Report.

Col. Koerner
September 19, 1997
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If you have any questions please contact Carl Will of my staff at 505-827-1561.

Sincerely,



Benito Garcia, Chief
Hazardous and Radioactive Materials Bureau

Attachment

cc: Jerry Bober, HRMB
Carl Will, HRMB
Dave Neleigh, EPA Region 6
Bob Sturdivant, EPA Region 6

file: HSWA/CAFB/2
track: CAFB/9-19-97/Garcia/Koerner/App. II & III NOD

ATTACHMENT A

NOTICE OF DEFICIENCY

TECHNICAL ADEQUACY REVIEW OF PHASE II RCRA FACILITY INVESTIGATION REPORT FOR APPENDIX II AND III SWMU'S, SUBMITTED BY CANNON AIR FORCE BASE, NEW MEXICO

September 19, 1997

General Comments

Approval of the sections titled "Comparison of Metals Concentration to Background" for all SWMU's may be modified based on new information submitted in the Background Study currently being conducted.

Several NFA recommendations are based on industrial risk based concentrations (RBC's). Submit information to HRMB about base closure procedures that provide notice to future property owners that these sites are for industrial use only. If existing notice requirements are not adequate, deed restrictions may be required for sites with contaminants above residential RBC's.

Specific Comments

Appendix II

- 2.0. Cannon AFB Facility Description
- 2.1. Setting - Physical Geography

Replace units of "TRPH" with "feet."

- 7.0. Oil/Water Separator No. 121 - SWMU No. 5
- 7.3.3. Organic Results for Subsurface Soil Samples
- 7.4.1. Sampling Issues
- 7.5. Nature and Extent of Contamination
- 7.8. Summary and Recommendations

TRPH concentrations at boring 0504 increase with depth, with 209 mg/kg at the deepest sampling location of 20 feet bgs. The CAFB response to EPA's NOD, dated December 20, 1995, states that an additional boring was done to 35 feet bgs at this location, and TPH was not detected in samples taken at 28 and 33 feet bgs. Include this data in the Report.

- 9.0. Underground Storage Tank - SWMU No. 48A
- 9.3.3. Organic Results for Subsurface Soil Samples
- 9.5. Nature and Extent of Contamination
- 9.8. Summary and Recommendations

TRPH contamination in subsurface soils was detected at 17,300 mg/kg at boring CAN048-4806 at ten feet bgs, which is significantly above the HRMB action level of 1,000 mg/kg. Submit a Corrective Measures Study (CMS) to determine the effectiveness and feasibility of bioventing, soil vapor extraction, or other measures to reduce levels of TRPH.

- 12.0. EOD Training Area - SWMU No. 108
- 12.1.1. Site Description

The area is routinely graded to remove surface vegetation and debris from explosives. Specify what is the disposition of the reactive material.

- 12.7. Risk Evaluation

Human Health Risk Assessment must evaluate risk from exposure to multiple contaminants, pathways, and affected media.

Appendix III

- 6.0. AGE Maintenance Pad - SWMU No. 31
- 6.1.4. Potential Contaminants

Include solvents and metals as potential contaminants. Analyses did include VOC's and metals.

- 6.1.5. Previous Investigations
- 6.7. Risk Evaluation

Detected levels of lead of 138 mg/kg in surface soil are high enough to be of concern for potential ecological risk. The February, 1994, Baseline Risk Assessment (BRA) did not adequately assess the eco-risk for lead. The derivation of benchmark dietary levels is not explained. Eco-risk for "hot spots" must be assessed independently from other sampling locations. No evidence is given indicating that the lead is not in a bioavailable form. Submit an adequate eco-risk analysis accounting for biomagnification to the highest trophic level for contaminants above explained benchmark levels. In the alternative, submit a CMS for removal of the lead to below benchmark levels.

Human Health Risk Assessment must evaluate risk from exposure to multiple contaminants, pathways, and affected media.

6.7.2. Comparison of Phase II Concentrations to Phase I Concentrations and RBC's

Include the text on reporting limits agreed to in the CAFB response to EPA's NOD, dated December 20, 1995.

**6.3. Chemical Investigation Results
6.5. Nature and Extent of Contamination
6.8. Summary and Recommendations**

Submit a CMS for reduction of TRPH levels. TRPH was detected at up to 2,500 mg/kg.

**8.0. POL Wash Rack - SWMU No. 127
8.1.4. Potential Contaminants**

Include solvents and metals as potential contaminants.

