



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

MAY 3 0 1995

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CERTIFIED MAIL: RETURN RECEIPT REQUESTED

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

Dear Colonel Streifert:

The Environmental Protection Agency (EPA) has completed a technical review of your draft Appendix II/Stage 2B Resource and Conservation Recovery Act (RCRA) Facility Investigation (RFI) Report, dated December 8, 1994, and has determined that the Report is deficient. Enclosed is a list of deficiencies and comments for your review.

A revised report addressing the enclosed deficiencies must be submitted to EPA within thirty (30) days of receipt of this letter. Additionally, the EPA has identified other Solid Waste Management Units (SWMUs) that require further investigation/and or remediation. A workplan detailing the proposed investigation of these SWMUs shall be submitted to EPA within sixty (60) days of receipt of this letter. This workplan may take the form of a Sampling and Analysis Plan if the Stage 2C Workplan, which has been previously approved by EPA and NMED, is followed. The final RFI Report shall be due no later than fifteen (15) months from receipt of this letter.

Additionally, please be advised that the Appendix I/Stage 2A sites will require additional characterization. The final RFI Report will also be due no later than fifteen (15) months from receipt of this letter.

Please note that the New Mexico Environment Department (NMED) has not reviewed the Stage 2B RFI Report. NMED comments are therefore not included in this notice of deficiency, but may be submitted at a later date.

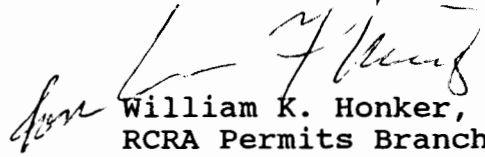
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If you have any questions or require additional information,
please contact Nancy Morlock of my staff at (214) 665-6650.

Sincerely yours,


William K. Honker, Chief
RCRA Permits Branch

Enclosure

cc: Mr. Benito Garcia
New Mexico Environment Department

**NOTICE OF DEFICIENCY
KIRTLAND AIR FORCE BASE STAGE 2B RFI REPORT
APRIL 1995**

The Environmental Protection Agency (EPA) Region 6 has reviewed the draft Appendix II/Stage 2B RCRA Facility Investigation Workplan and submits the following comments.

General Comments

1. EPA is requiring additional investigation and/or remediation for the following SWMUs:

- Site FT-14, Manzano Fire Training Area
- Site ST-210, Oil/Water Separator, Holding Tank and Fuel Filter Rack
- Sites ST-215 & ST-216, Oil/Water Separators
- Site ST-219, Oil/Water Separator

A workplan detailing the proposed investigation/remediation of these sites shall be submitted to the EPA and NMED within sixty (60) days of receipt of this letter. This workplan may take the form of a detailed Sampling and Analysis Plan if the Appendix III/Stage 2C Workplan, which was previously approved by EPA and NMED, is followed. Please refer to the detailed site comments for additional information.

2. For Sites WP-47, Silver Recovery Unit, and ST-201, Oil/Water Separator, EPA agrees with Kirtland's recommendation of No Further Action. Kirtland should initiate a Class III permit modification to remove these SWMUs from their permit. Because there is a possibility that the units could leak at some time in the future, EPA is requiring that a periodic monitoring program be initiated. Kirtland shall therefore propose a monitoring program for review and approval by EPA. A workplan detailing the proposed monitoring program shall be submitted to EPA and NMED within sixty (60) days of receipt of this letter.
3. Many of the tables in the RFI Report omitted arsenic results. Please specify detection limits and submit the arsenic results for the following areas:

Page 6-7, Table 6-2
Page 8-9, Tables
Page 10-7, Table 10-4
Page 12-5, Table 12-2
Page 17-5, Table 17-2
Page 19-5, Table 19-2
Page 25-7, Table 25-3
Page 45-6, Table 45-2
Page 47-5, Table 47-2

Page 7-6, Tables
Page 10-6, Tables 10-3
Page 11-5, Table 11-2
Page 16-7, Tables
Page 18-8, Tables
Page 23-6, Tables
Page 29-4, Table 29-2
Page 46-5, Table 46-2
Page 49-5, Table 49-2

