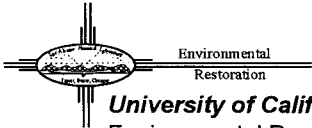


Barbara
Rovik -

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ENVIRONMENTAL RESTORATION



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Date: May 6, 1996
Refer to: EM/ER:96-237



Mr. Benito Garcia
NMED-HRMB
P.O. Box 26110
Santa Fe, NM 87502


**SUBJECT: RESPONSE TO THE NOTICE OF DEFICIENCY (NOD) FOR
TECHNICAL AREA (TA) 48 RECOURSE CONSERVATION
AND RECOVERY ACT FACILITY INVESTIGATION (RFI)
REPORT**

Dear Mr. Garcia:

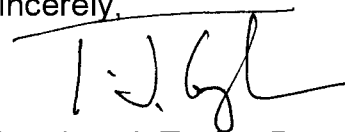
Enclosed is the Los Alamos National Laboratory's response to the Environmental Protection Agency's NOD concerning the TA-48 RFI Report. A certification form signed by the appropriate officials is also enclosed. The NOD was received at the Los Alamos Area Office on April 4, 1996. The enclosed response repeats each comment from the NOD for convenience in reviewing.

Please contact Allyn Pratt at (505) 667-4308 or Bob Simeone at (505) 667-0587, if you have any questions regarding the response to the NOD.

Sincerely,


Jorg Jansen, Program Manager
Environmental Restoration

Sincerely,


Theodore J. Taylor, Program Manager
Los Alamos Area Office

JJ/TT/el

Enclosure: Response to NOD for TA-48 RFI Report



2587

Tc

Cy (w/ enc.):

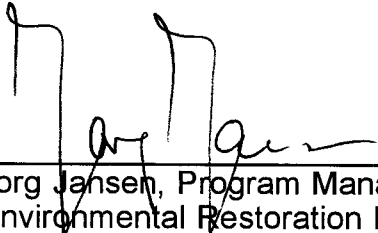
D. Griswold, ERD, AL, MS A906
J. Harry, EM/ER, MS M992
B. Hoditschek, NMED-HRMB
R. Kern, NMED-HRMB
N. Naraine, EM-453, DOE-HQ
D. Neleigh, EPA, R.6, 6PD-N, 2 copies
A. Pratt, EES-13, MS J521
B. Simeone, LAAO, MS A316
T. Taylor, LAAO, MS A316
N. Weber, NMED-AIP, MS J993
J. White, ESH-19, MS K490
S. Yanicak, NMED-AIP, J993
EM/ER File (CT # C081), MS M992
RPF, MS M707

Cy (w/o enc.):

T. Baca, EM, MS J591
T. Glatzmaier, DDEES/ER, MS M992
D. McInroy, EM/ER, MS M992
G. Rael, ERD, AL, MS A906
W. Spurgeon, EM-453, DOE-HQ
J. Vozella, LAAO, MS A316

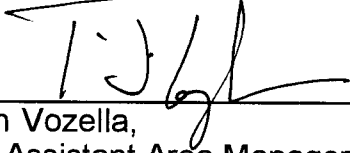
I certify under penalty of law that these documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation.

Document Title: RESPONSE TO THE NOTICE OF DEFICIENCY (NOD) FOR THE TECHNICAL AREA (TA) 48 RECOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION (RFI) REPORT (FORMER OPERABLE UNIT 1129)

Name:  Date: 5-9-96
Jorg Jansen, Program Manager
Environmental Restoration Project
Los Alamos National Laboratory

or

Tom Baca, Program Director
Environmental Management
Los Alamos National Laboratory

Name:  Date: 5/9/96
Joseph Vozella,
Acting Assistant Area Manager of
Environment Projects
Environment, Safety, and Health Branch
DOE-Los Alamos Area Office

or

Theodore J. Taylor
Program Manager
Environment Restoration Program
DOE-Los Alamos Area Office

**RESPONSE TO NOTICE OF DEFICIENCY FOR
TECHNICAL AREA (TA) 48 RESOURCE CONSERVATION AND
RECOVERY ACT FACILITY INVESTIGATION (RFI) REPORT
(FORMER OPERABLE UNIT 1129)**

No. 1 3.1.1 Inorganic Analyses, P. 3-2

The report indicates that holding times for various soil and water samples were exceeded by as much as two months. Were the holding times errors due to laboratory oversights or backlog, or other circumstances? Is any additional sampling anticipated to corroborate the results of those analyses which are "regarded as estimated"?

