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April 7, 1993

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ENTERED

The Hazardous and Radioactive Materials Bureau has completed a technical review of the document "**RCRA Facility Investigation, Holloman Air Force Base, New Mexico, 28 Sites Phase I Work Plan, Volumes I and II, March 1993**" and has provided the attached comments (Attachment I).

If you have any questions please contact Steve Alexander at 505-827-4313.

Sincerely,

Edward Horst, Program Manager
Hazardous and Radioactive Materials Bureau

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ATTACHMENT I

The following comments pertain to the document "**RCRA Facility Investigation, Holloman Air Force Base, New Mexico, 28 Sites Phase I Work Plan, Volumes I and II, March 1993**". Quotes in parentheses are taken directly from the text. Technical comments follow the quotes.

4.1 SWMUs 119 and 2

ITEM	Description
1	P. 4-2, line 7: (**The waste oil skimmed from the oil/water separator is transferred to the adjacent waste oil tank.**). How was the waste oil "transferred" and if it was via a piping system how will the integrity of that piping be verified?
2	P. 4-4, line 4: (**If either unit (active) fails the integrity testing, soil sampling will occur.**). If past activities at the units have resulted in releases (fuel spills, overflows) then this approach will not detect any waste constituents for units still in use. A screening methodology for the surrounding soils should be employed along with the integrity test.

4.6 SWMUs 120 and 15

ITEM	Description
1	P. 4-7, line 6: (**...washwater discharged from the Building 309 vehicle washrack was routed to the separator.**) What is meant by "routed" and should this routing system be investigated?
2	P. 4-7, line 9: (**...waste oil skimmed from the oil/water separator was transferred to the adjacent waste oil tank,...**). How was it "transferred? If it is a piping system how will the piping integrity be tested?
3	P. 4-9, line 1: (**If either unit fails the integrity testing, soil sampling will occur.**). If past activities at the units have resulted in releases (overflows) then this approach will not detect any waste constituents. A screening methodology for the surrounding soils should be employed along with the integrity test.

4.3 SWMUs 121 and 17

ITEM	Description
1	P. 4-12, line 2: (**The period of operation for these SWMUs is from an unknown date to the present.**). The possibility exists that prior to installation of the oil/water separator and waste oil tank the washwater was directly discharged onto the ground surface. Relying only on the vapor monitoring system installed in 1992 may not be adequate to indicate a release has occurred. Additional screening techniques should be employed.
2	P. 4-12, line 8: (**Waste oil skimmed from the oil/water separator is transferred to the adjacent waste oil tank, and water is discharged to the sewer system.**). How was the waste oil "transferred" and if it was via a piping system how will the integrity of that system be verified?
3	P. 4-12, line 21: (**There have been no records of releases occurring at the site.**). Is this meant to verify that no releases have occurred or that no records of releases were found?
4	P. 4-14, line 1: (**If the separator fails the integrity testing, soil sampling will occur.**). If the separator has overflowed in the past then implementing the integrity test will not detect this. Additional screening methods should be used.

4.4 SWMUs 123 and 22

ITEM	Description
1	P. 4-16, line 6: (**Waste oil skimmed from the oil/water separator is transferred to the adjacent waste oil tank, and water is discharged to the sewer system.**). How was the waste oil "transferred" and if it was via a piping system how will the integrity of that system be verified?
2	P. 4-16, line 13: (**There have been no records of releases occurring at the site.**). Is this meant to verify that no releases have occurred or that no records of releases were found?

3 P. 4-17, line 1: (**Specifically, the objective is to determine if waste constituents have migrated into the soil underlying the surrounding area.**). If the oil/water separator or waste oil tank have overflowed in the past the application of the integrity test will not detect this. Additional screening methods should be used.

4.5 SWMUs 126 and 36

ITEM Description

1 P. 4-20, line 7: (**Waste oil skimmed from the oil/water separator is transferred to the adjacent waste oil tank, and water is discharged to the sewer system.**). How was the waste oil "transferred" and if it was via a piping system how will the integrity of that system be verified?

2 P. 4-20, line 13: (**There have been no records of releases occurring at the site.**). Is this meant to verify that no releases have occurred or that no records of releases were found?

