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OCT 30 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Benito Garcia, Bureau Chief
New Mexico Environment Department
Hazardous and Radioactive Materials Bureau
2044 Galisteo Street
P.O. Box 26110
Santa Fe, NM 87505-2100

CERTIFIED MAIL
OCT 30 1997

Dear Mr. Garcia:

Enclosed are two of the Department of Energy/Sandia National Laboratories, New Mexico response to the July 31, 1997, Notice of Deficiency (NOD) for the Technical Areas III and V RCRA Facility Investigation Report.

If you have any questions, please contact John Gould at (505) 845-6089, or Mark Jackson at (505) 845-6288.

Sincerely,
George K. Jackson
Michael J. Zamorski
Acting Area Manager

Enclosure



ASWA JNL 1306

✓

cc w/enclosure:

S. Arp, AL, ERD

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**Sandia National Laboratories
Environmental Restoration Project**

Comment Responses

**Notice of Deficiency July 31, 1997
Results of the Technical Area III and V RCRA Facility Investigation
Submitted to EPA and NMED June 1996**

The following are Department of Energy (DOE) and Sandia National Laboratories/New Mexico (SNL/NM) Environmental Restoration (ER) Project responses to the Notice of Deficiency (NOD) comments (July 31, 1997) for the Technical Area III and V RCRA Facility Investigation. Prior to responding to the NOD, a meeting with representatives from the New Mexico Environment Department (NMED) Hazardous and Radioactive Materials Bureau (HRMB), Department of Energy (DOE) Oversight Bureau (OB), the DOE, and the SNL/NM ER Project was held on September 15, 1997 to provide an opportunity to discuss any questions concerning the comments and their responses. A list of attendees at the September 15 meeting is included in Attachment 1.

GENERAL DEFICIENCIES

Comment 1

Table 2-6. Upper Tolerance Limits for Target Analyte List Metals in Technical Areas III and V Soils, page 2-16, shows upper limits for barium, chromium, and silver which are higher than those proposed in SNL's Background Study report (March 1996). An explanation as to why the upper limits are higher must be provided.

Response to Comment 1

The Upper Tolerance Limits (UTLs) for the SNL/NM Background Study had not been calculated nor approved by the NMED or the USEPA by the time the TA-III/V data were being evaluated and the report written. To provide comparisons to background, a subset of the data from the SNL/NM Background Study was used to perform statistical analyses to obtain UTLs for TA-III/V. These calculations are described on pages 2-11 through 2-19 of the TA-III/V RFI report and in Appendix E. The SNL/NM Background Study reports background from five 'Super Groups', one of which is the Southwest Super Group that included background data from TA-III, TA-V, McCormick Ranch, and Thunder Range. The TA-III/V RFI report used a subset of the background data that included only TA-III and TA-V. Table 1 (Attachment 2) contains the TA-III/V RFI UTLs and the SNL/NM site-wide UTL. A comparison of the maximum values for each site indicates that very few samples (<10) that passed the TA-III/V UTLs exceeded the SNL/NM site-wide background values. This difference has not impacted the recommendations made in the TA-III/V RFI Report for

any site. See Response to Comment 9 for a discussion of the comparison of soil analytical results to background values.

Comment 2

Appendices B, C, and D (on disk) do not contain the full data set. An explanation as to why and how the full data set was queried to create the abbreviated data files must be provided. The complete data set must be referenced and made available upon request.

Response to Comment 2

The complete data set was queried and results below the method detection limits (MDL) were removed to provide a much more manageable data set for assessment and evaluation purposes. The data in Appendices B, C, and D include all data except for nondetects (NDs). The complete data set (on electronic disk) is available through the ER Project.

Comment 3

Throughout the approved RCRA Facility Investigation (RFI) Work Plan, a commitment was made to conduct additional interviews with current or former employees who may have historical knowledge of site operations. However, the RFI Report does not mention whether these interviews were conducted. The results of any interviews that were conducted during the investigation must be discussed. If no additional interviews were conducted, this fact should be included and discussed.

Response to Comment 3

No additional interviews were conducted with former employees who may have knowledge of past site operations. Efforts were made to contact former employees, however, these were unsuccessful. Interviews with current employees provided no additional useful historical information for any of the sites. Current employees did provide logistical coordination for the field investigations.

Comment 4

The aerial photographs reviewed during the RFI were dated from 1973 to 1990. Any older aerial photographs which are available must be identified and discussed.

Response to Comment 4

The ER Project has compiled an index of available aerial photographs (dating back to the 1930s) of KAFB and SNL/NM from many sources. This index is available for review at the ER Project Office, however, no aerial photographs in this index encompass areas in TA-III and TA-V prior to 1973.

Comment 5

SNL continues to use analysis for total petroleum hydrocarbons (TPH) instead of analyses for specific constituents, such as benzene, toluene, and ethylbenzene. EPA Methods 8240, 8020, and unmodified 8015 must be used.

Response to Comment 5

This issue was addressed initially in the TA-III/V Work Plan Comment 14. Our response to the RFI Work Plan Comment 14 was that analytes would be selected based on process knowledge and site history wherever possible to avoid resampling. If laboratory determination of TPH were called for, a small number of verification samples using Method 8240 would be performed at several sites. If Method 8240 were used, then analysis with Method 8020 would be redundant. Analytes from Method 8015 were not expected to be present at any of the sites, and therefore, this analysis would not be performed.

The response to Comment 14 on the RFI Work Plan was approved by EPA Region VI. Verification samples using Method 8240 were done for ER Sites 36, 37, and 196 for some samples that had detectable TPH. Other sites that had petroleum hydrocarbons (ER Site 31 and 34) as COCs did not have elevated TPH in soil samples. Soil samples from those sites that solely had mineral oil leaks/spills (ER Site 35 and 18) were analyzed by Method 418.1. A chromatograph spectrum for the mineral oil associated with the mineral oil-impacted sites is included in Attachment 3. The MSDS for Diala AX™ oil is also included (Attachment 3). Submission of the MSDSs for the transformer and hydraulic oils (Diala AX™, Univolt™, Shell 61™, Regal™) typically used at these sites were included in the responses to the RFI Work Plan comments (November 1993) in Attachments 8 and 10. The chromatogram of Shell Diala AX™ oil used at SNL/NM ER Sites 31, 34, 35, 36, and 37 displays a “backbone” fingerprint typical of hydrocarbons/mineral oil. Peaks on the chromatogram were tentatively identified based on mass spectra and labeled with corresponding carbon mass fragments.

Comment 6

Groundwater data exist from SNL/NM monitoring wells located in and near Technical Area (TA) III and TA V. Steady and sporadic detection of trichloroethylene (TCE), elevated nitrate, toluene, total chrome and other contaminants have been documented in some of these wells. These well locations can potentially serve as up-gradient or down-gradient wells. A summary table of these monitoring wells' results and a map of well location must be included in the RFI report.

Response to Comment 6

Results indicate quite conclusively that the ER sites investigated within the scope of the TA-III/V RFI report are not the source of TCE (or other contaminants found in monitoring wells at TA-V). None of these sites has been found to impact underlying groundwater.

The DOE and SNL/NM ER Project is continuing to investigate groundwater at TA-V as a separate issue. A summary table of analytical results of groundwater sampling and a map showing well locations will be included as part of the information provided concerning the investigation of groundwater at TA-V.

Comment 7

At all sites having oil-contaminated soils (e.g. Environmental Restoration (ER) Site 18), soils with TPH exceeding 100 ppm should be excavated and treated/disposed of in accordance with New Mexico Environment Department (NMED) Underground Storage Tank (UST) Regulations.

Response to Comment 7

Comment 7 appears to be contradictory to Comment 10 (please refer to Comment 10). During the September 15 meeting, the ER Project requested regulatory guidance on soils contaminated with mineral oil. Mineral oil is not a RCRA-regulated hazardous substance. The cleanup standards for petroleum hydrocarbons in the New Mexico Underground Storage Tank regulations (20NMAC5) were used for lack of any other regulatory guidelines, even though mineral oil in soil was due to spills at several sites and the UST regulations are not applicable. Additionally, as further clarification regarding the application of UST regulations 20 NMAC5.1C states that "20 NMAC 5 Parts 2 through 14 do not apply to any of the following types of UST systems: 1. Wastewater treatment tanks; 2. Sumps; 3. UST systems containing radioactive waste; 4. Electrical equipment; 5. Hydraulic lift tanks; and 6. any UST system with a capacity of 110 gallons or less." The HERMES and PROTO USTs were used to contain transformer oil for electrical equipment and, therefore, should be exempt from UST regulations. DOE and SNL/NM agree that this issue is not resolved at this time and that further discussions with NMED may be appropriate for sites containing mineral oil as a COC.

At the September 15 meeting, clarification was requested of NMED on cleanup standards for hydrocarbon contaminated soils. The ER Project has understood that the New Mexico UST regulations do not require excavation and treatment/disposal of soil with TPH exceeding 100 ppm under certain hydrogeologic conditions. The UST Soil/Water Sampling & Disposal Guidelines issued by the NMED (revised April 1995) state that "Soils which are not highly contaminated (saturated) and are located greater than fifty feet (50) above the seasonal high static water table do not need to be remediated." This was confirmed with a letter, dated October 8, 1997 to Robert Dinwiddie from Gerard Schoeppner of the UST Bureau (provided by Stephanie Kruse to Sharissa Young).

In conclusion, DOE and SNL/NM believe that according to the UST regulations soils contaminated with TPH greater than 100 ppm do not require excavation and disposal/treatment if groundwater is greater than 50 feet below the depth of contamination. Even so, mineral oil is not a RCRA regulated hazardous substance and may be exempt from UST regulations because the USTs containing mineral oil were used as part of a system for

electrical equipment. Again, DOE and SNL/NM encourage further discussion with NMED on this issue. DOE and SNL/NM believe that this issue is not resolved and that further guidance and clarification is required regarding mineral oil contaminated soil.

Comment 8

At this time, a background well southwest of TA-V, a potentially down-gradient well north of TA-V, and another well west of the abandoned KAFB-10 production well have been drilled. The wells southwest and north of the technical area should be useful for establishing background conditions and in characterizing the solvent and NO₃ plumes underlying parts of TA-V, respectively. The well west of KAFB-10 is considered to be of limited value. The KAFB-10 production well should be replaced with a monitoring well to evaluate the potential contribution of ER Site 36 (and/or other ER sites) to the TA III & V groundwater contamination problem.

Response to Comment 8

As discussed during the September 15 meeting, the investigation of the groundwater in the vicinity of TA-V will be addressed separately from the ER sites within the TA-III/V RFI report. Results indicate that no ER sites discussed in this RFI report have any evidence of having impacted groundwater.

Comment 9

In the RFI Workplan Comment Responses (March 1993), General Comment No. 3 of the Notice of Deficiency (NOD) states that

Field sampling must extend horizontally and vertically until no subsequent increase in contaminant levels is likely to occur. A minimum of two (2) "clean" samples are required to verify delineation. These samples should be at or below the background levels previously approved by the EPA for each constituent.

Following the requirement above, subsurface samples must be obtained where results from surface sampling exceed proposed upper tolerance limits (UTLs) or 95th percentiles. These results must be compared to approved UTLs or 95th percentiles to determine the vertical extent of contamination.

Response to Comment 9

As discussed in the September 15 meeting, DOE and the SNL/NM ER Project have followed a risk-based corrective action process. As discussed in the RFI Work Plan Response to Comment 1 "SNL/NM understands the need for, and use of, action levels, background data, and developing health and environmental criteria in determining the need for a CMS. Action levels will be used in the course of this RFI as a guide to help with decision making. Background data also will be collected and risk-based decision making will

be employed as well.” At all the sites addressed within the TA-III/V RFI report, results have been compared with background and action levels. Concentrations in soils have been well below risk-based soil action levels. At ER Site 78, chromium was found in the surface verification samples (39.7 mg/kg) at above the TA-III/V UTL (26.2 mg/kg) but well below the proposed RCRA Subpart S action level (400 mg/kg). By employing the a risk-based decision making during the RFI process, additional sampling for chromium was determined to be unnecessary.

General Comment 9 is repeated for specific sites within the Notice of Deficiency (comments 12, 15, and 22). Specific reasons for varying from the field sampling protocol discussed in the Work Plan are provided in the responses to those site-specific comments.

