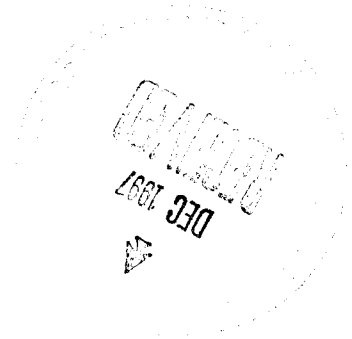




UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

December 11, 1997

cc: SD



Mr. Benito Garcia, Chief
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Re: TA-16 Potential Release Sites RFI Report
Los Alamos National Laboratory
EPA ID# NM0890010515

Dear Mr. Garcia:

The Environmental Protection Agency (EPA) has reviewed the RFI Report for Potential Release Sites (PRSs) 11-012(a,b), 13-003(a), 16-006(c,d), 16-010(a), 16-021(a), 16-026(c,d,v), 16-028(a), and 16-030(g) located in Technical Area (TA) 16 at Los Alamos National Laboratory (LANL). Past and present activities at TA-16 include the development, processing, fabrication, and testing of explosive components.

EPA concurs with No Further Action (NFA) recommendations for two (2) of these sites, as adequate phase I investigations have revealed no evidence of a RCRA-regulated contaminant release. EPA believes that the remaining sites require either further investigation or interim action. Further investigation of these sites should also consider impacts to surface water and groundwater because a shallow groundwater table and several surface water bodies exist at TA-16.

A site summary and list of deficiencies are attached. Should you have any questions, please feel free to contact Mr. David Vanlandingham at (214) 665-2254.

Sincerely,

David W. Neleigh
David W. Neleigh, Chief
New Mexico and Federal
Facilities Section

Enclosures



3450

4500 LMC 3/10/16, 11, 13

TL

**Summary of EPA Review
RFI Report for TA-16 Potential Release Sites**

PRS	Human Health NFA		Rationale for Recommendation of NFA Denial/Approval
	YES	NO	
11-012 (a)		X	NFA contingent on proof of workplan deviation approval
11-012 (b)		X	NFA contingent on proof of workplan deviation approval
13-003 (a)	X		No significant evidence of contaminant release
16-006 (c)		X	Phase II investigation needed to determine vertical extent of contamination
16-006 (d)		X	NFA contingent on blank contaminant concentrations
16-010 (a)		X	Phase II investigation needed to determine extent of contamination; Interim action may be necessary
16-021 (a)	X		No significant evidence of contaminant release
16-026 (c)		X	Low-level contaminant concentrations adequately characterized; however, impacts to surface and groundwater should be evaluated
16-026 (d)		X	Phase II investigation needed to determine extent of contamination
16-026 (v)		X	Phase II investigation needed to determine extent of contamination
16-028 (a)		X	Low-level contaminant concentrations adequately characterized; however, impacts to surface and groundwater should be evaluated.
16-030 (g)		X	Phase II investigation needed to determine extent of contamination

List of Deficiencies
RFI Report for Technical Area 16 Potential Release Sites
Los Alamos National Laboratory (NM0890010515)

General Comments

1. Impacts to surface water and groundwater must be studied at those sites where evidence of a contaminant release is present. A shallow groundwater table and several surface water bodies exist at TA-16, and, according to page 12 of the RFI report, all the springs and seeps at TA-16 are contaminated at levels above background and drinking water criteria. Because so many potential release sites (PRSs) are located in TA-16, however, difficulty may arise in determining if water contamination is due to one particular source or due to the additive effect of several different sources. In any case, Los Alamos National Laboratory (LANL) should devise investigation plans in which water contamination is defined and impacts to human health and the environment are studied.

2. Chromium concentrations, although always reported in the form of total Chromium, must always be considered to be in the hexavalent chromium form unless laboratory analysis proves justification for otherwise. The hexavalent chromium SAL (31mg/kg) should also be used in subsequent screens and risk assessments.

3. The recommendation of human-health No Further Action (NFA) does not relieve LANL from conducting an ecological impact evaluation at any of these sites.

4. 3.2.4 Risk-Based Screening Assessment. The LANL document *Risk-Based Corrective Action Process* (LA-UR-96-2811) nor the Multiple-Chemical Evaluation (MCE) outlined in this document have been approved by the Administrative Authority. EPA believes that the misapplication of the MCE to phase I investigation results often eliminates contaminants of concern (COCs) from further investigation before the extent of contamination has been delineated. EPA believes that, after adequate site characterization, the simplest way to account for synergistic effects due to multiple constituents is to compare contaminant concentrations against respective SALs divided by 10.

