State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Telephone (505) 428-2500
Fax (505) 428-2567
www.nmenv.state.nm.us

GARY E. JOHNSON
GOVERNOR

PETER MAGGIORE
SECRETARY

PAUL R. RITZMA
DEPUTY SECRETARY

RED LANL GIP 01

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

June 25, 2001

Dr. John C. Browne, Director
Los Alamos National Laboratory
P.O. Box 1663, MS A100
Los Alamos, NM 87545

Mr. David A. Gurule, Area Manager
Los Alamos Area Office
Department of Energy
528 35th Street, MS A316
Los Alamos, NM 87544

SUBJECT: REQUEST FOR SUPPLEMENTAL INFORMATION
GENERAL PART A, APRIL 1998, REVISION 0.0
GENERAL PART B , OCTOBER 1998, REVISION 1.0
RCRA PERMIT APPLICATIONS
LOS ALAMOS NATIONAL LABORATORY EPA ID# NM0890010515
HWB-LANL-01-006

Dear Dr. Browne and Mr. Gurule:

The Hazardous Waste Bureau (HWB) of the New Mexico Environment Department (NMED) has reviewed for technical adequacy the above-referenced Applications, as required under 20.4.2.201.3 NMAC.

After reviewing the Applications, HWB requests additional information. The information that must be addressed is described in Attachment A.

This Request for Supplemental Information (RSI) supercedes prior RSI's issued by NMED for these Applications, and incorporates both prior RSI's and LANL responses to the RSI's. Prior RSI requests that have not been adequately responded to or that are otherwise unresolved are included in this RSI.

15935

TC

Prior RSI's and responses include the following: 1) Request for Supplemental Information; General Part A Permit Application, Revision 0.0, from Robert S. Dinwiddie to G. Thomas Todd and John C. Browne, dated June 18, 1998; 2) Response to Request for Supplemental Information (RSI); General Part A Permit Application, Revision 0.0, from H. L. Plum to Robert S. Dinwiddie, dated July 22, 1998; 3) Request for Supplemental Information for the October 1998, General Part B Permit Application, Revision 1.0, from John Kieling to John Browne and David Gurule, dated March 29, 2000; 4) LANL Response to the RSI for the October 1998 General Part B Permit Application, Revision 1.0, from David Gurule to John Kieling, dated June 29, 2000; 5) draft unsigned Request for Supplemental Information for the Technical Review of the May 12, 1999 [sic], General Part B Permit Application, Revision 1.0, from John Kieling to John Browne and David Gurule, dated July 7, 2000.

The requested information must be submitted to HWB within forty-five days of receipt of this RSI. Failure to respond within this time period will result in issuance of a Notice of Deficiency.

If you have any questions or need additional information please contact me at 505-428-2542.

Sincerely,

Carl Will

Carl Will
LANL Permits Project Leader

attachment

cc: L. Winn, NMED HWB
M. Chacon, NMED HWB
P. Allen, NMED HWB
A. Ortiz, NMED OGC
D. Neleigh, EPA 6PD-N
J. Ellvinger, LANL ESH-19, MS K490
G. Bacigalupa, LANL ESH-19, MS K490
G. Turner, DOE LAAO, MS A316

file: Reading and LANL red file

ATTACHMENT A
REQUEST FOR SUPPLEMENTAL INFORMATION
TECHNICAL ADEQUACY REVIEW

RCRA PERMIT APPLICATION
GENERAL PART A, APRIL 1998, REVISION 0.0
GENERAL PART B , OCTOBER 1998, REVISION 1.0

LOS ALAMOS NATIONAL LABORATORY
EPA ID NO. NM0890010515

June 25, 2001

General Comments

1. The Application Parts A and B must be updated to include all hazardous waste management units being permitted and to delete all units not being permitted. [270.13, 270.14(b)(1)]

2. Submit a list of all hazardous waste management units which were at any time either permitted or interim status and which are not included in the Application Parts A and B, and include the closure status of each unit. (264 Subpart G, 270.14(b)(13) and (14)]

