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September 20, 2006

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NMED Hazardous
Waste Bureau

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Dear Ms. Withers:

RE: **DRAFT SITE-WIDE ENVIRONMENTAL IMPACT STATEMENT FOR CONTINUED OPERATION OF LOS ALAMOS NATIONAL LABORATORY, LOS ALAMOS, NEW MEXICO (SWEIS) (DOE/EIS-0380D)**

The report enclosed with this letter contains the New Mexico Environment Department's comments concerning the above- referenced Draft Environmental Impact Statement. These comments are submitted as a regulator of Los Alamos National Laboratory and not as a stakeholder.

We appreciate the opportunity to comment on this document. Please let us know if you have any questions.

Sincerely,

for Ron Curry
Secretary

Enclosure: NMED Comments on Draft SWEIS

NMED File No. 2324.2ER

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NEW MEXICO ENVIRONMENT DEPARTMENT (NMED) COMMENTS ON DRAFT SITE-WIDE ENVIRONMENTAL IMPACT STATEMENT FOR CONTINUED OPERATION OF LOS ALAMOS NATIONAL LABORATORY, LOS ALAMOS, NEW MEXICO (SWEIS) (DOE/EIS-0380D), DATED JUNE 2006

September 20, 2006

I. INTRODUCTION

The United States Department of Energy (DOE), National Nuclear Security Administration (NNSA) proposes to continue operating the Los Alamos National Laboratory (LANL or the Laboratory). The Draft Site-Wide Environmental Impact Statement (SWEIS) (DOE/EIS-0380D), dated June 2006, evaluates the potential environmental impacts associated with three alternatives for continued operation of LANL: 1) No Action, 2) Reduced Operations, and 3) Expanded Operations. The "Expanded Operations Alternative" is DOE's preferred alternative. The "No Action Alternative" has NNSA continuing the historical mission support activities of LANL at currently approved operational levels. The "Reduced Operations Alternative" would selectively eliminate certain activities. The "Expanded Operations Alternative" would allow NNSA to operate LANL at the highest levels of activity currently foreseeable with full implementation of the mission assignments. Under each of the alternatives, the affected environment is primarily within fifty miles of LANL. There would be significant differences in the environmental impacts among the three alternatives for most of the types of resources assessed. The SWEIS lists the primary discriminators as: a) public risk due to radiation exposure, b) collective worker risk due to radiation exposure, c) socioeconomic effects due to LANL employment changes, d) electrical power and water demand, and e) waste management and transportation.

We want to make an observation at the outset on a fundamental weakness of the Draft SWEIS: **This document considers compliance with the March 1, 2005 Compliance Order on Consent (Consent Order) only in the "Expanded Operations Alternative." However, under any operations scenario for LANL, compliance with the Consent Order is and will continue to be mandatory. For this reason alone, DOE's Draft SWEIS is fundamentally flawed. The analysis is inappropriately biased in favor of the "Expanded Operations Alternative," DOE's preferred alternative, as a result.**

The New Mexico Environment Department's (NMED) other comments are subdivided into a number of sections; following General Comments in Section II, Section III addresses site

remediation issues, including the March 1, 2005 Consent Order; Section IV covers the generation of wastes; Section V focuses on Surface Water Quality; Section VI addresses Ground Water Quality; Section VII focuses on Air Quality; the final segment lists key references.

II. GENERAL COMMENTS

1. The Draft SWEIS contains little information on the potential environmental impacts of the proposed pit production expansion under the "Expanded Operations Alternative," DOE's preferred alternative. It contains very little information on the additional solid, hazardous, and radioactive wastes that such increased production will generate, on the increased discharges of pollutants into groundwater and surface water that will result, and on the increased emissions of pollutants into the air that will result. Moreover, that minimal information is dispersed widely throughout the document. This lack of information is another serious flaw in the document. Consequently, it is not possible for NMED to provide comments on key aspects of the three alternatives.

2. Due to the length of the document and the multiple levels of evaluation, the SWEIS should provide in the glossary or in table S-1, a crosswalk or listing of each technical area so that a reviewer may be better able to follow each Technical Area (TA) through each alternative. In addition, the document should add the same crosswalk or listing for each of the resource categories (i.e., water resources, cultural resources, land resources, etc.).

3. The document should include definitions or explanations of the terms "short-term" and "long-term." Without some explanation of these terms, it is very difficult to evaluate "long-term" and "short-term" environmental impacts. This lack of explanation has limited NMED's ability to comment on the document.

4. Section 1.6 Summary of Major Scoping Comments and National Nuclear Security Administration Responses: NMED agrees with DOE's decision to conduct a separate and complete EIS for the Biosafety Level 3 Facility outside of this SWEIS and believes that the proposed increase in Pit Production should receive similar consideration.

5. Section 2.3 Technical Areas, Table 2-2: The description for TA-21 is incomplete and misleading. It mentions "two tritium facilities" at DP East at TA-21. However, it does not mention that TA-21 was used to research and process plutonium. The plutonium work resulted in much of the contamination found today at TA-21. The description understates the potential environmental impacts of future operations at TA-21.

6. Section 5.3.1.1 No Action Alternative, Los Alamos National Laboratory Site-Wide Impacts: The document should identify by permit number and facility the four outfalls proposed to be removed from the permit.

7. Section 5.3.2 Groundwater Resources, seventh paragraph, fifth sentence: The citation to Rogers and Gallaher is incorrect; it was published in 1995, not 2005.

8. Section G.1 Center for Weapons Physics Research Construction and Operation Impact Assessment: There is no discussion of any possible impacts to "Water Resources" under this assessment.

