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U.S. EPA REGION 6
HAZARDOUS WASTE MANAGEMENT DIVISION
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TO:	**STEVE PULLEN - NMED**
MACHINE NUMBER: **(505) 827-1544**	VERIFICATION NUMBER: (505) 827-1560
FROM:	Nancy Rinehart Morlock EPA Region 6 RCRA Permits Branch New Mexico and Federal Facilities Section
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OFFICE: ~~6-054~~	
DATE: 9/21/95	PAGES, INCLUDING COVER SHEET: **8**
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COMMENTS:

Steve:
I think I faxed this to you a few weeks ago, but just in case, here it is again. Please review and call with any comments. I plan to route this for signature next week, so please call before 9/27/95.
Thanks!

Copies to:

KAFB1676

Scott E. Streifert, Colonel
Director, Environmental Management Division
377 ABW/EM
2000 Wyoming Boulevard SE
Kirtland Air Force Base, NM 87117-5659

Dear Colonel Streifert:

The Environmental Protection Agency (EPA) hereby approves your Appendix I Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report with the attached modifications. The approved RFI Report consists of the December 22, 1993 RFI Report; the November 25, 1994 response to the Notice of Deficiency; and the attached modifications.

Additional investigation is required at the Appendix I solid waste management units. An RFI Work Plan describing the proposed investigation shall be submitted to EPA and the New Mexico Environment Department within 60 days of receipt of this letter.

If you have any questions or need additional information, please contact Ms. Nancy Morlock of my staff at (214) 665-6650.

Sincerely yours,

Allyn M. Davis, Director
Multimedia Planning and
Permitting Division

Enclosures

cc: Mr. Benito Garcia, NMED

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APPROVAL WITH MODIFICATIONS
APPENDIX I RFI REPORT
Kirtland Air Force Base, New Mexico

The Environmental Protection Agency (EPA) has completed a review of the November 25, 1994 response to Notice of Deficiency (NOD) for the Appendix I Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report. EPA has determined that additional investigation is required at the Appendix I solid waste management units (SWMUs). The Appendix I RFI Report is therefore approved with the condition that a second RFI Work Plan, and subsequent investigation, are required for the Appendix I SWMUs. The following general and site-specifc issues and comments shall be considered and addressed in the new RFI Work Plan for the Appendix I SWMUs:

GENERAL COMMENTS

1. Future RFI Work Plans

Any major deviation from an approved RFI Work Plan must be reviewed and approved by the Administrative Authority prior to implementation. All deviations shall be described and justified in the RFI Report.

2. Borehole Logging

Borehole logging, as conducted in the Appendix I RFI, was not typical of environmental practices and standards. Each borehole log should be presented in a graphic table, complete with information columns for (1) depth, (2) sample location/number, (3) blow counts and advance rate, (4) percent sample recovery, (5) stratigraphic description, and (6) depth to saturation. Future work plans and reports, including the new RFI Work Plan for the Appendix I SWMUs, shall present detailed boring logs.

3. Geologic Characterization

Characterization of geologic data was inadequate because of (1) the limited amount of subsurface exploration that was conducted, (2) the poorly documented field records and boring logs, and (3) the absence of geologic maps, cross sections, and detailed discussions relating conditions under each site to those of the overall base area. Each site should be reevaluated regarding the usefulness of existing geologic data. Actions necessary to fully characterize the sites shall be proposed. This discussion, including proposals for additional activity, shall be presented in the new RFI Work Plan.

4. Hydrogeologic Characterization

Kirtland shall install additional borings and monitoring wells to

more fully characterize the hydrogeologic environment at the Appendix I SWMUs. Characterization discussions should (1) provide an in-depth discussion of ground water conditions, (2) address any anomalies present on interpreted maps, and (3) explain any discrepancies between site-specific and base-wide maps. Each site shall be reevaluated regarding the usefulness of existing hydrogeologic data. Actions necessary to fully characterize the sites shall be proposed. This information, including proposals for additional activity, shall be provided in the new RFI Work Plan.