4. Some of the sampling intervals discussed in the RFI Report exceed two feet in length. EPA usually requires analytical sample intervals of only six inches. Please explain the rationale for the larger sampling interval at the following sites:

Page 8-6, Table 8-1	Page 10-4, Table 10-2
Page 11-3, Table 11-1	Page 13-5, Table 13-2
Page 14-3, Table 14-1	Page 15-4, Table 15-1
Page 16-4, Table 16-2	Page 17-3, Table 17-1
Page 18-6, Table 18-2	Page 21-5, Table 21-2
Page 23-4, Table 23-1	Page 25-4, Table 25-1
Page 27-3, Table 27-1	Page 28-4, Table 28-1
Page 29-1, Table 29-1	Page 30-7, Table 30-2
Page 31-5, Table 31-2	Page 33-4, Table 33-1
Page 34-4, Table 34-2	Page 35-4, Table 35-1
Page 37-4, Table 37-2	Page 38-3, Table 38-1
Page 40-3, Table 40-2	Page 41-3, Table 41-1
Page 42-7, Table 42-3	Page 44-3, Table 44-1
Page 45-6, Table 45-2	Page 47-5, Table 47-2
Page 49-5, Table 49-2	

SWMUS Requiring a Revised RFI Report

Kirtland shall address the following comments in a revised RFI Report. The revised RFI Report shall be submitted to EPA and NMED within thirty (30) days of receipt of this letter.

Please note that the EPA's determination on the following SWMUs applies only to the SWMU itself, and not the associated piping leading to and from the unit, or the final discharge point from the SWMU's piping, since these other areas are being addressed under a separate RFI Workplan investigation.

1. **Page 3-9:** Please clarify how Kirtland decided where to take the sample within the 2-foot interval and what the length of the sample interval was, e.g., six inches, one foot, two feet, etc. Also, there were several sampling intervals in the report that were longer than two feet. What was Kirtland's approach to these sampling intervals?
2. **Page 4-1; Background Data:** Why did Kirtland not sample the background soils for TPH since natural organics in soil may, in some instances, result in a false positive? Please explain.

SITE WP-47, SILVER RECOVERY UNITS

3. **Page 5-1; 2nd paragraph:** What pre-treatment does Kirtland perform on the silver wastewater?

SITE ST-270, BURIED CAUSTIC DRAIN LINE; ST-271, NEUTRALIZATION PIT; AND ST-272, EVAPORATION/INFILTRATION POND

4. **Page 6-14; Conclusions and Recommendations, ST-271:** Since lead was elevated in approximately four of the sludge samples, deeper samples should be taken.
5. **Page 6-14; Conclusions and Recommendations, ST-271:** Soil sample 2402 had several elevated metals. EPA believes that deeper borings at this location are needed to define the extent of contamination. Please justify why deeper sampling is not needed or submit an investigative plan that includes deeper sampling.

SITE FT-14, MANZANO FIRE TRAINING AREA

6. **Page 7-5; 2nd paragraph:** Please explain why borehole logs were not completed for the borings drilled.
7. **Page 7-15; Western Fire Training Pit:** Because soil boring 2601 contained volatile and semivolatile contaminants at the deepest interval (19 to 21 feet), further vertical delineation is needed. In general, further delineation, as accomplished in boring 2603, is needed for the western area.
8. **Page 7-15; Eastern Fire Training Pit:** Further vertical delineation is needed for boring 2606, since lead was detected at the 9-11 foot interval at 7210 ppm, nickel was detected at 2460 ppm, and cadmium was detected at 37,200 ppm.
9. **Page 7-15; Recommendations:** Kirtland recommends limited soil removal at the eastern and western pits of the Manzano Fire Training Area to address metals and TPH contamination. Kirtland also recommends that further characterization be conducted at both pits to accurately determine the amount of soil affected by contamination. EPA agrees with both recommendations. In order to fulfill the above recommendations, Kirtland shall submit soil removal plans and soil characterization plans for both pits to EPA and NMED within sixty (60) days of receipt of this letter.