Holding time errors for these samples were caused by a backlog at the internal laboratories used for the analyses. No additional sampling is proposed to validate the estimated data from samples for which holding times were exceeded. The two field QC water samples for which holding times were exceeded by two months are not critical to the conclusions for any potential release site (PRS) in this report because sufficient QC samples still exist to evaluate sampling procedure bias and precision. The only soil samples affected by the missed holding times are GFAA data for arsenic and selenium. Selenium data by GFAA represent only nine percent of the data set for these analytes, the remaining analyses were performed by XRF for which sample holding times were satisfied. Data quality concerns for arsenic are discussed in Comment Response 3.

**No. 2 3.1.1.2 Comparison of SW-846 and EDXRF Sample results,
P. 3-3**

The comparison of EDXRF and SW-846 ICPES methods indicates that the EDXRF results were significantly higher for barium, calcium, chromium, copper, iron, lead, manganese, and potassium. LANL shall present an explanation as to how this discrepancy will impact the risk assessment process.

The high bias of XRF data for these analytes relative to data derived from SW-846 methods introduces a conservative bias into the risk assessment process. Sample digestion procedures for SW-846 trace metal analyses specify a partial sample digestion using nitric acid. This sample digestion procedure does not extract elements present in the silicate minerals of the soil particles. By contrast, XRF analysis is sensitive to most or all of the elements present in silicate minerals as well as to elements in the acid-soluble portion of the sample. Because only the acid-digestible fraction of a sample is likely to correspond to the sample fraction soluble in gastrointestinal and intercellular fluids, the lower SW-846 values are more appropriate for comparing to screening values or cleanup levels based on contaminant intake via soil ingestion, inhalation, or

dermal absorption exposure routes. Use of the XRF data for screening purposes, however, is appropriate because additional bias introduced by this analytical method is conservative.

No. 3 3.1.1.3 Evaluation of Quality Control Data for SW-846 and EDXRF Analyses, p. 3-5

The report indicates that the EDXRF data quality for arsenic is insufficient for screening assessment purposes. Will LANL be collecting additional samples for arsenic analyses?

LANL acknowledges that arsenic data at TA-48 are not of sufficient quality for performing quantitative risk-based evaluations, including quantitative screening assessments. XRF data for arsenic exhibited a significant low bias and a high false negative rate, and the SW-846 arsenic data are from samples for which holding times were exceeded. Nevertheless, LANL maintains it is not cost-effective to resample for arsenic at TA-48 because existing data, although admittedly of poor quality, are sufficient to show that widespread arsenic contamination at high concentrations does not exist at TA-48. Additionally, no industrial processes at TA-35 have been identified in historical documents that would suggest that arsenic is a potential contaminant at these PRSs. Resampling for arsenic is therefore not proposed at TA-48.

No. 4 3.1.2.2 Semivolatile Organic Compound Analyses, p. 3-11

Numerous SVOC samples were extracted without the required method blank being concurrently extracted. Reported dates of sample extraction do not agree with the dates of method blank extraction and in one instance, no method blank extraction was performed. Although review of the data does not indicate the samples had contamination introduced during sample preparation, other than possibly phalates, the lax quality control practices in conjunction with previously mentioned exceedances in holding times tends to taint the entire data package. How does LANL propose to address these problems?

