

**Exhibit 5**  
**Remediation of MDAs**  
**George Rice, September 18, 2006**

The *Draft Site-Wide Environmental Impact Statement* (SWEIS) considers three alternatives: 1) No Action, 2) Reduced Operations, and 3) Expanded Operations.<sup>1</sup> However, DOE is proposing to remediate major Material Disposal Areas (MDAs) only under the Expanded Operations alternative.<sup>2</sup> This does not make sense. The potential for contamination at the MDAs is not a function of the alternative that is chosen.

The following is from the draft SWEIS:

*Uncertainty about the long-term infiltration rates at MDAs leads to uncertainty about the long-term performance of the MDAs. The result is uncertainty about possible future human risk from groundwater contamination, assuming nothing is done to reduce long-term infiltration into the MDAs.*<sup>3</sup>

The MDAs should be remediated under all of the alternatives.

Under any alternative, DOE should determine whether any contaminant excursions<sup>4</sup> have occurred at any MDAs or other facilities where wastes have been stored or disposed. If any excursions have occurred, DOE should determine the extent and nature of the excursion, and develop a remediation plan.

All waste disposal facilities should include a monitoring system capable of detecting excursions before contaminants reach the environment. Such a system might consist of dual low permeability liners with instruments for detecting excursions installed between the liners.

### **Lateral flow into wastes**

Any proposed remediation plan should consider the possibility of lateral movement of water into the wastes. Lateral flow may occur episodically in response to rainfall or snowmelt. Rogers (1977) reported lateral flows into waste disposal pits at MDA G. The water flowed into the pits through fractures and along the soil-bedrock interface.<sup>5</sup>

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<sup>1</sup> DOE, 2006a, pages S-5 and S-39.

<sup>2</sup> DOE, 2006a, page S-39. Under the Expanded Operations alternative, the MDAs may be capped (wastes left in place), or excavated (wastes removed and disposed in another facility) (DOE, 2006a, page 3-61).

<sup>3</sup> DOE, 2006a, page I-230.

<sup>4</sup> Excursion: migration of contaminants across the boundary of a disposal facility.

<sup>5</sup> Rogers, 1977, pages G-36, G-70, and G-71.

All proposed remedial options should include features to prevent the lateral flow of water into the wastes. Those features could consist of impermeable barriers or capillary breaks.

### **Tritium in White Rock Canyon**

The SWEIS states:

*“However, groundwater from springs in White Rock Canyon has no tritium and probably ranges in age somewhere between 3,000 to 10,000 years (LANL 2005a).”<sup>6</sup>*

This is incorrect. A number of springs in White Rock Canyon discharge water that contains tritium (e.g., CCNS Spring (2B); springs 4, 4A, 4B, and 4C; and Doe Spring).<sup>7</sup> The presence of tritium at these springs shows that at least a portion of the water is recent. That is, the water was recharged since LANL was established in 1943.

### **Definition of background groundwater quality**

DOE claims that the discharges from a number of springs in White Rock Canyon represent background groundwater quality for the Pajarito Plateau<sup>8</sup>. However, one of them, La Mesita Spring, is east of the Rio Grande<sup>9</sup> and flows from a point 20 m above the river.<sup>10</sup> Therefore, groundwater discharging from this spring may originate in the mountains to the east of the Rio Grande. If this is the case, samples from La Mesita Spring do not represent background for the Pajarito Plateau.

Unless DOE can show that the discharge from La Mesita Spring originates on the Pajarito Plateau, samples from spring should not be used to define background quality for the Pajarito Plateau.

### **Contaminants in Regional Aquifer**

The SWEIS states:

*“As a result, little contamination reaches the regional aquifer from the shallow perched groundwater bodies and water quality impacts on the regional aquifer, though present, are low.”<sup>11</sup>*

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<sup>6</sup> DOE, 2006a, page E-33.

<sup>7</sup> CCNS, 2004, table 8-1.

<sup>8</sup> DOE, 2006a, figure E-9.

<sup>9</sup> Purtyman, 1995, figure XXII-B.

<sup>10</sup> LANL, 2005a, page E-2.

<sup>11</sup> DOE, 2006a, page 4-63.

This is incorrect. Chromium concentrations as high as 404 µg/L have been detected in regional aquifer well R-28. This is more than four times higher than the Federal drinking water standard and eight times higher than the State drinking water standard.<sup>12</sup>

## References

Concerned Citizens for Nuclear Safety (CCNS), 2004, *New Mexico's Right to Know: The Potential for Groundwater Contaminants from Los Alamos National Laboratory to Reach the Rio Grande*, July 2004.

Department of Energy (DOE), 2006a, *Draft Site-Wide Environmental Impact Statement for Continued Operation of Los Alamos National Laboratory, Los Alamos New Mexico*, DOE/EIS-0380D, June 2006.

Los Alamos National Laboratory (LANL), 2005a, *Groundwater Background Investigation Report*, LA-UR-05-2295, June 2005.

Purtyman, W.D., 1995, *Geologic and Hydrologic Records of Observation Wells, Test Holes, Test Wells, Supply Wells, Springs, and Surface Water Stations in the Los Alamos Area*, January 1995, LA-12883-MS, UC-903 and UC-940.

Rogers, M.A., 1977, *History and Environmental Setting of LASL Near-Surface Land Disposal Facilities for Radioactive Wastes (Areas A, B, C, D, E, F, G, and T)*, A Source Document, June, 1977, LA-6848-MS, Vol. 1, Informal Report.

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<sup>12</sup> DOE, 2006a, page 4-65.