5. Waste Source Characterization

Waste source characterization is inadequate because of limited surficial and shallow soil sampling. No investigation has been performed within, or directly beneath, approximately half of the SWMUs. Each site should be reevaluated regarding existing waste characterization data to determine subsequent actions necessary to fully characterize the nature and extent of contamination at the sites. This discussion, including proposals for additional activity, shall be presented in the new RFI Work Plan.

6. Borehole Sampling

a. Kirtland attributed elevated OVA readings to false positives related to water added around auger flights. Elevated readings can be dismissed only by a detailed discussion, including adequate documentation, of this phenomenon.

b. Future work plans and reports shall include a table that relates sample identification numbers to specific boreholes or monitoring wells.

7. Borehole Logging

a. Future work shall include sample descriptions at every sample interval, or as prescribed and approved in the new work plan.

b. Future work shall present soil descriptions based on the Unified Soil Classification System, or as prescribed and approved in the new work plan.

8. Soil-Gas Surveys

a. Sites 14 and 15 were reportedly excluded from soil-gas surveys because of a lack of contamination. Kirtland shall provide a detailed discussion and justification regarding (1) the decision to not perform soil-gas surveys at these sites, and (2) the determination that these sites need no further action. This discussion shall be included in the new RFI Work Plan.

b. Future work shall ensure that analytical equipment is standardized using gas-phase standards. This method of calibration shall be specified in future work plans and reports.

9. Ground Water Monitoring Well Installations

a. Kirtland must compile sufficient hydrogeologic data to estimate seasonal ground water variations prior to the installation of future monitoring wells. A detailed discussion should include historical water-level measurements from multiple wells, both within and outside the site. These data shall be included in the new work plan and can be used to justify any proposed variance requests from standard screen lengths.

b. The 2-foot filter pack requirement may be inappropriate for 500-foot-deep monitoring wells; however, 50 feet is excessive and could provide a route of migration for contaminants. A fining-upward filter pack (above the top of the well screen) up to 10 feet thick is appropriate. Filter pack thicknesses shall not exceed 10 feet. The new work plan shall discuss filter packs.

c. According to Kirtland's response to the NOD, additional water level data are available. These data shall be presented and discussed in the new RFI Work Plan.

d. Data regarding OVA readings in ground water monitoring wells (prior to purging) shall be reviewed and discussed in the new RFI Work Plan.

10. Surface Geophysical Surveys

Kirtland should (1) provide a detailed discussion explaining the decision to dismiss sites 14, 15, and 21 from the geophysical work specified in the work plan, or (2) provide details for conducting a surface geophysical survey, as discussed in the original work plan. This discussion shall be included in the new RFI Work Plan.

11. Analytical Procedures

Kirtland shall expand its discussion of analytical procedures to include additional detail on concentrations of analytes detected. Previous discussions were generally limited to maximum concentrations detected. Discussions of analytes detected in ground water shall focus on unfiltered (total) samples and provide analytical results of unfiltered samples. This discussion shall be provided in the new RFI Work Plan.

12. Data Validation

a. Kirtland has failed to provide a detailed response concerning laboratory blank contamination and its impact on data

usability. A complete response must include (1) an explanation of the potential source of contaminants not common to the laboratory (such as chloromethane, copper, chromium, uranium, and gross beta), and (2) a discussion regarding the significance of "common laboratory contaminants" when detected at low levels in field samples but not detected in associated laboratory blanks. This discussion shall be included in the new RFI Work Plan.

b. Kirtland stated in the NOD response that the sampling data affected by blank contamination are questionable and should be used with caution. However, the guidance that Kirtland cited for data validation in Appendix C clearly indicates that sampling results less than five (or 10) times the amount found in the associated blanks should be qualified as undetected. This implies that the positive sample concentrations for those analytes are not usable at all and should be designated as undetected (U). In the final summary tables, the results for these analytes in the affected samples should appear as undetected results. These discussions shall be presented in the new RFI Work Plan and be incorporated into all future data validation reports.

c. The effect of poor quality control (QC) results on the overall usability of the data has not been adequately discussed. For example, Kirtland describes specific data associated with poor QC results as being questionable and advises that these data be used with caution. However, the user cannot determine (1) in which cases the data are usable, (2) the potential for bias, or (3) the direction of bias. Future reports shall be more descriptive of the data usability with regard to bias, false negatives, false positives, and limitations (for example, not to be used in risk assessment). The impact of poor surrogate recoveries in data provided by Kirtland shall be addressed in the new RFI Work Plan.