Part A Comments

3. Part A, Section IV: Update and include up to four applicable NAICS Codes. NAICS Code Numbers 22132, 32592, 54171, 56221, 562212, 92111, 92811 are all applicable to the LANL Facility. [270.13(c)]

4. Include past and future treatment and disposal areas on scale drawings of the Facility submitted. [270.13(h)]

Part B Comments

5. Page A-5, sec. A.3.2: Specify in the text of the Application whether or not any units, for example TA-39-57, are within the floodplain boundary. The boundary line on the floodplain map submitted is not distinct enough to make the determination for all units. [270.14(11)(iii)]

Section A.5, Groundwater

Groundwater General Comments

6. Update to reflect current knowledge of the hydrogeologic system beneath the Pajarito Plateau. Additional wells have been drilled and geochemical as well as groundwater modeling

have been completed and can be used to discuss predicted travel times, current conceptual model, etc. Identify the uncertainties related to the data in conjunction with the interpretations presented. [264 Subpart F, 270.14(c)]

7. LANL shall cease minimizing the importance of contaminants found in the regional aquifer. The most important aspect to the presence of contamination in the regional aquifer is that it shows the interconnection (within 50 years) between the surface and regional groundwater systems. Also, the emphasis on contaminants being below standards, although significant, is misleading as the location(s), dimension(s), and concentration(s) of contaminant plumes from historic as well as current discharges are not understood at this time. [264 Subpart F, 270.14(c)]

8. Indicate which of the referenced publications have been peer reviewed by publication in environmental and/or groundwater professional journals. [264 Subpart F, 270.14(c)]

Groundwater Specific Comments

9. Page A-7, line 11: Discuss and include within the text the uncertainty associated with the alluvial saturated hydraulic conductivities mentioned from the Abeele et al., 1981 study. Indicate how and from what lithology(ies) were the values derived. [264 Subpart F, 270.14(c)]

10. Page A-7, line 15: Clarify the first sentence, "Unlike the underlying volcanic tuff and sediments, the alluvium is quite permeable." This may be true on undisturbed, dry mesa tops, but is not true in all circumstances given water availability, fractures, surge beds, lithology, etc. For example, units such as the Guaje Pumice Bed, Cerro Toledo, fractured Cerros del Rio Basalts and Puye Formation can be quite permeable. Include in the Application information on the range of permeability for each hydrostratigraphic unit, including estimates on the secondary permeability due to fractures. [264 Subpart F, 270.14(c)]

11. Page A-7, line 17: Clarify within the text the statement "The impeded downward movement results in a buildup of shallow alluvial groundwater." It is unclear whether or not LANL is implying that no water is lost to the vadose zone beneath alluvial aquifer systems. [264 Subpart F, 270.14(c)]

12. Page A-7, line 22: Delete the statement that use of the alluvial aquifer is precluded. The alluvial aquifer is a viable source of water to the surrounding community. Residences in lower Los Alamos Canyon on San Ildefonso Pueblo tribal land utilize the alluvial aquifer for residential use. Also, alluvial groundwater systems most likely recharge/interconnect with underlying intermediate perched groundwater as well as the regional groundwater system. Finally, the alluvial aquifer is protected under the New Mexico Water Quality Control Commission (WQCC) Regulations, 20.6.2 NMAC, and it may be used for domestic and agricultural water supply in the future. [264 Subpart F, 270.14(c)]

13. Page A-7, line 29: Revise to address other locations of intermediate perched zone groundwater. LANL's current conceptual model may be that intermediate perched zone groundwater is only found in areas where sufficient water source is available to maintain saturation within the deeper units; however, this does not preclude the possibility for the existence of intermediate perched water bearing zones elsewhere. [264 Subpart F, 270.14(c)]

14. Page A-8, line 1: Revise to reflect the current site-wide hydrogeologic conceptual model. Localized bodies of perched groundwater occur throughout the Pajarito Plateau, comprising a distinct perched zone on the western portions of LANL that includes more areas than TA-16 alone (including TA-8, TA-9, TA-18, TA-3). These perched zones located in the Bandelier Tuff and Tschicoma Formation are identified in part by discharge as numerous springs throughout the western portion of LANL. [264 Subpart F, 270.14(c)]

