General

LANL/ER/FRAMEWORK

MEMORANDUM

To: Gedi Cibas, WWMD

From: TLM Tim Michael, Technical Support Program Manager, DOE Oversight Bureau

Date: July 13, 1998

Subject: Draft Site-Wide Environmental Impact Statement for Continued Operation of the Los Alamos National Laboratory DOE/EIS - 0238 April 1998
U.S. Department of Energy, Albuquerque Operations Office

NMED File No: 1180 ER

Attached is the DOE Oversight Bureau's review of the subject document.

If you have any questions, please contact me at 827-1536.

TLM:tlm

cc: John Parker, Chief, DOE Oversight Bureau
Steve Yanicak, LANL POC, DOE Oversight Bureau

Attachment

c: /data/wpdocs/lanl/reviews/LANL SWEIS.wpd tlm 7/10/98

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DOE Oversight Bureau Review of
Draft Site-Wide Environmental Impact Statement for Continued Operation
of the Los Alamos National Laboratory
DOE/EIS - 0238 April 1998
U.S. Department of Energy, Albuquerque Operations Office

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Overview

The Department of Energy (DOE) proposes to continue operating Los Alamos National Laboratory (LANL). This Draft Environmental Impact Statement identifies and assesses four alternatives for the operation of LANL:

(1) *No Action* DOE would continue the historical mission support activities LANL has conducted at planned operational levels.
(2) *Expanded Operations* This is the DOE preferred alternative. DOE would operate LANL at the highest levels of activity currently foreseeable. Under this alternative, up to 80 plutonium pits per year would be produced, plutonium pit storage would be expanded, high explosives testing would increase, tritium operations would increase, and the low level radioactive waste disposal facility would be expanded.
(3) *Reduced Operations* DOE would operate LANL at the minimum levels of activity necessary to maintain the capabilities to support the DOE mission in he near term.
(4) *Greener* DOE would operate LANL to maximize operations in support of nonproliferation, basic science, materials science, and other nonweapons areas, while minimizing weapons activities.

The analysis presented in the Environmental Impact Statement indicates little difference in the human health and environmental impacts among the alternatives.

General Comments:

1. The title of this document is Draft Site-Wide Environmental Impact Statement for *Continued Operation* of the Los Alamos National Laboratory. Italics added. Based on this title, it might be reasonable to expect that the document would evaluate the impact of continued operation of the laboratory. In Chapter 1, Introduction, page 1-1, the statement is made that "In this SWEIS, DOE describes consequences...of ongoing LANL operations...."

In fact, the DOE <u>does not</u> describe the consequences of ongoing operations.

This SWEIS is a summary of four very similar options under the umbrella of continued operations. It is not clear how these options differ significantly in terms of their health or environmental impact. As a result, the document provides little useful information for evaluating the impact of continued operations at any level of activity.

If the DOE plans to continue to operate LANL, then the DOE should describe the human health and environmental impacts associated with continued operation. This document does not do this.

In Chapter 5, under Cumulative Impacts, page 5-189, the statement is made that cumulative impact is defined by the Council on Environmental Quality NEPA regulations as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or not federal) or person undertakes such other actions."

This would seem to imply that the impact of "past, present, and future actions" should be known, or at least evaluated. If this is correct, then a cumulative impact analysis is not complete if it only analyzes incremental impacts resulting from the proposed actions. It appears that cumulative impacts were not analyzed, and that only incremental impacts were evaluated.

2. NMED does not believe that a reasonable assessment of existing or future contamination to surface water, groundwater, and for offsite transport of contaminated sediments is provided by this SWEIS.

3. The DOE should evaluate all available monitoring data to support its conclusions of minimal environmental impacts. The DOE should evaluate the effectiveness and status of the current program of controls to prevent the migration of contaminants offsite.

Specific Comments:

1. 4.1.1.4 Potential Land Transfers and Related Land-Use Issues, Page 4-9, paragraphs 1 and 2.
Another proposal considered by DOE to transfer a 28 acre (11 hectare) tract of land along DP Road within TA-21 to the county....

The DP Road Tract is near MDA-B (TA-21), where hazardous and radioactive waste is buried. The SWEIS should discuss investigation/characterization and remedial actions proposed by the LANL ER Program.

2. 4.1.2.1 Physical Characteristics Within the Visual Environment, Page 4-15, paragraph 2, last sentence.
...target improving the quality of building design at LANL..and an easy-to navigate road system.