5. 3.3.2 Risk Assessment. The comparison of site data to industrial preliminary remediation goals (PRGs) in screening assessments is inappropriate. Screening assessments compare site data to background data and SALs under various scenarios of human health and ecological exposure. Furthermore, PRGs approved by EPA Region IX are not approved by Region VI.

A comparison to PRGs is not utilized in the screening assessment to determine contaminants of concern, but is utilized after the nature and extent of contaminants of concern have been

delineated to serve as a point of comparison in the remedy management process. At that time, PRGs should be utilized at sites which only have one contaminant as the risk driver for clean-up.

Specific Comments

6. Executive Summary. The rationale is used that a site where constituents are found below SALs does not require further action. EPA believes that a site where constituents are found at significant levels above background, even if below SALs, may require further sampling and analyses or a baseline risk assessment.

7. 5.0.1.2 2-ADNT and 4-ADNT. LANL claims that the presence of 2-ADNT and 4-ADNT at levels less than 0.3 do not qualify them as contaminants of potential concern (COPCs). However, EPA believes that all constituents found above background (which is zero for organics) are COPCs.

8. 5.0.1.3 Triaminotrinitrobenzene (TATB). Mutagenicity data of TATB conducted on strains of enteric bacteria do not accurately represent the specificity of human or ecological TATB toxicological effects. EPA requests that LANL summarize DOE toxicity data for TATB and submit this information for EPA review.

9. 5.1.4 Field Investigation. LANL cites that deviations from the sampling plan for PRSs 11-012(a,b) were proposed verbally to the EPA Region VI representatives by Department of Energy (DOE) and LANL, and in writing prior to sampling. LANL further cites that the EPA representative gave verbal concurrence to these changes. EPA does not consider verbal concurrence to be formal without written record. EPA has no record of the request (Jansen and Taylor 1995, 15-16-627) or of subsequent Administrative Authority approval regarding changes at PRSs 11-012(a,b) or at other TA-16 High Explosives magazines, and requests this information be submitted. Although no contamination appears to exist from the two samples collected at PRSs 11-012(a,b), EPA can not recommend human-health NFA at these sites until the requested information is submitted.

10. 5.1.11 Conclusions and Recommendation. EPA believes that a site where constituents are found at significant levels above background, even if below SALs, may require further sampling and analyses in a phase II investigation. A site must first be adequately characterized before any conclusions regarding human health or ecological risk are made.

11. 5.2.11 Conclusions and Recommendation. EPA recommends human-health NFA for PRS 13-003(a) because a phase I investigation revealed no evidence of a contaminant release. However, EPA

requests that a schedule be submitted for the Phase II SAP and subsequent sampling at PRS 13-003(b). Information for PRS 13-003(b) should also have been supplied in Table ES-1 of the Executive Summary.

12. 5.2.4 Field Investigation. EPA believes that NFA is not appropriate at PRS 16-006(c) because significant evidence of a contaminant release exists and the extent of this contamination has not been determined. Although the approved phase I workplan required LANL to only sample proximal or distal ends of the leachfield system, the extent of polycyclic aromatic hydrocarbon (PAH) and Barium contamination must be characterized. Septic systems, properly designed, evenly distribute effluent over a leachfield area. Therefore, LANL should sample along the leachfield at the drain line depth and at the soil/tuff interface. Furthermore, the PAH contamination found at sample 0290 and the Barium contamination found at samples 0293, 0294, 0295, and 0296 have not been vertically bound. A phase II investigation should be conducted at PRS 16-006(c).

13. 5.3.8 Risk-Based Screening Assessment. LANL should not make conclusions regarding risk after a phase I investigation. The nature and extent of contamination have not been adequately characterized at PRS 16-006(c).

14. 5.3.8 Risk-Based Screening Assessment. LANL claims that contaminant concentrations of concern were collected at 2.5-4ft and 5-6ft below the ground surface at PRS 16-006(c). However, several Barium concentrations exceeding background and the Barium SAL were found in surface samples 0293, 0295, and 0296. Furthermore, LANL has not shown that there is no current viable pathway that could result in exposure of humans to soils. Pathways to groundwater and outflow runoff must be considered.

15. 5.4.7 Evaluation of Organic Chemicals. EPA requests that the concentrations of acetone, bis(2-ethylhexyl)phthalate, and trichlorofluoromethane found in blanks should be summarized and submitted. These may serve as points of comparison for the concentrations summarized in Table 5.4.7-1. Blank concentrations for these analytes in samples 0298, 0300, and 0302 will help determine if a contaminant release has occurred at PRS 16-006(d).