Specific Deficiencies

I. ER Site 18, TA-III: Concrete Pad

Comment 10

Section 3.2, Field Investigation Results. In Subsection 3.2.3.1, Surface Soil, p. 3-6, SNL states that two samples exhibited elevated TPH concentrations of 367 and 2,250 ppm. In Subsection 3.2.3.2, Subsurface Soil, SNL compares these reading to New Mexico UST Regulations. ER Site 18 is not an underground storage tank site; therefore these regulations do not apply. Furthermore, General Comment No. 14 of EPA's September 10, 1993 Notice of Deficiency states that

If laboratory analysis indicated elevated TPH concentrations, Sandia should resample and analyze for the entire suite of petroleum hydrocarbons utilizing analytical methods 8240, 8020, and unmodified 8015.

Accordingly, SNL must conduct additional surface soil sampling at this site to determine the vertical and horizontal extent of semivolatile (SVOC) contamination.

Response to Comment 10

Please refer to Response to Comment 7. The sources of TPH at this ER Site 18 were transformers stored on the concrete pad. These transformers contained mineral oil. Since mineral oil was known to be the only potential contaminant of concern, only the 418.1 analysis was performed (see Response to Comment 5).

Comment 11

Table 3-5, Comparison of Site 18 Surface Soil Results to Technical Areas III and V Background Data. Cadmium, chromium, copper, lead, nickel, and zinc were all found above the proposed background UTLs or 95th percentiles. See General Comment No. 9.

Response to Comment 11

Please refer to the Responses to Comments 1 and 9.

Comment 12

The upper limit shown in Table 3-5, Comparison of Site 18 Surface Soil Results to Technical Areas III and V Background Data, for nickel (12.9 mg/kg) does not match the upper limit shown in Table 2-6, Upper Tolerance Limits for Target Analyte List Metals in Technical Areas III and V Soils, (81.3 mg/kg), nor do either of these numbers match the UTL or 95th percentile proposed for nickel by SNL in the Background Study report. These discrepancies must be explained.

Response to Comment 12

The UTL shown for nickel on Table 2-6 is a typographical error. The correct UTL for nickel is 12.9 mg/kg (see attached Table 1). As explained in the Response to Comment 1, the SNL/NM Background UTLs were not available nor approved at the time the TA-III/V report was being prepared. Please refer to the Response to Comment 1 for a more detailed explanation.

Comment 13

Table 3-6, Comparisons of Site 18 Analytical Results to Proposed RCRA Subpart S Soil Action Levels. A copy of the Site 18 investigative results must be submitted to Ms. Lou Roberts, US Environmental Protection Agency (EPA) Region VI PCB Coordinator. The proposed 10 ppm action level for PCBs is only appropriate for certain land use scenarios. The RFI Report does not describe the proposed future land use scenario for this site.

Response to Comment 13

Two copies of the TA-III/V RFI report were transmitted to the US EPA Region VI for distribution to the appropriate internal agencies (July 3, 1996). In August 1996 a voluntary corrective measure (VCM) was performed on Site 18 to remove and dispose of PCB-contaminated soils above 10 ppm. The land-use designation for Site 18 is industrial. However, the 10 ppm cleanup level (proposed for residential land-use) was arrived at through discussion with EPA and NMED representatives in March 1996 (Attachment 4). The VCM excavation and sampling activities were conducted in close consultation with NMED personnel (including choosing of verification soil sample locations). The results of this VCM are described in an NFA proposal submitted to NMED in August 1997 (Batch 8).

Status

Additional sampling as discussed above is necessary to fully characterize the site. A Voluntary Corrective Measure is planned to remove soil contaminated with PCBs above 10 ppm.

Response to Status

Additional sampling was performed at the site during the VCM to verify removal of soils contaminated with PCBs above 10 ppm. Fifty-two field screening samples and eleven laboratory samples were collected to define the extent of PCB contamination. A trapezoidal area approximately 600 square feet was excavated to a depth of 0.5 feet and 8 laboratory confirmation samples were collected. Additional details regarding the VCM can be found in the NFA proposal/VCM report, which was submitted to NMED in August, 1997.

II. ER Site 26, TA-III: Burial Site (West of the Long Sled Track)

Comment 14

- *Only nonintrusive investigative methods were employed at this site. The Phase 3 investigation approved by EPA as part of the original work plan does not appear to have been carried out. Specifically, boreholes were not completed as specified and no metals analyses were performed. This variance must be discussed in the RFI Report.*

Response to first bullet of Comment 14

As discussed in the RFI report, work described in Phase 3 of the investigation (TA-III/V Work Plan) was specifically to investigate two magnetic anomalies (1992 survey), co-located within ER Site 26 and ER Site 83. The most recent geophysical survey (1994) of the entire 150 acres did not confirm the presence of any magnetic anomalies. Equipment storage associated with active ER Site 83 hindered a definitive survey in the southern portion of the site. Further ER investigations at the Long Sled Track are impractical until the site is decommissioned. Subsurface anomalies within ER Site 83 may be investigated at the time of its decommissioning. An NFA for ER Site 26 is in order because it meets the requirements of Criterion 1 of the Document of Understanding. "The site cannot be located or has been found not to exist, is a duplicate PRS, or is located within and therefore, investigated as part of another PRS" (emphasis added).

- *Because the site has not been completely investigated and delineated, the claim that it may be located 'within' another site cannot be verified.*

Response to second bullet of Comment 14

A geophysical survey was performed over the entire 150 acre site. The only anomalies identified, other than surface debris, were located within active ER Site 83. The anomalies

identified previously in the 1992 survey could not be positively identified in the 1994 survey, so no intrusive investigation was performed. Some equipment is presently stored in the southern portion of Site 26 (within active ER Site 83), preventing full definition of this area. The burial site that is the subject of ER Site 26 either does not exist or is located within active ER Site 83.

- *This NFA request seems to be an attempt to show clean-up progress that may not really have occurred. Because it takes a great deal of time and resources to remove a site from the permit, the permit modification process should be reserved for "legitimate" NFAs.*

Response to third bullet of Comment 14

The DOE and the SNL/NM ER Project is not attempting to show clean-up where none has occurred. We propose that ER Site 26 undergo an NFA based on Criterion 1. When ER Site 83 is decommissioned, further investigation will occur to determine if any objects are buried within the designated boundaries of Site 83, particularly in the southern portion of the site.

Status

NFA is proposed for this site, because it is located "within" another site, Site 83. SNL plans to defer intrusive investigation of ER Site 26 until ER Site 83 is decommissioned. Consideration of ER Site 26 for NFA status is not appropriate 1) until the information discussed above has been provided and 2) investigation of the site is completed. However, no schedule for the decommissioning of ER Site 83 (and, consequently, for further investigation of ER Site 26) is currently available.

Response to Status

As discussed above, the DOE AND SNL/NM believe that ER Site 26 is appropriate for an NFA based on Criterion 1. Further investigation of subsurface anomalies will be performed as part of the ER Site 83 RFI investigation when the site is decommissioned. There is presently no schedule for the decommissioning of ER Site 83.

III. ER Site 31, TA-III: Electrical Transformer Oil Spill

Comment 15

According to Section 7.6.3 of the approved Work Plan. "If the above four confirmation samples yield positive results for either PCBs or TPH, then shallow soil borings using a hand auger will be used to define the vertical extent of soil contamination. Each boring will be completed to a depth of 5 ft..."

TPH results were positive for 2 of the 12 samples collected at this site; however, it does not appear that the Work Plan was followed, because soil borings were not completed. The reason for this variance must be explained or the shallow soil boring completed.

Response to Comment 15

Although TPH results were positive for 2 of the 12 samples collected at ER Site 31, the TPH values were below 100 ppm (31 and 50 ppm) in these samples, which were collected at the points of maximum potential impact (i.e., directly adjacent to the pad). These soils are below the cleanup action level of 100 ppm. Please refer to Responses to Comments 1, 7, and 9.

Comment 16

The text states that PCB were not detected above the method detection limit (MDL). However, the results were not included in the RFI Report. The PCB sample analysis results must be included in the RFI Report.

Response to Comment 16

The PCB results were not detected above the method detection limit (MDL) and so were not included in the appendices (refer to Response to Comment 2). The complete data set (on electronic disk) is available through the ER Project.

Status:

ER Site 31 is proposed for NFA based on surface soil sampling which indicates that no release to the environment has occurred or is likely to occur. The site may be appropriate for NFA after consideration of the information required above.

Response to Status

DOE AND SNL/NM ER Project concur with this conclusion and believes that Site 31 is appropriate for NFA.

IV. ER Site 34, TA-III: Centrifuge Oil Spill

Comment 17

Section 6.2 Field Investigation Results. Subsection 6.2.2, Nature and Extent of Contamination, page 6-4, states that "Results of the soil sampling indicate that TPH was not present in any borehole in excess of the MDL (Table 6-1; Appendix C).

SNL must explain why TPH data are not listed in Appendix C. In addition, see General Comment No. 2.

Response to Comment 17

Please refer to the Response to Comment 2. Because TPH was not detected in the soil samples above the MDL, these data were not included in Appendix C. The complete data set (on electronic disk) is available through the ER Project.

Status

ER Site 34 is proposed for NFA based on soil samples, none of which exhibited TPH above the MDL. The site may be appropriate for NFA status after consideration of the information required above.

Response to Status

DOE and SNL/NM concur with this conclusion and believes Site 34 is appropriate for NFA.

V. ER Site 35, TA-III: Vibration Facility Oil Spill

Comment 18

Figure 7-3, ER Site 35, Extent of Total Petroleum Hydrocarbon in Soil and Appendix B. It is unclear whether results for sample 35-R7, 1.0 ft, were non-detect (Figure 7-3) or if the sample has a concentration of 190 mg/kg (Appendix B). In addition, two concentrations are listed for sample 35-SS-01: 5.71 mg/kg (Figure 7-3) and 5710 mg/kg (Appendix B). These discrepancies must be resolved.

Response to Comment 18

The correct values for 35-R7 and 35-SS-01 are as follows: the correct TPH value for sample 35-R7 is 190 mg/kg, the correct TPH value for 35-SS-01 at 1.0 foot is 5710 mg/kg.

Comment 19

Section 7.2, Investigation Results. Section 7.2.2, Nature and Extent of Contamination - See New Mexico UST Regulations and General Comments No. 5 above. The approved Work Plan includes NOD Comment No. 14, which requires additional analyses when elevated concentrations of TPH are detected. TPH concentrations at this site were as high as 7,200 mg/kg.

Response to Comment 19

TPH concentrations in surface soil samples were as high as 7,200 mg/kg. Therefore, additional, subsurface sampling was conducted. As discussed in Section 7.1.2 of the RFI Report ("Shallow Subsurface Soil Sampling"), the locations of underground utilities precluded subsurface sampling directly under the area of highest TPH. Therefore, boreholes

were placed as close as safely feasible to areas of surface TPH concentration, and were advanced to depths of 15 feet bgs. No samples collected from the subsurface contained TPH above 100 ppm in these boreholes. No analyses were performed in addition to method 418.1 because mineral oil was the only constituent of concern at this site. Also, please refer to Response to Comment 5.

VI. ER Site 36, TA-V: HERMES OIL SPILL

Comment 20

Figure 8.2, Location of Shallow and Deep Subsurface Soil Boreholes. According to this figure only two deep boreholes were installed during this RFI. According to the approval letter issued by EPA on April 19, 1994, a minimum of five boreholes were to be installed. One of these boreholes should have been completed as an angled borehole. The reason for these variances from the approved Work Plan must be explained. (Additionally, the groundwater contamination at TA-V should continue to be investigated.)

Response to Comment 20

Two deep boreholes were installed during the RFI. These boreholes extended to depths of 340 ft bgs (36-BH-01) and 320 ft bgs (36-BH-02). During the UST investigation in 1991, six deep boreholes were completed. Three deep boreholes to the northwest, northeast, and southeast of the UST pit indicated no contamination from the surface to a depth of approximately 280 ft. The horizontal and vertical extent of contamination in the southwest direction was not defined during the UST investigation because TPH was present at depths to 230 ft (total borehole depth) in the southwest borehole (HERMES-SW). The location of underground utilities in the vicinity of the area proposed for the angled borehole (to define the southwest extent), and the lack of adequate space next to Bldg. 6597, precluded installation of the angle borehole proposed in the work plan. Therefore, the location chosen (on the southwest corner of Bldg. 6597) was as close to that originally proposed as was safely and physically feasible.