Targeted building improvements and easy-to-navigate road systems should meet American Association State Highway and Transportation Official (AASHTO) standards. Improvements may be needed for buildings located within floodplains.

3. 4.3 Water Resources, Page 4-41, paragraph 1, line 8.
During most of the year in the LANL region, surface water is present only in the Rio Grande and the Rito de Los Frijoles and in reservoirs.

The NMED recognizes a total of seven onsite perennial surface water reaches. At least two natural and one artificial perennial reaches exist on LANL property west of SR 4: (1) 1 to 2 mile reach in Canon de Valle at the northern boundary of TA–16 near MDA-P, (2) 3 - 4 mile reach in Pajarito Canyon from the Starmer Gulch confluence to approximately the Two Mile Canyon confluence, and (3) Sandia Canyon from TA-3 to approximately LANL's Environmental Surveillance surface-water sampling station SCS-3 (about 3 miles).

4. **4.3 Water Resources, Page 4-41, paragraph 1, line 15.**
Flash floods move the sediments from the canyon bottoms to downstream locations such as Cochiti Lake.

Not only do flash floods move sediments from canyon bottoms but also may move contaminated sediments from hillsides or mesa tops. (M. R. Dale; Preliminary assessment of radionuclide transport via storm-water runoff in Los Alamos Canyon, New Mexico, in: NMGS 47th Annual Field Conference, September 25 - 28, 1996).

5. **4.3 Water Resources, Page 4-41, paragraph 3, line 1**
The main aquifer is the only body of groundwater in the region that is sufficiently saturated and permeable to transmit economic quantities of water to wells for public use.

A shallower (approximately 600 ft to the water table) and potentially extensive ground-water bearing unit may exist at the western edge of the Laboratory as indicated during the drilling of SHB-4.

6. **4.3 Water Resources, Page 4-42, paragraph 2, line 11.**
The small amount of recharge available from the Jemez Mountains relative to water supply pumping quantities, along with differences in isotopic and trace element composition, appear to rule this [that the source of recharge is from the Jemez Mountains] out.

There are not enough valid data to support such a statement concerning recharge and its relationship to pumping quantities. Additional investigations should be conducted to determine the source of recharge to the main aquifer.

7. **4.3 Water Resources, Page 4-43, paragraph 1, line 1.**
A conceptual model of the surface and groundwater bodies as they occur beneath the Pajarito Plateau (the geohydrologic setting) is presented in Figure 4.3.2.

A more complete conceptual model based on all available data/information should be developed. The current model lacks information relevant to the fate and transport of contaminants through the hydrogeologic system(s) of the Pajarito Plateau.

8. **4.3.1, Surface Water, Page 4-43, paragraph 1, lines 16 through 22.**
"Fifteen watersheds in the LANL region are shown in Figure 4.3.1-1 (watersheds A through O). Only 12 of these watersheds (watersheds B through M in figure 4.3.1-1), with a total area of 82 square miles (212 square kilometers), pass through the boundary of LANL."

A watershed is a topographically defined area such that all connecting rivers/streams discharge through a single outlet. Figure 4.3.1-1 depicts sub basins as well as watersheds. There are actually only seven watersheds which pass through the LANL boundary. NMED has calculated the total area of those seven watersheds at 116 square miles.

9. **4.3.1.1 Surface Water Monitoring, Page 4-47, paragraph 1, lines 31 through 34.**
"Surface water samples are not collected from Barrancas, Bayo, and Potrillo Canyons due to the lack of surface water in these drainages."

Both NMED and LANL sample surface water in Potrillo Canyon. Table 4.3.1.1-1 on page 4-51 lists Potrillo as one of the stream monitoring stations as well as listing flow within the canyon.

10. Section 4.3.1.1; Surface Water Monitoring; Page 4-50

These analyses indicated that, for several general water chemistry parameters, there is no "statistically significant difference" between LANL and NMED data (PC 1996f). Although NMED data have been reviewed, only LANL analytical data are presented in the SWEIS due to similarities in the two sets of data.

The authors inappropriately concluded that NMED data is similar to LANL data and should not have excluded NMED data from the SWEIS. This conclusion was drawn from a limited statistical comparison of general water chemistry parameters from DOE Oversight Bureau 1992-1993 data (Monahan and others, Surface Water Quality Monitoring at DOE Facilities 1992-1993, 1996). The Bureau's split sampling data on total metals and radioisotope concentrations in storm water, discussed in the same 1992-1993 report, were found to be significantly different than LANL's data.