16. 5.5.11 Conclusions and Recommendation. EPA disagrees with LANL's assessment that the Barium contamination at PRS 16-010(a) has been bounded. Barium concentrations were found above SALs in two samples, and Barium contamination may be present at or above SALs over the entire flash pad area (grid locations [0,60], [0,80], [20,80], [40,60], and [40,80] also had particularly high screening results). LANL has not defined the extent of the contaminated

portion of the flash pad. Does LANL wish to defer the entire flash pad to PRS 16-016(c)?

EPA believes that keeping the PRS 16-010(a) designation is more protective of human health and the environment than recommending NFA for PRS 16-010(a) and administratively associating PRS 16-010(a) with PRS 16-016(c). NFA is not appropriate for PRS 16-010(a) as further investigation and, possibly, interim action is needed. EPA recommends keeping the PRS 16-010(a) designation for the flash pad and, because barium contamination is clearly linked between PRS 16-010(a) and 16-016(c), taking further corrective action at PRS 16-010(a) when contamination at PRS 16-016© is addressed.

17. 5.6 PRS 16-021(a). EPA believes that a site where constituents are found at significant levels above background, even if below SALs, may require further sampling and analyses in a phase II investigation. It is more appropriate to recommend NFA for PRS 16-021(a) due to the fact that an adequate phase I investigation has shown no evidence of a contaminant release as no constituents were found at significant levels above background.

18. 5.6.4 Field Investigation. The objective of the Phase I sampling at PRS 16-021(a) should be to determine via biased sampling if a release had occurred from the drain line, regardless of whether contamination is above action levels. The submitted verbiage implies that corrective action is needed only for contamination above action levels.

19. 5.7.11 Conclusions and Recommendations. All contaminants found at PRS 16-026(c) are at low-levels and have been vertically bound. Many PAH detects are below method EQLs, and process history suggests that PAHs were not used in this area. However, EPA believes that NFA may not be appropriate at this time for PRS 16-026© because impacts to groundwater and surface water bodies have not been characterized.

20. 5.8.11 Conclusions and Recommendations. EPA disagrees with LANL's assessment that constituents other than PAHs are bounded at depth. RDX contamination in sample 0139 has not been shown to be confined to the surface. Furthermore, the lateral extent of RDX, TNT, and ADNT has not been determined. Considering the number of positive detects of HE at this site, EPA can not recommend NFA for 16-026(d) until further HE characterization has been performed.

21. 5.9.7 Evaluation of Organic Chemicals. Substantial concentrations of triaminotrinitrobenzene (TATB) are found in surface samples 0194, 0195, and 0196. The vertical and lateral extent of TATB has not been determined at these locations. Furthermore, Section 5.0.1.3 is inadequate to determine the

toxicity of TATB. EPA requests that LANL summarize DOE toxicity data for TATB and submit this information for EPA review.

22. Table 5.9.7-2. The benzo(b)fluoranthene detect (2.5mg/kg) should be shaded to reflect the fact that it is above the respective SAL.

23. 5.9.11 Conclusions and Recommendation. EPA disagrees with LANL's assessment that contamination at this site is bounded, and recommends further investigation at PRS 16-026(v). EPA believes that the following contaminants are industrial releases which have not been characterized for vertical or lateral extent: chromium contamination found in sample 0193, SVOC contamination found in samples 0190, 0194, 0195, and 0197, and TATB contamination in samples 0194, 0195, and 0196. A phase II sampling plan should be submitted to adequately characterize PRS 16-026(v).

24. 5.10.11 Conclusions and Recommendations. All contaminants found at PRS 16-028(a) are at low-levels and have been vertically bound. Many PAH detects are below method estimated quantitation limits (EQLs), and process history suggests that PAHs were not used in this area. However, EPA believes that NFA may not be appropriate at this time for PRS 16-028(a) because impacts to groundwater and surface water bodies have not been characterized. Furthermore, NMED may wish for LANL to remove the HE hotspot which remains at samples 0363 and 0603 (depth 0-2.1ft) and replace with clean fill so that the HE hotspot will not act as a source of runoff contamination.

25. 5.11.11 Conclusions and Recommendation. EPA disagrees with LANL's assessment that contamination at this site is bounded, and recommends further investigation at PRS 16-030(g). EPA believes that the lead contamination (in excess of SAL) found in sample 0273 and HE contamination in surface samples 0273, 0275, and 0276 are due to industrial release and have not been characterized for vertical or lateral extent. A phase II sampling plan should be submitted to adequately characterize contamination at PRS 16-030(g).