SITES ST-326, USED OIL UNDERGROUND STORAGE TANK; ST-255, ST-256, ST-257, AND ST-258, OIL/WATER SEPARATORS

10. **Page 8-3; Previous Investigations:** Please clarify whether the 1992 lead sampling result of 16.4 ppm was a total or TCLP analysis.
11. **Page 8-3; Section 8.2.3:** Please clarify what Kirtland means by composite sampling.

12. **Page 8-7; 2nd paragraph:** Please explain why borehole logs were not completed for the borings drilled at ST-326.
13. **Page 8-8; Organic Compounds:** Since there were no soil boring logs taken, please explain whether the soil samples were visually or olfactory contaminated.
14. **Page 8-8; Petroleum Hydrocarbons:** Please specify the detection limit for the petroleum hydrocarbon analysis.
15. **Page 8-16; Organic Compounds and Petroleum Hydrocarbons:** Since there were no soil boring logs taken, please explain whether the soil samples were visually or olfactory contaminated.
16. **Page 8-18; Petroleum Hydrocarbons:** Please explain whether the soil samples were visually or olfactory contaminated.
17. **Page 8-20; Recommendations:** EPA may require periodic monitoring if the oil water separators or the tank remain in use.

SITE ST-201, OIL/WATER SEPARATOR

18. **Page 9-8, Recommendations:** If the oil water separator remains in use, then EPA may require periodic monitoring.

SITES ST-202 AND ST-205, SEDIMENT TRAPS; ST-203 AND ST-204, OIL/WATER SEPARATORS

19. **Page 10-1, Previous Investigations:** Has Kirtland notified NMED of the 1992 sampling event indicating TCLP wastes in these units? Please explain.
20. **Page 10-14, Recommendations:** If the oil water separators remain in use, then EPA may require periodic monitoring. EPA disagrees with Kirtland on no further action for Site 203. Heavy metal contamination (cadmium, lead, nickel, and zinc) was found in the most vertical sample taken. EPA agrees with the remaining recommendations.

In addition, Kirtland must submit a soil characterization plan for oil/water separators (OWSs) 202 and 203. This plan is due to EPA and NMED within sixty (60) days of receipt of this letter.

SITE ST-206, OIL/WATER SEPARATOR

21. **Page 11-8, Recommendations:** If the oil water separator is to remain in use, then EPA may require periodic monitoring.

SITE ST-207, OIL/WATER SEPARATOR

22. Page 12-1, Previous Investigations: Has Kirtland notified NMED of the 1992 sampling event which indicated TCLP wastes in this unit? Please explain.
23. Page 12-8, Recommendations: If the oil/water separator is to remain in use, then EPA may require periodic monitoring.

SITE ST-208, OIL/WATER SEPARATOR

24. Page 13-7, Recommendations: If the oil water separator is to remain in use, then EPA may require periodic monitoring.

SITE ST-209, CATCH BASIN

25. Page 14-8, Recommendations: If the catch basin is to remain in use, then EPA may require periodic monitoring.

SITE ST-210, OIL/WATER SEPARATOR, HOLDING TANK, AND FUEL FILTER RACK

26. Page 15-9, Table 15-2: Please explain why there are blanks for the semivolatiles and metal results for samples ST-210-05, 06, 07, and 08.
27. Page 15-14, Recommendations: EPA agrees with Kirtland's three recommendations. However, EPA recommends that the waste system stop receiving wastes immediately.

Kirtland shall submit a removal plan for the Oil/Water Separator, holding tank, and associated piping. In addition, Kirtland must submit a soil characterization plan for the above-mentioned units. All plans are due to EPA and NMED within sixty (60) days of receipt of this letter.

SITE ST-211, OIL/WATER SEPARATOR, AND ST-213, AREA DRAIN

28. Page 16-3, first paragraph: Has Kirtland notified NMED of the 1992 sampling event indicating TCLP wastes in these units? Please explain.

SITE ST-212, OIL/WATER SEPARATOR:

29. Page 17-7, Recommendations: If the oil water separator is to remain in use, then EPA may require periodic monitoring.

Kirtland should include all soil sampling results obtained from removing OW/S 219 and its associated piping. This plan is due to EPA and NMED within sixty (60) days of receipt of this letter.