The SWEIS did not consider that most NMED surface water data has been collected from canyons, locations, and on dates different from LANL surveillance data. Therefore, the NMED data should be used to expand and enhance the total data base.

See also Specific Comment number 15.

11. Section 4.3.1.2 Surface Water Quality Standards, Page 4-50, First two sentences

No use has been officially designated by the State of New Mexico for the surface waters in the LANL area. Most of LANL effluent is discharged into normally dry arroyos...

20 NMAC 6.1 § 1105 (A) specifically states "When a point or non point source discharge creates a source of water which could be used by livestock and wildlife in a non-classified, otherwise ephemeral waters of the State, such waters of the State shall be protected for the uses of livestock watering and wildlife habitat by the standards applicable to these uses as set forth in Section 3101 of these standards."

12. Section 4.3.1.2 Surface Water Quality Standards, Page 4-50, first paragraph; second to last sentence

This study is being performed for NMED to determine whether either of these standards are applicable to the LANL area.

The applicable standards for watercourses at LANL are Livestock Watering & Wildlife Habitat. The study is being performed by a neutral third party to determine if these uses are currently being attained and to determine if there are any additional attainable or applicable uses.

13. Section 4.3.1.3 National Pollutant Discharge Elimination System Regulatory Compliance; Stormwater Effluents; Page 4-62

UC monitors stormwater at TA-54, Areas G and J, and TA-50 as a requirement of the LANL RCRA permit..... The largest amount of monitoring occurs in the Pajarito Canyon watershed where the stormwater from TA-54 drains.

The monitoring at TA-54, Areas G, and J, are conducted as a requirement of LANL's NPDES General Storm Water permit. No data from and no trend analysis of these monitoring efforts are reported in the SWEIS. Data collected to date demonstrates that LANL has not been able to control the off-site transport of radionuclides and metals from TA-54, Area G. This is important considering LANL's intent to expand Area G.

TA-54 storm water quality trends should be evaluated to determine the effectiveness of the Storm Water Pollution Prevention Plan and determine appropriate modifications. All new construction of onsite low-level disposal capacities should conform to State and Federal requirements. Appropriate permits should be acquired from the NM SWB, HRMB, and U.S. EPA prior to any planned expansion of the current TA-54 capacities.

14. **4.3.1.4 Sediments; Page 4-64; Second bullet; Last sentence**
Natural stream process have moved the contaminated materials out of Acid Canyon, down through Pueblo Canyon, and into lower Los Alamos Canyon to the Rio Grande (Graf 1995).

The sediment monitoring strategy of LANL's Environmental Surveillance and Compliance program does not address one of the primary contaminant transport mechanisms, suspended sediment in storm water. The current program characterizes only coarse-grained sediments, which have a relatively low potential to retain contamination, and fails to consider the fine-grained suspended sediments which carry a large portion of the contaminants. The sands and gravels in the stream bed represent only residual contamination, while the suspended sediment, including clays, silts, and organics which have a high affinity for metals and radioisotopes, is carried off-site in the water.

Current sediment data may underestimate the impacts of LANL on downstream waters, specifically Cochiti Reservoir.

15. **Section 4.3.1.5 Surface Water Quality; Page 4-67; Last paragraph in section**
In 1996, barium, mercury, and silver concentrations were within the New Mexico Wildlife Habit stream standard of 1,000 micrograms per liter.

The entire statement is incorrect, should be deleted, and the correct standards provided.

There are no applicable Livestock Watering or Wildlife Habitat standards for barium or silver. The Wildlife Habitat mercury standard is 0.012 micrograms per liter (μg/L), not 1000 micrograms per liter (μg/L) as stated. The 1996 LANL surveillance reports the mercury standard was exceeded in DP Canyon (0.3 μg/L), 25 times the standard.

In 1996, the DOE Oversight Bureau collected 7 storm water samples of which 5 exceeded the mercury standard. The mercury concentrations ranged from .2 μg/L to 1.1 μg/L (16 - 92 times the standard). In 1995 and 1996, DOE Oversight Bureau storm water sampling results were positive for 11 of 29 (nearly 38 %) storm water samples, ranging from .2 μg/L (the minimum quantification limit) to 5.3 μg/L (16 - 440 times the standard).