The extent of contamination was completely defined after 36-BH-01 and 36-BH-02 were installed. TPH in 36-BH-01 was less than 100 ppm from 200 ft bgs to the total depth of the borehole (340 ft bgs). In borehole 36-BH-02, only one sample (at a depth of 20 ft bgs) contained TPH greater than 100 ppm (at 110 ppm). The horizontal and vertical extent of contamination was therefore defined. Although five boreholes were originally planned in the RFI Work Plan, the remaining extent of contamination was determined by the results from the two boreholes installed during the RFI investigation in 1995.

The ER Project is continuing the investigation of the groundwater at TA-V. Please refer to the Responses to Comments 6 and 8.

Status

ER Site 36 is proposed for NFA. Additional characterization of this site is necessary.

Response to Status

The horizontal and vertical extent of ER Site 36 has been defined from the UST and RFI investigations. The ER Project believes that further characterization of this site is not warranted.

VII. ER Site 37, TA-V: PROTO Oil Spill

Comment 21

Site 37 may be similar to ER Site 36 (HERMES Oil Spill) where VOC contamination did not begin to appear in the soil until a depth of 25 to 75 ft was reached. The contamination then increased to a depth of approximately 200 ft, possibly because of backfilling, leveling, etc. Also, VOCs may be present, as at ER Site 36, where it is suggested (p 8-13) that "The origin of most of the VOCs is postulated to be bacterial fermentation of the mineral oil."

For these reasons, deeper subsurface samples should be collected for VOC and semivolatile organic compound (SVOC) analysis at both ER Site 37 and 155. (Besides defining the extent of contamination at ER Site 37, these samples may provide information of value to the groundwater investigation beneath TA-V.)

Response to Comment 21

ER Site 37 is fundamentally different from ER Site 36. Whereas the soils at Site 36 exhibited high concentrations of TPH in the bottom of the UST excavation during tank removal operations in 1991, no such conditions existed at the PROTO UST site (Site 155). None of the soil samples collected beneath the PROTO USTs contained TPH above 100 ppm, the UST cleanup standard. As a result of the UST investigation, Site 155 was deleted from the HSWA permit with EPA Region VI approval.

Therefore, only potential surface spills of oil remained to be investigated at Site 37. The approved RFI work plan detailed shallow subsurface soil sampling to be performed. This sampling was conducted and demonstrated no mineral oil impact to the shallow subsurface. DOE and SNL/NM do not believe it is necessary to conduct additional investigation of either Site 37 or Site 155 since no soil contamination was found to be present immediately beneath the tanks or in the shallow subsurface. This absence of a source indicates that it is highly improbable that groundwater could be impacted by these two sites. Also, please see Responses to Comments 6 and 8.

Status

ER Site 37 is proposed for NFA. Characterization of the site must be completed and the results reviewed before NMED can make a decision regarding this site.

Response to Status

The ER Project proposes ER Site 37 for NFA because the site investigation has been completed and the results show that neither TPH nor PCBs were detected above their MDLs for any of the samples. Only 1,2 dichloroethane was detected at a depth of 2 ft bgs (0.0063 mg/kg), which is well below the RCRA Subpart S action level (8 mg/kg).

VIII. Site 51, TA-III: Building 6924 Pad, Tank, and Pit

No comments received.

IX. ER Site 78, TA-III: Gas Cylinder Disposal Pit

Comment 22

Arsenic and chromium were found in the surface verification samples above the TA-III&V UTL or 95th percentile. However, the sample taken at a depth of 5 ft within the same borehole showed arsenic and chromium below background. See General Comment No. 9.

Response to Comment 22

Please refer to response to Comment 9. Although Site 78 is designated as an industrial land-use area, arsenic and chromium (7.4 mg/kg and 26.2 mg/kg, respectively) were well below the more stringent RCRA Subpart S soil action levels for residential land-use (20 mg/kg for As and 400 mg/kg for CrVI) in all the surface verification samples collected at ER Site 78.

Status

ER Site 78 is proposed for NFA because the VCM involved a complete exhumation of the Gas Cylinder Disposal Pit, and because no subsurface soil samples exhibited any contamination in excess of the applicable RCRA proposed Subpart S soil action levels. This site may be appropriate for NFA after review of the information required above.

Response to Status

Verification sampling showed that the VCM of the Gas Cylinder Disposal Pit was successful at removing contaminated soils. The ER Project believes that an NFA for this site is appropriate.

X. ER Site 83, TA-III: Long Sled Track

Comment 23

Section 12.2, Field Investigation Results. In Subsection 12.2.2, Radiation Survey, p. 12-5/6, SNL states that "All but one large soil area (located southeast of the impact area) were removed in the course of the VCM at this site." Whether or not the large soil area will be removed prior to site decommissioning and whether this large soil area poses any risks to site workers must be discussed.

Response to Comment 23

ER Site 83 is currently active and used for impact and acceleration testing. The "large soil area" is posted as a radiological area. Site workers are required to have the appropriate level of radiological training to perform work in this area. Posting and training are conducted specifically to reduce potential worker exposure. Efforts to remove additional radioactive material from the site at this time have been determined to be unproductive because new impact debris may be spread over the area during future tests. A complete investigation will be performed once the site is decommissioned.

Comment 24

Section 12.3, Summary and Conclusions. The site must undergo a complete investigation within two years after site decommissioning.

Response to Comment 24

DOE and the SNL/NM ER Project concur that the site must undergo a complete investigation after site decommissioning. No estimated date for decommissioning is available at this time.

XI. ER Site 84, TA-III: Gun Facilities

Comment 25

Section 13.2, Field Investigation Results. Subsection 13.2.2, Surface Radiation Survey, p. 13-6 - The text must discuss whether the "three remaining area sources" were removed in the spring of 1996, as planned. If not the text must include a new date for planned removal.

Response to Comment 25

The three remaining area sources were removed in May 1996.

Comment 26

Section 13.3, Summary and Conclusions. The text must include the estimated date of decommissioning for this site. The site must undergo a complete investigation within 2 years after site decommissioning.

Response to Comment 26

ER Site 84 is an active site. Currently, there is no estimated date for decommissioning this site. When the site is decommissioned, DOE and SNL/NM will conduct a complete investigation of the site.

XII. ER Site 100, TA-III, Building 6620 HE Drain/Sump

Comment 27

Section 14.2, Field Investigation Results, Page 14-4, states that "The reconnaissance survey conducted during preliminary site scoping activities did not reveal any evidence of the drain in the northeast corner of building 6620..." Whereas, in the RFI Workplan Comment Responses (March 1993), the response to Comment No. 1, Section 16.0, Site 100, SNL stated that "... an attempt will be made to remove a portion of the black tile in the static-free room to confirm or deny the presence of the floor drain..." SNL must discuss whether an attempt was made during the reconnaissance survey to remove black tile to search for the floor drain.

Response to Comment 27

Review of aerial photographs and a building inspection during the RFI showed no evidence of the reported floor drain. Additionally, a trench along the northwest end of the building was excavated. The RFI report describes the orientation and extent of this trench. No evidence of a drain pipe was found. Based on these investigative activities, there was no need to remove the floor tiles within the building. No contamination is suspected at this site.

Status

ER Site 100 is proposed for NFA because it cannot be located and probably never existed. NFA status may be appropriate for this site, pending documentation that reasonable efforts were made to locate the floor drain system and that no floor drain system exists.

Response to Status

Reasonable efforts were made to locate the floor drain at ER Site 100. Building inspection, survey of aerial photographs, and trenching in the probable location of the drain all indicated that no drain exists or existed.

XIII. ER Site 102, TA-V: Radioactive Disposal Area

No comments were received.

Status

ER Site 102 is proposed for NFA because the site was never used for the management of hazardous wastes and no release of hazardous waste of hazardous waste constituents has occurred. NFA status appears appropriate for this site.

XIV. ER Site 105, TA-III: Mercury Spill at Building 6536

No comments received.

Status

NFA status was approved for Site 105 and the site removed from the RCRA permit by EPA in December 1995.

XV. ER Site 107, TA-III: Explosives Test Area

Comment 28

Section 17.1, Field Investigation Protocols. In Subsection 17.1.2., Sampling Strategies, SNL states that "The sampling and analysis plan was modified slightly from that proposed in the RFI Work Plan..." This is not entirely accurate. The sampling grid spacing was doubled from that approved in the RFI Work Plan. Furthermore, there is no discussion of the statistical analysis of the data from the previous study, a task described in Section 18.6.3 of the approved RFI Work Plan. The rationale for these changes must be explained.

Response to Comment 28

A statistical analysis of the data collected during the previous sampling event (detailed in the RFI Work Plan) was completed in March 1993; the analysis indicated no additional sampling was required at Site 107. A second analysis was completed when the SNL/NM site-wide data became available. A comparison of the previous sampling results to both TA-III/V and SNL/NM site-wide background UTLs and 95th percentiles indicated no metals above either set of background values.

Although all previously collected samples were below background values, it was believed prudent to proceed with verification of these results, so a sampling program was patterned after that originally conducted. The original spacing of the grids was decreased from the 500-ft centers conducted previously to a 350- to 400-ft spacing. Additional samples were collected to cover more area within the site than originally done (see RFI Work Plan).

Whereas the original sampling was performed both within and outside of the site, the Phase II sampling was conducted entirely within the site boundaries, thereby increasing the number of locations sampled from within the site boundaries from 27 (originally) to 48 for the Phase II RFI sampling. In accordance with the NOD comment responses of November 1993 and the approval letter of April 1994, an additional sample was collected from each grid. Rather than only submitting three soil samples for off-site laboratory analysis, as requested in the Work Plan NOD comments, all 11 samples collected were submitted for laboratory analysis.

Because the results of the Phase II RFI sampling indicated no samples above either TA-III/V or SNL/NM site-wide UTLs, DOE and SNL/NM believe Site 107 is appropriate for a decision of No Further Action.

XVI. ER Site 111, TA-III: Building 6715 Sump/Drain

Comment 29

Section 18.2, Field Investigation Results, Subsection 18.8.2, Nature and Extent of Contamination. SNL must submit copies of its three borehole logs; Subsection 19.6.1 of the approved Work Plan committed to provided a complete description of surface-soil samples, including a complete description of grain size, color, grain shape, lithology, moisture content, etc.

Response to Comment 29

All subsurface soil samples were examined by a geologist. The lithology of the samples from each of the three boreholes was almost identical, due to the close proximity of the boreholes (approximately 20 feet apart), therefore, full borehole lithologic logs were only completed for one borehole (111-B1). The borehole log for ER Site 111 (111-B1), including a complete description of grain size, color, grain shape, lithology, moisture content, etc., is attached (Attachment 5).

XIX. ER Site 196, TA-V: Building 6597 Cistern

Comment 30

Section 21.1, Field Investigation Protocols. The last sentence of Subsection 21.1.2.2. Sludge Thickness Determination, p. 21-1, seems to be missing a few words. Sandia should clarify this sentence.

Response to Comment 30

The sentence reads "This refusal was attributed to the concrete base then believed to exist." This sentence means that refusal of the auger was attributed at the time of drilling to contact with the concrete base of the cistern. It was subsequently found that the cistern did not have a concrete base, and that refusal of the auger was actually due to a layer of large cobbles.

Comment 31

Section 21.2, Field Investigation Results. Subsection 21.2.2, Nature and extent of contamination, page 21-6, states that "The vertical extent of TPH contamination was not adequately determined in Boreholes D1 or D2." Total depth for boreholes D1 and D2 was 13 and 12 ft, respectively. TPH concentration was found to be 4,300 ppm at the bottom of D1 and 40,000 ppm at the bottom of D2. In both boreholes, the concentration was increasing downward. Additional sampling and analysis for TPH, VOCs, and SVOCs are necessary to define the extent of the waste oil plume and to locate potential VOCs. As potential sources of groundwater contamination, the oil saturated sludge and soil should be removed and disposed of appropriately.

Also, the Logic Flow Diagram for this site indicates that sampling will continue until TPH is no longer detected. Thus, the RFI Work Plan has not been fully implemented at this site.