9. Section I.3 Description of Options: All environmental remediation activities under the Consent Order and all decontamination, decommissioning, and demolition (DD&D) activities are discussed only under the "Expanded Operations Alternative" but not under the other alternatives. However, the terms of the Consent Order are legal requirements that DOE and its contractors must follow, regardless which of the three alternatives DOE ultimately chooses. The Consent Order is legally binding and enforceable in Federal or State court. Furthermore, DOE will presumably conduct essentially the same DD&D activities regardless which alternative it chooses. Therefore, the SWEIS is extremely misleading in suggesting that DD&D and environmental remediation activities will be conducted only under the "Expanded Operations Alternative." Moreover, because the environmental remediation activities, and perhaps the DD&D activities as well, will result in significant environmental benefits, including them under only one alternative will inappropriately favor that alternative.

III. SITE REMEDIATION

1. Section 1.3.1 No Action Alternative: The document should include remediation activities under the Consent Order under the "No Action Alternative."

2. Section 1.3.2 Reduced Operations Alternative: The document should include remediation activities under the Consent Order under the "Reduced Operations Alternative."

3. The term "potential release site" is used throughout the document. In the past, DOE has used this term to refer generally to sites that may require cleanup under various legal authorities. However, the Draft SWEIS does not include a definition for this term, or any other explanation of the term. Moreover, the term "potential release site" is not used in any of the environmental statutes or regulations applicable to LANL. Neither the Consent Order nor the Hazardous Waste Facility Permit for LANL uses the term. Rather, the Federal and State regulations, the Consent Order, and the Permit use the terms "solid waste management units" (SWMUs) and "areas of concern" (AOCs). These terms are defined in the Consent Order. These terms should be used in the SWEIS.

4. Section 1.3, Scope and Alternatives in this New Site-Wide Environmental Impact Statement for Los Alamos National Laboratory Operations, Figure 1-3: Remediation activities under the Consent Order should be included under each of the three alternatives.

5. Section 1.3.3 Expanded Operations, Projects Associated with New Infrastructure or Levels of Operation: This section discusses the construction of a bridge from TA-35 across Mortandad Canyon to TA-60 and a bridge across Sandia Canyon. It is unclear if these projects will delay or adversely affect the remediation or investigation

activities required in the Consent Order for either canyon or nearby SWMUs. This question needs to be addressed.

6. Section 2.2.6 Environmental Restoration Project: DOE refers to a "Corrective Measures Evaluation Work Plan" that is required as part of the Consent Order. Currently, there is no such document required.

7. Section 2.4.13 Los Alamos Neutron Science Center (Technical Area 53): The closure report discussed as being under review by NMED was approved on July 25, 2006. The text should be modified to reflect the approval.

8. Section 3.1.1.5 Disposition of Flood and Sediment Retention Structures: This section discusses the removal of flood and sediment retention structures built in response to the Cerro Grande Fire. Because many of these structures retain heavy loads of potentially contaminated sediment, this section needs to discuss the procedures for characterization of these sediments. Such characterization must be completed before the structures are removed to ensure that there is no release of contaminants or hazardous materials into the environment.

9. Section 3.1.1.5 Disposition of Flood and Sediment Retention Structures: This section notes that removal of the flood and sediment retention structures would be conducted in accordance with LANL's Construction Storm Water Permit. This section should also mention that a section 404 Dredge and Fill Permit from the Army Corps of Engineers and a section 401 New Mexico Water Quality Certification will also be required for removal of these flood and sediment retention structures. In addition, the Los Alamos flood control low-head weir should not be breeched due to the mass and unknown toxicity of the materials that are currently located behind the structure. A low-head weir similar to that in Los Alamos Canyon needs to be installed in Pueblo Canyon in order to provide better legacy sediment retention.

10. Section 3.3.1.2 Remediation and Closure Activities: The Los Alamos County Solid Waste Landfill is a SWMU (61-002) currently listed for corrective action on LANL's Hazardous Waste Facility Permit It will be investigated, including any necessary groundwater monitoring, under the Consent Order. This section of the SWEIS should reflect that the landfill will be addressed under the Consent Order.

11. Section 3.6.1 Comparison of Potential Consequences of Alternatives for Continued Operation at Los Alamos National Laboratory, Geology and Soils: This section states that the remediation of contaminated soils and shallow bedrock would have the greatest impact under the "Expanded Operations Alternative." This statement is inaccurate. Under the Consent Order, remediation of contaminated soil and shallow bedrock is required regardless which alternative is selected. By including the Consent Order requirements under only one alternative, the environmental consequences of that alternative are skewed to appear more favorable. This section needs to be revised.

12. Section 3.6.1 Comparison of Potential Consequences of Alternatives for Continued Operation at Los Alamos National Laboratory, Water Resources: This section states that "beneficial impacts on surface water quality due to the potential removal or stabilization of contaminants at the MDAs" would occur only under the "Expanded Operations Alternative." Again, this statement is inaccurate. Under the Consent

Order, removal or stabilization of contaminants is required regardless which alternative is selected. Again, the "Expanded Operations Alternative" is incorrectly given a more favorable analysis.

13. Section 3.6.1 Comparison of Potential Consequences of Alternatives for Continued Operation at Los Alamos National Laboratory, Water Resources: This section further states that "[t]here would be no changes in the flow of contaminants to the alluvial or regional groundwater as a result of the No Action Alternative." On the other hand, it states that "under the Expanded Operations Alternative," capping or removal of contaminants at MDAs "would likely reduce very long-term migration of contaminants and corresponding impacts on the environment." These statements are inaccurate. In either alternative, remediation under the Consent Order will reduce the migration of contaminants into alluvial and regional groundwater. Again, the "Expanded Operations Alternative" is incorrectly favored.