**8.1.5. Previous Investigations
8.7. Risk Screening**

Detected levels of lead of 84 mg/kg in surface soil are high enough to be of concern for potential ecological risk. Lead was listed as a COC but not addressed in the February, 1994, BRA. Explain why not all COC's were assessed in the BRA. Submit an eco-risk analysis accounting for biomagnification to the highest trophic level for contaminants above benchmark levels. In the alternative, submit a CMS for removing lead to below benchmark levels.

Human Health Risk Assessment must evaluate risk from exposure to multiple contaminants, pathways, and affected media.

**8.3. Chemical Investigation Results
8.5. Nature and Extent of Contamination
8.8. Summary and Recommendations**

Submit a CMS for reduction of TRPH levels. TRPH was detected at up to 11,000 mg/kg.

- 9.0. **Lead Acid Battery Accumulation Point - SWMU No. 55**
- 9.7.2. **Comparison of Phase II Concentrations to RBC's**

Include the text on reporting limits agreed to in the CAFB response to EPA's NOD, dated December 20, 1995.

- 10.0. **Container Storage Area - SWMU No. 77**
- 10.1.5. **Previous Investigations**
- 10.7. **Risk Evaluation**

Detected levels of DDD, endrin ketone, PCB's, and lead are high enough to be of concern for potential ecological risk. Ketone and PCB's were not addressed in the February, 1994, BRA. The BRA used a BAF figure of 6.4 as a worst case scenario for DDT and DDE, and states that lead does not biomagnify. The July, 1993, EPA Region VIII Criteria Chart states that the BCF for DDT, DDE, and DDD is 53,600 and the BCF for lead is 49. Submit an eco-risk analysis that accounts for biomagnification to the highest trophic level for contaminants above benchmark levels. In the alternative, submit a CMS for removal of the contaminants to below benchmark levels.

Human Health Risk Assessment must evaluate risk from exposure to multiple contaminants, pathways, and affected media.

- 10.7.2. **Comparison of Phase II Concentrations to Phase I Concentrations and RBC's**

Include the text on reporting limits agreed to in the CAFB response to EPA's NOD, dated December 20, 1995.

- 10.3. **Chemical Investigation Results**
- 10.5. **Nature and Extent of Contamination**
- 10.8. **Summary and Recommendations**

Submit a CMS for reduction of TRPH levels. TRPH was detected at up to 9,700 mg/kg.

- 11.0. **Playa Lake - SWMU No. 103**
- 11.1.5. **Previous Investigations**
- 11.3. **Chemical Investigation Results**
- 11.4. **Data Assessment**
- 11.8. **Summary and Recommendations**

These comments take into consideration sampling and ecological risk assessment completed in the Phase I RFI Report for Appendix III SWMUs, dated February, 1994, the Baseline Risk Assessment for

Appendix III SWMUs, dated February, 1994, the Phase II RFI Report, and the Ecotoxicological Screening of Sediment OCP Concentrations in Playa Lake, submitted to HRMB in letter form dated April 20, 1996.

Existing reports indicate that the site has the potential to pose an unacceptable risk to the environment. The Baseline Risk Assessment concludes that there does exist a potential for risk to predatory birds because of chemical releases at the playa lake. The Phase II RFI Report states that the actual level of risk is unknown, although the Report concludes with a recommendation that no further investigation is necessary. The Ecotoxicological Screening Letter does not assess the risk for predatory birds, and does not assess risk for all COCs, for example PCBs, which were detected at .750 mg/kg in surface soil.

There are numerous flaws in the assessment of ecological risk. Sampling was inadequate to provide sufficient data on which a meaningful analysis could be performed. Therefore, the nature and extent of sediment and surface water contamination has not been adequately characterized. Only one round of sampling was done and the shallowest sediment samples taken were from three to five feet below the surface. This sampling depth may not be relevant to potential exposure of aquatic and terrestrial organisms.

Submit a proposal for surface water and sediment sampling allowing for calculation of the 95% UCL of the arithmetic average contaminant concentrations. Sampling should be done at a minimum during the lowest annual water level in the lake, though data collected during different seasons would be useful for trend analysis. Equivalent existing data for surface water may be submitted if it exists. Shallow sediment samples should be taken from the depth of eight inches or less, where there is the greatest interaction with lake biota, instead of only at three to five feet. Include sediment physical description, such as particle size, and basic chemical parameters, such as pH, moisture content, and organic carbon content.