One storm water sample, collected in 1996 by DOE OB at LANL's site boundary with San Ildefonso Pueblo, showed 1.0 μg/L AROCLOR 1260 (PCB). This is 71 times the EPA Chronic Water Quality Criteria for PCB (0.014 μg/L) and the proposed New Mexico water quality standard for Wildlife Habitat.

The data presented in the SWEIS indicates nearly 20 percent (21 of 108) of onsite and perimeter water samples collected at LANL from 1991 - 1996 exceeded the Wildlife Habitat standard for mercury. The SWEIS underestimates the impacts of historic releases to the water quality of LANL streams and their resultant potential impacts on downstream aquatic resources.

16. **4.3.1.6, Floodplains, Page 4-67, 4.3.1.6, paragraph 1, lines 1 through 6.**
"DOE has delineated all 100-year floodplain elevations within LANL boundaries in accordance with requirements presented in RCRA (42U.S.C.§6901) and Executive Order 11988-Floodplain Management (McLin 1992)."

The requirements in 40CFR270.14(b) are a more applicable reference for floodplain regulations for a RCRA facility. The cited report (McLin, 1992) was produced to satisfy specifically 40CFR270.14(b)(11)(iii). NMED has concerns that the report may not adequately satisfy the requirements in 40CFR270.14(b). See the DOE Oversight Bureau's review comments to Mat Johansen (DOE), dated June 26, 1998. Furthermore, the General Requirements for 40CFR270.14(b) state, " Certain technical data, such as design drawings and specifications, and engineering studies shall be certified by a registered professional engineer." The electronic copy available on the Internet does not show a signature or stamp by a registered professional engineer. According to the New Mexico Board of Professional Engineers, the preparer representing LANL was not a registered professional engineer when the report was produced and submitted.

17. **4.3.1.6, Floodplains, Pages 4-67-68, paragraph 1, lines 6 through 11.**
"There are a number of structures within the 100-year floodplain. Most may be characterized as small storage buildings, guard stations, well heads, water treatment stations, and some light laboratory buildings. There are no waste management facilities in the 100-year floodplain."

NMED is concerned that the floodplain elevations have not been adequately defined by LANL and there may be more buildings than realized within the 100-year floodplain. Included in those buildings is the potential for waste management facilities (see previous comment).

18. **4.3.1.6, Floodplains, Pages 4-68, paragraph 1, lines 14 through 18.**
"The Solution High-Energy Burst Assembly (SHEBA) Building at TA-18 is within the 100-year flood plain, but the assembly is located there only during an experiment."

Although the assembly is not permanently located at the SHEBA building, there are other considerations concerning buildings located within flood plains which are not addressed in this section. 40CFR270.14(b)(11)(iv) and (v) require certain engineering and structural information for buildings located within flood plains. Has engineering analysis for hydrodynamic and hydrostatic forces has been performed on the buildings in question? What type of structural/engineering studies have been performed on the design of the buildings or flood protection devices to prove prevention of washout? Are there any written procedures to remove hazardous materials prior to flooding? What type of warning system is in place in each watershed to alert building staff so that they may move hazardous materials prior to a 100-year flood event? If the above stated information has been provided, where can the information be found?

19. Section 4.3.1.6 Floodplains; page 4-68; Last two sentences

Figure 4.3.1.6-1 presents 1993 information for the annual maximum flood series of the northern Rio Grande. The figure is useful for depicting the relative LANL contribution of flow to the Rio Grande.

There is no supporting documentation of sources used to develop this figure. There are seven watersheds at LANL that pass through the LANL boundary, that discharge to the Rio Grande. These are: Ancho, Mortandad (includes Tensite & Canada del Buey), Chaquehui, Los Alamos (includes Bayo & Pueblo), Pajarito, Sandia, and Water (includes Potrillo & and Cañon de Valle), watersheds. Their combined surface water discharge to the Rio Grande, in addition to Los Alamos Canyon, should be included in the figure to more accurately depict the relative LANL contribution of flow to the Rio Grande. The figure under-represents LANL's potential impact on water quality of the Northern Rio Grande.

20. Section 4.3.2 Groundwater Resources; Page 4-70, Second bullet

The recently discovered springs in Pajarito and Water Canyon watersheds appear to be associated with LANL NPDES-permitted discharges at TA-16.

