DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 49TH FIGHTER WING (ACC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO

MEMORANDUM FOR New Mexico Environment Department
Attn: Mr Steve Pullen
525 Camino de Los Marquez
Santa Fe, NM 87502-6610

FROM: 49 CES/CEVR
550 Tabosa Ave
Holloman AFB, NM 88330-8458

SUBJECT: Response to New Mexico Environment Department (NMED) Comments on Preliminary Assessment/ Site Investigation Report

1. Attached is a copy of Holloman AFB's response to NMED comments on the Preliminary Assessment/Site Investigation Report on Installation Restoration Program Sites SS-12, SD-27, OT-35, and LF-58. Additional information is being included to support the recommendations in the report. Based on this information, the recommendations in the report should remain unchanged. These comments will serve as an addendum to the report to reflect the new information.

2. A conference call between 49 CES/CEVR, US Environmental Protection Agency Region VI, NMED, US Army Corps of Engineers, Omaha District, and Radian Corporation will be held on 2 Mar 94 at 0900 to further discuss this matter.

3. Direct any questions or comments concerning this matter to Mr Randy Louvier or Mr Bob Johnson at 475-3931.

HOWARD E. MOFFITT
Deputy Base Civil Engineer

Attachment
Response to NMED Comments

cc: w/Attachment

Mr Dave Morgan
Harold Runnels Building
1190 St Francis Dr
Santa Fe, NM 87503

Mr Tom Holcomb
Radian Corporation
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Mr Ron Stirling
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Omaha District/CEMRO-ED-EA
215 N. 17th Street
Omaha, NE 68102-4978

Mr Lowell Seaton
US EPA Region VI
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Response From Holloman AFB to Comments on New Mexico Environment Department Preliminary Assessment and Site Inspection Report

Site SS-12 - JP-4 Fuel Line Spill Site

Comment 1: A soil sample(s) should be collected and analyzed from the seemingly pervasive stratum underlying the site described in the report drilling logs as having a "stained gray" color and a "foul odor". This sample(s) should be collected from the most highly contaminated area. Samples should be analyzed for TPH as well as volatile and semivolatile compounds.

Response: Soil samples from each interval in each boring were screened visually and with the photoionization detector (PID), and the most highly contaminated interval from each boring was submitted for laboratory analysis. Although stained soil was seen in BH-12-03, near the housing area sanitary sewer line, and in BH-12-02, adjacent to the JP-4 pipeline, no stained soil was seen in BH-12-06, located in between these two areas, indicating the presence of two separate areas of stained soil rather than a pervasive stratum beneath the site. Furthermore, the soil gas surveys conducted across the entire site indicated two isolated areas where volatile organic constituents may have been present. The results of the soil sampling activities were consistent with the findings of the soil gas survey.

Additionally, the stained soil in the two areas was different in appearance and odor. The stained soil near the housing area sanitary sewer line was light gray, had a sour, sewer-like odor, and registered no readings on the PID. No fuel hydrocarbon constituents were detected in the soil and groundwater samples collected from this area. Therefore, the stained soil near the housing area sanitary sewer line is most likely the result of a local sewer leak rather than a fuel spill. The stained soil near the JP-4 pipeline was dark gray to brown and did not have a sour odor. This stained soil is probably the result of street runoff collecting in the storm sewer outfall and percolating into the underlying soil. Stained soil from this area registered low levels of volatiles on the PID, and traces of petroleum products were detected in the soil samples collected in the area. PID readings and detected constituent concentrations are not high enough to indicate a fuel spill in the area, but can be reasonably attributed to storm sewer runoff in which low levels of petroleum hydrocarbons would be expected.

Samples were analyzed for total fuel hydrocarbons (TFH) using modified method SW8015. Modified method SW8015 will provide results for the key volatile organics associated with fuels in the purge and trap GC analysis (gasoline and BTEX constituents). Semivolatile fuel components (JP-4 and diesel) were estimated from the solvent extraction aliquot. TFH analysis was selected because it will detect organic compounds associated with petroleum fuel products, which is appropriate for a fuel line spill site.