LANL acknowledges that quality control procedures for the TA-48 data set were not implemented in a manner consistent with standard industry practice and LANL's own quality control directives. The analytical laboratory used for many of the sample analyses is no longer employed by the ER Project and future reports by this field unit (FU) will not exhibit the degree of quality control problems experienced here.

No. 5 3.1.2.3 Polychlorinated Biphenyl Compound Analysis, p. 3-11

PCB holding time for one sample was exceeded by one month. This sample should be identified in the text and compared to other samples which met holding times to validate the statement that "the usability of the data is not affected", as the report suggests.

Comparison of data for the affected PCB sample with data from samples at other locations is not inherently meaningful because the assumption that PCB concentrations at disparate locations are identical cannot be defended. LANL maintains, however, that the missed holding time for the single PCB sample is not meaningful in the context of the Phase I assessment because PCBs are sufficiently stable in a soil medium that if gross PCB contamination existed at the sampling location in question, the sample data would still indicate their presence.

No. 6 3.1.4 High Explosives Analyses, p. 3-14:

The report indicates that "no explosive analyses were performed at this site". The rationale for not conducting explosives' analyses, such as no historical use or presence of explosives in the area, should be stated.

LANL concurs. The rationale for not conducting explosives analyses is that no current or historical use or presence of explosives has been identified at the TA-48 laboratory site. TA-48 facility operations and processes are described in the Introduction, page 1-1, of the RFI Report for PRSs 48-001, 48-002, 48-003, 48-005, 48-007(a), 48-007(c), 48-007(d), 48-007(f), and 48-010, and in greater detail in Chapter 3, pages 3-87 through 3-107, of the RFI Work Plan for Operable Unit (OU) 1129. TA-48, the Radiochemistry Site, is currently used for chemical and radiochemical analyses, radioactive waste disposal research, and radioisotope production for nuclear medicine.

No. 7 - 3.1.5 Field Quality Control Activities, p. 3-14:

The presence of lead above 5 ppb in 17 of 24 field QC water samples and the fact that all regular water samples analyzed contained less than 5 ppb lead, indicates that lead contamination was introduced into the QC samples through the sample preparation process. A complete audit of the QC sample preparation process should be conducted to identify at which point the contamination is being introduced.

LANL concurs. The FU undertook an aggressive internal audit of the analytical findings. While no specific procedural finding could be attributed to the lead hits in the QC water samples, a change in vendors of the water alleviated the issue.

No. 8 3.2.1 Background Comparison, p. 3-19

The statement, "At the discretion of the project statistician, additional analysis of a background value may be performed before carrying a COPC forward to the SAL comparison.", needs clarification. Which background values required "additional analysis"? What form of "correction" was applied before performing the background screening?

This statement refers to the process of performing a statistical test comparing site data and background data for a chemical to determine if the two distributions are significantly different. Generally, such statistical tests are

performed only if UTL values are exceeded in one or more samples. Background values and tests for comparing site and background distributions of chemicals are described in *Risk-Based Corrective Action Process* (Environmental Restoration Decision Support Council 1996, 53751). Statistical tests of this nature were not performed for the TA-48 data set and this statement was included in the text only because such tests are a potential part of the screening process. This statement may be disregarded in the TA-48 RFI Report.

No. 9 3.2.3 Ecotoxicological Screening Assessment Methodology

The process of identifying PRSs that may be excluded from further ecological risk evaluation based on an assigned "minimum habitat quality criteria" is flawed by the fact that no "habitat" could ever receive a biological activity score of zero. A potential for access by receptors is always present from birds and/or mammals.

Technically we agree that biological activity in close proximity with contaminated media is never zero. A receptor accessibility score of zero simply means that the amount of biological activity expected for the site is below a *de minimus* level where other site disturbances are thought to overwhelm any potential for a contaminant-caused effect.