14. Section 4.2.3.1 Soil Monitoring: In addition to "improved air emissions from regional coal-fired manufacturing facilities," the document should include "improved disposal methods" as a reason for the declining trend in mercury concentrations in soils.

15. Section 4.3 Water Resources and in Table 4-4 Standards and References Used for Evaluating Water Quality: Secondary Contact should be added to the list of designated uses of water resources in the LANL region.

16. Section 4.3.1 Surface Water, general comment: The document should discuss the fact that surface waters onsite and offsite provide recharge to the regional aquifer via infiltration of surface water to alluvial ground water, to intermediate aquifers, and to the regional aquifer. A good example of this condition is the hexavalent chromium contamination at regional well R-28; the chromium originated as a constituent of surface water.

17. Section 4.3.2 Groundwater, third paragraph, first sentence: A fourth mode of groundwater occurrence is present in the upper units of the Bandelier Tuff, which discharge as springs to several canyons. These waters supply an unknown but probably significant portion of recharge to the alluvial ground waters. Measured and estimated flow rates from all onsite perennial springs equate to an estimated discharge of 200 acre feet per year (unpublished data).

18. Section 4.3.2 Groundwater, third paragraph, second sentence: This statement is correct; however, the document neglects to mention that the alluvial aquifers also lie atop units other than the less permeable tuff, such as the highly conductive Cerro Toledo interval or the fractured Cerros del Rio basalts. These contacts often are located at the down-gradient extent of saturation, predominantly in the lower reaches of the wet canyons Los Alamos, Sandia, Mortandad, and Pajarito. Thus, these more permeable underlying units may transmit alluvial ground water downward.

19. Section 4.3.2 Groundwater, first paragraph, first sentence: In addition to the canyons referenced, intermediate ground water also exists beneath Ancho Canyon, Canyon de Valle, DP Canyon, Guaje Canyon, Pajarito Canyon, and Water Canyon.

20. Section 4.3.2 Groundwater, second paragraph, fourth sentence: It should be noted that perched intermediate ground water was encountered during the drilling of well R-

25, and boreholes CDV-16-1(i), CDV-16-2(i)r, CDV-16-3(i), CDV-37-2, and CDV-15-3. Intermediate perched ground water in the Technical Area 16 area appears to be extensive. Some recharge to these perched zones may be from onsite alluvial aquifers, e.g., Canyon de Valle. Intermediate aquifers were also encountered during the drilling of wells R-17, R-19, R-27, and R-31.

21. Section 4.3.2 Groundwater, third paragraph, third sentence: It should be noted that noble-gas recharge temperature data collected by USGS during 2005 indicate that a significant amount of ground water at the regional aquifer water table is recharged east of the mountain front/Pajarito fault zone, which would point to wet-canyon bottom recharge (Manning et al., 2006).

22. Section 4.3.2 Groundwater, fifth paragraph, fourth sentence: This statement is not entirely correct. The perched zones beneath LANL may not provide enough water for municipal purposes but may be adequate for single or multi-family residential use. Prior to the late 1940's, the area's homesteaders used perched ground water in the canyons and the Sierra de Los Valles. The Laboratory used these water sources from about 1943 to 1996. During the early Manhattan Project years, the water system was supplied from groundwater sources in the Sierra de Los Valles.

23. Section 4.3.2 Groundwater, Flow and Transport of Groundwater, third paragraph, first sentence: The Bandelier Tuff can be resistant to flow but it can also be conductive to flow, both lateral and vertical.

24. Section 4.3.2 Groundwater, Flow and Transport of Groundwater, fifth paragraph, first sentence: It should be noted that dacites can make up a significant portion of the canyon alluvium. The composition is dependent on the erosional aspects of the watershed, meaning that canyons that head in the mountain areas do contain dacites; canyons that head on the plateau do not.

25. Section 4.3.2 Groundwater, Groundwater Quality Standards, second paragraph, second and third sentences: These sentences identify relevant and appropriate groundwater quality standards, but with the qualifier "nonradioactive." However, the EPA has set maximum contaminant levels for radionuclides, including radium-226 and -228, beta particle and photon radioactivity, and uranium. 40 C.F.R. § 141.66. The State of New Mexico has adopted these drinking water standards. 20.7.10.100.A NMAC. Further, the New Mexico Water Quality Control Commission has set groundwater quality standards for uranium and combined radium-226 and radium-228. 20.6.2.3103.A(12) and (13) NMAC.

26. Section 4.3.2 Groundwater, Groundwater Quality in the LANL Area, second paragraph: The document states that recharge to the regional aquifer from the perched aquifer "occurs slowly," and that "little contamination reaches the regional aquifer from the shallow perched groundwater bodies." The document provides no reference for these statements. Based on data collected from wells R-4, R-11, R-25, R-28, and other wells, the rate and volume of contaminant migration to the regional aquifer appears to be greater than LANL personnel have previously maintained.

27. Section 4.3.2 Groundwater, Perched Alluvial and Intermediate–Depth Groundwater, first paragraph, first sentence: Alluvial ground-water contamination is also present in Pueblo Canyon.

