



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 27th FIGHTER WING (ACC)
CANNON AIR FORCE BASE, NEW MEXICO

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21 NOV 1997

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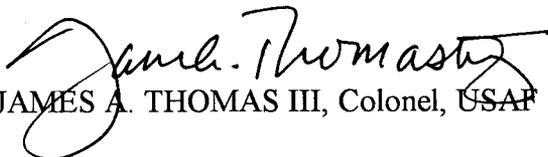
Mr. Benito J. Garcia, Chief
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 Galisteo Street
PO Box 26110
Santa Fe NM 87502

Dear Mr. Garcia

Attached is the Cannon Air Force Base response to your Notice of Deficiency (NOD) letter of 19 Sep 97 concerning the Appendix II & III Solid Waste Management Units (SWMUs). Our schedule for completion of these response actions will be to deliver the response package by 31 Dec 97.

If you have any questions, please contact Mr. John Pike at (505) 784-4348 or Mr. Sanford Hutsell at (505) 784-6378 of my environmental flight.

Sincerely


JAMES A. THOMAS III, Colonel, USAF

Attachment:
Response to NOD

cc:
NMED (C. Will)
NMED GW Bureau (J. Jacobs)
EPA Region VI (D. Neleigh)
HQ ACC CEVC (R. Shannon)

**RESPONSE TO NOTICE OF DEFICIENCY
ISSUED BY STATE OF NEW MEXICO ENVIRONMENT DEPARTMENT
TECHNICAL ADEQUACY REVIEW OF PHASE II RFI REPORT FOR
APPENDIX II AND III SWMUS
CANNON AIR FORCE BASE, NEW MEXICO**

General Comments

Comment 1. Approval of the sections titled "Comparison of Metals Concentration to Background" for all SWMUs may be modified based on new information submitted in the Background Study currently being conducted.

Response: The Final Report on Naturally Occurring Concentrations of Inorganics and Background Concentrations of Pesticides at Cannon AFB will be used in preparation of CMSs.

Comment 2. Several NFA recommendations are based on industrial risk based concentrations (RBCs). 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 RBCs.

Response: The Air Force not only has procedures for future land use but there is also an agency, AF Base Closure Agency (AFBCA) which deals with closure issues. Federal law (CERCLA 120(h), "Property transferred by Federal agencies") at subsection (1) "Notice," requires that any contract for sale or other transfer of federal real property on which hazardous substances were stored for one year or more or on which hazardous substances were known to be released or disposed of shall include notice of the type and quantity of such substances and information on the storage, release, or disposal. The General Services Administration (GSA), which actually "owns" all Department of Defense real property, must be satisfied with our efforts to find and disclose this information before they will take it for sale or other disposal. Air Force regulations on baseline surveys require a rigid investigation and disclosure of such storage, disposal, or releases. The AFBCA and USAF have an enthusiastic interest in disclosing any such problems. After all, we do not transfer the property for fair market value, so we don't worry about the effect of the notice on value. To the contrary, we see the notice as a benefit since any use which is contrary to the use restrictions can only hurt the Air Force in tort liability later on. It doesn't help us at all to keep such restrictions a secret, and it can only hurt us.

Specific Comments

Appendix II

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

Comment 3. Replace units of "TRPH" with "feet."

Response: Correction will be made.

- 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

Comment 4. 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.

Response: Revision will be made.

- 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 CAN48-4806 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 measure to reduce levels of TRPH.

Response: A CMS will be submitted.

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

Comment 5. The area is routinely graded to remove surfaces vegetation and debris from explosives. Specify what is the disposition of the reactive material.

Response: No reactive material is left. This is a training range which doesn't dispose of any actual munitions. A typical example would be placing and explosive charge on an inert concrete-filled bomb. In the event of a misfire, an additional charge is placed and detonated on top of the misfire so ultimately there is nothing left

but the residue from the explosion. There is no reactive material left after training activities.

12.7 Risk Evaluation

Comment 6. Human Health Risk Assessment must evaluate risk from exposure to multiple contaminants, pathways, and affected media.

Response: A Baseline Human Health Risk Assessment is not necessary for Explosive Ordnance Disposal (EOD) Training Area - SWMU No. 108 for the following reasons:

(a) There is no evidence of any release of hazardous constituents due to activities at the SWMU. Surface and subsurface samples were analyzed for VOCs, SVOCs, TAL metals, TRPH, and explosives. The only organic compounds detected were trace levels of acetone, methylene chloride, 2-butanone, and toluene. Acetone and methylene chloride were determined to be laboratory contaminants. 2-Butanone is also a common laboratory contaminant and at the detected concentration of 1.9 ug/kg should not be considered a release. Toluene was the only other organic detected at the EOD. The detected concentration (1.4 ug/kg) is very low and probably an incidental finding. Further, based on the description of activities at the EOD, there is no real source for these organic compounds at this SWMU.

Barium was the only metal detected at a potentially significant concentration. However, the highest hit was detected at 5 feet below ground surface (bgs). Barium concentrations at the surface and at 10 feet bgs were at background levels. Therefore, it is likely that this concentration of barium is naturally-occurring. (Barium has been shown to substitute for calcium in caliche. Caliche is commonly found below Cannon AFB.)