This statement is not justified, as the NPDES outfalls in Pajarito Canyon and Cañon de Valle (tributary to Water Canyon watershed) have been out of service for two years and the flows from these springs have not decreased significantly. DOE Oversight Bureau measured flows in Cañon de Valle during the 1996 drought, after the referenced NPDES outfalls were stopped, and recorded a 2 - 4 gallon per minute decrease from mid-winter base flows of 12 - 15 gpm, despite extreme drought conditions (Dale, Flow and Water-Quality Characteristics of Perennial Reaches in Pajarito Canyon and Cañon de Valle, Los Alamos National Laboratory, 1998). There is no evidence that the flows from springs in Pajarito Canyon are dependant upon LANL NPDES-permitted outfalls.

While contaminants resulting from discharges from NPDES outfalls have been detected in springs located in Cañon de Valle, indicating a hydrological connection, the source of these springs has not been determined.

21. 4.4.3.2 Radiological Emissions Standards, Page 4-92, paragraph 1, last sentence.

Since June 1996, DOE and UC have asserted that LANL operations are in full compliance.

Although DOE and UC assert that LANL is in full compliance with NESHAPs, there are others, particularly the Concerned Citizens for Nuclear Safety, who have argued otherwise. The Radiological Assessments Corporation audit, headed by Dr. John Till, has recently released a preliminary finding of non-compliance for 1996.

22. Table 4.5.1.2-1. Regional Watersheds and Wetlands in Association with Los Alamos National Laboratory Outfalls; Page 4-109

The number of LANL outfalls supporting wetlands listed for Sandia Canyon is incorrect, as is the LANL outfall flow supporting wetlands (MGY) for Sandia Canyon. The Power Plant outfall 001A, according to Appendix A; Table A.1-1; footnote c, discharges approximately 113 MGY to Sandia Canyon directly upstream of the Sandia Wetlands (7 acres). In addition the overflow of the Sanitary Effluent Re-use tank (01S outfall)

contributes a significant amount of flow to the same wetlands.

23. Section 4.5.2.5 Pollution; Page 4-122, Last Sentence

Long-term monitoring of soils, sediment, water, and air and biomonitoring have not demonstrated levels of contaminants that would pose a health risk, nor have there been obvious toxic effects observed.

Although monitoring results may not indicate a human health risk, it is at the present time not clear whether levels of contaminants pose an ecological risk.

Biomonitoring, conducted by LANL ESH-20, of small mammals (rodents, shrews) in Upper Sandia Canyon indicates that bioaccumulation and/or biomagnification of PCB in the food chain is occurring (ESH-20, unpublished data). In 1995, nine of 30 small mammals tested from the upper end of the Sandia Wetlands had detectable levels of PCB. Preliminary analytical data from 1996 sampling indicated that 16 of 34 animal samples had detectable quantities of Aroclor-1260 (PCB) (Bennett 1994, ER ID # 57541; Bennett and Biggs 1996, ER ID # 57541). The levels of PCB found in adipose tissue and organs have been reported up to 19 parts per million (ppm) in shrews and may pose an ecological risk to the small mammals themselves and/or predators that feed upon them.

Toxic effects have been observed below the former NPDES outfall 05A 056 from the High Explosives machining shop, Building 260, in Upper Cañon de Valle (Water Canyon watershed). These obvious effects consist of barren, un-vegetated soils and standing, dead trees.

In Cañon de Valle, the concentrations of dissolved barium and the high-explosive compound RDX exceeds the EPA Region IX human health based screening action levels for water (Dale, Flow and Water-Quality Characteristics of Perennial Reaches in Pajarito Canyon and Cañon de Valle, Los Alamos National Laboratory, 1998).

See Specific Comment 15 regarding mercury and PCB in storm water runoff at LANL.

24. Section 4.5.3.1 Background on Contamination at LANL; Soils; second paragraph; Page 4-123

An analysis of available information on the areal extent of potential release sites demonstrated that less than 2 percent of LANL's approximately 43 square miles (111) square kilometers) is of potential concern.

No map and/or documentation to support the "less than 2 %" estimate is provided. This appears to be an underestimation of the areal extent of potential concern. This estimate probably does not include entire canyon systems (e.g., Los Alamos, Pueblo, Mortandad, Potrillo) which may be contaminated by the erosion of contaminated soils from potential release sites and/or the percolation of contaminants into alluvial/intermediate aquifers.