Response to Comment 31

DOE and SNL/NM agree that the RFI Work Plan was not fully implemented at Site 196. The reasons for deviations from the Work Plan are provided in this response. As indicated in the RFI Report, the boreholes were advanced as far as possible (to equipment refusal) in the bottom of the cistern. Although elevated TPH was found, none of the samples collected from the boreholes contained elevated VOC levels, as determined by 8240 analysis. The geometry of the cistern (i.e., 25 feet of free space above the cistern floor with a 3-foot lip above TA-V ground level) precluded drilling within it, and an angled borehole did not appear feasible, given the depth of the concrete collar and the space restraints near the facility. Thus, the RFI Work Plan for the site was implemented as fully as feasible.

DOE and SNL/NM do not believe that the cistern poses a threat to groundwater for two reasons: 1) the mineral oil used in the cistern does not contain any hazardous constituents as manufactured (see Response to Comment 7 and Attachment 3), and 2) the extent of impact is not believed to reach groundwater, given the fact that the neighboring site, Site 36 (HERMES) was impacted by much greater volumes of oil, and the oil has been demonstrated to cease approximately 300 feet above groundwater. DOE and SNL/NM do not believe additional sampling is warranted, based on these reasons and on those listed in Responses 5, 7, and 32. However, DOE and SNL/NM agree that further discussion is needed to resolve Comment 31 and is looking forward to resolving issues regarding this site. Topics of discussion should include a determination of regulatory guidelines on mineral oil (the primary COC at the Site 196) and its byproducts.

See also Responses 5, 7, and 32.

Site 196 may be similar to Site 36 (HERMES Oil Spill), where VOC contamination did not begin to appear in the soil above a depth of 25 to 75 ft, but increased below that to a depth of approximately 200 ft. At the HERMES site, Sandia (8-13) has suggested that mineral oil may be a source of secondary contamination. "The origin of most of the VOCs is postulated to be bacterial fermentation of the mineral oil." For these reasons, deeper subsurface samples must be collected for VOC and SVOC analysis at Site 196. (Besides defining the extent of primary and secondary contamination at Site 196, these samples may provide information of value to the groundwater investigation beneath TA-V.)

Response to Comment 32

Site 196 is not believed to be similar to Site 36. Upon removal of the USTs at Site 36, the soils exhibited high concentrations of TPH below the removed tanks. Elevated VOC levels were not seen during subsequent drilling until a depth of 25 feet at Site 36 because the UST excavation was backfilled with clean soil upon completion of the tank removal activity. Thus, the soil encountered during drilling from grade to the bottom of the excavation (approximately 25 feet) was backfill material that contained neither TPH nor VOCs.

Furthermore, although VOCs were present in Site 36 soils and are believed to be the result of bacterial fermentation of the mineral oil, the highest concentrations of VOCs seen in those soils were far below the RCRA Subpart S levels. It should be noted here that the RCRA Subpart S action levels apply to sites slated for future residential land use and are, thus, very conservative; Sites 36 and 196 are both slated for industrial land use. The highest VOC concentration was 12 mg/kg acetone from 36-BH-01 (in the middle of the tank excavation, the point of greatest impact); the RCRA Subpart S action level for acetone is 8,000 mg/kg, more than 600 times the highest concentration seen at the HERMES site.

In addition, the TPH and VOCs at Site 36 were co-located; the samples that contained the highest TPH concentrations also contained the highest VOC concentrations. No such correlation was seen at Site 196 where no VOC concentrations were noted in any of the soil samples collected. As noted in Response to Comment 31, if the levels of TPH at Site 36 did not impact groundwater (they ceased at a depth of 200 feet, approximately 300 feet above groundwater), it is unlikely that the levels noted at Site 196 (which was impacted by a much smaller volume of oil than Site 36) will impact groundwater.

Please refer to Response to Comment 7, also.

XX. ER Site 240, TA-III; Short Sled Track

Comment 33

NMED is concerned over the increase in use of field screening techniques beyond that approved in the Work Plan. But, because this site have been reactivated, the results of this

investigation may not represent conditions at the time of decommissioning at some time in the future. The sampling plan for this site should be re-implemented at the time of final site decommissioning.

Response to Comment 33

DOE and SNL/NM intend to conduct further investigation of ER Site 240 once it has been decommissioned.

XXI. ER Site 241, TA-III: Storage Yard

Comment 34

Table 23-3, Comparison of Site 241 Surface Soil Results to Technical Areas III and V Background Data. Copper, lead and zinc were found above the proposed TA-III&V background UTL or 95th percentile. Copper was found to be above proposed background in only one sample (the copper content of the duplicate of this sample was below background value). Appendix C lists three lead and four zinc results that were above proposed background. See General Comment No.9.

Additional soil sampled are needed at Site 241 to characterize the extent of any copper, lead and zinc contamination. A comparison of the maximum concentrations to Region 6 residential and industrial levels may be needed.

Response to Comment 34

Although lead and zinc were detected in excess of the TA-III/V UTLs, neither exceeded the proposed RCRA Subpart S soil action level (developed for residential land-use scenarios that are more stringent than industrial land use). Please see response to Comment 1. A multiple constituent risk assessment can be performed for Site 241 if requested by NMED.

End of NOD Response Document

ATTACHMENT 1
September 15, 1997 Meeting Attendees

Meeting to Discuss NOD Comments for the TA-III/V RFI Report
Sandia National Laboratories, Bldg. 6584
September 15, 1997

Attendees

Terry Davis, NMED HRMB
John Gould, DOE
Grace Haggerty, GRAM (ER Project)
Kim Hill, EPA Region VI
Roger Kennett, NMED OB
Stephanie Kruse, NMED HRMB
Paula Slavin, GRAM (ER Project)
Sharissa Young, SNL/NM ER Project

ATTACHMENT 2
Comparison of Background Values

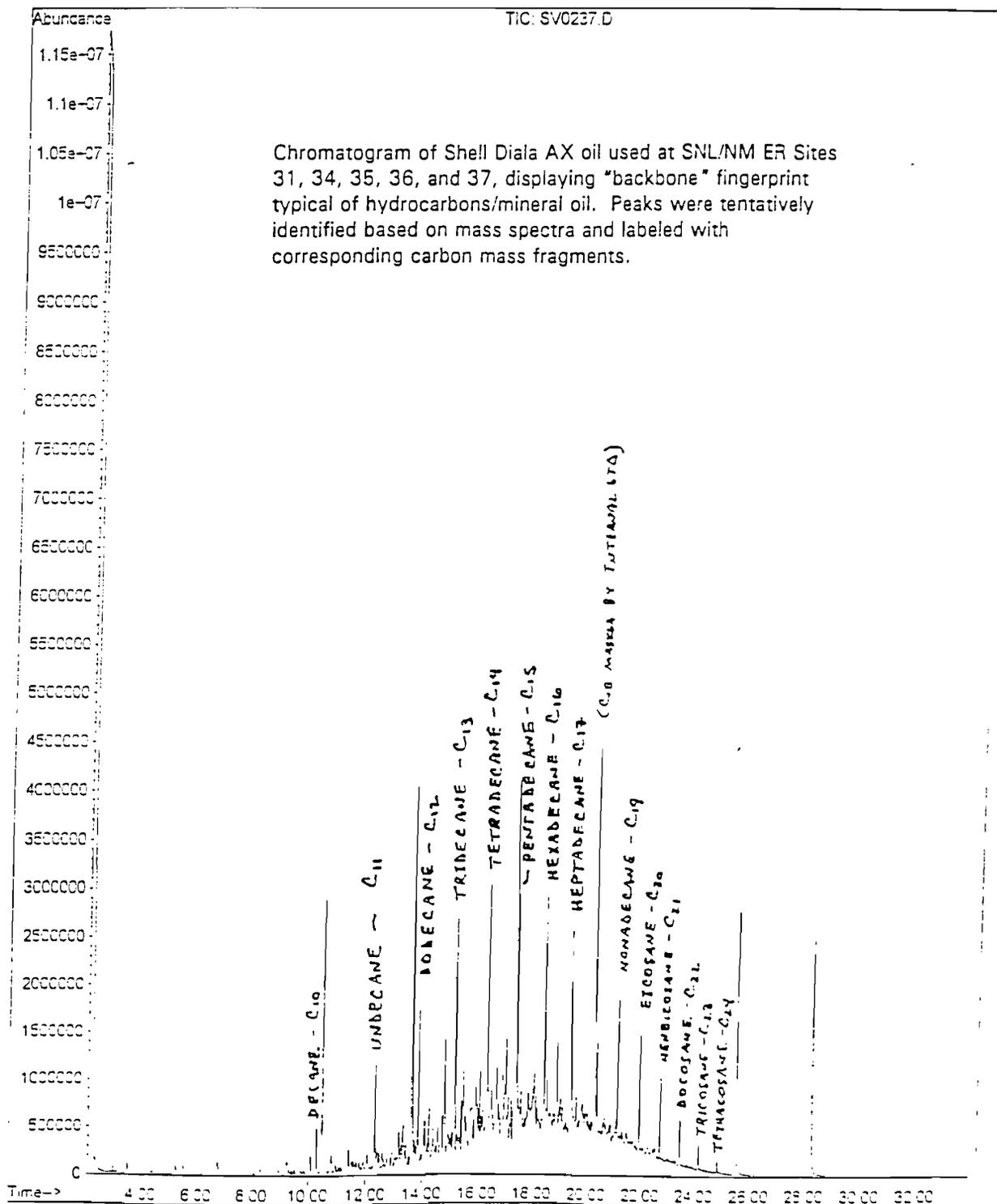
Table 1. Comparison of TA-III/V UTLs (95th Percentiles) to SNL/NM Site-Wide Background UTLs (95th Percentiles)

| Metal | TA-III/V UTL, 95th Percentile (mg/kg) | SNL Site-Wide Background UTL, 95th Percentile (mg/kg) |
|--------------|---|---|
| Barium | 341.0 | 130 (214) |
| Beryllium | 0.7 | 0.65 |
| Cadmium | 2.6 | 1.6 (0.9) |
| Chromium | 26.2 | 17.3 (15.9) |
| Copper | 14.5 | 15.4(5.2) |
| Lead | 24.8 | 21.4 (11.8) |
| Nickel | 12.9 | 11.5 |
| Silver | 4.0 | 2.0 (<1.0) |
| Uranium | 4.0 | 3.42 (2.3) |
| Zinc | 41.8 | 62 |

Note: For SNL/NM site-wide background, some metals were separated into surface and subsurface UTLs. Values shown in parenthesis are for subsurface UTLs. No distinction was made between surface and subsurface UTLs for TA-III/V background results.

ATTACHMENT 3
Chromatogram of Mineral Oil from TA-III/V sites
MSDS for Shell Diala AX™ Oil

File : C:\HPCHEM\1\DATA\09_16_97\SV0237.D
 Operator : JE
 Acquired : 16 Sep 97 8:21 am using AcqMethod 8270E
 Instrument : GC/MS Ins
 Sample Name: ERCL DRO SAMPLE
 Misc Info : SV0015
 Vial Number: 3





Technical Bulletin Shell Oil Company

DIALA® A OIL, DIALA AX OIL

Electrical insulating oils for
rapid heat transmission with
high oxidation stability

Meet ANSI/ASTM/NEMA standards

Product description

Shell's *Diala*® Oils meet the ANSI/ASTM D 3487 and the NEMA TR-P8-1975 Specifications.

Two oils (designated Type I and Type II) are covered in these specifications. Type I oil is intended for use where normal oxidation resistance is required. Type II oil is for more severe service applications requiring greater oxidation resistance.

Diala A Oil meets the ANSI/ASTM/NEMA Type I requirements without addition of oxidation inhibitor. *Diala* AX Oil meets Type II requirements and contains approximately 0.2%w of oxidation inhibitor. Anti-oxidant concentration is varied to meet Rotating Bomb Oxidation Test requirements, but does not exceed the 0.3%w maximum of Type II requirements.

Diala A Oil is approved under G.E.'s Specification A13A3A1 (10C) and Westinghouse's PD 55822 AG Rev. G-WEMCO C. *Diala* AX Oil has G.E. A13A3A2 (10CA) and Westinghouse PD 55822 AV Rev. T-WEMCO CI approvals.

Diala base oils are well-refined from low pour point naphthenic stocks.