Because contamination at the site may be impacting environmental receptors, biota sampling is required as well. This sampling should focus on

the determination of bioconcentration and bioaccumulation properties of contaminants of potential concern in the site-specific food web. Biota sampling should include at a minimum algae, duckweed, invertebrates, and frogs. Submit a list for HRMB approval of environmental receptors and analytes for biota tissue sampling and analysis.

Determine if fish are present in the lake.

In the sample analysis, Maximum Reporting Limits or Detection Limits should be below levels of concern. Human health Risk-Based Concentrations are not appropriate for ecological risk screening, and therefore should not be used to justify Reporting or Detection Limits elevated above ecological levels of concern.

A more thorough Gas Chromatography/Mass Spectrometry "fingerprinting" of TPH should be performed to identify the concentrations of individual TPH components.

11.7.3. Evaluation of the Groundwater Pathway

Soil and sediment sampling depths are inadequate to determine whether or not there is migration of contaminants from the playa lake to groundwater. As the Report states at page 11-18, "The deepest samples beneath the lake were collected from a depth of only 5 feet. Therefore, historical releases from the lake (i.e., that may have transported contaminants below the 5-foot-depth) may not be completely defined."

The following information must be submitted to enable HRMB to assess the horizontal and vertical contaminant transport from the playa lake: 1) a map showing surface topography in detail around the lake; 2) the boring logs for subsurface soil borings or other information on the lake area geology and hydrogeology; and 3) other basic characteristics of the lake bottom sediment, including pH, grain size, organic matter (carbon) content, and moisture content. Information about the chemical composition of soils and sediments and their physical characteristics will enable interpretations and potential extrapolations to be made between metals background levels in soil and metals levels detected in sediment.

The report states, at page 11-18, last paragraph, that "concentrations detected at 5 feet are generally lower than the concentrations detected

at 0 feet." However, there are several instances of contamination levels increasing up to five feet in sediment, the maximum depth of sediment sampled, and up to 20 feet in soil, the maximum depth of soil sampled. For example, according to Figure No. 11-3, in sediment boring 10310 chromium, cobalt, manganese, nickel, and zinc increased from three to five feet; in sediment boring 10309 beryllium, chromium, cobalt, manganese, nickel, thallium, zinc, acetone, 2-butanone, toluene, and gamma-Chlordane all increased from three to five feet; in sediment boring 10312 manganese, acetone, and 2-butanone increased from three to five feet; and in boring 10311 beryllium, cobalt, manganese, nickel, thallium, 2-butanone, and toluene increased from three to five feet. Certain constituents also increased with depth in the soil borings.

Additional information must be submitted to enable HRMB to determine whether or not the increasing concentrations of hazardous constituents with increasing depth indicate a potential for contamination to affect groundwater resources beneath and near the playa lake. For organics, additional information can consist of additional sampling at greater depth under the playa lake until constituent levels are non-detect. For metals, additional information can consist of sediment and soil sampling data from greater depth until background constituent levels are reached or, as indicated above, additional information can consist of information about the basic chemical and physical characteristics of the soils from which background levels are determined and the lake sediment that will enable HRMB to evaluate background levels of metals in sediment by extrapolating from background levels of metals in soil. Therefore, these data can be used to delineate the horizontal and vertical extent of the lake-derived contamination.

RBC's used are not appropriate to assess the site's impact to groundwater quality. The appropriate standards are Soil Screening Levels, Transfers from Soil to Groundwater, in EPA Region 6 Human Health Media-Specific Screening Levels.

Human Health Risk Assessment must evaluate risk from exposure to multiple contaminants, pathways, and affected media.

- 12.0. Landfill No. 25 - SWMU No. 97
12.7.1. Comparison of Groundwater Concentrations Detected in
MW-K with RBC's

Include the text on reporting limits agreed to in the CAFB response to EPA's NOD, dated December 20, 1995.

- 12.8. Summary and Recommendations

The Report recommends that one additional sample for VOC analysis be collected. More than one round of sampling is required to determine if groundwater has been affected by releases from the site. Include information on the new monitoring well being installed, including a site map showing the boundaries of the landfill, the location of the new well, groundwater flow, and proposed sampling frequency, duration, and analytes, and a site map showing the locations of monitor wells K, N, and O and Landfills 3 and 4.