The zero score is a useful tool for sorting PRSs in groups having contamination problems of different magnitudes and urgency. The goal of the habitat evaluation is to identify areas where ecological risk is the paramount value or where it is not. When a site has low habitat value because of disturbances not related to contamination, then remediation of the site will do little to improve habitat quality. These areas typically are highly industrialized (even paved) or otherwise subjected to frequent human disturbance. A PRS with an accessibility score of zero should not contribute to a cumulative risk problem (as long as the no transport assumption holds), because their contribution is assumed to be insignificant.

The habitat evaluation certainly can be improved, and we are evaluating several approaches to do so. Proximity of PRSs to buildings and depth to contamination are two of many criteria that could be used to define an objective way to set priorities for ecological risk. We welcome any suggestions you have for evaluating site quality.

No. 10 Table ES-1, p. 4-1

Based on the above mentioned analytical problems, the NFA recommendations for all PRSs within this RFI seems premature pending further investigation or an adequate explanation that the sampling and analysis errors have no impact on the decision making process.

Specific comments regarding the adequacy of the data set to support NFA recommendations have been addressed throughout these comment responses.

No. 11 4.1 Aggregate K, p. 4-2:

The report indicates that the TA-48 contains nine stacks which release VOCs and perchloric acid. The fume hoods are reported to contain scrubbers designed to scrub contaminated exhaust air before it is released to the stacks, however, no explanation is given as to the ultimate disposition of the scrubber waters. Please clarify.

According to TA-48 facility personnel, the scrubber waters are discharged via direct line to the TA-50 low-level radioactive wastewater treatment plant.

No. 12 4.1.1 Previous Investigations for Aggregate K, p. 4-2

A table should be included presenting the results of the five surface and five subsurface soil samples which were collected north of TA-48 as part of the April 1991, ER Interim Action reconnaissance survey.

The summary results (and the original work plan) for the referenced samples are included as attachments (LANL memos, symbols HSE-8:91-900 and -507, respectively). A tabular summary of the results will be provided in the final TA-48 Phase II sampling report, scheduled for second quarter, FY97.

No. 13 4.1.2 Field Investigations for Aggregate K, p. 4-4:

The use of an organic vapor analyzer (OVA) is an inadequate technique to locate surface soil contamination. Any VOCs that may have been present most likely volatilized long ago. Generally, surface soils contaminated with organics will be visible to the naked eye long before they are detected with the OVA instrument, unless the soil is disturbed, thereby releasing the VOCs which may be just under the surface. A surface soil sample analyzed using methods described in SW-848 is the most reliable way of locating surface soil contamination.

LANL concurs, the use of an organic vapor analyzer is not the proper instrument to locate surface soil contamination. However, the OVA was used during the field surveys primarily as a health and safety (H&S) precaution and to identify any VOC "hot spots", if present. The use of the OVA for surface screening was not intended to screen out sample locations. The rationale for the use of the OVA agrees with the comment, that surface VOCs would have long since volatilized, but for H&S and screening purposes the OVA is routinely used as a screening tool.

No. 14 Deviations from the Work Plan, p. 4-5:

Subsurface sampling using a hand auger alone is an inappropriate method for collecting VOC samples. Unless a split spoon or core barrel is driven beyond the bottom of the auger hole to collect an undisturbed samples, VOC results, if any are recorded, will not be representative of actual conditions due to the volatilization that occurs during the churning action of the soil created by the auger.

LANL concurs. VOC samples need to be collected with a split spoon or core barrel sampler. However, the method used to collect subsurface soil samples for VOC analyses from a hand-auger assumes that not all VOCs will volatilize in the few seconds between when the sample is retrieved and bottled. The sampling method used insures that the exposure time before bottling the sample is minimized; once the sample is retrieved, a grab sample is immediately collected for VOCs prior to homogenizing the remaining sample for other constituents. The Phase I sample and analysis plan was designed to confirm the presence of COPCs and not necessarily define the full extent of contaminants. Therefore, the use of the hand-auger for collection of subsurface samples for VOC analysis is an appropriate tool for Phase I sampling. Alternative sampling methods, using split spoon or core barrels, will be used at PRSs where VOCs are identified by SW-846 methods.

