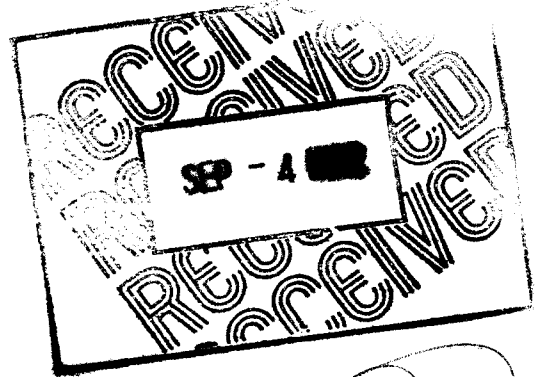


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EOB 92



Department of Energy
Field Office, Albuquerque
Los Alamos Area Office
Los Alamos, New Mexico 87544

SEP 4 1992



Edward Horst, RCRA Program Manager
Hazardous and Radioactive Materials Bureau
State of New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Drive, P. O. Box 26110
Santa Fe, NM 87502

Dear Mr. Horst:

This letter is in response to your letter of July 7, 1992, expressing your intent to deny our clean closure demonstration at the Technical Area 35 TSL-125 waste oil surface impoundment. Recall that on August 13, 1992, we requested (and were granted) an extension to your initial 30-day deadline until September 4, 1992.

Two distinct concerns were raised in your letter: 1) we have not demonstrated that releases from the unit impacting surrounding soils or surface water are below health-based levels; and 2) the vertical extent of contamination has not yet been determined.

In response to your first concern, Enclosure 1 consists of a one-page sampling plan and a figure that shows the locations of proposed sampling points. This sampling plan was developed in cooperation with your staff and is submitted for your review and approval. Once the sampling plan is approved and executed, we will compare the data generated to health-based action levels and submit a report for your approval.

Enclosure 2 consists of two sets of figures and their supporting data. The first set of figures (Figures 1 and 2) compares contaminant concentrations (for which risk data has been published) to action levels for the volatile organics that are regulated hazardous constituents. Figure 1 presents the fixed laboratory data for corehole #1 (located along the edge of the former impoundment) as a function of depth, plotted on a semi-log scale for practical comparison to action levels. Note that in all cases, peak concentrations (at the 20-25 foot depth) are at least 2.5, and usually three, orders of magnitude lower than action levels, which were calculated with considerable conservatism as described in the closure report (see enclosure 5 in the closure report). On this graph and on Figure 2, values less than method detection limits have been plotted at the detection limit (5 ppb, as opposed to zero) because of the semi-log scale, and compounds that showed up in trip and method blanks at similar concentrations were not plotted (e.g., methylene chloride and carbon disulfide). Figure 2 presents the same information, but for corehole #2. Action levels are three to four orders of magnitude higher than contaminant concentrations for this location.



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The second set of figures (Figures 3, 4, and 5) are presented to facilitate discussion of the vertical extent of contamination. Figure 3 is the same as Figure 1 except that it has been plotted on a linear scale, making it impossible to show action levels. Figure 3 clearly illustrates that contamination remains at the 20-foot depth in corehole #1, which is where the bottom of the excavation stopped before the site was backfilled. Figure 4 multiplies the vertical scale in Figure 3 by a factor of approximately 10 to observe results in the lower concentration ranges. Based on these two figures, the trend in corehole #1 is obvious: contamination disappears beyond 30 feet. However, as we mentioned in our last letter, your staff was lead to believe that this hole was contaminated at depth by a typographical error in a data summary that appeared in our closure report. Again, we apologize for this mistake and reiterate that we have taken steps to ensure that it does not happen again.

Figure 5 shows a contaminant profile for corehole #2 (which went through the center of the former impoundment) based on the fixed laboratory analyses. A similar trend is evident in this hole. Contamination remains at the original depth of the impoundment (again, well below action levels), and drops off rapidly with depth. Note that a single data point for trichlorotrifluoroethane (Freon-113) appears at the 55-foot depth, barely above its detection limit, at 8.9 ppb. Concerning this datum, it is important to keep in mind that analytical uncertainty increases greatly near the published detection limit. SW-846 defines Method Detection Limits (MDLs) as "the minimum concentration of a substance that can be measured and reported with 99% confidence that the value is above zero," and emphasizes that "the Method Detection Limit will vary depending on the instrument sensitivity and matrix effects." The 8.9 ppb value is inconsistent with the trend in the data (particularly the previous three core samples), which indicates that residual contamination is limited to the 20-30 foot interval, and may actually be below the "real" (matrix specific) MDL for this site and compound.

Quantification of this "real" MDL would be difficult at best. In chapter one of SW-846, Section 1.3, the procedure for estimating MDLs is presented. As defined in this section, the MDL is obtained by triplicate analysis of a spike to the sample matrix of each compound of interest. Thus, accurate MDLs would have to be determined for every matrix, and potentially even for every sample to be truly valid, because of site-specific heterogeneity and anthropogenic or other interferences. In recent meetings, your staff have indicated their intent to judge the vertical extent of contamination based on the presence of three consecutive core samples at five-foot intervals that show no contamination in excess of "MDLs". Because of the inherent uncertainty in the quantification of MDLs, we are greatly concerned with this proposed policy.