SITE ST-220, FLOOR DRAIN

40. **Page 22-3, Previous Investigations:** Did Kirtland analyze the waste using the TCLP procedure? Please explain.
41. **Page 22-6, Table 22-2:** The arsenic and cadmium results were omitted from the table. Please submit the arsenic and cadmium results.
42. **Page 22-9, Recommendations:** Since the floor drain serves no useful purpose, Kirtland should close it.

SITE ST-221, OIL/WATER SEPARATOR

43. **Page 23-3, Previous Investigations:** Has Kirtland notified NMED of the 1992 sampling event indicating TCLP wastes in these units? Please explain.
44. **Page 23-10, Recommendations:** Kirtland should test the inflow line for leaks before continuing the use of the line.

SITES ST-222, OIL/WATER SEPARATOR, ST-223, SEWAGE EJECTOR UNIT, ST-224, AREA DRAIN, AND ST-225, HOLDING TANK

45. **Page 24-1, third paragraph:** Please explain why the underground wastewater holding tank has not been investigated.
46. **Page 24-1, Previous Investigation:** Has Kirtland notified NMED of the 1992 sampling event indicating TCLP wastes in the O/WS unit and the holding tank? Please explain.
47. **Page 24-6, Tables:** The arsenic results were omitted from tables 24-3 and 24-4, please include them. The cadmium results were omitted from the remaining two tables, please include them also.
48. **Page 24-14, Recommendations:** If the oil water separator and other units are to remain in use, then EPA may require periodic monitoring. Also, the underground wastewater holding tank should be investigated. Kirtland shall submit to EPA and NMED a workplan for the investigation of the underground wastewater holding tank. This plan is due to EPA and NMED within sixty (60) days of receipt of this letter.

SITES ST-226, OIL/WATER SEPARATOR; SITE-227, HOLDING TANK

49. **Page 25-3, first paragraph:** Has Kirtland notified NMED of the 1992 sampling event indicating TCLP wastes in the O/WS unit?
50. **Page 25-11; Recommendations:** If the oil water separator and holding tank are to remain in use, then EPA may require periodic monitoring.

SITE ST-228, AREA DRAIN

51. **Page 26-3; Table 26-1:** Why is sampling interval ST-228-01 five feet in length?
52. **Page 26-5; Table 26-2:** The cadmium results were omitted from the table, please include them.
53. **Page 26-9; Recommendations:** EPA agrees with Kirtland's recommendations.

SITE ST-229, SEWAGE EJECTOR UNIT

54. **Page 27-1; 1st paragraph:** This paragraph states that this unit receives runoff from area drains located **inside** the perimeter of building 1043. Please clarify whether this runoff is from waste streams inside the building or rainfall outside the building.
55. **Page 27-6 and 7; Table 27-2:** The cadmium results were omitted from the table, please include them.
56. **Page 27-9; Recommendations:** EPA agrees with Kirtland's recommendations, provided that the liquids going to the seepage pit consist of uncontaminated rainwater.

SITES ST-230, OIL/WATER SEPARATOR; ST-231, HOLDING TANK; AND ST-232, SEWAGE EJECTOR UNIT

57. **Page 28-9; Table 28-4:** The arsenic and cadmium results were omitted from this table, please include them.
58. **Page 28-6; Metals:** Please provide an explanation on nickel being above background in sample ST-230-01, the 5 to 9 foot sample, at 212 ppm.
59. **Page 28-14; Recommendations:** If the oil water separator, holding tank and sewage ejector are to remain in use, then EPA may require periodic monitoring.

SITE ST-233, AREA DRAIN

60. Page 29-6; Recommendations: EPA agrees with Kirtland's recommendations.

SITES ST-234, ST-235, ST-236, OIL/WATER SEPARATORS AND ST-237, AREA DRAIN

61. Pages 30-12 and 30-13; Tables 30-5 and 30-6: The arsenic results were omitted from the tables, please include them. The cadmium results were omitted from tables 30-4 and 30-6, please include them.
62. Page 30-19; Recommendations: If the oil water separators are to remain in use, then EPA may require periodic monitoring.