No. 15 4.1.2.2 Results of Field Screening, p. 4-5:

The OVA scans resulted in "No elevated measurements indicative of contamination..". LANL shall explain the criteria for "elevated measurements".

Field screening of soils and samples using the OVA identifies organic vapors in the soil, both anthropogenic and natural. VOCs are naturally generated by the decay of organic matter in the soil. Experience has shown that natural VOCs occur between 5 to 10 ppm in local soils, and if decaying organic matter is noted in the soil concurrent with a few ppm reading of the OVA, these measurements are considered background. The criteria for elevated measurements may be specific to individual sites, based on the amount of natural organic material in the soil, and may be identified by the on-site geologist. The statement is based on professional observational judgment at the site, not on a quantitative threshold.

No. 16 4.1.3 Screening Assessment for Aggregate K, p. 4-6

The text indicates that various sets of sample results cannot be compared due to differences in analytical methods (EDXRF vs. SW-846), analyses conducted at fixed and mobile labs not being comparable or large uncertainties associated with the mobile lab analyses. Typically, SW-846 methods are used to correlate XRF results and likewise, a fixed laboratory will be used as a QA for a mobile laboratory. It appears that the sample results cannot be validated due to this lack of comparison of sample results. LANL shall develop a protocol for

sending at least 20% of all samples to fixed off-site laboratory to ensure proper QA for sample results

Sample data from TAs 35 and 48 have been combined and a sufficient data set exists to correlate SW-846 and XRF data for nine inorganic chemicals. UTL values based on these data have been calculated for these elements. Because the correlation of these XRF UTLs and UTL values published in Longmire et al. (1995, 48818; 1995, 1266) for total digestion (hydrofluoric acid) sample preparation are very good, the total digestion UTLs can be used as surrogates for many remaining elements. A discussion of the use of XRF data for background comparisons and screening assessment is presented in Section 3.1.3 of Chapter 3.0 of the TA-35 RFI Report, May, 1996.

FU 4 ceased using mobile laboratory facilities after the 1995 field season. Therefore, development of a QA protocol for validating mobile laboratory data is no longer relevant to FU 4.

The mobile laboratory data for radionuclides were not compared to fixed-site laboratory data because of the poor quality of the mobile laboratory data. Since the TA-48 RFI Report was published, additional information regarding quality of the mobile laboratory radiological data has become available. The mobile laboratory radiological data presented in the TA-48 RFI Report are no longer considered usable for screening assessment purposes and conclusions based on these data should be disregarded. Conclusions based on nonradiological and fixed-site laboratory radiological data are unaffected. An addendum to the TA-48 RFI Report providing the results of the Phase I investigation for radionuclides will be submitted once the radionuclide data have been corrected for problems including improper background count subtraction and possible misallocation of peaks by the system software. This will be included in the final TA-48 phase II sampling report, scheduled for second quarter, FY97.

No. 17 4.1.3.3 Risk Assessment, p. 4-9

Explain why no human health or ecological risk assessment was performed for PRS 48-001.

No human health risk assessment was performed for PRS 48-001 because no COPCs were identified in the screening assessment presented in Section 4.1.3 of Chapter 4.0 of the TA-48 RFI Report. Ecological risk assessments are not performed on a PRS-specific basis but data from this PRS will be included in the future TA-48 reports (see #12) incorporating data from multiple PRSs within an ecological exposure unit defined by criteria such as home ranges of animals, plant communities, and topographical considerations.

No. 18 4.2.2 Field Investigations for Aggregate M, p. 4-11:

a. As previously stated, an OVA should not be used to detect surface soil contamination.

b. As previously stated, a hand auger should not be used to collect VOC samples.

a. LANL concurs. As previously stated, an OVA should not be used to detect surface soil contamination.

Please see response to Comment #13.

b. LANL concurs. As previously stated, a hand auger should not be used to collect VOC samples.

Please see response to Comment #14.