25. Section 4.5.3.1 Background on Contamination at LANL, page 4-124, first column, first paragraph last sentence.

While the levels of uranium, plutonium-238, and gross gamma activity were higher than background soils, they were below the LANL SALs that are used to identify the presence of contaminants of concern.

Decisions regarding the presence of contaminants are should be based on comparison to background, and not to human health risk based SALs.

26. **Section 4.5.3.1 Background on Contamination at LANL; Surface water; Page 4-124**
None of the measurements in water from areas receiving effluents exceeded standards except for some pH measurements above 8.5.

Elevated levels of gross alpha and beta have been detected in off-site storm water discharges, in Los Alamos, Ancho, Mortandad, Canada del Buey, and Water Canyons. Gross alpha ranged from less than detectable to 100 pCi/L while gross beta ranged from 63 to 140 pCi/L. Screening Action Levels (SALs) for gross alpha and beta are 15 and 50 pCi/L respectively. The livestock watering standard for gross alpha is 15 pCi/L as listed in 20 NMAC 6.1 § 3101 (A).

See Specific Comments 15 and 23.

27. **Section 4.5.3.1. Background Contamination at LANL, Sediments, Page 4-125, first column, third paragraph.**
Most of the metals that were above the regional comparison value occur naturally in the environment as a constituent of the sediments. Levels of Plutonium-239 and -240 in sediments in Acid, Pueblo, and Los Alamos Canyons were found to be above regional comparison levels and are believed to result from historic releases from LANL operations and worldwide fallout from atomic testing.

Although some levels were above the regional comparison values for naturally occurring metals, levels have been found which are above those that would be expected to occur naturally. Values that exceed regional comparison levels suggest that constituents are not naturally occurring. Although background levels for sediments were not provided in the 1996 LANL Environmental Surveillance Report, many constituents, e.g. barium, beryllium, cadmium, chromium, mercury, lead and strontium appeared elevated at more than one sampling location.

Almost all the radionuclides that were measured, e.g. tritium, strontium-90, cesium-137, plutonium-238, plutonium-239,-240, americium -241, and gross alpha, beta and gamma, were above background levels at more than one location, including three locations in Mortandad Canyon that exceeded human-health based levels for cesium-137.

28. **Section 4.5.3.1 Background on Contamination at LANL; Biomonitoring; Page 4-125**
These biomonitoring data indicate no immediate environmental concerns.

See Specific Comment number 23.

29. **Section 4.5.3.2 Ecological Risk Assessments Performed for Threatened and Endangered Species; Page 4-126; First Paragraph; Last Sentence**
These assessments concluded that, on the average, there is a small potential for impact to the peregrine falcon from contaminants at LANL....

The conclusions drawn by the authors of the peregrine falcon risk assessment begin with the statement "Considering soil ingestion and food consumption contaminant pathways, including a biomagnification component, estimated risk to the peregrine was slightly above

the level of acceptability." (Gallegos, and others, A Spatially-Dynamic Preliminary Risk Assessment of the American Peregrine Falcon at the Los Alamos National Laboratory, 1997).

30. 4.5.3.3 Ecological Risk; Page 4-126; Last paragraph

A qualitative assessment of ecological risk based on findings of the Environmental Surveillance and Compliance Program (as discussed above in section 4.5.3.2) and assessment of risk to selected threatened and endangered species (4.5.3.3) is that there is little potential for risk, and this is primarily due to legacy contamination.

While it may be true that the much of the ecological risk is due to chemical or radiological contamination, even more risk or impact may be due to the existence of facilities, infrastructure, and construction activities. In any case, the qualitative assessment presented is inadequate. As stated previously, it is not uncommon for storm water runoff quality to exceed New Mexico standards and the sediment monitoring program underestimates potential impacts from off-site transport of contaminants. Flash flooding from large expanses of impermeable surfaces in the highly developed areas of LANL result in significant habitat changes in downstream canyon systems. Toxic effects from high explosive discharges have been noted at LANL and biomonitoring in the Sandia Wetlands has indicated potential impacts. The TA-54, Area G, storm water monitoring program was not assessed and considering the expressed need to expand disposal operations at TA-54, this may represent a major ecological consideration. The peregrine falcon assessment concluded that risk was above the level of acceptability. These points deserve attention and contradict the conclusions of the qualitative assessment findings.