15. Page A-8, line 15: Revise to reflect known subsurface conditions. LANL implies that intermediate perched zone groundwater only occurs beneath the mid and lower reaches of Pueblo, Los Alamos and/or Sandia Canyons. This statement is misleading. For example, regional aquifer wells R-7 (middle-upper Los Alamos Canyon), R-15 (Mortandad Canyon), R-19 (south edge of Pajarito Canyon), R-25 (S-Site south edge of Cañon de Valle), and CDV-15-3 (north-east edge of Cañon de Valle) have encountered perched water at various depths. [264 Subpart F, 270.14(c)]

16. Page A-8, line 18: Include with the groundwater monitoring program, to be submitted under Comment No. 35 below, a schedule for determining the vertical and lateral extent of the perched zones. In addition, include in the Application the completion date for the determination and a discussion regarding the methods used to delineate the vertical and lateral extent of alluvial and intermediate perched zone groundwater. [264 Subpart F, 270.14(c)]

17. Page A-8, line 22: Include in the text discussion other known perched zones that exist throughout the Pajarito Plateau. For example, intermediate perched groundwater has been found in Mortandad Canyon. Tritium, perchlorate, and nitrate present in the vadose zone as well as in the perched groundwater zone indicate recharge rates of less than 50 years. [264 Subpart F, 270.14(c)]

18. Page A-8, line 25: Include a discussion of the uncertainty (quantify) associated with the Purtymun (1975) study that indicates the rate of movement for the perched groundwater at 60 feet per day. Also include how Purtymun (1975) determined the rate of movement and what assumptions were made. [264 Subpart F, 270.14(c)]

19. Page A-9, line 13: Define "large-scale municipal water supply." According to LANL's Hydrogeologic Workplan (May, 1998; page 2-21), the Water Canyon Gallery has produced as much as 96 million gallons annually. Also, include an explanation of the significance of the distinction or delete the reference. WQCC Regulations protect all groundwater that contains less than 10,000 mg/L total dissolved solids. [264 Subpart F, 270.14(c)]

20. Page A-9, line 14: Clarify whether the regional aquifer exhibits confined conditions throughout the entire Pajarito Plateau or just portions of it. [264 Subpart F, 270.14(c)]

21. Page A-9, line 16: State the range in depth to the regional aquifer from the mesa tops as well as from the canyon bottoms as these depths are much shallower. [264 Subpart F, 270.14(c)]

22. Page A-10, line 1: Discuss the most likely/potential sources of recharge. These sources of recharge are artificial such as outfalls (current and/or historic) or natural. [264 Subpart F, 270.14(c)]

23. Page A-10, line 9: The statement that "natural recharge through undisturbed Bandelier Tuff on the mesa tops is believed to be insignificant" is misleading. Discuss natural recharge through canyon bottoms in wet canyons as well as natural and unnatural recharge through disturbed mesa tops. LANL shall also include in the discussion how the hydrostratigraphy that underlies the canyon bottom alluvial systems may influence infiltration/recharge to the vadose zone and regional aquifer. [264 Subpart F, 270.14(c)]

24. Page A-10, ¶ 2: Include a statement regarding contaminants (e.g., tritium, nitrate, perchlorate) found in the regional aquifer which indicates that recharge to the regional aquifer is less than the composite age of the regional groundwater. [264 Subpart F, 270.14(c)]

25. Page A-11, line 3: Although tritium activities measured in the regional aquifer are less than "a percent" of current drinking water standards, the fact that contaminants are present in the regional aquifer indicate a pathway/interconnection to the regional groundwater within a 50 year timeframe. At this point it is not known whether these levels are indicative of the front, the tail, the side or the middle of a contaminant plume. Revise the text to reflect the actual importance of the detections in the regional aquifer rather than minimize the importance. [264 Subpart F, 270.14(c)]