No. 19 Deviations from the Work Plan, p. 4-12:

Aerial photographic analysis should be utilized for determining potential sample locations.

LANL concurs. Review of aerial photographs was performed routinely at all PRS sites and the mention of this activity was inadvertently omitted only in this RFI report. Please see response #27.

No. 20 4.2.3 Screening Assessment of Aggregate M, 4-15

Identify exactly which inorganic and organic constituents were sampled for. All data should be presented in tabular form regardless of the fact that individual sample results may not exceed "background" values.

Presentation of data in this RFI report followed the RFI report format current at the date of publication and agreed upon among LANL, DOE, and their regulatory agencies. The RFI report format has changed since the publication of the TA-48 RFI Report and current reports have an appendix that contains a list of analytes measured by each analytical method. Table formats for site-specific results specify that only analytes exceeding comparative values at each particular step in the data assessment process be included. All data evaluated in an RFI report are available for inspection in electronic data files maintained by the Facility for Information Management and Display at the Laboratory.

No. 21 4.2.3.1 Comparison to background and SAL values, p. 4-19

Although no evidence exists that lithium (4 ppm) is associated with the processes at TA-48, an explanation regarding the significance of this concentration at this location should be provided.

FU 4 attaches no particular significance to the referenced lithium hit. Background concentration data for lithium in soil at the Laboratory have not been collected nor does EPA publish a reference dose for lithium to allow calculation of risk-based screening values. However, lithium concentrations in

rhyolites such as tuff have been measured elsewhere. Total lithium concentrations ranged from 9 to 100 ppm among 13 samples taken at an ash flow in New Zealand (Handbook of Geochemistry, Volume II-1, K.H. Wedepohl, ed., 1978). SW-846 methods only measure the nitric acid-soluble fraction of lithium in a sample, therefore a value of several ppm (below the range in the literature for total lithium) is not unexpected and in no way appears indicative of an environmental release.

Daily intake of lithium from food sources is estimated to be approximately 2 mg (Casarett and Doull's Toxicology, 4th Ed.). At a concentration of 4 mg/kg in soil, and assuming a standard screening soil ingestion rate of 100 mg soil per day, daily lithium intake via soil ingestion would be approximately 0.0004 mg. Thus, the daily intake via food is calculated to be approximately 5,000 times greater than via soil ingestion. Exposure to lithium in soil at this concentration is therefore deemed to be insignificant from a human health standpoint.

No. 22 4.3.2 Field Investigations for Aggregate N, p. 4-23:

As previously stated, an OVA should not be used to detect surface soil contamination. To "screen-out" potential soil sampling locations based on OVA measurements is not appropriate.

LANL concurs. Please see response to comment #13. The use of the OVA as a screening tool during site surveys did not "screen-out" sample locations, it is used primarily as a Health and Safety screen. Sample locations were determined based on guidance from the SAP, and additional sample locations would have been selected if VOCs were detected at sites. Field screening using the OVA during sample collection was performed on the disturbed soil material immediately upon retrieval from the sampling equipment. If VOCs were detected, samples would have been collected for VOC analyses.

No. 23 4.3.3 Screening Assessment for Aggregate N, p. 4-27:

The text indicates that the analytical data quality evaluation revealed several problems that affect the screening assessment for aggregate N. LANL shall collect additional samples at those sample locations in question.

LANL concurs. A phase II sampling plan will be prepared to address radiological contamination and the referenced data quality issues associated with Aggregate N (please see comment response No. 24). Please note that the data quality associated with the XRF results for nickel (former waste line 37, sample nos. 48-2027 through 48-2036) did not impact the screening assessment. Also, it is important to note that the results of confirmation samples, the samples sent to external analytic laboratories, for the outfall for former waste line 37 (Sample Nos. N48-2027, N48-2036), indicate Ni concentration at <2 ppm. See #24 below.