SITES ST-238, ST-239, OIL/WATER SEPARATORS; SITE ST-240, HOLDING TANK

63. Page 31-3; Previous Investigations: Was a TCLP test performed on the samples discussed in this section?
64. Pages 31-7 and 31-9; Tables 31-3 and 31-5: The arsenic results were omitted from the tables, please include them. The cadmium results were omitted from table 31-3 thru 31-5, please include them.
65. Page 31-13; Recommendations: If the oil water separators and the tank are to remain in use, then EPA may require periodic monitoring.

SITE ST-241, OIL/WATER SEPARATOR

66. Page 32-1; Previous Investigations: Has Kirtland notified NMED of the 1992 sampling event indicating TCLP wastes in the O/WS unit?
67. Page 32-5; Table 32-2: The cadmium results were omitted from this table, please include them.
68. Page 32-8; Recommendations: If the oil water separator is to remain in use, then EPA may require periodic monitoring.

SITES ST-242 AND ST-243, OIL/WATER SEPARATORS

69. Page 33-6; Tables: The arsenic results were omitted from the tables, please include them. The cadmium results were omitted from table 33-2.
70. Page 33-11; Recommendations: If the oil water separators are to remain in use, then EPA may require periodic monitoring.

SITES ST-244, OIL/WATER SEPARATOR AND ST-245, HOLDING TANK

71. **Page 34-3; RFI Field Investigation:** It appears to EPA that soil boring 245-01 is approximately 30 feet from the holding tank. This boring should have been closer. Please justify.
72. **Page 34-4; Table 34-2:** Please explain why there were two soil sampling intervals taken over two feet in length. EPA usually requires the analytical sample interval to be only six inches.
73. **Page 34-6; Tables:** The arsenic and cadmium results were omitted from the tables, please include them.
74. **Page 34-10; Recommendations:** Unless justified, EPA believes the soil boring taken for ST-244 was taken too far away and is not usable. If ST-245 is to remain in use, then EPA may require periodic monitoring.

SITE ST-246, OIL/WATER SEPARATOR AND HOLDING TANK

75. **Page 35-11; Recommendations:** If the oil water separator is to remain in use, then EPA may require periodic monitoring.

SITE ST-247, OIL/WATER SEPARATOR

76. **Page 36-1; Previous Investigations:** Were the metal analysis performed using the TCLP method?
77. **Page 36-3; RFI Field Investigation:** Kirtland mentions that a noticeable solvent odor along with elevated PID and FID were observed in the stratigraphy just beneath the concrete; however, analytical results indicated nothing. Please explain this phenomena.
78. **Page 36-6; Table 36-3:** The cadmium results were omitted from the table, please include them.
79. **Page 36-10; Recommendations:** EPA believes that Kirtland should further investigate the area around soil boring 247-01 to locate where the solvent odors are originating. Please justify why further investigation is not necessary.

SITE ST-248, OIL/WATER SEPARATOR; ST-249, USED OIL UNDERGROUND STORAGE TANK

80. **Page 37-3; Previous Investigations:** Has Kirtland notified NMED of the 1992 sampling event indicating TCLP wastes in the O/WS unit or the underground storage tank?

81. **Page 37-7; Tables:** The arsenic results were omitted from the tables, please include them. The cadmium results were omitted from tables 37-4 & 5, please include them.
82. **Page 37-7; Table 37-3:** Please explain why sample ST-248-04 contained nickel at 113 and 131 ppm, the background average for nickel is approximately 14 ppm. Why are these numbers not indicative of a release?
83. **Page 37-13; Recommendations:** If the oil water separator and used oil underground tank are to remain in use then EPA may require periodic monitoring.

SITE ST-250, OIL/WATER SEPARATOR

84. **Page 38-6; Table 38-2:** The arsenic and cadmium results were omitted from the table, please include them.
85. **Page 38-6; Table 38-2:** Please explain why sample ST-250-01, 13 to 17 foot interval, contained nickel at 135 ppm, the background average for nickel is approximately 14 ppm. Are these numbers indicative of a release? Please clarify.
86. **Page 38-8; Recommendations:** If the oil water separator is to remain in use, then EPA may require periodic monitoring.

SITE ST-251, OIL/WATER SEPARATOR

87. **Page 39-6; Table 39-2:** The cadmium results was omitted from this table, please include them.
88. **Page 39-8; Recommendations:** If the oil water separator is to remain in use, then EPA may require periodic monitoring.