26. Page A-11, ¶ 2: Delete the discussion of the Rogers et al. (1996) study. [264 Subpart F, 270.14(c)]

27. Page A-11, line 27: Delete the reference to there being a "barrier to infiltration beneath Area G." [264 Subpart F, 270.14(c)]

28. Page A-11, line 29: Include a discussion of from where the data for Mortandad Canyon bottom infiltration rates are derived. Also include a discussion on the assumptions made and methods used to derive the values. Gallaher and Rogers (1995) may contradict these estimates. Also, perchlorate found in core samples from regional aquifer well R-15 indicate infiltration rates are much higher than 1 to 10 cm/yr. [264 Subpart F, 270.14(c)]

29. Page A-11, line 31: The presence of contaminants in the regional aquifer and recent groundwater and geochemical modeling efforts in Los Alamos Canyon (and elsewhere) suggest that infiltration rates to the regional aquifer are less than 50 years. Clarify the text to reflect this available information. [264 Subpart F, 270.14(c)]

30. Page A-12, line 1: Include a discussion regarding the data set from which the hydraulic gradient of the regional aquifer was calculated. Include a discussion of the uncertainty associated with these data utilized in the calculations. [264 Subpart F, 270.14(c)]

31. Page A-13, line 9: Include the current and historic concentrations of perchlorate being discharged from the TA-50 Radioactive Liquid Waste Treatment Facility and any human health or ecological standards (proposed or otherwise) available for perchlorate. [264 Subpart F, 270.14(c)]

32. Page A-12 and A-13: Update to include information on regional groundwater monitoring wells R-7, R-9, R-19, R-22, and CdV-15-3. [264 Subpart F, 270.14(c)]

33. Page A-14, line 12: Include a statement that prior to June 2000 no detection of perchlorate was identified and that the initial testing for perchlorate began in December 1997. Also discuss the historic detection limits and current detections of perchlorate. LANL shall provide to NMED in a submittal separate from the Application all analytical results of the perchlorate testing. [264 Subpart F, 270.14(c)]

34. Page A-14, ¶ 2: Include a discussion of the effective porosities of the units discussed in this paragraph and the uncertainties associated with the measurements. [264 Subpart F, 270.14(c)]

35. P. A-15, line 3: Delete the reference to a groundwater monitoring waiver. NMED denied LANL's request for a groundwater monitoring waiver under 40 CFR § 264.90(b)(4) by letter dated May 30, 1995, and LANL was required at that time to institute a groundwater monitoring and response program meeting all requirements of 40 CFR Subpart F. The Hydrogeologic Workplan is to be used to obtain groundwater characterization information necessary to support the groundwater monitoring and response program. Submit a description of LANL's groundwater monitoring and response program, or, at a minimum, submit a schedule for instituting the program. Include the necessary information to address the monitoring and response requirements of 40 CFR Subpart F. The proposed language in Response No. 2, Response to Request for Supplemental Information, dated October, 2000, is not acceptable. [264 Subpart F, 270.14(c)(5)]

36. P. A-15, line 4: Replace the sentence "The groundwater wells constructed in the workplan program may be used for monitoring regulated units, if deemed necessary and appropriate." with "The groundwater wells constructed in the workplan program will be used to monitor groundwater or to determine the location of groundwater monitoring wells required under 40 CFR Part 264 Subpart F." [264 Subpart F, 270.14(c)]

Waste Analysis Plan

37. Appendix B: Include a description of procedures for complying with special procedural requirements for receipt of off-site waste; shipment of waste off-site; handling ignitable, reactive, and incompatible wastes; determining compliance with LDR's; and determining compliance with Subpart AA, BB, and CC standards. The description of procedures can be in summary form or by submittal of the equivalents of the DOP-FMU64-026, R.0, MLLW, Chemical, and Hazardous Waste Sample Verification procedure document, that was submitted as Attachment 2 of the June 2000 Response to Request for Additional Information. [264.13, 270.14(b)(3)]

