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Refer to: RRES-DO:02-51

Mr. Ralph Erickson
Director
Office of Los Alamos Site Operations
Department of Energy
528 35th Street, MS A316
Los Alamos, NM 87544

Dear Mr. Erickson:

SUBJECT: NEW MEXICO ENVIRONMENT DEPARTMENT (NMED) DRAFT ORDER

After the May 2, 2002 release of the Draft Order issued by the New Mexico Environment Department (NMED) to the Laboratory, the Senior Executive Team of the Laboratory requested that we reiterate the Laboratory's plan for the risk reduction and environmental stewardship of the Laboratory in a single, concise and updated document. This letter sets forth that plan.

The Laboratory has a comprehensive, multi-media plan for addressing environmental protection activities at the facility that is currently being implemented, including the remediation of legacy sites, surface and groundwater protection and long-term monitoring. Principal components of this plan are summarized below and include the Corrective Action Program (including legacy transuranic and mixed waste disposition), the Groundwater Protection Program and the Watershed Management Program. Meeting the objectives of these programs will be significantly enhanced through implementation of the Laboratory's "Performance Management Plan for Accelerating Cleanup" (PMP). The PMP sets forth an accelerated plan for completing environmental restoration and legacy transuranic (TRU) waste disposition at the Laboratory by 2015 -- fifteen years earlier than currently planned.

In addition, as discussed below, the Laboratory has been proactive in initiating several environmental programs that address legacy contamination and surface water and groundwater concerns. The Laboratory has also voluntarily agreed to include within its environmental restoration efforts the investigation and cleanup of contaminants, such as radionuclides and polychlorinated biphenyls (PCBs), that are outside the regulatory authority of NMED. Over the years, DOE and the Laboratory have worked cooperatively with NMED, at the senior management, mid-management and staff levels, to ensure that the agency has the information that it needs to effectively oversee environmental restoration and waste management activities at the Laboratory.

The Laboratory's key conceptual approaches to the investigation and remediation of its complex facility have been conducted with NMED participation, input and approval and are laid out in the programs and key documents discussed below.

Corrective Action Program

Background. In the 1990 Solid Waste Management Unit Report, the Laboratory initially identified 2124 potentially contaminated sites at the facility. EPA Region 6 identified a subset of these potentially contaminated sites for inclusion as solid waste management units (SWMUs) in Module VIII of the Laboratory's Hazardous Waste Facility (HWF) Permit. The remaining potentially contaminated sites (i.e., those not subject to RCRA/HWSA regulation) were retained within the ER Project for investigation as areas of concern (AOCs). AOCs are investigated and, if necessary, remediated under DOE authority or other applicable authorities, such as the Toxic Substances Control Act. Collectively, SWMUs and AOCs are referred to as potential release sites (PRSs). Originally, Module VIII of the HWF permit prescribed a three-step corrective action process for the investigation and remediation of SWMUs: RCRA Facility Investigation (RFI), corrective measures study (CMS), corrective measures implementation (CMI).

In 1996, EPA reevaluated this three-step process through the Subpart S rulemaking initiative and recommended improvements to increase the speed, efficiency and protectiveness of corrective action. The Laboratory, in coordination with NMED, then undertook several initiatives to improve and accelerate the investigation and cleanup of PRSs. These initiatives included the consolidation of PRSs based on contaminant source, location and potential cumulative risk, and the grouping of PRSs within watersheds.

In recognition of insufficient resources at NMED to provide timely review of lengthy reports, the Laboratory has participated in regular meetings with NMED in order to improve communication and progress in the corrective action program, including: (1) since 1996, monthly progress meetings to facilitate reporting and discussion of issues in a shorter time frame than that afforded by written reports and correspondence; (2) for the last several years, High Performance Teams that make decisions in real time about the investigation and remediation for approximately six major projects; and (3) regular progress meetings held by senior DOE, Laboratory and NMED managers.

As discussed below, the following major program approaches, approved by NMED, are the heart of the Laboratory's corrective action program: (1) the "Installation Work Plan," a prioritization and schedule of all corrective action activities projected for the next five years, submitted annually for NMED approval; (2) the grouping of PRSs within watersheds; (3) the prioritization and evaluation/remediation of PRSs based on cumulative risk; (4) the collection of data in accordance with EPA's Data Quality Objective (DQO) process; and (5) expedited corrective actions, as "voluntary corrective actions" or "voluntary corrective measures."

Installation Work Plan/Watershed Approach. The Laboratory's proposed corrective actions are documented in the Installation Work Plan (IWP) and implemented through work plans submitted to NMED for approval, as required by HWF Permit. The IWP ensures that all permit requirements are met and provides the Laboratory with clear guidance on the methods and priorities for investigation and potential remediation of sites. NMED has been an active participant in establishing priorities for addressing PRSs through monthly progress meetings and High Performance Team meetings. Further, priorities for site activities are set in the annual IWP

work schedule that establishes the specific corrective action work that the Laboratory will perform each year.