13. Environmental Setting

a. The NOD response acknowledged that the RFI discussion of ground water hydrology was limited and that "much more" information was available, but it failed to provide any additional data. A thorough discussion of the ground water hydrology, including the newly available data, shall be provided in the new RFI Work Plan.

b. The NOD response failed to explain whether water levels in wells other than KAFB production well 5 were being evaluated. If other data are available, they should be integrated into the existing site information and presented in the new RFI Work Plan.

c. The NOD response stated that monthly water-level measurements "collected from United States Geological Survey (USGS) wells drilled for the RFI" show seasonal fluctuations of

about 1.6 feet. This statement does not agree with the 10 to 20 feet of seasonal variation discussed in the RFI on page 2.28. This apparent discrepancy should be corrected. If new data are available, they should be presented and discussed in the new RFI Work Plan.

d. Kirtland should incorporate all available water-level data and provide a seasonal high water table map. Assumptions and inferences regarding the contouring and interpretation of both the high water-level map and existing water-level map, such as dashed lines, should be discussed. This map(s) and discussion shall be provided in the new RFI Work Plan.

e. Water-level measurements from RFI wells should be mapped and graphed as part of the discussion of ground water hydrology. This discussion, which should include apparent effects of production and municipal wells, shall be presented in the new RFI Work Plan.

f. Kirtland should provide additional data to explain the water table maps, including a discussion of assumptions made and discrepancies between individual site maps and the base-wide water table map(s). If the installation of additional wells would provide useful data on the effect of faults on the ground water table, these should be proposed in the new RFI Work Plan.

g. The NOD response states that no perched ground water was detected during the drilling of the RFI wells, yet the RFI report states "...perched ground-water conditions have been noted during the drilling of some wells" (page 2.21). This discrepancy should be addressed in the new RFI Work Plan.

14. Risk-Based Action Levels

The use of risk-based action levels is not appropriate until the site has been adequately characterized.

15. Geologic Characterization

a. The NOD response indicated that elevations were provided on the RFI well completion diagrams (Appendix C of the RFI). However, these data were limited to the elevation at the top of casing; surface elevation data were not provided. This information is necessary to construct subsurface geologic cross sections.

b. Kirtland should provide geophysical logs at a large scale (such as 1 inch = 10 feet) and provide properly constructed boring logs (at the same scale as the large scale geophysical logs). These data should be provided in the new RFI Work Plan.

SITE-SPECIFIC COMMENTS

1. Site 1-Landfill 1

a. The NOD response failed to discuss the significance of the increase in total organic halogen (TOX) concentrations measured in monitor well KAFB0107 or identify the chlorinated compounds, as requested in the NOD comments. These discussions should be presented in the new work plan. In the future, TOX analyses should be discontinued in favor of more specific analyses, including volatile and semivolatile organics analyses.

b. Kirtland should include the monitoring wells downgradient of landfill 1, in addition to KAFB Production Well 2, in annual monitoring.

2. Site 2-Landfill 2

Kirtland should further discuss the suspected source of chromium. Detailed documentation should be provided to substantiate the suspected source, including a discussion of analytes present in the ground water that could reasonably have caused this leaching. This discussion shall be included in the new RFI Work Plan.

3. Site 3-Landfills 4, 5, and 6

Kirtland should provide a revised map of site 3 that displays the locations and boundaries of landfills 4, 5, and 6. This map shall be included in the new RFI Work Plan.

4. Site 4-Fire Training Area

Kirtland should provide an detailed explanation or interpretation of the presence of TOX values within this site. This discussion shall be presented in the new RFI Work Plan.

5. Site 10-McCormick Ranch

Kirtland should provide additional information concerning (1) the nature of past activities at this site, including amounts of explosives used and locations of major tests, and (2) the types of future activities that are scheduled at this site. This information shall be provided in the new RFI Work Plan.