38. App. B: Include a summary of relevant portions of or submit the existing equivalent of the DOP-FMU64-026, R.0, MLLW, Chemical, and Hazardous Waste Sample Verification procedure document, that was submitted as Attachment 2 of the June 2000 Response to Request for Additional Information, for procedures for characterization by waste generators at the Facility. [264.13, 270.14(b)(3)]

39. App. B: Include a summary of relevant portions of or submit the equivalent of DOP-FMU64-026, R.0, MLLW, Chemical, and Hazardous Waste Sample Verification procedure document, that was submitted as Attachment 2 of the June 2000 Response to Request for Additional Information, for verification procedures at waste storage locations other than TA-54 at the Facility. [264.13, 270.14(b)(3)]

40. App. B: Include a narrative description of training for use of Waste Profile Forms. [264.13, 270.14(b)(3)]

41. App. B: Include a description of procedures for characterization of remediation and investigation derived waste. [264.13, 270.14(b)(3)]

42. P. B-1, line 1: Replace "presents information" with "establishes requirements." [264.13, 270.14(b)(3)]

43. P. B-1, line 7: Clarify or delete "may be used for information supporting." [264.13, 270.14(b)(3)]

44. P. B-1, line 18: Revise the description of Section B.1 to state that the list of waste management units is not in Section B-1 but is in Attachment B-1. [264.13, 270.14(b)(3)]

45. P. B-3, lines 16 and 17: Insert "physical" before "composition." [264.13, 270.14(b)(3)]

46. P. B-3, line 20: Delete "homogeneous." [264.13, 270.14(b)(3)]

47. Page B-6, line 24: Insert "physical" before "composition." [264.13, 270.14(b)(3)]

48. P. B-18, line 20: Insert "and process knowledge" after "chemical and physical characterization." [264.13, 270.14(b)(3)]

49. P. B-19, line 2: Replace "treat" with "manage." [264.13, 270.14(b)(3)]

50. P. B-19, section B.2.1: Replace "RCRA-regulated metals" with "RCRA-regulated inorganic compounds." Replace "RCRA-regulated volatile organic compounds (VOC)" with "RCRA-regulated organic compounds." Delete "RCRA-regulated semivolatile organic compounds (SVOC)." Insert "Reactivity" in the list of parameters. [264.13, 270.14(b)(3)]

51. P. B-19, sec. B.2.1: Include as fourth and fifth bullets under "Sampling and analysis to determine the presence and concentrations of:" "- RCRA characteristic waste" and "- Radionuclides (including alpha, beta, and gamma spectroscopy and individual radionuclides)." 264.13, 270.14(b)(3)]

52. P. B-20, sec. B.3.1, ¶ 1: Insert language addressing the need for sampling and analysis for reactivity of heterogeneous waste potentially containing HE. [264.13, 270.14(b)(3)]

53. P. B-20, line 9: Insert "or shipped off-site" after "treated or stored." [264.13, 270.14(b)(3)]

54. P. B-24, sec. B.3.1.2, line 10: Replace "metals, VOCs, and SVOCs" with "organic and inorganic compounds." [264.13, 270.14(b)(3)]

55. Page B-24, sec. B.3.1.2, line 12: Replace "consistent with 'Test Methods for Evaluating Solid Waste, Physical/Chemical Methods' (*SW-846*) or other approved methods (EPA, 1986)" with "and in accordance with the most recent version of 'Test Methods for Evaluating Solid Waste, Physical/Chemical Methods' (*SW-846*) or other approved methods (EPA)." [264.13, 270.14(b)(3)]

56. P. B-25 and Table B-9: Include a more detailed explanation of criteria used to determine when acceptable knowledge is sufficient and when sampling and analysis is required. [264.13, 270.14(b)(3)]