28. Section 4.3.2 Groundwater Regional Groundwater Quality, second paragraph, second sentence: It should be noted that tritium is present in the regional aquifer at significant levels beneath Mortandad and Pajarito Canyons. For example, tritium at well R-28, located in Mortandad Canyon, ranges from 152 to 185 pCi/L, far above background levels of less than 0.1 pCi/L. Tritium was also found in 2001 at 18.45 pCi/L in the regional aquifer, 500 feet below the water table, at well R-22 (Longmire, 2002). This well is located about 500 feet east and downgradient of Area G.

29. Section 4.3.2 Groundwater, Regional Groundwater Quality, second paragraph, first sentence: Note that the chromium present at well R-28 and other nearby regional wells is in the more toxic hexavalent chromium ion.

30. Section 4.3.1.5 Watershed and Sediment Monitoring: The document should include "spills" as a source of sediment transport.

31. Section 4.12 Environmental Restoration: This section states that "[a] small percentage of sites, currently estimated at less than 10 percent, will go through the entire corrective action process, a task that is expected to take until 2015 to complete." These estimates of the number of sites that will undergo remediation, and the year that such remediation will be completed, are based on very limited information and are necessarily tentative. Because a majority of the SWMUs and AOCs listed in the Consent Order have not been investigated, information is currently lacking. This section should be revised to reflect the tentative nature of these estimates.

32. Section 5.0 Environmental Consequences: Many of the favorable impacts discussed under the "Expanded Operations Alternative" that are related to environmental restoration activities help support its choice as DOE's preferred alternative. DOE even states in Section 3.4 of the SWEIS (Preferred Alternative) that "[a]ctivities that would facilitate compliance with the Consent Order and remediation of MDAs would be undertaken" under the "Expanded Operations Alternative." Favorable impacts from cleanup of waste and contaminated soil and the resulting improvement in surface water and groundwater quality, and favorable impacts from cleanup of contaminated groundwater, should be evaluated with each alternative. By excluding the Consent Order requirements from the other alternatives, DOE has biased the results of this impact study towards DOE's preferred alternative.

33. Section 5.3.2 Groundwater Resources, Groundwater Resources, fourth paragraph: It should be mentioned that additional recharge from artificial sources or focused infiltration via artificial structures may saturate alluvial or vadose zone material containing legacy contaminants, leading to potential remobilization and migration of contaminants.

34. Section 5.4.1.3, Air Quality and Noise, Nonradiological Impacts: The document states that MDA capping and removal operations under the "Expanded Operations Alternative" would result in "additional air pollutant emissions." However, these remediation activities would occur regardless of the alternative selected.

35. Section 5.6.1 Radiological Impacts on the Public: Under the "Expanded Operations Alternative," the document states "there could be an additional temporary or one-time dose to the public from the cleanup of the MDAs, lasting until the MDA exhumation is

completed." DOE further estimates a "conservative dose estimate (6.2 person-rem per year) assuming all MDAs were being exhumed at one time." This estimate should be included in the dose calculated for the other alternatives. The radiological dose DOE presents for the other alternatives is underestimated because the Consent Order requirements will be implemented regardless of which alternative is chosen.

36. Section 5.6.3 Worker Health: The document states that "[r]emediation of the MDAs under this Alternative is also expected to add to the site-wide collective worker dose." The estimated dose for these activities under the "Expanded Operations Alternative" should be included in the dose calculated for the other alternatives. The radiological dose DOE presents for the other alternatives is underestimated because the Consent Order requirements will be implemented regardless of which alternative is chosen.

37. Section E.6.2 Groundwater Occurrence, first paragraph, first sentence: An additional mode of groundwater occurrence exists – onsite (plateau) and offsite (mountain front/block) shallow perched ground water that supplies an unknown but significant amount of recharge to alluvial aquifers in Water Canyon, Canyon de Valle, Pajarito Canyon, and Three Mile Canyon. This fourth mode of occurrence is very important with respect to contaminant transport. For example, this mode supplies recharge and the contaminant load to the alluvial aquifer in Canyon de Valle which, in turn, supplies recharge to the deep intermediate and regional aquifer beneath the canyon bottom. Both the intermediate and the regional aquifers show impacts from the contaminated alluvial aquifer.

38. Section E.6.2.1 Alluvial Groundwater, first paragraph, second sentence: Alluvial ground water in several canyons is also recharged by onsite perennial springs that discharge directly to the canyon-bottom alluvium. As noted above, some of these springs are contaminated and may be the sole source of contamination found at greater depths.

39. Section E.6.2.1 Alluvial Groundwater, second paragraph, second sentence: Perennial surface water flow in some canyons is an additional incision mechanism.

40. Section E.6.2.2 Deep Perched Groundwater, second paragraph, second sentence: It should be noted that intermediate ground water is present beneath canyons that do not head in the Sierra de Los Valles, and they include Mortandad, Sandia, and DP Canyons, and possibly the mesa between Potrillo and Threemiles Canyons. The use of the word "usually" in this sentence is not appropriate.

41. Section E.6.3 Hydrogeologic Units, Bandelier Tuff, second paragraph, first sentence: Qbo and Qbog nomenclature respectively - note that they are switched per their reference.

42. Section E.6.3 Hydrogeologic Units, Bandelier Tuff, third paragraph: Units Qbt 3 and Qbt 4 are very significant in terms of transmitting groundwater and contaminants. In the western portion of the Laboratory, contaminated and non-contaminated springs discharge from these units and supply recharge to the alluvial, the intermediate, and potentially the regional aquifer (Dale and Yanicak, 1996; Dale, 1998; LANL, 1998).

43. Section E.7.1.1 Contaminant Distributions, second paragraph, first sentence: This statement is not correct given the instances in which perched ground water has been

impacted. In most cases, intermediate ground water beneath these effluent releases has been impacted.