(b) All detected compounds were assessed in a screening-level risk evaluation. The highest detected concentration was compared to Region III RBCs, both residential and industrial. The RBCs were calculated using very conservative exposure assumptions especially for areas such as the EOD. Residential exposures assume that a person is exposed throughout their lifetime including adjustments for childhood exposures. These assumption include exposures to compounds for 350 days per year for 30 years which are not only conservative, but unreasonable (for the foreseeable future) for exposures at the EOD. Even the assumptions used to calculate potential risks to occupational workers (i.e., the industrial RBC) are extremely conservative for the EOD. Training activities are held only intermittently; therefore, assuming exposures of 8 hours/day, 250 days/year for 25 years is highly conservative. Therefore, estimated potential risks at the EOD, based on these highly conservative assumptions more than adequately provide information on whether or not any true risks exist at the SWMU (including multiple pathways and multiple compounds).

(c) The only compounds that contribute significantly to the Hazard Index (i.e., that are within an order of magnitude of the residential RBC) are antimony, barium and manganese. These chemicals do not have the same target organs, so their potential toxic effects are not additive. Antimony and manganese have hazard quotients of less than 1.0. Therefore, barium is the only compound at this site which could potentially pose an unacceptable human health risk. Additionally, the hazard quotients were determined using residential RBCs instead of industrial RBCs, which is a more likely exposure scenario for this site. Since none of the detected concentrations exceeded industrial RBCs (or even approached the industrial RBCs), the additive potential hazard quotient will not exceed 1.0, and no unacceptable human health effects are expected at the EOD.

(d) Finally, as stated earlier, the barium concentration which exceeded the residential RBC was detected at a depth of 5 feet; therefore, it would not be readily accessible to anyone. Additionally, the elevated barium concentration appears to be an isolated hit. No other detections of barium were above 800 mg/kg. Therefore, potential exposures to concentrations of potential concern would be extremely limited.

In summary, the analysis of detected parameters at this site indicated that potential risks to human health were minimal and that no baseline risk assessment was necessary to determine these insignificant potential risks.

Appendix III

6.0 AGE Maintenance Pad - SWMU No. 31

6.1.4 Potential Contaminants

Comment 7. Include solvents and metals as potential contaminants. Analyses did include VOCs and metals.

Response: Revision will be made.

6.1.5 Previous Investigations

6.7 Risk Evaluation

Comment 8. 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.

Response: A CMS will be submitted.

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

Response: This will be reviewed in the CMS submittal.

6.7.2 Comparison of Phase II Concentrations to Phase I Concentrations and RBCs

Comment 9. Include the text on reporting limits agreed to in the CAFB response to EPA's NOD, dated December 20, 1995.

Response: Revision will be made.

- 6.3 Chemical Investigation Results
- 6.5 Nature and Extent of Contamination
- 6.8 Summary and recommendations

Comment 10. Submit a CMS for reduction of TRPH levels. TRPH was detected at up to 2,500 mg/kg.

Response: A CMS will be submitted.

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

Comment 11. Include solvents and metals as potential contaminants.

Response: Revision will be made.

- 8.1.5 Previous investigations
- 8.7 Risk Screening

Comment 12. 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 COCs 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.

Response: A CMS will be submitted.

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

Response: This will be reviewed in the CMS submittal.

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

Comment 13. Submit a CMS for reduction of TRPH levels. TRPH was detected at up to 11,000 mg/kg.

Response: A CMS will be submitted.

- 9.0 Lead Acid Battery Accumulation Point - SWMU No. 55
- 9.7.2 Comparison of Phase II Concentrations to RBCs

Comment 14. Include the text on reporting limits agreed to in the CAFB response to EPA's NOD, dated December 20, 1995.

Response: Revision will be made.

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

Comment 15. Detected levels of DDD, endrin ketone, PCBs, and lead are high enough to be of concern for potential ecological risk. Ketone and PCBs 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.

Response: A CMS will be submitted.

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

Response: This will be reviewed in the CMS.

- 10.7.2 Comparison of Phase II Concentrations to Phase Concentrations and RBCs

Comment 16. Include the text on reporting limits agreed to in the CAFB response to EPA's NOD, dated December 20, 1995.

Response: Revision will be made.

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

Comment 17. Submit a CMS for reduction of TRPH levels. TRPH was detected at up to 9,700 mg/kg.

Response: A CMS will be submitted.

- 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

Comment 18. 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 II 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.

Response: An addendum to the Baseline Risk Assessment will be submitted that combines the information from all reports. This addendum will address the comments.

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.

Response: See first response above.

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.

Response: See first response above.

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, through 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.

Response: See first response above.

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.

Response: See first response above.

Determine if fish are present in the lake.

Response: See first response above.

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.

Response: See first response above.

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

Response: See first response above.

11.7.3 Evaluation of the Groundwater Pathway

Comment 19. 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 contaminated below the 5-foot-depth) may not be completely defined."

Response: This will be addressed in the BRA addendum.

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.

Response: See first response above.

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 samples, 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.

Response: See first response above.

Additional information must be submitted to enable HRMB to determine whether or not the 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.

Response: See first response above.

RBCs 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.

Response: See first response above.

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

Response: See first response above.

12.0 Landfill No. 25 - SWMU No. 97

12.7.1 Comparison of Groundwater Concentrations Detected in MW-K with RBCs

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

Response: Revision will be made.

12.8 Summary and Recommendations

Comment 21. 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.

Response: Monitoring Well K was abandoned and replaced with Monitoring Well R in the Spring of 1997. Quarterly and semiannual sampling results for monitoring wells N, O, and R, along with other requested information, will be provided in a separate submittal.