Another significant point to be made concerning the trichlorotrifluoroethane results is that this compound is not a regulated hazardous waste or constituent. Consequently, no health risk data has been published for it and no action levels are shown on any of our graphs.

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As promised, Enclosure 3 is the mobile gas chromatograph/mass spectrometer data. During closure activities at TSL-125, this field instrument was used as a screening tool to guide drilling operations (i.e., near real-time analyses were used to determine the approximate vertical extent of contamination so that the driller would know when to stop drilling). We must caution you, however, that this data was never intended to serve as a basis for decision-making (other than the screening previously described). Rather, the field effort was seen as an opportunity to demonstrate the efficiency of an emerging technology. Note, for example, that several data points (between 20 and 45 feet) are missing in corehole #1 because the mobile lab was unable to keep up with the field effort. The quality assurance associated with this data is not as thorough as that for the fixed laboratory data. Nevertheless, the same decreasing trend with depth is evident in the mobile lab data as well.

To summarize, a sampling plan for characterization of adjacent surface soils is enclosed to address the first concern expressed in your July 7 letter. We feel that the vertical extent of contamination has been well characterized; a single result near the detection limit at the bottom of one hole for a compound that is not even a hazardous constituent should not guide the data interpretation. Little value would be added if your staff were to require the additional borings requested in your July 7 letter. If there are any remaining issues after your review of this package is complete, please contact Steve Slaten of my staff at 665-5050.

Sincerely,



Joseph C. Vozella, Acting Chief
Environment, Safety and Health
Branch

3 Enclosures

cc w/enclosures:

T. Gunderson, EM-DO, LANL, MS K491
R. Vocke, EM-13, LANL, MS K481
J. Krueger, EM-13, LANL, MS M992



Enclosure 1:
Sampling Plan

SAMPLING AND ANALYSIS PLAN FOR THE CHARACTERIZATION OF AN AREA DOWN-GRADIENT FROM THE TA-35 TSL-125 SURFACE IMPOUNDMENT

In consultation with New Mexico Environment Department personnel, six sampling points have been located down an erosion channel from TSL-125 to a drainage channel in Ten Site Canyon (Figure 1). The sampling points were located approximately 17, 44, 69, 89, 103 (left fork), and 116 feet from the southern edge of the surface impoundment rim. Two additional sampling points were located in the drainage channel approximately 63 feet up-gradient and 68 feet down-gradient from sampling point #6. All soil samples will be collected and processed according to the protocol described in SW-846. Los Alamos National Laboratory Environmental Restoration Standard Operating Procedures (LANL-ER-SOP) that will be followed during this sampling operation will include: 1.01, General Instructions for Field Investigations; 1.02, Sample Containers and Preservations; 1.03 Handling, Packaging, and Shipping of Samples; 1.05, Field Quality Control Samples; and 6.09, Spade and Scoop Method for Collection of Soil Samples. Level D personal protection equipment will be worn.

All soil samples will be split with NMED personnel. At each sampling point, a soil surface sample will be collected with a Teflon scoop, placed into a stainless steel bowl, mixed, placed into the appropriate containers, labeled, and sealed with chain-of-custody tape, bagged into Ziploc plastic containers, and transported back to TA-59 in a locked ice chest at 4°C. One replicate soil sample (collected at sample location #2), one trip blank, one field blank, and one equipment blank will also be collected.

Samples will be screened by EM-8 for gross alpha, beta, and gamma radioactivity before they are submitted with chain-of-custody documentation to the Environmental Chemistry Group (EM-9) for analysis. Samples will be analyzed in accordance to EM-9's Quality Assurance for Health and Environmental Chemistry (LANL Report LA-11637-MS). The chemical constituents of concern, the Environmental Protection Agency methodology, and the sample containers they will be placed in are as follows:

- Hazardous Substance List (HSL) total heavy metals (Ag, As, Ba, Be, Cd, Cr, Hg, Ni, Pb, Sb, and Se), EPA Method 3050, 500-ml Nalgene bottle;
- Volatile Organic Compounds (VOC), EPA Method 8260, two 40-ml glass vials;
- Semi-volatile Organic Compounds (SVOC), EPA Method 8270 [and gel permeation chromatography (size exclusion analysis) will be used to separate hydrocarbon oils from SVOCs], and Polychlorinated Biphenyl Compounds (PCBs), EPA Method 8080, 250-ml wide-mouth glass jar with a Teflon-lined lid; and
- Total Petroleum Hydrocarbons (TPHs), EPA Method 9073, 40-ml amber glass vial.

All sample locations will be surveyed (by the New Mexico State Plane coordinate system) for future reference. Similarly, all records associated with this sampling effort will be sent to the ER Records Processing Facility at the conclusion of the study. These records will include (1) the approved sampling plan (along with review comments); (2) chain-of-custody forms; (3) raw data, and (4) a report summarizing sampling activities.