31. 5.0 Environmental Consequences, Page 5-2, paragraph 1

The major contributors to environmental impacts of operating LANL are wastewater discharges and radioactive air emissions.

This statement, that the major contributors to environmental impacts of operating LANL are wastewater discharges and radioactive air emissions, may not be true. In fact, the major *environmental impacts* may be associated with the existence of facilities and infrastructure, with construction activities, with environmental restoration activities, and with uncontrolled storm water runoff. For example, LANL was developed and continues to be developed with inadequate consideration of the impact of uncontrolled storm water runoff from facilities, parking lots, etc. There are numerous instances where storm water runoff from industrialized areas is directed into canyons, directly over known potential release sites such as Hillside 137 and other sites in TA-35. Also, significant impact is the result of human activity in general (employment, habitation), resulting from the operation of the laboratory.

32. 5.1.3 Water Resources Methodology; Page 5-4; Second column; second to last paragraph

Changes in stormwater runoff were not analyzed for the following reasons: (1) contaminants in runoff from mesa-top facilities or environmental restoration (ER) potential release sites (PRSs) are extremely dilute by the time the water has reached surface water streams in canyon bottoms; (2) existing facilities and operations employ engineering controls to prevent contamination of stormwater run off; and (3) construction activities and environmental remedial action activities employ engineering

controls to prevent contamination of stormwater runoff.

No basis is presented to support these statements. Mesa-top facilities may contribute significant contaminants to canyon systems. Also, runoff from mesa-top facilities or ER sites may have environmental impacts, whether or not runoff contaminants contain contaminants.

In terms of the potential for failure to implement or maintain adequate engineering controls (2) and (3) were not analyzed.

While many facilities have Storm Water Pollution Prevention Plans (SWPPP) in place, full implementation of those plans is not always accomplished. Except for TA-54, Area G, storm water monitoring is rarely included in SWPPPs, therefore no process is in place to determine the effectiveness of engineering controls. Many PRSs have erosional concerns that have not been addressed. While sites are currently being evaluated and Best Management Practices (BMPs) have been recommended for many of the sites with the highest potential for erosion, funding constraints have limited their implementation. Storm water monitoring to ensure BMP effectiveness must be implemented before the above statement can be validated.

Past construction activities have not employed adequate engineering controls (e.g., Los Alamos Canyon Gas Pipeline Crossing, Radioactive Liquid Waste Pipeline Crossing of Sandia Canyon).

33. 5.1.5, Ecological Resources, Biodiversity, and Ecological Risk Methodology, Page 5-10

LANL facilities, infrastructure, operations, and impacts - positive, negative, and undetermined - are an integral part f the patterns and processes of a complex regional landscape.

The SWEIS did not assess the impact of current LANL facilities, infrastructure, and operations.

34. 5.1.5; Ecological Resources, Biodiversity, and Ecological Risk Methodology Page 5-11

These components are analyzed as part of the analysis of the following major factors contributing to the decline or loss of biodiversity as identified by the CEQ (CEQ 1993):

- *Physical alteration of the landscape*
- *Over-harvesting*
- *Disruption of natural processes*
- *Introduction of exotic species*
- *Pollution....*

The impact analysis considered the potential for each alternative to affect habitats, ecological processes, biodiversity, and exposures to toxic chemicals and radionuclides."

The analysis did not consider the impact of alteration of the landscape resulting from existing and continuing operation of the laboratory.

35. 5.2.3.1 Surface Water Impacts, Page 5-41, Last paragraph

Improvements are also planned for outfall 051 at the TA-50 Radioactive Liquid Waste Treatment Facility (RLWTF)...A treatment system will be operational in July 1998 that will reduce concentrating of all of the above radionuclides, except tritium (Bradford 1996).

Improvements to the RLWTF have not been completed. A realistic date for the operational start-up should be provided.

36. Section 5.2.3.1 Surface Water Impacts, Page 5-42

The effluent from the RLWTF has also exceeded the New Mexico Water Quality Commission (NMWQCC) standard for nitrate as nitrogen of 10 milligrams per liter. A nitrate removal system is being installed as part of the RLWTF improvements that will be operational by July 1998.

Improvements to the RLWTF have not been completed. A realistic date for the operational start-up should be provided.