3 P. 4-21, line 16: (**If either unit fails the integrity testing, soil sampling will occur.**). If past activities at the units have resulted in releases (overflows) then this approach will not detect any waste constituents. A screening methodology for the surrounding soils should be employed along with the integrity test.

4 P. 4-23, line 14: (**If the contents of the tank and the separator cannot be documented, they will be composited and sampled for TCLP analytes (SW1311) and ignitability (SW1010).**). The oil/water separator and waste oil tank contents should be sampled and analyzed separately. This will avoid dilution of any waste constituent concentrations.

4.6 SWMUs 125 and 32

ITEM Description

1 P. 4-25, line 5: (**The ground surface inside the vault is covered with drain rock.**). Does this mean the floor of the vault is native soil covered with rocks? If so, then any past discharges to the floor could have contributed waste constituents to the underlying soils.

2 P. 4-25, line 7: (**Water from washing the floors and the application of fire suppressant are directed to the Fire Water Tank.**). How were the liquids "directed" to the Fire Water Tank? Also, how was the waste oil from the oil/water separator "redirected" back to the Fire Water Tank. How will this directing and redirecting system be investigated for leaks?

3 P. 4-26, line 7: (**Static water level integrity tests will be performed...the 2 units are possibly leaking.**). If past activities at the units have resulted in releases (overflows) then this approach will not result in the detection of waste constituents. A screening methodology for the surrounding soils should be employed along with the integrity test.

4 P. 4-28, line 8: (**The contents of the units will be composited and sampled for TCLP analytes (SW1311) and ignitability (SW1010) if the nature of the contents cannot be determined by other means.**). The oil/water separator and Fire Water Tank contents should be sampled and analyzed separately. Compositing the samples could dilute the waste constituent concentrations.

4.11 **SWMUs 54 and 55**

ITEM Description

1 P. 4-52, line 1: (**Two boreholes will be drilled in locations where soil gas survey results indicate...**). It is not clear what constitutes "indicate" and how will the soil gas survey screen for metals?

4.17 **SWMU 91**

ITEM Description

1 P. 4-71, line 1: (**The period of operation for the SWMU is unknown.**) Is it possible to estimate the period of operation from existing documentation?

2 P. 4-71, line 2: (**The SWMU consists of a concrete pad sloped to a catch basin that discharges to the sewer system.**). What are the materials of construction for the catch basin? If properly constructed, has the catch basin been in place during the entire period of operation of the SWMU? If not, samples should be taken immediately adjacent to the catch basin. Also, has the SWMU always discharged to the sewer system or did it discharge to the ground surface in the past? Samples should be taken of soil and/or groundwater which may have been impacted by past releases from the site.

4.18 SWMU 136

ITEM Description

1 P. 4-75, line 15: (**Samples for chemical analysis will be taken from the first 2-ft increment (0-2 ft), from the 2-ft increment with the highest HNU reading, and from the 2-ft increment which intercepts the groundwater interface.**). Since the depth to groundwater is not known a considerable vertical distance of vadose zone may go unsampled if the HNU does not detect volatiles. A sample should be taken regardless of the HNU readings between the upper 2-ft sample and the 2-ft groundwater intercept. Also, two samples should be taken at the downgradient end of the washrack drain.

2 P. 4-77. Samples should be analyzed for semi-volatiles also.

4.19 SWMU 141

ITEM Description

1 P. 4-79, line 9: (**No activities will occur at SWMU 141 during the Phase I RFI.**). How does this fulfill the first of the two stated "Phase I Objectives" (P.1-9, Volume I) which is: "Determine if a release has occurred at each SWMU.". The objective of the investigation at SWMU 124 does not meet the overall objective of the Phase I RFI. Sampling of the potentially impacted soils on site should be conducted.

4.20 SWMU 164

ITEM	Description
1	P. 4-83, line 21: (**A sample will be collected from the 0- to 2-ft depth interval, from the 2-ft increment in each borehole between the initial increment and the groundwater table that shows the highest reading on an HNU (or equivalent), and from the increment which intercepts the groundwater table.**). Since the depth to groundwater is not known a considerable vertical distance of vadose zone may go unsampled if the HNU does not detect volatiles. A sample should be taken, regardless of the HNU readings, between the upper 2-ft sample and the 2-ft groundwater intercept.