44. Section E.7.1.1 Contaminant Distributions, second paragraph, second sentence: It is not clear what is meant by "little" in this sentence.

45. Section E.7.1.1 Contaminant Distributions, fourth paragraph, fourth sentence: The tritium activity can be described as "barely" detectable only in comparison to the detection limit used to quantify the activity. For example, the tritium activity in intermediate groundwater beneath Pueblo Canyon is about 1000 pCi/L, significantly above the levels found in present-day precipitation (18 pCi/L). Tritium in alluvial groundwater in Los Alamos Canyon is not detectable using analytical methods having detection limits exceeding 100 to 200 pCi/L. However, with the use of more robust analytical methods, having detection limits near 10 pCi/L or less, the activities are detectable and quantifiable (100 to 200 pCi/L), as was found by the NMED DOE Oversight Bureau during 1999 and 2000 (Yanicak, 2000; Yanicak, 2001).

46. Section E.7.1.1 Contaminant Distributions, first paragraph, first sentence: Contaminants in the alluvial groundwater reach the intermediate aquifers.

47. Section E.7.1.1 Contaminant Distributions, second paragraph, second sentence: The phrase "long time" in this sentence is not defined and unclear. Based on the presence of tritium and other solutes in the regional aquifer at many of the regional wells, the recharge or some component of recharge is less than 50 years.

48. Section E.7.1.1 Contaminant Distributions, page E-28, second paragraph, fourth sentence: Due to the lack of surface water and lower precipitation, it is highly unlikely that the 45 pCi/L tritium at the spring is from a surface water component, especially considering that other contaminants (chloride, perchlorate, etc.) are present in the spring, and the spring discharges and temperatures are very consistent over time.

49. Section E.7.2 Geohydrologic Conceptual Model, Topography and Surface Water Setting, first sentence: Watersheds in the Sierra de Los Valles also contain perennial surface waters that are supplied by perennial springs.

50. Section E.7.2 Geohydrologic Conceptual Model, Topography and Surface Water Setting, second sentence: The wet canyons referenced here also receive discharges from perennial springs located in the western and central portion of the Laboratory.

51. Table I-2 Updated Corrective Measure Report Schedules for Large Material Disposal Areas: The remedy completion report for MDA L is scheduled for submittal to NMED on July 9, 2011.

52. Section I.2.2.2 Consent Order: The document states that "[s]chedules as stated in the Consent Order may be adjusted to account for delays in NMED approvals." Schedules also have been, and may be in the future, adjusted to accommodate requests from DOE and its contractor for time extensions. The text should be modified to reflect these facts.

53. Section I.2.5.5.3 Material Disposal Area L: The document states that no possible perched water was found during early investigations at MDA L. This statement is

incorrect. In a letter dated April 7, 1995, DOE and the University of California (UC) acknowledges the presence of a perched water body beneath Mesita del Buey. This letter notified NMED of water encountered during the drilling of borehole 54-1016 at MDA L. Groundwater was encountered at a depth of 592 feet in an angled borehole (estimated elevation of 6188 feet above sea level). In the letter, DOE and UC state "[t]he evidence indicates this is a small perched water horizon within the basalt section underlying the Bandelier Tuff."

54. Section I.2.6 Other Solid Waste Management Units and Areas of Concern, Including Aggregate Areas: This section should state that Section V of the Consent Order also sets forth requirements for reporting newly discovered releases from SWMUs and AOCs. This section should also state that submittal dates for aggregate area-specific investigation reports will be specified by DOE and its contractor and approved by NMED. NMED will not specify the due date unless it is not provided by DOE or its contractor.

55. Section I.3.3.2.2.2 Cover Materials: The document states that "[c]apping of the landfill should be completed by the remedy completion date in the Consent Order, March 31, 2007." The date in the revised schedule in the Consent Order is April 5, 2007, the due date for the remedy completion report. The document also states that "[t]he Consent Order requires remediation of MDA H by September 30, 2006. The Consent Order also allows for a delay in completion of remediation commensurate with a delay in a regulatory decision." This date is no longer valid. A new date is pending the collection and evaluation of additional data as well as a remedy selection.

56. Table I-52 Temporal Assumptions for Capping Large Material Disposal Areas: DOE and its contractor are currently proposing to completely remove MDA B under the Investigation/Remediation Work Plan for Material Disposal Area B, Solid Waste Management Unit 21-015, at Technical Area 21. The assumed completion date listed in this table is no longer valid because it assumes stabilization and capping and because DOE and its contractor have proposed a new due date as part of this work plan. A new remedy completion report due date is pending approval of this work plan. In addition, the completion date listed in the table for MDA L should be July 9, 2011 to reflect the revised Consent Order schedule.

57. Section I.3.3.2.4.2 Waste and Bulk Material Requirements for Removal of Large Material Disposal Areas: The document estimates the quantity of waste that will be generated at MDA B based on a limited investigation and remediation at the site. The current proposal from DOE and its contractor includes a complete removal of all waste and contaminated media to meet residential screening action levels. The document should include waste quantities based on the current proposed plan for MDA B. The waste description for MDA U also should be updated. DOE and its contractor submitted the investigation report for MDA U to NMED on February 6, 2006. The document states "[a]lthough disposal operations began at MDA G in 1957, it was used later than most of the other MDAs considered in this section. Therefore, it was assumed that MDA G was not used for disposal of both contaminated and uncontaminated materials, but was used exclusively for radioactive waste." This statement is unclear. There is evidence from recent investigations and documents provided by DOE and its contractor that shows waste containing RCRA constituents was disposed at MDA G. The assumption in the document is not based on facts. This statement should be revised.