Applications

Shell's *Diala* Oils are excellent for use in transformers, circuit breakers, oil-filled switches and in X-ray equipment. These oils provide electrical insulation and heat transfer in such electrical devices. *Diala* Oils have the oxidation stability required to resist the formation of acids that might attack con-

struction materials and the formation of other oxidation products that can reduce the oil's ability to insulate and cool electrical windings.

Availability

Diala A and AX Oils are available nationwide for domestic use or export. Contact your Shell Oil Sales Office for your requirements.

Handling & safety information

Diala Oil is formulated with refined petroleum oil and a lubricant additive. Their inherent toxicity is quite low. However, prolonged or repeated contact requires the observation of good industrial hygiene practices.

On ingestion, get medical attention. On eye contact, flush with water for at least 15 minutes, get medical attention. Frequent or prolonged skin contact should be avoided. Inhalation of vapors or oil mist may irritate the lungs.

Good industrial hygiene practice requires the use of effective ventilation to remove oil vapors and mist. Skin contact is minimized by the use of rubber gloves and oil resistant, non-absorbent clothing. After working with lubricants, wash thoroughly with soap and water before eating or smoking. Change clothing soaked with oil, reuse only after laundering.

If more detailed information is required, Material Safety Data Sheets are available on *Diala* Oil at your request.

Typical Properties Diala® Oils

| | ASTM Test method | ANSI/ASTM/ NEMA limits Type I & Type II | Diala A/AX Oils Typical values | | |
|--|---------------------|---|-----------------------------------|---------------|------|
| Physical properties | | | | | |
| Aniline point, °C | D 611 | 63-78 | 74 | | |
| Color | D 1500 | 0.5 max | < 0.5 | | |
| Flash point, °C | D 92 | 145 min | 148 | | |
| Interfacial tension, 25°C, dynes/centimeter | D 971 | 40 min | 45 | | |
| Pour Point °C | D 97 | -40 max | -50 | | |
| Specific gravity, 15/15°C | D 1298 | 0.91 max | 0.866 | | |
| Viscosity, cSt/SUS at: | D 445/D 88 | 3.0/36 max | 2.34/34.3 | | |
| | 40°C | D 445/D 88 | 12.0/66 max | | |
| | 100°C | D 445/D 88 | 76.0/350 max | | |
| Visual examination | D 1524 | Clear & bright | Clear & bright | | |
| Electrical properties | | | | | |
| Dielectric breakdown voltage at 60 hertz | | | | | |
| Disc electrodes, Kv | D 877 | 30 min | 35 | | |
| VDE electrodes, Kv, either: 0.040 inch (1.02mm) gap 0.080 inch (2.04mm) gap | D 1816 ¹ | 28 min | > 25 | | |
| | | 56 | > 56 | | |
| Dielectric breakdown voltage impulse, 25°C, needle-to-sphere grounded, 1-inch (25.4mm) gap, Kv | | | | | |
| | D 3300 | 145 min | 175 | | |
| Power factor, 60 hertz, % at: | D 924 | 0.05 max | 0.01 | | |
| | D 924 | 0.30 max | 0.07 | | |
| | | | Diala A | Diala AX | |
| Chemical properties | | Type I | Type II | OH | OH |
| Oxidation inhibitor content, %w 2,6-di-tertiary butyl paracresol | D 2668 or | 0.08 max | 0.3 max | None | 0.19 |
| | D 1473 | | | | |
| Corrosive sulfur | D 1275 | Non-corrosive | | Non-corrosive | |
| Water, ppm | D 1533 or | 35 max | | 30 | |
| | D 1315 | | | | |
| Neutralization no., mg KOH/g of oil | D 974 | 0.03 max | | | 0.01 |
| Oxidation stability at | | | | | |
| 72 hrs | D 2440 | | | | |
| Sludge, %w | | 0.15 max | 0.10 max | 0.04 | 0.03 |
| TAN-C, mg KOH/g of oil | | 0.50 max | 0.30 max | 0.27 | 0.21 |
| 164 hrs | | | | | |
| Sludge, %w | | 0.30 max | 0.20 max | 0.15 | 0.05 |
| TAN-C, mg KOH/g of oil | | 0.60 max | 0.40 max | 0.35 | 0.26 |
| Oxidation stability, rotating bomb, minutes | D 2112 | | 195 min | | 250 |

¹D 1816 applies only to new, filtered, dehydrated and degassed oil.

Supplemental Information Data® Oils

| | ASTM Test method | ANSI/ASTM NEMA Oils Typical values | Data A/AX Oils Typical values |
|--|---------------------|--|----------------------------------|
| Gassing tendency, l/min. | D 2300 | Report | 16 |
| Coefficient of expansion, ml ³ /C/ml | D 1903 | 0.0007-0.0008 | 0.00075 |
| Dielectric constant at 25°C | D 924 | 2.2-2.3 | 2.2-2.3 |
| Specific heat, gm-cal/gm at 20°C | D 2766 | 0.44 | 0.445 |
| Thermal conductivity, cal/cm/sec ² /C | D 2717 | 0.0003-0.0004 | 0.0003 |
| API gravity, 60/60°F | D 287 | | 28.1 |
| Color, Saybolt | D 156 | | 20 |
| Viscosity, SUS at 100°F | D 44 | | 58.8 |
| 210°F | D 445 | | 34.1 |
| Viscosity, cSt at 100°F | D 445 | | 10.0 |
| 210°F | D 445 | | 2.38 |
| Viscosity index | D 2270 | | 45 |
| Steam emulsion no. | D 1935 | | 15 |
| Sulfur, %w | D 2622 | | 0.07 |
| Molecular weight | D 2503 | | 251 |
| Refractive index | D 1218 | | 1.4815 |
| Viscosity-gravity constant | D 2140 | | 0.865 |
| Carbon type composition: % C _A | D 2140 | | 7 |
| % C _N | | | 47 |
| % C _P | | | 46 |

Shell Oil Company Lubricants Sales Offices

| | |
|---|---|
| East Coast (201) 325-5450 | 100 Executive Drive West Orange, New Jersey 07052 |
| Chicago (312) 887-5706 (800) 323-3405 | 1415 West 22nd Street Oak Brook, Illinois 60521 |
| Cleveland (216) 842-4000 | 7123 Pearl Road Middleburg Heights, Ohio 44130 |
| Houston (713) 439-1000 | 24 Greenway Plaza, Suite 711 Houston, Texas 77046 |
| West Coast (714) 991-9200 | 511 N. Brookhurst Street Anaheim, California 92803 |

Shell Oil Company Head Office Sales
Houston
(713) 241-4201
One Shell Plaza
P.O. Box 2463
Houston, Texas 77001

Warranty

All products purchased from Shell are subject to terms and conditions set out in the contract, order acknowledgment and/or bill of lading. Shell warrants only that its product will meet those specifications designated as such herein or in other publications. All other information supplied by Shell is considered accurate but is furnished upon the express condition that the customer shall make its own assessment to determine the product's suitability for a particular purpose. No warranty is expressed or implied regarding such other information, the data upon which the same is based, or the results to be obtained from the use thereof; that any product shall be merchantable or fit for any particular purpose; or that the use of such other information or product will not infringe any patent.

June 1985



MATERIAL SAFETY DATA SHEET

MSDS NUMBER 60,030-7

PAGE 1

5736 14-82

| | | | | |
|--|-----------|-------------------------|--|---|
| 24 HOUR EMERGENCY ASSISTANCE | | GENERAL MSDS ASSISTANCE | |  |
| SHELL: 713-473-9461 CHEMTREC: 800-424-9300 | | SHELL: 713-241-4819 | | |
| ACUTE HEALTH + 1 | FIRE 1 | REACTIVITY 0 | HAZARD RATING ▶ LEAST - 0 SLIGHT - 1 MODERATE - 2 HIGH - 3 EXTREME - 4 | |
| *For acute and chronic health effects refer to the discussion in Section III | | | | |

| | |
|-------------------|---------------------------------------|
| SECTION I NAME | |
| PRODUCT | SHELL DIALA(R) OIL AX |
| CHEMICAL NAME | MIXTURE (SEE SEC II-A) |
| CHEMICAL FAMILY | PETROLEUM HYDROCARBON; INDUSTRIAL OIL |
| SHELL CODE | 66702 69702 63702 63722 |

| SECTION II-A | | PRODUCT/INGREDIENT | |
|--------------|---|--------------------|---------|
| NO. | COMPOSITION | CAS NUMBER | PERCENT |
| P | SHELL DIALA OIL AX | MIXTURE | 100 |
| 1 | SOLVENT REFINED HYDROTREATED MIDDLE DISTILLATE | 64742-46-7 | 70-100 |
| 2 | SEVERELY HYDROTREATED LIGHT NAPHTHENIC DISTILLATE | 64742-53-6 | 0-30 |
| 3 | BUTYLATED HYDROXY TOLUENE | 128-37-0 | <0.2 |

| SECTION II-B | | | | ACUTE TOXICITY DATA | | |
|--------------|-----------------|-------------------|-----------------------|---------------------|--|--|
| NO. | ACUTE ORAL LD50 | ACUTE DERMAL LD50 | ACUTE INHALATION LC50 | | | |
| P | >10 ML/KG, RAT | >2 ML/KG, RAT | NOT AVAILABLE | | | |

BASED UPON DATA AVAILABLE TO SHELL, COMPONENT 3 IN THIS PRODUCT IS NOT HAZARDOUS UNDER OSHA HAZARD COMMUNICATION (29 CFR 1910.1200).

SECTION III HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).

EYE CONTACT

BASED ON ESSENTIALLY SIMILAR PRODUCT TESTING PRODUCT IS PRESUMED TO BE NONIRRITATING TO THE EYES.

SKIN CONTACT

BASED ON ESSENTIALLY SIMILAR PRODUCT TESTING PRODUCT IS PRESUMED TO BE SLIGHTLY IRRITATING TO THE SKIN. PROLONGED AND REPEATED CONTACT MAY RESULT IN VARIOUS SKIN DISORDERS SUCH AS DERMATITIS, FOLLICULITIS OR OIL ACNE.

INHALATION

INHALATION OF VAPORS (GENERATED AT HIGH TEMPERATURES ONLY) OR OIL MIST MAY CAUSE A MILD IRRITATION OF THE MUCOUS MEMBRANES OF THE UPPER RESPIRATORY TRACT.

INGESTION

INGESTION OF PRODUCT MAY RESULT IN VOMITING; ASPIRATION (BREATHING OF VOMITUS INTO THE LUNGS) MUST BE AVOIDED AS EVEN SMALL QUANTITIES MAY RESULT IN ASPIRATION PNEUMONITIS.

SIGNS AND SYMPTOMS

IRRITATION AS NOTED ABOVE. ASPIRATION: PNEUMONITIS MAY BE EVIDENCED BY COUGHING, LABORED BREATHING AND CYANOSIS (BLUISH SKIN); IN SEVERE CASES DEATH MAY OCCUR.

AGGRAVATED MEDICAL CONDITIONS

PREEXISTING SKIN AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.

SECTION IV OCCUPATIONAL EXPOSURE LIMITS

| NO. | PEL/TWA | OSHA | PEL/CEILING | ACGIH | TLV/STEL | OTHER |
|-----|----------|------|-------------|-------|-----------|-------|
| | | | | | | |
| P | 5 MG/M3* | | NONE | | 10 MG/M3* | |

*OIL MIST, MINERAL

SECTION V EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT

FLUSH EYES WITH WATER. IF IRRITATION OCCURS, GET MEDICAL ATTENTION.

SKIN CONTACT

REMOVE CONTAMINATED CLOTHING/SHOES AND WIPE EXCESS FROM SKIN. FLUSH SKIN WITH WATER. FOLLOW BY WASHING WITH SOAP AND WATER. IF IRRITATION OCCURS, GET MEDICAL ATTENTION.

INHALATION

REMOVE VICTIM TO FRESH AIR AND PROVIDE OXYGEN IF BREATHING IS DIFFICULT. GET MEDICAL ATTENTION.

INGESTION

DO NOT INDUCE VOMITING. IF VOMITING OCCURS SPONTANEOUSLY, KEEP HEAD BELOW HIPS TO PREVENT ASPIRATION OF LIQUID INTO THE LUNGS. GET MEDICAL ATTENTION.