No. 24 4.3.3 Constituents Identified as Potential COCs, p. 4-30:

The presence of contaminants has been established at depths of 6 to 7.4 feet at the site of Line 38. The report indicates the single borehole is insufficient to determine the extent of contamination. Additional borings should be conducted to define the extent of contamination. LANL shall submit a schedule for submitting additional sampling plans for this location along with a field schedule for the sampling.

LANL concurs. A phase II sampling and analysis plan (SAP) will be prepared that supports the objective to determine the extent of contamination associated with the former waste line 38 at Aggregate N. This new data will also be used to validate the Phase I results where data quality impacted its usability for decision purposes. This SAP will address all sampling requirements identified by this NOD. The planned date for submitting a draft Phase II SAP for EPA and NMED review and comment is October 30, 1996. Allowing for a 30-day regulator review period, implementation will occur following DOE approval and consideration of regulator comments.

No. 25 Constituents not Identified as Potential COCs, p. 4-31

a. Although no PAH compounds exceeded their EQL, the fact that SALs were exceeded may require an evaluation of the PAH relative potency factors, in addition to the potential cumulative effects of the benzidine and nitrosoamine concentrations.

b. The fact that "no evidence exists that lithium was associated with the acid waste lines" does not justify discontinuing further evaluation of this compound. Explain the significance of this concentration (7.3 ppm) at this location.

a. Potency factors for PAHs based on the carcinogenicity of benzo(a)pyrene form the basis of the SAL values for other PAHs including benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. The reporting limits for these SALs is a function of the GC-mass spectrometry method used for their analyses. The source material for PAHs in the environment is generally a petroleum hydrocarbon product and therefore multiple PAHs, and often associated VOCs, are detected in the same sample along with undifferentiated organic compounds such as alkanes and alkenes. No evidence of other PAHs or VOCs was observed in Aggregate N samples. If a PAH release had occurred at Aggregate N data for these carcinogenic PAHs, and for other PAHs and VOCs for which detection limits are below SALs, would show evidence of the release.

b. Please see response to Comment # 21.

No. 26 4.3.4 Conclusions and Recommendations for Aggregate N, p. 4-34:

The text indicates that "...it is recommended that final disposition of PRS No. 48-005 be deferred until later when the TA-48 facilities are decommissioned." Please define "later".

The wording in the text did not provide a specific decommissioning date. The TA-48 facilities are still in use and no plans currently exist for decommissioning of the buildings or the TA-48 site. The current long-term engineering facility plan shows this facility in use for another 30 years. The phase II sample and analysis plan (SAP) involved in resolving comment No. 24 will also include sampling of the former waste lines in PRS No. 48-005, both inside and outside the fence.

No. 27 4.4 Aggregate X, p. 4-35:

a. Nearly all of the PRSs in Aggregate X are currently paved with asphalt, however no historical account of the paving is provided. Historical aerials should be reviewed to determine potential sampling locations.

Please refer to Figure 4-5, page 4-38, in the RFI Report for the following response:

Review of a 1974 aerial photo indicates that the area from the west border of Figure 4-5 extending to the dashed line (fence) east of building 15 was paved with the exception of the area directly beneath buildings 17 and 31. All buildings present in Figure 4-5 were not present in the 1974 photo, and soil and grass is visible in the unpaved area beneath the present location of buildings 17 and 31. Aerial photos from 1986 indicate that by that time the area beneath buildings 17 and 31 had been paved and all buildings represented in Figure 4-5 are present. Aerial photos from 1991 provide the first photographic evidence of the large paved area (TA-48-45 parking lot) shown in the center of Figure 4-5. As described in 4.4.1 Previous Investigations for Aggregate X on page 4-35 of the RFI Report, sampling was conducted in this area prior to paving during a 1990 reconnaissance survey for the proposed parking lot.