58. Section I.3.3.2.7 Material Disposal Area B Investigation, Remediation, and Restoration Program: DOE and its contractor currently propose to completely remove MDA B under the Investigation/Remediation Work Plan for Material Disposal Area B, Solid Waste Management Unit 21-015, at Technical Area 21. This section should be revised to reflect the currently proposed work.

59. Section I.4.3 Water Resources, Groundwater, first paragraph: Perched ground water in the Bandelier Tuff at a depth of less than 100 feet and beneath the mesa tops exist in the central and western portion of the Laboratory. These zones supply continuous recharge to canyon-bottom alluvial aquifers; therefore, they play a significant role in the ground-water flow system at the Laboratory.

60. Section I.5.3.1.2 Groundwater, General Comment: The document should note that tritium has been detected in nearby intermediate and regional aquifers located in the vicinity of MDA G. Tritium was detected at 60 pCi/L (http://wqdbworld.lanl.gov/) at intermediate well R-23i which is located about 2500 feet downgradient of MDA G, and at 18.45 pCi/L (Longmire, 2002) in the regional aquifer 500 feet below the water table at well R-22 which is located about 500 feet east and downgradient of Area G.

61. Section I.5.3.1.2 Groundwater, second paragraph, second sentence: This sentence needs to be edited.

62. Section I.5.3.1.2 Groundwater, fifth paragraph: It should be noted that CH-2, a 500-foot galvanized pipe with the lower 20 feet perforated, was located on the MDA AB pad and has consistently collected, and potentially transmitted, water beneath the site. Numerous hydrodynamic shafts also exist beneath the water-producing pad, and were backfilled with sand down to maximum depth of 150 feet. The shafts were either 3 or 6 feet in diameter, depending on the type of experiment for which they were used. Consequently, many the shafts beneath the pad have likely collected and transmitted water to the subsurface during the period from 1961 to 1998. This issue is significant and should be addressed.

63. Section I.5.3.3.2 Groundwater, third paragraph: MDA-B is covered by an asphalt pad; it is therefore likely that water has moved to the subsurface. Characterization drilling along the perimeter of the MDA-B encountered ground water.

IV. WASTE GENERATION

1. Section 5.9: The Draft SWEIS provides little information on the additional solid, hazardous, and radioactive waste that would be generated under the "Expanded Operations Alternative," DOE's preferred alternative. Surprisingly, Tables 5-39, 5-42, and 5-47 show little difference in the estimated quantities of wastes generated by "routine" operations among the three alternatives. These figures seem most implausible given the scope of the proposed expanded operations, and the SWEIS provides little basis for these estimates. Any additional waste generation could have a tremendous impact on the environment. The impacts could include increased spills and other releases of hazardous constituents into the environment resulting in further soil, groundwater, and surface water contamination; increased truck traffic hauling hazardous and radioactive wastes through Los Alamos County and other New Mexico communities en route to treatment and disposal facilities; and the need for

greater hazardous waste treatment and disposal capacity. This omission is a potentially serious defect in the Draft SWEIS.

2. Any increased generation of hazardous waste under the "Expanded Operations Alternative" could result in additional on-site treatment, storage or disposal of hazardous wastes. Major modifications would be necessary to the Hazardous Waste Facility Permit for LANL. The Draft SWEIS does not address this possibility.

3. Section 5.9 Waste Management: DOE's estimates of remediation waste that would be generated under the "Expanded Operations Alternative" include the waste generated under two scenarios. The waste estimates from both scenarios should be considered as part of the other alternatives.

4. Section 5.10 Transportation: The total dose to the general public and the calculated latent cancer fatalities as a result of shipping radioactive waste for the expanded operations should be added to the other alternatives. The estimated increase in traffic under the expanded operations alternative should also be added to the other alternatives.

5. Section 5.12 Facility Accidents: The consequences and risks associated with remediation activities required in the Consent Order should be evaluated under the other two alternatives.

V. SURFACE WATER QUALITY

1. Throughout the document, when discussing all NPDES discharges and their current or projected effects to LANL's operations or the environment, the document should list the NPDES permit number in the body of the text in order to allow the reader to more easily identify and follow the source and related area of the associated impact. In addition, it should provide a map of the facility with all NPDES discharge points labeled in order to allow all readers to understand the discharge locations and their possible effects on the environment.

2. Coordination needs to be established between the Environment Remediation (ER) program site remediation Point of Contact (POC), the Construction Storm Water Permitting program representative and the FFCA storm water monitoring program representative regarding ER restoration activities that may impact FFCA storm water monitoring sites if releases or spill occur during the site remediation. This coordination effort may need to be established as a program policy at the upper levels of management. Coordination efforts could be as simple as an agreement by the ER program to have all restoration POCs contact the FFCA storm water monitoring representative when restoration activities are being planned. The FFCA storm water monitoring representative can then determine if any FFCA related sampling sites may be impacted and inform the ER POC and the Multi-Sector General Permit (MSGP) Construction Permitting Representative to include appropriate language in the Storm Water Pollution Prevention Plan (SWPPP) and/or permit. The SWEIS should describe how this coordination will be achieved.