NOTE TO PHYSICIAN

IF MORE THAN 2.0 ML PER KG HAS BEEN INGESTED AND VOMITING HAS NOT OCCURRED, EMESIS SHOULD BE INDUCED WITH SUPERVISION. KEEP VICTIM'S HEAD BELOW HIPS TO PREVENT ASPIRATION. IF SYMPTOMS SUCH AS LOSS OF GAG REFLEX, CONVULSIONS OR UNCONSCIOUSNESS OCCUR BEFORE EMESIS, GASTRIC LAVAGE USING A CUFFED ENDOTRACHEAL TUBE SHOULD BE CONSIDERED.

SECTION VI SUPPLEMENTAL HEALTH INFORMATION

NONE IDENTIFIED.

SECTION VII PHYSICAL DATA

| | | |
|---|--------------------------------------|--|
| BILING POINT: >300 (DEG F) | SPECIFIC GRAVITY: 0.883 (H2O=1) | VAPOR PRESSURE: NOT AVAILABLE (MM HG) |
| ELTING POINT: -60 (POUR POINT) (DEG F) | SOLUBILITY: NEGLIGIBLE (IN WATER) | VAPOR DENSITY: NOT AVAILABLE (AIR=1) |

EVAPORATION RATE (N-BUTYL ACETATE = 1): NOT AVAILABLE

VIS CS (40 DEG C)
9.07-9.3

APPEARANCE AND ODOR:
WHITE LIQUID. SLIGHT HYDROCARBON ODOR.

SECTION VIII FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD:
295-310 DEG F (COC)

FLAMMABLE LIMITS /% VOLUME IN AIR
LOWER: N/AVA UPPER: N/AVA

EXTINGUISHING MEDIA

USE WATER FOG, FOAM, DRY CHEMICAL OR CO2. DO NOT USE A DIRECT STREAM OF WATER. PRODUCT WILL FLOAT AND CAN BE REIGNITED ON SURFACE OF WATER.

SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS

MATERIAL WILL NOT BURN UNLESS PREHEATED. DO NOT ENTER CONFINED FIRE-SPACE WITHOUT FULL BUNKER GEAR (HELMET WITH FACE SHIELD, BUNKER COATS, GLOVES AND RUBBER BOOTS), INCLUDING A POSITIVE-PRESSURE NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS WITH WATER.

SECTION IX REACTIVITY

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS AND MATERIALS TO AVOID:

AVOID HEAT, OPEN FLAMES, AND OXIDIZING MATERIALS.

HAZARDOUS DECOMPOSITION PRODUCTS

THERMAL DECOMPOSITION PRODUCTS ARE HIGHLY DEPENDENT ON THE COMBUSTION CONDITIONS. A COMPLEX MIXTURE OF AIRBORNE SOLID, LIQUID, PARTICULATES AND GASES WILL EVOLVE WHEN THIS MATERIAL UNDERGOES PYROLYSIS OR COMBUSTION. CARBON MONOXIDE AND OTHER UNIDENTIFIED ORGANIC COMPOUNDS MAY BE FORMED UPON COMBUSTION.

SECTION X EMPLOYEE PROTECTION

RESPIRATORY PROTECTION

IF EXPOSURE MAY OR DOES EXCEED OCCUPATIONAL EXPOSURE LIMITS (SECTION IV) USE A NIOSH-APPROVED RESPIRATOR TO PREVENT OVEREXPOSURE. IN ACCORD WITH 29 CFR 1910.134 USE EITHER AN ATMOSPHERE-SUPPLYING RESPIRATOR OR AN AIR-PURIFYING RESPIRATOR FOR ORGANIC VAPORS AND PARTICULATES.

PROTECTIVE CLOTHING

WEAR CHEMICAL-RESISTANT GLOVES AND OTHER PROTECTIVE CLOTHING AS REQUIRED TO MINIMIZE SKIN CONTACT. NO SPECIAL EYE PROTECTION IS ROUTINELY NECESSARY. TEST DATA FROM PUBLISHED LITERATURE AND/OR GLOVE AND CLOTHING MANUFACTURERS INDICATE THE BEST PROTECTION IS PROVIDED BY NITRILE GLOVES.

SECTION XI ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES

MAY BURN ALTHOUGH NOT READILY IGNITABLE. USE CAUTIOUS JUDGMENT WHEN CLEANING UP LARGE SPILLS. *** LARGE SPILLS *** WEAR RESPIRATOR AND PROTECTIVE CLOTHING AS APPROPRIATE. SHUT OFF SOURCE OF LEAK IF SAFE TO DO SO. DIKE AND CONTAIN. REMOVE WITH VACUUM TRUCKS OR PUMP TO STORAGE SALVAGE VESSELS. SOAK UP RESIDUE WITH AN ADSORBENT SUCH AS CLAY, SAND, OR OTHER SUITABLE MATERIALS; DISPOSE OF PROPERLY. FLUSH AREA WITH WATER TO REMOVE TRACE RESIDUE. *** SMALL SPILLS *** TAKE UP WITH AN ABSORBENT MATERIAL AND DISPOSE OF PROPERLY.

SECTION XII SPECIAL PRECAUTIONS

MINIMIZE SKIN CONTACT. WASH WITH SOAP AND WATER BEFORE EATING, DRINKING, SMOKING OR USING TOILET FACILITIES. LAUNDRY CONTAMINATED CLOTHING BEFORE REUSE. . PROPERLY DISPOSE OF CONTAMINATED LEATHER ARTICLES, INCLUDING SHOES, THAT CANNOT BE DECONTAMINATED.

SECTION XIII TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION:
NOT HAZARDOUS BY D.O.T. REGULATIONS

SECTION XIV OTHER REGULATORY CONTROLS

THE COMPONENTS OF THIS PRODUCT ARE LISTED ON THE EPA/TSCA INVENTORY OF CHEMICAL SUBSTANCES. IN ACCORDANCE WITH SARA TITLE III, SECTION 313, THE EDS SHOULD ALWAYS BE COPIED AND SENT WITH THE MSDS.

SECTION XV SPECIAL NOTES

SECTION XI - ENVIRONMENTAL PROTECTION HAS BEEN REVISED. THE INFORMATION IN THE "WASTE DISPOSAL" AND "ENVIRONMENT PROTECTION" HAS BEEN REMOVED AND INCLUDED IN THE ATTACHED ENVIRONMENTAL DATA SHEET. IN ACCORDANCE WITH SARA TITLE III, SECTION 313, THE EDS SHOULD ALWAYS BE COPIED AND SENT WITH THE MSDS.

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT. HOWEVER, SHELL MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. SHELL ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

DATE PREPARED: SEPTEMBER 04, 1989

J. C. WILLET

BE SAFE

READ OUR PRODUCT
SAFETY INFORMATION ...AND PASS IT ON
(PRODUCT LIABILITY LAW
REQUIRES IT)

SHELL OIL COMPANY
PRODUCT SAFETY AND COMPLIANCE
P. O. BOX 4320
HOUSTON, TX 77210



ENVIRONMENTAL DATA SHEET

EDS NUMBER ▶ 60,030-1

PAGE 1

97449 (9-87)

PRODUCT ▶ SHELL DIALA(R) OIL AX

PRODUCT CODE ▶ 68702 69702 63702 63722

SECTION I

PRODUCT/COMPOSITION

| NO. | COMPONENT | CAS NUMBER | PERCENT |
|-----|---|------------|---------|
| P | SHELL DIALA OIL AX | MIXTURE | 100 |
| 1 | SOLVENT REFINED HYDROTREATED MIDDLE DISTILLATE | 64742-46-7 | 70-100 |
| 2 | SEVERELY HYDROTREATED LIGHT NAPHTHENIC DISTILLATE | 64742-52-6 | 0-30 |
| 3 | BUTYLATED HYDROXY TOLUENE | 128-37-0 | <0.2 |

SECTION II

SARA TITLE III INFORMATION

| NO. | EHS RQ (LBS) (*1) | EHS TPQ (LBS) (*2) | SEC 313 (*3) | 313 CATEGORY (*4) | 311/312 CATEGORIES (*5) |
|-----|----------------------|-----------------------|-----------------|----------------------|----------------------------|
| | | | | | |

BASED ON THE DATA AVAILABLE TO SHELL THIS PRODUCT IS NOT REGULATED BY SARA, TITLE III

FOOTNOTES

- *1 = REPORTABLE QUANTITY OF EXTREMELY HAZARDOUS SUBSTANCE, SEC.302
- *2 = THRESHOLD PLANNING QUANTITY, EXTREMELY HAZARDOUS SUBSTANCE, SEC 302
- *3 = TOXIC CHEMICAL, SEC 313
- *4 = CATEGORY AS REQUIRED BY SEC 313 (40 CFR 372.65 C), MUST BE USED ON TOXIC RELEASE INVENTORY FORM
- *5 = HAZARD CATEGORY FOR SARA SEC. 311/312 REPORTING
 - HEALTH H-1 = IMMEDIATE (ACUTE) HEALTH HAZARD H-2 = DELAYED (CHRONIC) HEALTH HAZARD
 - PHYSICAL P-3 = FIRE HAZARD P-4 = SUDDEN RELEASE OF PRESSURE HAZARD
 - P-5 = REACTIVE HAZARD

SECTION III

ENVIRONMENTAL RELEASE INFORMATION

THIS PRODUCT IS CLASSIFIED AS AN OIL UNDER SECTION 311 OF THE CLEAN WATER ACT. SPILLS ENTERING (A) WATERS OR (B) ANY WATER COURSES OR SEWERS ENTERING/LEADING TO SURFACE WATERS THAT CAUSE A SHEEN MUST REPORTED TO THE NATIONAL RESPONSE CENTER. 800-424-8602.

SECTION IV

RCRA INFORMATION

PLACE IN AN APPROPRIATE DISPOSAL FACILITY IN COMPLIANCE WITH LOCAL REGULATIONS.

PRODUCT NAME: SHELL DIALA(R) OIL AX

EDS 60,030-1
PAGE 2

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT. HOWEVER, SHELL MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. SHELL ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

DATE PREPARED: SEPTEMBER 04, 1989

SHELL OIL COMPANY
ENVIRONMENTAL AFFAIRS
P. O. BOX 4320
HOUSTON, TX 77210

FOR ADDITIONAL INFORMATION ON THIS ENVIRONMENTAL DATA PLEASE CALL
(713) 241-2252

FOR EMERGENCY ASSISTANCE PLEASE CALL
SHELL: (713) 473-9461
CHEMTREC: (800) 424-9300

ATTACHMENT 4
EPA Letter; March 26, 1996



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

March 26, 1996

Mr. Elmer A. Klavetter, Ph.D.
Sandia National Laboratories
P.O. Box 5800
Albuquerque, NM 87185

Dear Elmer:

Pursuant to your request at our March 21, 1996 meeting in Santa Fe, attached please find some information concerning EPA's PCB spill cleanup policy. Basically, for spills that occurred prior to 4/18/78, the cleanup is governed under RCRA. For spills that occurred between 4/18/78 and 5/3/87, both TSCA and RCRA apply. After 5/3/87, the spill should have been addressed under TSCA. TSCA actions must be coordinated with EPA Region 6 staff.

I'm enclosing the following information for your review: a paper summarizing EPA's PCB spill cleanup policy; a summary page listing contact names and phone numbers for EPA's TSCA staff; the cover pages from two EPA guidance documents (so that you may order copies if you don't already have them); and EPA's response to a position paper submitted by Los Alamos.

I hope this information is useful. Please feel free to contact me at (214) 665-6650 with any questions.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Nancy R. Morlock".

Nancy R. Morlock
New Mexico-Federal Facilities

cc: Mr. Benito Garcia, NMED

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
COMPLIANCE ASSURANCE AND ENFORCEMENT DIVISION
AIR/TOXICS AND INSPECTION COORDINATION BRANCH
TOXICS ENFORCEMENT SECTION (6EN-AT)
1445 ROSS AVENUE
DALLAS, TEXAS 75202-2733



FAX #: (214) 665-7446



TOXICS ENFORCEMENT SECTION PCB STAFF

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ENVIRONMENTAL SCIENTIST
(214) 665-7578

EPA's Current Regulatory Perspective
on the PCB Spill Cleanup Policy

Presented by John H. Smith, Ph.D.
Chief, PCB Disposal Section
United States Environmental Protection Agency

This presentation will discuss EPA's current regulatory perspective on PCB spills. The presentation will begin with a historical perspective of PCB Spills and the PCB Spill Cleanup Policy (the Policy). The next topic will be unusual recent spills, which are covered by the Policy but for which other "less stringent" cleanup standards have been applied. And finally, I'll discuss spills which have recently drawn considerable interest, but which are not addressed by the Policy. The presentation is intended to examine the confines of the Policy, to discuss some difficulties in the implementation of the Policy, and to explain the impact of the Policy on spills not covered by the cleanup provisions of the Policy.