SITES ST-252, AND ST-253, OIL/WATER SEPARATORS

89. **Page 40-1; Previous Investigations:** Has Kirtland notified NMED of the 1992 sampling event indicating TCLP wastes in the O/WS units?
90. **Page 40-7; Table 40-4:** The arsenic and cadmium results were omitted from this table, please include them.
91. **Page 40-10; Recommendations:** If the oil water separators are to remain in use, then EPA may require periodic monitoring.

SITE ST-254, OIL/WATER SEPARATOR

92. **Page 41-1; Previous Investigations:** Has Kirtland notified NMED of the 1992 sampling event indicating TCLP wastes in the O/WS units?

93. **Page 41-5; Table 41-2:** The arsenic and cadmium results were omitted from this table, please include them.
94. **Page 41-8; Recommendations:** If the oil water separator is to remain in use, then EPA may require periodic monitoring.

SITE ST-259, AREA DRAIN AND ST-260, OIL/WATER SEPARATOR

95. **Page 42-1; Previous Investigations:** Has Kirtland notified NMED of the 1992 sampling event indicating TCLP wastes in the O/WS units?
96. **Page 42-3; RFI Field Investigation:** Please explain how the liquid from the vadose zone is migrating into the area of borehole ST-259-02. Is there a leak from the drain?
97. **Page 42-8; Table 42-4:** The arsenic and cadmium results were omitted from this table, please include them.
98. **Page 42-11; Conclusions:** EPA disagrees with Kirtland's conclusion that there is no release from ST-260. The results from the 5-9 foot interval in borehole ST260-01 detected four semivolatiles and nickel (nickel at 221 ppm). Please explain your conclusion.
99. **Page 42-11; Recommendations:** Kirtland mentions repairs on Sites 259 and 260. Please provide additional information on these repairs in the revised report.

SITE ST-261, OIL/WATER SEPARATOR

100. **Page 43-1; Previous Investigations:** Has Kirtland notified NMED of the 1992 sampling event indicating TCLP wastes in the O/WS units?
101. **Page 43-5; Table 43-2:** The cadmium results were omitted from this table, please include them.
102. **Page 43-8; Recommendations:** If the oil water separator is to remain in use, then EPA may require periodic monitoring.

SITE ST-262, OIL/WATER SEPARATOR

103. **Page 44-1; Previous Investigations:** Has Kirtland notified NMED of the 1992 sampling event indicating TCLP wastes in the O/WS units?
104. **Page 44-5; Table 44-2:** The arsenic and cadmium results were omitted from this table, please include them.

105. Page 44-8; Recommendations: If the oil water separator is to remain in use, then EPA may require periodic monitoring.

SITE ST-263, OIL/WATER SEPARATOR

106. Page 45-8; Recommendations: If the oil water separator is to remain in use, then EPA may require periodic monitoring.

SITE ST-264, OIL/WATER SEPARATOR

107. Page 46-1; Previous Investigations: Has Kirtland notified NMED of the 1992 sampling event indicating TCLP wastes in the O/WS units?

108. Page 46-8; Recommendations: If the oil water separator is to be continued, then EPA may require periodic monitoring.

SITE ST-265, OIL/WATER SEPARATOR

109. Page 47-8; Recommendations: If the oil water separator is to remain in use, then EPA may require periodic monitoring.

SITE ST-266, AREA DRAIN

110. Page 48-1; Background: Does this drain receive industrial waste in addition to surface water runoff? Please clarify.

111. Page 48-1; Previous Investigations: Has Kirtland notified NMED of the 1992 sampling event indicating TCLP wastes in the O/WS units?

112. Page 48-11; Recommendations: Please explain why soil sampling interval ST-266-07 contained lead at about eight times the background average. This appears to indicate a release. Please explain and discuss in the revised report.

SITE ST-267, OIL/WATER SEPARATOR

113. Page 49-1; Previous Investigations: Has Kirtland notified NMED of the 1992 sampling event indicating TCLP wastes in the O/WS units?

114. Page 49-8; Recommendations: If the oil water separator is to remain in use, then EPA may require periodic monitoring.