LANL TA-70

MEMORANDUM

NMED File No: 1229 ER

To: Gedi Cibas, WWMD

From: Steve Yanicak, LANL POC, DOE OB

Date: February 4, 1999

Subject: Construction and Operation of the Spallation Neutron Source, December 1998

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

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

SY:dee

Attachment

cc: John Parker, Chief, DOE Oversight Bureau

LANL / Miscellaneous

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DOE Oversight Review of
"Construction and Operation of the Spallation Neutron Source" December 1998

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Background:

The Department of Energy has proposed siting, constructing and operating a new Spallation Neutron Source at one of four DOE facilities. Design will begin in 1999, construction is planned to begin in 2000, and operation will begin at the end of 2005. Los Alamos National LANL (LANL) in New Mexico is one of the potential candidates. Oak Ridge National LANL in Tennessee is the preferred site. This draft environmental impact statement addresses the consequences of the Spallation Neutron Source at each facility and a no action alternative.

The DOE selection criteria for the SNS required an area approximately 1,100 ft by 4000 ft. The proposed site at LANL is located in the southwest portion of the LANL at Technical Area-70 (TA-70). The area is on an undeveloped mesa top, flanked by Ancho Canyon to the southwest and a small unnamed canyon to the northeast. Other primary selection requirements by DOE were; a one mile buffer zone to insulate the public from accidents, proximity to a 62 to 90 MW power source, and presence of existing facilities and programs using neutron scattering techniques.

Comments:

LANL has the rights to approximately 1.8 billion gallons of water per year. They currently use 0.5 billion gallons, the surrounding communities use approximately 0.9 billion gallons, and the proposed SNS could use up to 0.7 billion gallons of water per year. Ground water pumping may lower the water table in nearby wells, reduce long term main aquifer productivity, and directly compete with surrounding communities for water. The EIS did not describe measures to mitigate this impact.

The proposed site at TA-70 is an undeveloped area at LANL within 1 to 2 miles of Bandelier National Monument. Large scale development would eliminate existing public use, be highly visible during the day and night, and increase traffic congestion. Over 330,000 people visit the Monument each year. We expect a greater negative impact to monument visitors and local residents than described.

White Rock was described to be 3 miles from the SNS. Pajarito Acres is a subdivision of White Rock and appears to be within 1.5 miles of the facility. If the Maximum Exposed Individual is based on exposure to individuals in White Rock, we expect it to be greater for residents of Pajarito Acres. We also expect noise levels and traffic congestion to be greater than described.

Siting the SNS at TA-70 would require development of extensive utility infrastructures, such as a 60 to 90 MW power source, natural gas lines, steam lines, a water delivery system and access to

sanitary-sewage effluent, and heads at Technical Area 3, 2) a 1.5-2.0 mile reach in Canon de Valle that heads at Technical Area 16, and 3) 2-3 mile reach in Pajarito Canyon that heads near Technical Area 22 (Dale, 1998). A more accurate description of the hydrologic setting should be incorporated into the document.

4. 4.2.2.1 Surface Water, Page 4-72, paragraph 2, line 15
Perennial streams in the lower portions of Ancho and Chaquehui Canyons extend to the Rio Grande without being depleted by recharge to the ground.

A more accurate description of the flow conditions in the referenced canyons should be included in the document. Field observations and documentation during 1996, 1997 and 1998 showed that perennial flow in Chaquehui Canyon extended for approximately 300 ft from Spring 9A, and did not reach the Rio Grande. On September 29, 1998, field observations showed that perennial flow Ancho Canyon extended from Ancho Spring to within about 600 ft of the Rio Grande. In other words, these perennial reaches do not always reach the Rio Grande.

5. 4.2.2.2. Flood Potential, Page 4-72, paragraph 1, line 10
The overall flood risk to LANL and facilities at TA-70 is small because of the position of this site on a mesa top.

We agree that the flood risk on the mesa top is minimal. However, the flood risk downstream in Ancho Canyon and the unnamed canyon may be increased due to the additional outfall and runoff from parking lots, roofs, etc., at the site. The increase in runoff may affect the physical conditions and biological communities downstream from the proposed facility.

6. 4.2.2.3 Groundwater, Page 4-73, paragraph 2, line 9
Depth to groundwater, 840 ft (256 m), at TA-70 is inferred from a monitoring well adjacent to the site.

To the best of our knowledge there is no regional monitoring well adjacent to the TA-70. DT-9 is the closest well, and it is located approximately 4 miles northwest of the proposed SNS site.

7,. 4.2.2.3 Groundwater, Page 4-73, paragraph 2, line 11
The depth to groundwater at the bottom of Ancho Canyon along the southern edge of TA-70 is 600 ft.

This statement may not be correct considering the fact that Ancho Spring discharges within the canyon bottom.

8. 4.2.2.3 Groundwater, Page 4-75, paragraph 4, line 14
Background concentrations of radionuclides and trace metals are shown in the Ancho Spring results.

- o The text should explain what "background concentrations" were used. To the best of our knowledge, background concentrations for ground-water at LANL have not been agreed upon.

- o It should be noted that in 1995, the high explosive compounds HMX (4.9 ppb), RDX (23 ppb) and 2,4-DNT (0.18 ppb) were detected in Ancho Spring waters (data from LANL Report: Environmental Surveillance at Los Alamos during 1995), which may indicate that Ancho Spring is not an appropriate background station.

- o Contaminants were also found in Ancho Spring at earlier times. From 1951 through 1955 some contaminants were found: nitrate as nitrate (NO_3), 0.2 to 30.0 ppm; phosphate (NO_3), 3.0 to 30 ppm; chloride (Cl), 2.8 to 93 ppm; and Fluoride (F), 0.2 to 3.2 ppm (data from Weir, et al., 1963, USGS report titled "The hydrology and the chemical and radiochemical quality of surface and ground water at Los Alamos, New Mexico, 1949-55").

9. 4.2.2.3 Groundwater, Page 4-75, paragraph 5, line 1
Long-term trends of the water quality in the main aquifer beneath LANL have shown little impact resulting from operations (LANL, 1997d).

The regional-aquifer monitoring system at LANL is probably inadequate to monitor long-term trends (e.g., long-screened intervals, spacing, casing degradation, possible borehole leakage, etc.). Recent data show that the regional aquifer beneath several historical release sites has been impacted by LANL activities.

10. 4.2.5.3 Aquatic Resources, Page 4-85, paragraph 1, line 2
These habitats currently receive NPDES-permitted wastewater discharges from LANL.

This statement is incorrect. A total of three perennial reaches or aquatic habitats at LANL do not receive wastewater effluent: 1) lower Ancho Canyon, 2) Canon de Valle near TA-16, and 3) Pajarito Canyon from TA-9/22 to approximately the mouth of Two-mile Canyon.

11. 4.2.9.1.2 Water, Page 4-108, paragraph 1, line 21
Surface and runoff water results from Ancho Canyon (TA-70) indicate all radionuclides well below the DOE DCGs for public dose, with many reported values below analytical detection limits (Table 4.2.9.1.2-1).

Surface-water data should be compared to more applicable standards such as New Mexico Water Quality Act or the federal Clean Water Act.