3. Coordination and communication between the all construction staff and the Construction Storm Water Permitting LANS-WQ/RCRA program representatives is important and needs to be done from the beginning and continued though any proposed project. These coordination and communication efforts may need to be established as a program policy at the upper levels of management and be followed through by all contractors and subcontractors as well as all LANS-PM-IP staff. Storm water Best Management Practices (BMPs) implementation should be discussed, reviewed, and budgeted throughout the project so that final stabilization can be achieved and the issuance of a Notice of Termination (NOT) can be done in a timely and cost effective manner.

4. During all construction and remediation projects, when any work is proposed to be performed at or near a FFCA monitored sites, any BMPs used on the site should be designed for full containment or "No Discharge" within the permit or SWPPP in order to prevent any site disturbance and associated contaminate release.

5. In discussing proposed construction projects, the document should address the design and implementation of permanent storm water containment measures that will be associated with the project. Many of these proposed construction projects will result in the loss of vegetative cover and related vegetative buffering capacity in addition to adding significant impermeable surfaces. This situation will augment each area's run-on/runoff potential and increase erosion of contaminated sediment to downstream areas. Because of these potential impacts, permanent structures such as diversion structures, detention ponds, sedimentation ponds, catchment basins, or storm water collection systems with storm water treatment systems or separators need to be designed into the structures in order to catch, treat, or store contaminants such as petroleum byproducts, heavy metals, and total suspended solids (TSS), before they can enter surface waters. In addition, these structures will reduce the cumulative impacts of increased storm water volume in contaminated Canyon systems. These BMPs need to be designed into the original construction specifications and their budgets and utilized when appropriate.

6. The SWEIS should differentiate the water quantity impacts (projected water use) for each table in the Summary, in addition to each proposed alternative. In all Summary Tables in the Summary Volume, the document should contain a "Resource Area" category that includes any potential impacts to a SWMU or AOC from the projects.

7. Table S-14, Summary of Impacts for the Remote Warehouse and Truck Inspections Station Project, Land Resources: The document should describe what impact this development and related loss of undeveloped land may have on the area's watersheds. In addition, it should describe the permanent storm water controls that will be implemented to mitigate the cumulative impacts from this increase in impermeable surfaces.

8. Section 3.6.3 Summaries of Potential Consequences from project-specific analysis: The second bullet should note that a required LANL Construction General Permit, a U.S. Army Corps of Engineers section 404 Dredge and Fill Permit, and a section 401 Water Quality Certification will be obtained, if needed, for any project-specific activities that may have an effect on surface water.

9. Section 4.3.1 Surface Water, Table with Surface Water Terms: For consistency and to avoid misunderstanding, the document should use the terms defined in the New Mexico Surface Water Standards, section 20.6.4.7 NMAC.

10. Section 4.3.1.1 Surface Water and Sediment Quality: The statement "Drinking water standards and aquatic life standards are used for comparison, although surface water on the Pajarito Plateau is not used for these purposes" should be deleted. It has been well documented in the scientific literature of the region that surface water on the Pajarito Plateau supports aquatic life. Acute aquatic life standards apply to all "waters of the state" and chronic standard apply to all perennial reaches. (Anonymous, 1992a, Cross, S., 1994, Cross, S., 1995)

11. Section 4.3.1.1 Sources of Impacts to Surface Water Resources: In addition to the listed impacts, the document should include "spills," both permitted under NPDES and un-permitted, as a source that might impact local surface water resources.

12. Table 4-4 Standards and References Used for Evaluating Water Quality: The entry of "N/A" under "aquatic life acute and chronic..." is incorrect. Many aquatic organisms live, survive, and reproduce in perennial, intermittent, and ephemeral environments located on LANL lands were applicable WQCC water quality standards apply.

13. Table 4-7 Estimated Average Annual Concentrations of Radionuclides for Persistent Waters in Pueblo and Mortandad Canyons Compared with the Derived Concentration Guides: The document should explain or define the term "persistent." It is not clear whether it refers to perennial and intermittent reaches only.

14. Section 4.3.1.2 Industrial Effluent: There is a numerical mistake in the last paragraph. All other numbers show a decrease in the number of permitted outfalls from 36 in 1999 to 21 in 2004. This paragraph states that "Thirty-five" outfalls were identified in the 1999 SWEIS.

15. Section 4.3.1.3 Storm Water Runoff: The reference "NMAC 20.6.4.900.J" should be cited when describing the New Mexico Human Health Standards.

16. Downstream LANL Runoff, Pre-Cerro Grande Fire to 2003 (Bullet 1): The phrase "native vegetative planting" should be added to the list of best management practices used to control runoff and sediment transport.

17. Section 4.3.1 Surface Water, first paragraph: The words "may" and "could" in this paragraph are inaccurate. Surface-water flows and associated contaminates do extend offsite to the Rio Grande.

18. Section 6.1 Clean Water Act of 1972, as amended (33 U.S.C. 1251 et seq.): In the third paragraph, it should be noted that on July 1, 2003, EPA issued the new construction general permits that replace those issued in 1998. The new permits require small construction activities to obtain a NPDES Construction General Permit for construction activities that disturb one acre or more, rather than five acres or more.

19. Section I.4.3 Water Resources, Surface Water, first paragraph: These statements are somewhat misleading. On the Laboratory property, Sandia, Pajarito, and Water

Canyons, and North Anchor East Basin, Starmers Gulch, and Canyon de Valle contain perennial surface water at varying lengths of flow.

20. Section I.4.3 Water Resources, Groundwater, third paragraph, first sentence: The document should include a reference for this conclusion. Some indirect evidence provided by stable isotope data (Blake et al., 1995) and noble-gas data (Manning et al., 2006; Longmire et al., in preparation) suggests that ground water at the regional aquifer water table contains a significant amount of plateau or canyon bottom recharge.