4.21 SWMU 124

ITEM	Description
1	P. 4-86, line 10: (**The objective of the RFI Phase I study for SWMU 124 is to determine the waste classification (...) of the waste oil contained in the tank,...**). The first of the two stated "Phase I Objectives" (P.1-9, Volume I) is: "Determine if a release has occurred at each SWMU.". The objective of the investigation at SWMU 124 does not meet the overall objective of the Phase I RFI. Sampling of the potentially impacted soils on site should be conducted.

4.22 SWMU 155

ITEM	Description
1	P. 4-91, line 1: (**Specifically, the objective is to determine if waste constituents have migrated into soils surrounding the area.**). Considering the toxicity of the waste constituents discharged to the Imhoff Tanks and subsequently discharged to the sludge drying beds, along with the length of time in service, the groundwater beneath the site should be sampled for all Appendix IX constituents.
2	P. 4-91, line 9: (**Each bed will be delineated...in Figure 4-22.**). How will each bed be delineated?

3 P. 4-91, line 9: (**Within each bed 4 hand-augured samples will be collected from a depth interval of 6 in. to 1 ft.**). Sludge accumulation depth may be one foot or more resulting in samples of the sludge and not soil. Also, deeper contamination may not be detected from such shallow depths. A deeper soil sample should be obtained.

4.23 **SWMU 156**

ITEM Description

1 P. 4-93, line 6: (**The water was collected by an underground piping system...**) The text does not describe how the underground piping system is to be investigated.

2 P. 4-93, line 10: Are the tanks open-topped or covered?

3 P. 4-94, Figure 4-23: The scale of this figure appears to be in error. The figure shows the tanks to be approximately fourteen feet in diameter but the text states the tank diameters are approximately twenty-six feet. Please explain the apparent discrepancy and if the distance between the RFI samples shown is accurate.

4 P. 4-95, line 13: (**...samples of the sludge will be taken from each tank, composited into one sample,...**) Compositing samples taken from all the tanks may not yield results representative of the waste present in any one tank and could dilute, below detection, low levels of waste constituents. Additionally, if there is significant volumes of waste in any one tank the possibility exists that the contents have stratified. Samples taken and analyzed from discrete depths may be necessary in order to properly characterize the contents.

5 P. 4-96, line 2: (**Samples from each borehole will be collected at 4 ft BGL and at the groundwater interface,...**) A sample taken immediately below and adjacent to the bottom of each tank would better indicate releases from the tanks.

4.24 SWMU 184

ITEM	Description
1	P. 4-100, line 4: (**At 2 of the above locations,...to groundwater and samples collected from the interval which intercepts the groundwater interface.**). Considering the waste constituents which have passed through the pipe all samples should be analyzed for Appendix IX constituents.
2	P. 4-100, line 14: (**On the basis of the 1987 analysis of the wastewater passed through the line, all soil samples will be analyzed for total metals...**). Considering the waste constituents which have passed through the pipe all samples should be analyzed for Appendix IX constituents.

4.25 SWMUs 177, 179, and 181

ITEM	Description
1	P. 4-101, line 21: (**Interviews with past employees suggest that the washrack and drainage trenches could have received wastes.**). Where is the washrack located and are the drainage "trenches" also the drainage "troughs"?

4.26 SWMU 101

ITEM	Description
1	P. 4-108, line 11: (**As a result of these findings, no field investigations will occur at this site during RFI Phase I.**). Has the EPA reviewed the documentation used to make this determination?

4.27 **SWMU 183**

ITEM	Description
1	P. 4-110, line 13: (**Specifically, the objective is to determine if waste constituents have migrated into the soils surrounding the sewer line.**). The "how" of this investigation is not detailed enough. Although the long-term replacement of the Base sewer lines includes "removal of visually contaminated material encountered while replacing lines" more details need to be provided. A detailed description of how the investigation would be conducted could be included with the details of the sewer line replacement.