PCB spills occurring prior to the publication of the PCB Spill Cleanup Policy (the Policy) were addressed according to standards set by the EPA Regional Administrators on a case-by-case basis. In order to make PCB spill cleanups more uniform across the ten EPA Regions, EPA began to consider what form a consistent policy would have and how such a policy would be applied. The final result of lengthy EPA deliberations was the PCB Cleanup Policy (the Policy). The Policy was published in the Federal Register on April 2, 1987 and amended/clarified in the Federal Register on October 19, 1988. The Policy stated that EPA would review the Policy after implementation and this review occurred in late 1988, however EPA has not revised or amended the Policy based on this review. Since the Policy was published, the majority of spills and cleanups have been addressed through the provisions and requirements of the Policy. However there are a number of spills which have been cleaned up according to other requirements, based on the particular characteristics of the spill site.

The Policy clearly limits its coverage to recent (after May 4, 1987) or "new" spills from PCB electrical equipment having an authorized use. The Policy assumes that generally within 48 hours of occurrence, spills will be discovered and cleanup initiated. Cleanup requirements differ depending upon the amount and PCB concentration of the spilled material. There are some recent spills from electrical equipment which are specifically excluded from the provisions and requirements of the Policy. Excluded spills generally are those which are in or near: surface water, pathways to surface water, or sources of food. These kinds of spills were excluded because of additional risk from the potential ingestion of PCB contaminated water and foods. Ingestion risks are not considered in the residual levels set for non-food chain soil spills and spills to other surfaces.

For spills not covered by the Policy, the EPA Regions have the approval authority. For these spills there is greater variability in the way PCB spill cleanup is handled. The two general categories for these spills are (a) Pre-February 17, 1978 or "old" spills and (b) "new" spills, from sources other than electrical equipment. "Old" spills may be cleaned up under EPA's CERCLA authority. "New" spills not covered by the Policy and currently being addressed by EPA are spills related to natural gas pipelines and ancillary equipment and spills associated with PCB gaskets. Many of these "new" spills are/were generated in different Regions by the same organization (natural gas pipeline companies) or are associated with Federal Government facilities and equipment (gaskets). The specific EPA policies that address these spill scenarios are significantly different from the Policy because: (a) the regulatory status of the equipment containing PCBs is different from electrical equipment; (b) the amount of material effected is considerably larger than for an electrical equipment spill; (c) accessibility to the spill may be limited; and (d) there is a desire to reuse cleaned equipment after representative sampling.

Emergency response and/or preliminary cleanup measures for spills not covered by the Policy should include some very basic steps: (a) all visible traces of spills should be cleaned up as soon as possible; (b) only cleanup personnel and other essential parties should have access to the area where the spill occurred; and (c) reasonable measures should be taken to prevent the environmental transport of any spilled materials. However, in addition to these emergency actions, before a cleanup can be assumed complete and/or in compliance with Federal PCB disposal regulations, it is essential to contact the relevant EPA Regional Office.

In conclusion, the PCB Spill Cleanup Policy has been in existence for nearly nine years. The Policy has been a useful way to address one of the most common kinds of PCB spills, that is, recent spills of dielectric fluid from electrical equipment. Other kinds of PCB spills are addressed in different ways, some of these ways are applied on a case-by-case basis. In cleaning up any spill, it is prudent to contact the EPA Regional office where the spill occurs to obtain additional information on spill cleanup requirements. It is especially prudent to contact the appropriate EPA Region if it is not clear that a spill is directly addressed by the Policy.

SUMMARY REVIEW OF THE PROVISIONS OF THE POLICY

1. Addresses Recent Spills from Authorized Uses
2. Some of these Recent Spills Are Explicitly Excluded
3. Requires that Cleanup Be Implemented Quickly
4. Designates Cleanup Levels for Soil and Surfaces
5. Cleanup According to the Policy Receives No Penalty for Unauthorized Disposal
6. Materials Removed and Used in the Cleanup Are Subject to the PCB Disposal Regulations

SPILLS SPECIFICALLY EXCLUDED FROM THE SPILL CLEANUP POLICY

1. Spills which result in direct contamination of:
 - a. Surface waters
 - b. Sewers and sewage treatment systems
 - c. Any private or public drinking water sources or distribution systems
2. Spills which migrate to and contaminate a - c (above) before cleanup has been completed.
3. Spills that contaminate:
 - a. grazing lands
 - b. vegetable gardens

SPILLS FROM SOURCES OTHER THAN AUTHORIZED USES

- Spills (≥ 50 ppm) from Natural Gas Pipelines
- Spills from Air Compressor Systems Associated with Natural Gas Pipelines
- Spills Associated with PCB Impregnated Gaskets

SPILL CLEANUPS COVERED BY THE POLICY BUT WHICH HAVE BEEN CLEANED TO LESS STRINGENT LEVELS

- Approved by the Regions When Further Cleanup Compromises:
 - Structural Integrity of Buildings
 - The Safety of Cleanup Activities
- Regions Usually Require Other Protective Measures
 - Encapsulation or Containment
 - Routine Monitoring
 - Regular Reporting

EPA REGULATIONS ON THE DISPOSAL AND DECONTAMINATION OF PCBs
March 18, 1996 1:15 p.m.

Current PCB Regulations and Policies

- I. "Anti-Dilution Rule"
 - II. PCB Spill Cleanup Policy
 - III. Decontamination
-

I. "ANTI-DILUTION RULE"

- a. Citation - 40 CFR 761.1(b)
 - b. What was intended?
 - c. What does it mean?
 - d. How is the regulated community affected?
-

40 CFR 761.1(b)-last sentence

No provision specifying a PCB concentration may be avoided as a result of any dilution, unless otherwise specifically provided.

WHAT WAS INTENDED?

The risk from PCBs:

Should not be reduced by dilution

Could be controlled by safe manufacture, processing, distribution in commerce, and use, followed by stringent disposal.

WHAT DOES IT MEAN ?

Dilution of regulated PCBs is not a major avenue for achieving compliance with regulatory requirements and objectives.

There are only a few places where limited dilution is specifically authorized in the PCB regulations .

WHAT DOES IT COVER ?

Spills after May 4, 1987.
Newly discovered spills.
Spills from authorized uses.
Spills in certain locations are excluded.

WHAT DOESN'T IT COVER ?

Spills prior to May 4, 1987.
> 50 ppm spills from pipelines, hydraulic equipment, and other unauthorized uses.
Spills to water, food, grazing lands, etc.

Cleanups Deviating from the Policy

Only as approved by the Region.
Unapproved cleanups receive no regulatory relief. ✓
Cleanup cannot be delegated to States.

What Roles Do the EPA Regions Play ?

EPA Regional Offices approve variances from Policy requirements.
EPA Regional Offices approve of spill cleanup for all spills not covered by the Policy.

^{Regulatory}
CLEANUP OF PRE-POLICY SPILLS

Pre-4/18/1978 Spills

- Anti-dilution does not apply.
- Required if not in disposal facility - *still require disposal*

levels > 50 ppm - to require cleanup

Spills between 4/18/1978 and 5/3/1987 require Regional Office approval. If no approval, still unauthorized disposal →

WHAT CAN BE DECONTAMINATED ?

Under 40 CFR 761.79

- PCB Containers
- Moveable Equipment at Storage Facilities

Under Subpart G

- Impervious surfaces
-

WHAT LEVELS CAN BE REUSED ?

No cleanup levels are required for §761.79 decontamination.

Spill Cleanup Policy levels depend on the location of the spill or use.

- unrestricted access $\leq 10 \mu\text{g}/100 \text{ cm}^2$
 - restricted access $\leq 100 \mu\text{g}/100 \text{ cm}^2$
-

WHEN IS A PERMIT REQUIRED ?

Clearing natural gas pipelines at ≥ 50 ppm

Removing non-liquid PCBs during metal recycling

Rinsing off PCB items/unauthorized uses.

PROPOSED CHANGES IN THE PCB DISPOSAL REGULATIONS

- Liquid PCEs - Two Changes
- Non-Liquid PCEs - Major Changes
- PCB Articles - Major Changes
- "Treatability Study" R&D Approvals

Q PCB Remediation Waste

Q PCB Non-Remediation Waste

Q Household Waste

Q Laboratory Waste

EXPANDED DECONTAMINATION OPTIONS

- Decontamination Generates "New" Waste
 - Reuse of Decontamination Solvents
 - Distribution in Commerce of Decontaminated Materials
 - Recordkeeping Required
 - Includes More than Rinsing, No Approval Needed
 - Disposal of Rinse Solvents Required
 - Measurement-Based Decontamination Standards
 - Performance-Based Decontamination Requirements
-

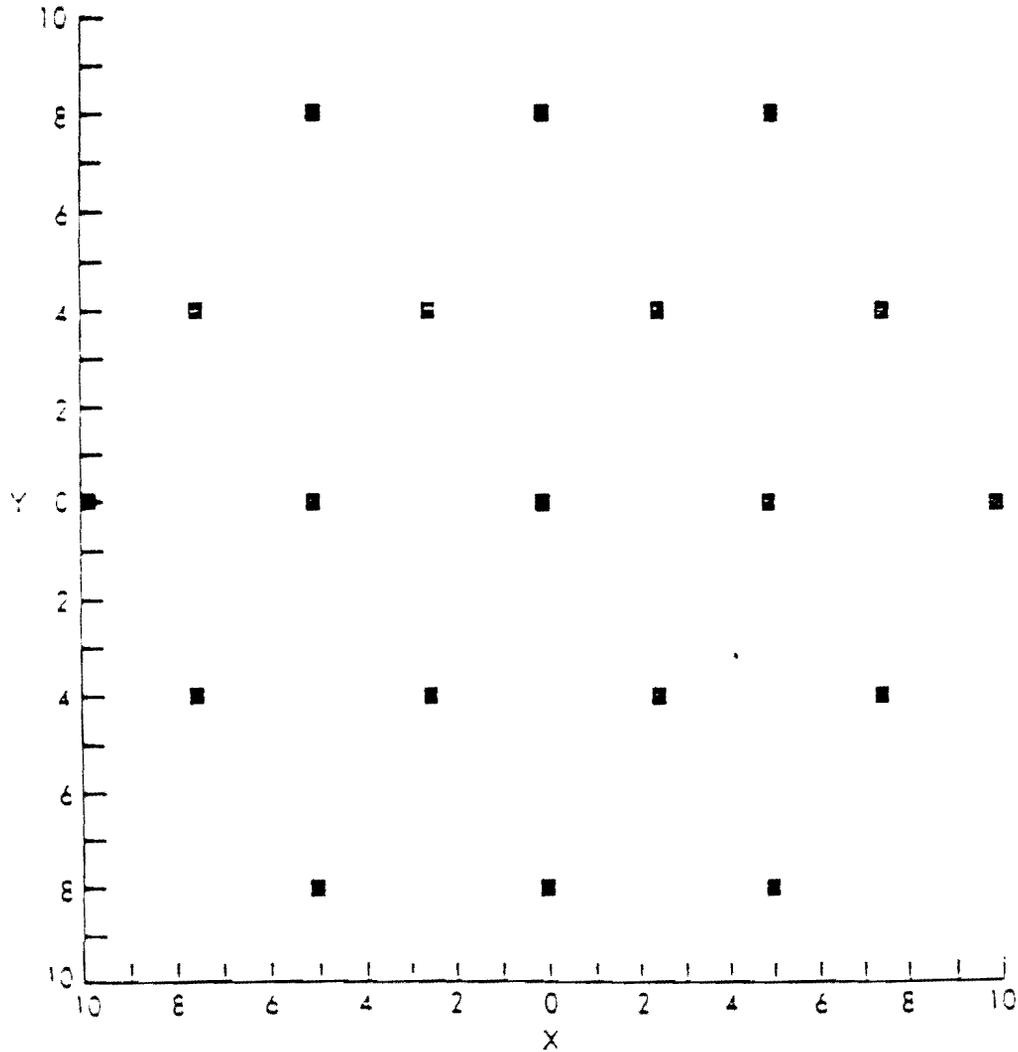
II. Final Amendments to the PCB Reclassification Regulations

- a. Status - finalizing responses to comments and revised codified language.
- b. Projected date of publication - Fall of 1996

Toxic Substances



VERIFICATION OF PCB SPILL CLEANUP BY SAMPLING AND ANALYSIS



Comments on LANL Position Papers

Guidance for Screening Assessment Methodology

General comment: The screening approach does not address potential ecological effects. This fact can greatly underestimate the potential risk especially since it will be used to establish no further action (NFA).