57. P. B-27, line 28: Replace "VOCs, SVOCs, and metals" with "constituents." [264.13, 270.14(b)(3)]

58. P. B-28, line 1: Delete "(i.e., VOCs, SVOCs, and metals)." [264.13, 270.14(b)(3)]

59. P. B-28, line 3: Insert "and/or sampling and analysis" after "was generated." [264.13, 270.14(b)(3)]

60. P. B-29, sec. B.3.2.2: Insert as an element of the acceptable knowledge certification program a bullet stating "Review of process knowledge and historical sampling and analysis results." [264.13, 270.14(b)(3)]

61. P. B-36, line 2: Replace "metals" with "constituents." [264.13, 270.14(b)(3)]

62. P. B-36, line 9: Delete "(i.e., metals)." [264.13, 270.14(b)(3)]

63. P. B-36, line 13: Delete "statistically-based." [264.13, 270.14(b)(3)]

64. P. B-36, line 15: Replace "total metal content, VOCs, and SVOCs" with "RCRA-regulated constituents." [264.13, 270.14(b)(3)]

65. P. B-37, line 19: Delete "(VOCs, SVOCs, and metals)." [264.13, 270.14(b)(3)]

66. P. B-37, line 20: Insert "acceptable to NMED" after "equivalent methods." [264.13, 270.14(b)(3)]

67. P. B-38, fourth bullet: Replace "Method 8330" with "Method 8300 series." [264.13, 270.14(b)(3)]

68. Table B-9: Replace "RCRA-regulated metals, VOCs, SVOCs" with "RCRA-regulated constituents" throughout. [264.13, 270.14(b)93)]

69. Table B-17: Replace "(8330)" with "(8300 series)." [264.13, 270.14(b)(3)]

Contingency Plan

70. Appendix E: Include a statement that the Contingency Plan is submitted to the local police chief, fire department, and hospital, as required by 40 CFR § 264.53(b). [270.14(b)(7)]

Closure Plan

71. Appendix F: Include in the General Part B Application a Closure Plan with Facility-wide requirements to comply with 40 CFR § 264.111 through § 264.115. [264.112, 270.14(b)(13)]

72. App. F: Include in the General Part B Application a Post-Closure Plan with Facility-wide requirements for land disposal units to comply with 40 CFR § 264.116 through § 264.120. [264.118, 270.14(b)(13)]

73. P. F-1, line 14: The Closure Plan states that "closure includes removal and decontamination" and "closure precludes release." Include language addressing land disposal

units where hazardous waste will be left in place and addressing known releases from closed units. [264 Subpart G, 270.14(b)(13)]

74. P. F-2, sec. F.1.1., F.1.2., F.1.3: Revise the Closure Performance Standard, activities, and schedule to address land disposal units. [264 Subpart G, 270.14(b)(13)]

75. P. F-3, line 12: Revise statement that treatment, removal, or disposal begins within 90 days and is completed within 180 days after final receipt at a unit to address land disposal units where closure activities have not been started or completed. [264.113, 270.14(b)(13)]

76. P. F-6, sec. F.1.9, ¶ 1: Delete. Post-closure care requirements apply to land disposal units and do not apply to storage or treatment units. The LANL Facility is required to remove or decontaminate hazardous waste and residues from structures, soil, and groundwater at closure of storage and treatment units. [264 Subpart G, 264.178, 270.14(b)(13)]

77. P. F-6, sec. F.1.9, ¶ 2: Revise to address known land disposal units. The section implies that the LANL Facility does not know at this time whether there are any units from which constituents will not be removed or decontaminated at closure. If the LANL Facility intends to remove or decontaminate all constituents from MDA's G, H, and L and any other regulated units include a proposed schedule and summary of activities to achieve that goal. If LANL does not intend to remove or decontaminate all hazardous waste and waste residues from any units include in the general Closure and Post-Closure Plans a summary of activities for those units to comply with closure and post-closure requirements for preventing, investigating, and remediating releases of hazardous constituents. [264 Subpart G, 270.14(b)(13)]

78. P. F-6, sec. F.2: Delete this section. Submit site-specific Sampling Plans with updated sampling procedures for NMED approval at the time of partial or final closure. [264 Subpart G, 270.14(b)(13)]