TFH analysis is a speciated approach by which Total Recoverable Petroleum Hydrocarbons (TRPH) can be estimated. At this site, the TFH concentration in the soil is 35 ug/g, which is well below the New Mexico TRPH cleanup standard of 1000 mg/kg. Further analysis for TRPH (using EPA method 418.1), and volatile (SW8240) and semivolatile (SW8270) organic compounds, is not likely to provide further useful information.

Comment 2: Further investigation needs to be performed to evaluate the horizontal extent of both soil and groundwater contamination at this site before we can agree to the recommendation for closeout.

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Response: Prior to sampling activities, passive and real-time soil gas surveys were performed at the site to locate and delineate the horizontal extent of potentially contaminated areas. Soil gas survey results indicated two potentially contaminated areas. One area was near the JP-4 pipeline in the vicinity of the storm sewer outfall. The other area was near the housing area sanitary and storm sewer lines. It was in this area that possible contamination was encountered during storm sewer installation in 1992.

Prior to drilling in the potentially contaminated areas, 10 hand auger samples were collected and screened visually and with the PID to more closely define potentially contaminated areas. The two most highly contaminated samples, as indicated by visual and PID screening, were submitted for laboratory analysis. Soil gas survey and soil screening results were used to locate the remaining sampling points in potential hot spots. Soil samples from each interval in each soil boring were screened visually and with the PID, and the most highly contaminated intervals submitted for TFH analysis. Kerosene was detected at a concentration of 35 ug/g in one sample. No other constituents were detected in site soils.

Monitor wells were also installed in the potential hot spots at the site, as indicated by the soil gas surveys and soil screening results. Groundwater samples were collected and submitted for TFH analysis. The fuel hydrocarbon constituents benzene, ethyl benzene, toluene, and xylene were detected at low levels in one or two site groundwater samples, but concentrations were far below risk based action levels.

Additional sampling and analysis are unlikely to provide further useful information about the site, since the nature and extent of contamination have been defined by the soil gas surveys, soil screening, soil borings, and monitor wells. Soil borings and monitor wells were placed in the areas with the highest potential for contamination, and chemical analytical results for soil and groundwater samples indicate that detected concentrations of kerosene in soil, and benzene, ethyl benzene, and toluene in groundwater are far below risk based action levels and the New Mexico TRPH standard of 1000 mg/kg.

Comment 3: We are concerned that the report does not address two possible routes of exposure at this site: the potential for harmful vapors in houses or other structures, and the possibility of diffusion of organic contaminants into PVC drinking water lines in the vicinity. Have these scenarios been considered?

Response: Harmful vapors in houses and other structures, and the diffusion of organic contaminants into PVC drinking water lines would be possible routes of exposure if sufficient levels of contamination were present at the site. However, since no constituents were detected in that area of the site, and concentrations were far below risk based action levels in the other area of the site, it is highly unlikely that these or any other exposure pathways at the site pose a risk to human health or the environment.

Comment 4: More specific information should be included in the report about the storm sewer and pipeline at this location. For instance:
What area is drained by the storm sewer, and could it have contained substantial contamination sources?
What evidence is there that the petroleum product encountered in the storm water sewer trench is a result of a release from the fuel supply line?

The report text (p. 4-1) states that "the location of the spill could not be confirmed"; and appendix C.2 includes notes of a conversation with Mr. Pete Carbajal who mentions two spills from the JP-4 pipeline. Why was this site selected for investigation of the pipeline leak; was Mr. Carbajal's information used in site selection; and is there a rationale for investigation of one but apparently not the other pipeline leak?

Response: The housing area sanitary sewer line and the storm sewer line are two different systems(see attached figure). The housing area sanitary sewer line originates in the housing area, then connects to a line in the main base sewer system which runs directly to the sewage lagoons. A leak from this sanitary sewer line could be the source of the stained soil encountered in BH-12-03. The storm sewer line drains runoff from roads and parking lots to the storm sewer outfall. The housing area does not contain any known substantial contamination sources. However, low levels of petroleum hydrocarbons would be expected in runoff from roads and parking lots, since automobiles do leak fuel and oil. The very low concentrations of benzene, ethyl benzene, toluene, and kerosene detected at Site SS-12 are most likely from this source.