PRS 48-002(e) is located in an area which was paved in the 1974 aerial photo. As described in Deviations from the Work Plan on page 4-36 of the RFI Report, subsurface sample 48-2037 was collected from an isolated area of exposed soil which is most likely a remnant from the unpaved area which existed previously beneath the present location of building 17. The sample was collected to identify potential infiltration of contaminants in an unpaved area; the results of which, along with the results from surface sample 48-2057, are summarized in Figure 4-5. In addition, seven surface and five subsurface samples were collected from the unpaved area that is now the TA-48-45 parking lot as part of the previously mentioned 1990 reconnaissance survey. As described in 4.4.1 Previous Investigations for Aggregate X on page 4-35 of the RFI Report, no

significant concentrations of organic, inorganic, or radiological constituents were identified.

The conceptual model for Aggregate X on which the selection of sample locations was based is supported by the historical account of paving as indicated by aerial photos from 1974, 1986, and 1991, and also by the results of the reconnaissance survey sampling event conducted in 1990.

b. As previously stated, an OVA should not be relied on to locate surface soil contamination.

LANL concurs. Please see comment responses #13 and #22 .

No. 28 - 4.3.3 Screening Assessment for Aggregate X, p. 4-40:

The text indicates that samples from locations 48-2037 and 48-2057 were "lost in analysis". Are additional samples anticipated to be collected from these locations? LANL shall provide a timeframe for the collection of additional samples.

Please see response to comment #24 for the schedule.

No. 29. 4.4.3.3 Risk Assessment, p. 4-46

Explain why the human health or ecological risk assessment was not performed at Aggregate X.

As discussed in Section 4.4.4 of Chapter 4.0 of the TA-48 RFI Report, a human health risk assessment was not performed because the maximum concentrations of COPCs were not significantly elevated above SALs and the SAL values, which are based on a residential exposure scenario, are highly conservative in their application to Aggregate X considering the small area of the PRSs and the industrial land use characteristics of the site. However, as described in Comment Response 16, the radiological data obtained from the mobile laboratory facility are no longer considered adequate to support the screening assessments in the TA-48 RFI Report. Therefore, as for the other PRS aggregates in the report, conclusions and recommendations based on mobile laboratory radiological data should be disregarded. Ecological risk assessments are not performed for individual PRSs, as discussed in Comment Response 17.

No. 30 Data Interpretation, p. 4-45:

Radionuclides and manganese are confirmed COCs at PRS 48-007 (a and b) and 48-010. The extent of contamination in the water and soil media at the outfalls and the wetland in Aggregate X have not been established.

Manganese exceeds the action level (drinking water standard) in the wetland. Have New Mexico groundwater discharge standards been considered prior to recommending NFA for these PRSs?

As stated in this NOD response, further characterization of PRS Nos. 48-007(a and b) and 48-010 is required to determine the maximum levels of potential COCs and establish the lateral and vertical extent and distribution of contamination at the outfalls and wetland. As discussed in Comment Responses 16 and 29, radionuclide data for TA-48 are no longer considered adequate to support the screening assessment process. Pending correction of the radionuclide data and submission of an addendum to the TA-48 RFI Report, no conclusions based on mobile laboratory radiological data are valid.

A sampling and analysis plan (SAP) will be prepared (please see response to comment #24) that supports the objective of initially confirming those radiological COCs that are based on mobile lab facility results. Subsequently, the extent of contamination will be determined, if necessary, for these PRSs.

Manganese was detected in a water sample at a concentration of 590 µg/L, approximately three times above the health-based SAL value of 180 µg/L and the New Mexico groundwater standard of 200 µg/L. Because the small wetland created by the NPDES outfalls at Aggregate X cannot feasibly be considered a potential source of drinking water, application of these water quality criteria to the surface water sample data was not considered appropriate beyond a cursory screening. As discussed in Section 4.4.4 of Chapter 4.0 of the TA-48 RFI Report, a Class III permit modification is sought despite the fact that the extent of contamination has not been well defined because the NPDES outfalls [PRS Nos. 49-007(a and d)] that are the prominent source of contamination for PRS No. 48-010 are regulated under an authority outside the HSWA module of the Laboratory's RCRA operating permit.