21. Sections J.1.3.3 & J.1.3.4, Auxiliary Action(s) A & B, Water Resources: The document should note that a section 401 New Mexico Water Quality Certification as well as a NPDES Construction General Permit are required for any Bridge Construction Projects.

22. Section 4.3.1.2 (page 4-42), Industrial Effluents/Quality of Effluent from NPDES Permitted Outfalls: The document states, "[S]ince 2000, LANL has maintained an average compliance rate with permit conditions of 99.75 percent." NMED questions the accuracy of this statement. Data indicates that discharges from some outfalls at LANL may cause or contribute to exceedances of the State's Standards for Interstate and Intrastate Surface Waters, 20.6.4 NMAC. For instance, NMED has collected analytical data that indicate that discharges of polychlorinated biphenyls (PCBs) from NPDES outfalls 001, 13S, and 051 exceed numeric water quality criteria for human health. LANL currently uses an older EPA approved, albeit much less sensitive, analytical technique for measuring PCBs than was used by NMED. NMED has requested that LANL use the more sensitive EPA developed method for purposes of NPDES monitoring in a recent certification of an NPDES permit for the above named outfalls. LANL has appealed the State's certification on procedural grounds. LANL's failure to utilize more sensitive scientifically valid methods of analysis obscures the true nature of PCB discharges. NMED cannot ascertain the extent to which LANL's use of less sensitive monitoring techniques understates the environmental impacts of its discharges of pollutants, including PCBs, to surface waters. LANL should use the most sensitive EPA or State-approved analytical methods for all parameters for which the State has established water quality criteria, sufficient to truly assess the impacts of LANL's discharges on surface water quality. The SWEIS should discuss these impacts, and it should discuss the potential additional impacts that would result from expanded operations.

23. Section 4.3.1.1 (page 4-34), and Table 4.4: The document states that "[d]rinking water standards and aquatic life standards are used for comparison, although surface water on the Pajarito Plateau is not used for these purposes." This statement is incorrect. Aquatic life uses are designated and existing uses on the Pajarito Plateau. Similarly, Table 4-4 needs to be corrected to match the current version of 20.6.4 NMAC (as amended February 16, 2006). The "N/A" entry under "Aquatic life – acute" is also inaccurate. The table also should discern between intermittent waters within and outside of LANL property on the Pajarito Plateau. Intermittent waters within LANL are covered by the water quality standards in section 20.6.4.128 NMAC, which includes a designated use of Limited Aquatic Life and therefore associated acute criterion apply. Intermittent waters outside of LANL on the Pajarito Plateau are covered by the water quality standards in section 20.6.4.98 NMAC, which includes a

designated use of Aquatic Life, and therefore associated acute and chronic criteria apply.

24. Section 4.3.1.1 (page 4-34), Surface Water and Sediment Quality: The third paragraph, third sentence states: "Most surface water on the Pajarito Plateau is designated for use as wildlife habitat and livestock watering." This sentence should be stricken. It is incomplete and therefore inaccurate. There are more designated uses assigned to waters on the Pajarito Plateau than just wildlife habitat and livestock watering as of the most recent triennial water quality standards review, such as Aquatic Life, Limited Aquatic Life, Coldwater Aquatic Life, and Secondary Contact. See sections 20.6.4.126, 20.6.4.128, 20.6.4.97, 20.6.4.98, 20.6.4.99 of 20.6.4 NMAC (as amended February 16, 2006) for the appropriate designated uses for stream reaches on the Pajarito Plateau.

VI. GROUND WATER QUALITY

1. The SWEIS should explain that up to seventeen outfalls at LANL need to be evaluated to determine if ground water discharge permits are required pursuant to section 20.6.2 NMAC. NMED is currently in the process of permitting four of these discharge locations.

2. Under the "Expanded Operations Alternative," DOE's preferred alternative, the total volume of wastewater that LANL discharges into groundwater would increase significantly. The SWEIS should describe the additional discharges to groundwater that would occur under the "Expanded Operations Alternative." The lack of such descriptions results in uncertainty as to the potential for groundwater impacts at LANL. Furthermore, pursuant to 20.6.2 NMAC, DOE and its contractor would be required to file a Notice of Intent to discharge for any new discharges of water contaminants or if they alter the character or location of an existing water contaminant discharge. If the NMED determines that the discharge has the potential to move directly or indirectly into ground water, a Discharge Permit will be required pursuant to 20.6.2.310 NMAC.

VII. AIR QUALITY

1. To further ensure air quality standards are met during construction, applicable local or county ordinances requiring noise and dust control must be followed; if none are in effect, measures to control construction-related air quality impacts during projects should be implemented to reduce the impact of fugitive dust and/or noise on community members. Areas disturbed by construction activities, within and adjacent to the project area, should be reclaimed to avoid long-term problems with erosion and fugitive dust. The document should address this issue.

2. The SWEISS proposes the renovation or demolition of older buildings at LANL. Asbestos-containing material may be present and could be disturbed during construction activities. If asbestos containing materials are disturbed without ensuring that proper and safe procedures are used, there is risk of asbestos contamination to

the environment as well as risk of asbestos exposure to the public. The document must address this issue.

3. As stated in the Draft SWEIS, hazardous air pollutants could increase by up to 2.5 percent from the higher level of explosives processing under the "Expanded Operations Alternative." The document should include information as to whether any of the other pollutants that might be emitted from LANL operations are listed under 20.2.72.502 NMAC- *Toxic Air Pollutants and Emissions,* the NSPS, or the NESHAPs.

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