1. Figure 1. Decision logic for screening assessments.

Number 3 on the flowchart indicates that a chemical may not be considered a chemical of concern (COC) if the constituent concentrations do not differ between "blanks" and site samples. It appears that the question asked should be more from a quality assurance standpoint than with the purpose of defining COCs. That is, a better answer to the question asked would be if the constituent concentrations should be quantified or considered as a positive result. See Risk Assessment Guidance for Superfund (RAGS) Part A, Section 5.5 for further details.

The decision diamond that compares site data to background may need more clarification especially since it is in part the basis to conclude whether a constituent is a COC. Additionally, two important policy papers that provide essential information for this decision step have not been finalized by DOE (Making Comparisons with Natural Background Concentrations of Metals for the Los Alamos National Laboratory Environmental Restoration Project) or reviewed by EPA (Evaluating the Human Health Significance of Polynuclear Aromatic Hydrocarbons at the Los Alamos National Laboratory).

Number 4 on the flowchart indicates that only after an action level is exceeded will a chemical constituent be considered a COC. Does this step incorporate additive effects of all chemical constituents present? This question is important especially for sites with multiple constituents.

2. Page 4. Top of page.

It is stated that calculated SALs will be used for both surface water and ground water when no MCL value or state ground water is available. These SALs are said to be more stringent than required by NMED, according to LANL, since New Mexico has not designated surface waters to be evaluated as drinking water sources. It is important to note that NMED has passed water quality standards as of January 23, 1995. These standards include surface water designations such as public water supply. Furthermore, consideration of federal water quality criteria, including human health criteria, is suggested.

3. Item 6.

This approach would be adequate for background concentrations that have been reviewed and concurred by EPA.

4. Page 6. Section 2.3 Derivation of SALs When Noncarcinogenic Toxicological Data Are Lacking

It is necessary to understand the specific extrapolating approach that LANL would use to calculate interim conservative estimated values where there is no chronic toxicological information. That is, will uncertainty factors be incorporated into the calculation? If so, what magnitude? Additionally, will the derived values be identified as estimated values?

5. Section 3.1 Rationale for Deriving SALs for Radioactive Constituents in Soils

EPA will be proposing a radiation cleanup standard in a new rulemaking. The new standard is an overall dose limit of 15 millirem (mrem) per year in excess of background radiation assuming that all sites are cleaned up to unrestricted release. This cleanup standard will apply to federal facilities, as well as, Nuclear Regulatory Commission and Agreement State licensees. It is the Region's understanding that DOE has agreed with this cleanup standard and is currently applying the 15 mrem per year standard to decommissioned sites.

It is important to understand exactly how DOE has set the limit of 100 mrem/yr as a maximum acceptable radiation dose to individuals in the general public. This approach, according to the issue paper takes into account all contaminant pathways, radionuclides and exposure sources. It would be beneficial to review exactly how this number was derived, or DOE should provide documentation if this number is a DOE Order or directive.

Additionally, RAGS Part A (Chapter 10) describes how risk due to radioactive compounds should be evaluated. Essentially, RAGS recommends that the approach used to evaluate risk to chemical constituents be used, with modifications, to estimate risk to radioactive compounds. Perhaps, in addition to the above information, LANL can provide a comparison of the two approaches. This will aid EPA in evaluating whether the DOE approach is in accordance, at least in principle and conservatism, with the EPA approach.

Guidance on Evaluation and Cleanup of PCBs

1. 1.0 Introduction - LANL might note in the introduction that this document is to assist, but does not replace the need to refer to the TSCA PCB regulations found at 40 C.F.R. §761.

2. 2.0 Background - TSCA recommended the insertion of more "common trade names". LANL may wish to choose some from this list:

| | | |
|------------|-----------|---------|
| Arochlor B | Inclor | Eucarel |
| ALC | Inerteen | Fenclor |
| Apirolio | Keneclor | Hyvol |
| Asbestol | Kenneclor | Elenex |

| | | |
|--------------|---------------------|------------------|
| .SK | Magvar | Santovac 1 and 2 |
| Askarel | MCS 1489 | |
| Adkarel | Nepolin | |
| Capacitor 21 | No-Flamol | |
| Chlorextol | Nonflammable Liquid | |
| Chlorinol | Phenoclor | |
| Chlorphen | Pydraul | |
| Clorincl | Pyralene | |
| Diaclor | Pyranol | |
| DK | Pyroclor | |
| Dykanol | Saf-T-Kuhl | |
| EEC-18 | Santotherm | |

3. 3.0 Summary of Regulations.... - Suggest the following additional language:

There are five laws impacting activities relating to PCBs. These are the Toxic Substances Control Act (TSCA), the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), the Safe Drinking Water Act (SDWA), and the Clean Water Act (CWA). Of the five statutes, TSCA provides the basis for the most comprehensive of PCB regulations.

4. 3.1 TSCA Regulations - 1st paragraph

Suggest adding the following:

The TSCA PCB Spill Cleanup Policy does exclude from application of the final numerical cleanup standards certain spill situations: spills directly into surface water, drinking water, sewers, grazing lands, and vegetable gardens.

The investigation of all PCB spills (See the definition of spill found at 40 C.F.R. § 761.123) must include the identification of the source of the spill (i.e., to determine the PCB concentration spilled) and the occurrence (i.e., pre-TSCA or post-TSCA [April 18, 1978]; see Recordkeeping Requirements at 40 C.F.R. § 761.125.

5. 3.1 TSCA Regulations, 2nd paragraph, page 2 -

Suggest changing the word "regulations" to "policy" in the first 2 sentences: "TSCA PCB Spill Cleanup Policy applies to spills that occurred on or after May 4, 1987, the effective date of the policy. The policy establishes PCB cleanup levels in soil, and on solid surfaces, based on concentration of PCBs spilled onto soil and the use of the site upon which the spill occurred."

Suggest adding the following to this paragraph after the 1st sentence, "TSCA PCB Spill Cleanup Policy applies to spills that occurred on or after may 4, 1987, the effective date of the policy." "EPA Region 6 encourages discussion of cleanup levels for

those spills that occurred prior to the TSCA PCB Spill Cleanup Policy effective date of May 4, 1987. Spills which occurred before the effective date of this policy are to be decontaminated to requirements established at the discretion of EPA, usually through its regional offices."

Suggest adding the following to this paragraph after the sentence, "The most stringent spill cleanup level for soil is 10 parts per million (ppm)." "Regional Administrator can require more stringent cleanup requirements for any spill given the site specifics."

6. Section 3.1, Paragraph 2, page 2 - TSCA PCB spill cleanup regulations apply to spills that occurred on or after May 4, 1987, the effective date of the regulation. How will LANL decide whether the PCB contamination at a particular site is the result of a release or spill prior to May 4, 1987?

7. 3.3 CERCLA Guidance on Remedial Actions for Superfund Sites with PCB Contamination, page 3 -

Suggest adding the following to this paragraph as the last sentence: "Note that the future change of the land use could prompt further remedial action (i.e, that is if the land use changes from industrial to residential; cleanup from 25 ppm could be changed to 10 ppm)."

8. The document is confusing in that it restates the PCB regulations under TSCA do not supersede other program requirements such as RCRA. It also restates that whenever RCRA would require a more stringent action or cleanup level it would take those requirements into consideration. Despite this, it appears that LANL is proposing to use values out of the TSCA regulations for their action levels and cleanup goals. The health-based action level calculated under Subpart S is more conservative than the most conservative TSCA PCB standard. LANL should provide clarification on this issue.

9. The derivations of action levels should incorporate ecological risk considerations. The PCB regulations include these considerations under Subpart G(3)(b) in which circumstances may require more stringent cleanup levels. It appears that LANL has not included these considerations in their proposed action and cleanup levels. Consideration of ecological factors may considerably drive down the values proposed.

10. In this paper, action levels were derived using a risk level of 10^{-4} . PCBs are a class B2 carcinogen and as such should be evaluated at a risk level of 10^{-6} to be in accordance to Subpart S.

11. How will cleanup goals be set at sites with multiple constituents, including PCBs?

12. This paper only addresses cleanup levels for PCBs in soils, how will other media be addressed?

ATTACHMENT 5
Boring Logs for ER Site 111
Comment 29

| | | | |
|--|----------------------|------------------------|---------------|
| SNL/NM ER Project Borehole Location: - SITE III - BORING 1 SITE III - BORING 2 SITE III - BORING 3 | PROJECT: | rehole No.: | |
| | | 7A 3/5 - SITE III | ADS No.: |
| | Logged By: | Instruments: | |
| | Task Leader: | Drill Rig: | |
| | Drilling Contractor: | Ground Elev. (ft. MSL) | |
| | Driller/Helper: | | |
| | Drilling Method: | GEOPROBE | |
| | Sample Method: | | |
| | Hammer Weight/Drop: | Borehole Diameter: | |
| | Start Time: | 0758 | Date: 6-17-94 |
| Finish Time: | 0930 | Date: 6-17-94 | |

| | | | | | |
|------------------|----------------------|--|--|--|--|
| Notes: 111-B1 | Water Depth | | | | |
| | Boring/Casing Depth: | | | | |
| | Time | | | | |
| | Date | | | | |

| Lab Sample ID | Lab Analysis Requested | Sampler Type/Depth | Blows/6 Inch | Inches Driven | Inches Recovered | Sample Condition/RQD | Soil Vapor Concentration | Circulation/Moisture/Other | Well Annulus/Seal | Well Casing/Screen | Depth in Feet | Stratigraphy/Contacts | Total Depth: | Casing Depth: | |
|---------------|------------------------|--------------------|--------------|---------------|------------------|----------------------|--------------------------|----------------------------|-------------------|--------------------|---------------|-----------------------|---|---------------|------------|
| | | | | | | | | | | | | | Screened Interval: | Screen Size: | |
| | | | | | | | | | | | | | Sand Pack Interval: | Sand Size: | |
| | | | | | | | | | | | | | Well Development Method: | | |
| | | | | | | | | | | | | | Time: | Date: | Flow Rate: |
| | | | | | | | | | | | | | Geophysical Logs, Type: | | |
| | | | | | | | | | | | | | By: | Date: | |
| | | | | | | | | | | | | | LITHOLOGIC DESCRIPTION | | |
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| | | | | | | | | | | | 7 | | | | |
| | | | | | | | | | | | 8 | | COARSE SAND (SP), YELLOWISH BROWN (10 YR, 5/4) med. dense, moist, POORLY GRADED SAND WITH SUBROUNDED GRANITE AND ANGIULAR LIMESTONE | | |
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| Lab Sample ID | Lab Analysis Requested | Sampler Type/Depth | Blows/6 inch | Inches Driven | Inches Recovered | Sample Condition/RQD | Soil Vapor Concentration | Circ/Moisture/Other | Well Annulus/Seal | Well Casing/Screen | Depth in Feet | Stratigraphy Contacts | Project/ADS No.: | Borehole/Well No. |
|---------------|------------------------|--------------------|--------------|---------------|------------------|----------------------|--------------------------|---------------------|-------------------|--------------------|---------------|---|------------------|-------------------|
| | | | | | | | | | | | 11 | | | 111-131 |
| | | | | | | | | | | | 12 | VERT FINE SAND/SILT (ML), BROWN (7.5 YR, 5/6) LOOSE, MOIST, 99% SILT, 1% SUBROUNDED QUARTZITE AND GRANITE | | |
| | | | | | | | | | | | 13 | | | |
| | | | | | | | | | | | 14 | | | |
| | | | | | | | | | | | 15 | FINE CLAYEY SAND (ML), BROWN (7.5 YR, 5/6), LOOSE/MED DENSE, MOIST, 95% SAND WITH CLAY, 5% SUBROUNDED QUARTZ AND LIMESTONE, SUBANGULAR GRANITE. | | |
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