The area where contamination was encountered during storm sewer installation is hydrogeologically upgradient of the JP-4 pipeline, and no fuel hydrocarbon constituents were detected in samples from this area. Therefore, any contamination present is not the result of a fuel line leak. As explained in response #1, stained soil in the area may be the result of a release from the housing area sanitary sewer line.

One of the spill sites mentioned in the record of the conversation with Pete Carbajal on 20 October 1992 is IRP Site SS-06, located approximately 1/4 mile north of Site SS-12, and was not included in the scope of this investigation. With respect to Site SS-12, the general area, rather than the exact location of the spill, was known prior to site investigation activities. Passive and real time soil gas surveys were used to locate the leak within this general area. As discussed in response #2, the soil gas surveys located two areas of potential contamination within the general area of Site SS-12.

Site SD-27 - Pad 9 Washrack Area

Comment 1: Further information needs to be provided to evaluate the vertical extent of soil contamination within the former pit area at this site before the NMED could agree that a potential risk to human health and the environment does not exist and the site should be recommended for close-out.

Response: Soil samples from each interval in each boring were screened visually and with the PID. The most highly contaminated interval from each boring was submitted for laboratory analysis. For the two borings drilled within the former pit, the most highly contaminated interval was also the shallowest contaminated interval, which was at a depth of approximately 8 to 10 ft and was the base of the former pit. The intervals below the base of the former pit became less contaminated with depth, as indicated by visual and PID screening. Additionally, all contamination is below the water table and no floating product is present.

The fuel hydrocarbon constituents kerosene, ethyl benzene, toluene, and xylenes were detected at low levels in a soil sample from the pit, but concentrations were well below risk-based

action levels, and the most highly contaminated area is overlain by 10 ft of clean, backfilled soil. Any exposure to the soil with the highest concentration would not result in risk. Furthermore, the only exposure at this site is to clean, back-filled soil. Therefore, further sampling is not needed to evaluate the overall risk posed by the site, and is not likely to provide information significantly different from what is already known.

Comment 2: The possibility of contaminated environmental media below the drainage gallery sump has not been addressed . In particular, does the sump have a concrete bottom?

Response: The sump has a concrete bottom that appears to be intact.

Comment 3: The ORNL waste acceptance criteria for radioactive soils in appendix A.4 apparently do not apply to transuranic waste; the same appendix mentions that no transuranics are expected at any of the sites. Is there documentary or other evidence for this?

Response: Transuranics are elements that are heavier than uranium (atomic number greater than 92), but unlike uranium and a few other radioisotopes, do not occur naturally. Except for an extremely small quantity produced by cosmic radiation, transuranics are "man-made". Transuranics that exist in abundance, such as plutonium, were reactor produced for use as a reactor fuel or in weapons. A few transuranics, such as americium and californium, have commercial applications, but the quantities involved are small. Americium is used as an ionizing material in smoke detectors, and californium, since it spontaneously emits neutrons, is used in well logging and other operations where neutron activation is desirable. Fallout from the denotation of nuclear weapons contains some transuranics, but they are not present in measurable quantities beyond the immediate point of denotation, except for plutonium. Some plutonium has spread worldwide through fallout, but is ubiquitous and has generally not been found to contaminate soil beyond 1 pCi/g. Transuranics are not found in easily measurable quantities beyond the immediate vicinity of nuclear facilities where reactor fuel is produced and separated, or where nuclear weapons are fabricated, so they are not expected to be present at Site SD-47.

Comment 4: Reported contaminant concentration units should all be similar to make comparison easier. Table 5-2 reports hydrocarbon concentration in µg/g (is this a typo?) and µg/kg while the text references mg/kg.

Response: The laboratory reported TFH results for soil in ug/g (ppm). The text discusses concentrations in mg/kg (also ppm). Concur that the labels in the text should match the labels in the table, though in this case the relative units are the same.

Site OT-35 - Spent Solvent Disposal Area

Comment 1: The laboratory method(s) used, and hence the compounds looked for, in the organic analysis should be specified in the report.

Response: Concur, laboratory methods for organics should be specified. Site samples were analyzed for volatile organic compounds by method SW8240.

Site LF-58 - Incinerator/Landfill

Comment 1: We concur with the recommendations for further work.

Response: No comments.