The most recent IWP revision, Revision 8, which incorporates an integrated, watershed-based approach, was provided to NMED for approval on March 30, 2000. Although NMED has not yet approved Revision 8, it did approve a significant change in methodology, the watershed approach, in a March 23, 1999 letter to the Laboratory. The watershed approach is a systematic, integrated, risk-based process for characterizing PRSs that follows EPA guidance. The last IWP approved by NMED was Revision 7 in 1999.

Risk-Based Approach. LANL's corrective action decisions are based on degree of risk in accordance with EPA's risk assessment strategy and guidance, which recognizes a risk-based approach in order to address and accelerate corrective actions. EPA's risk-based approach was initially adopted and supported by NMED policy and guidance. The Draft Order, however, moves away from this agreed upon risk-based approach undertaken by the Laboratory at great expense, and ignores and negates years of significant work and progress already made.

Data Quality Objectives (DQOs). The corrective action program follows EPA's data quality objectives (DQO) methodology, which builds on existing data in order to focus potential future activities. Under this approach, the need for additional work is based on the outcome of an iterative process to determine additional data needs for adequate characterization. Developing DQOs prior to data collection provides a systematic procedure for deciding when and where to collect samples and how many samples to collect. The DQO process has been used successfully at LANL to locate wells, monitor surface water, collect sediment/soil and biota samples, and collect other data to make and support remediation decisions. In contrast, the Draft Order prescribes sample location, sample collection and monitoring without appropriate levels of planning and awareness of objectives.

Voluntary Actions. Where the Laboratory believes that it is in the public interest to expedite cleanup at sites, the Laboratory has proceeded with the cleanup as an "interim action," "voluntary corrective action" (VCA) or "voluntary corrective measure" (VCM), notwithstanding the lack of official NMED approval. This approach has NMED's concurrence and VCAs and VCMs are performed with varying degrees of NMED involvement. For a VCA or VCM to be performed, there must be both a clear and final remediation goal and an obvious method for implementing that goal. VCAs/VCMs are performed with the understanding that the Laboratory may be required to revisit remedial action taken at the site due to the limited involvement of NMED at the time of remedy implementation. In all, since 1993, the Laboratory has undertaken and completed approximately 110 voluntary cleanup actions or measures at 100 SWMUs.

Reports. Working with NMED, LANL modified the format and content of documents to produce clear, readable reports that simplify regulatory review. For example, NMED and the Laboratory agreed that the inclusion of the laboratory's final chemical analytical data reports, including QA/QC results, was excessive and voluminous, as the Laboratory is required to maintain this information in its archives. Instead, summary tables of the information were jointly developed with NMED, which are included in reports. In a January 15, 2002, letter to LANL, NMED stated, "*In order to streamline report submittal repetition should be avoided and only*

relevant sections of the annotated outline included..." Contrary to this recent letter, the Draft Order requires the inclusion of the final chemical analytical data reports, including QA/QC results. This approach is inconsistent with RCRA requirements and the industry standard, as well as NMED's "Document Requirement Guide" and the formats already agreed upon with NMED.

The Laboratory's ongoing corrective action program, which is continually being improved upon in coordination with NMED, incorporates the consolidation of PRSs, a watershed approach, use of risk as a basis for remediation decisions, voluntary corrective actions, joint NMED and Laboratory decision making and real-time review by NMED – all with the goal of improving and accelerating investigations and cleanup of PRSs. In contrast, the Draft Order would prolong and delay cleanup activities, including RFIs currently underway.

Legacy Transuranic/Mixed Waste Disposition. The Laboratory has developed a plan to accelerate the treatment and off-site disposal of legacy mixed low level waste and for transuranic (TRU) waste characterization and disposal at the Waste Isolation Pilot Plant (WIPP) for all New Mexico legacy TRU waste. The proposal is projected to save over $500 million lifecycle waste management costs. The plan will continue the acceleration of the Federal Facility Compliance Order, Site Treatment Plan milestones and complete the shipment of all legacy TRU waste by 2010, instead of the 2030 date in the present baseline plan. The plan consists of a risk based approach by performing early characterization and shipping of approximately 2,000 high activity drums that account for about 60% of the risk of dispersible radioactivity in TRU waste in storage at TA-54. Legacy TRU waste from Sandia National Laboratory and Lovelace Respiratory Research Institute are also planned to be consolidated at LANL for characterization and shipment to WIPP.

Groundwater Protection Program

The Laboratory's groundwater protection strategy is a dynamic approach to protecting the groundwater resource from unacceptable impacts by Laboratory activities. Fundamental to this strategic approach are five critical elements of groundwater protection – characterization, monitoring, environmental restoration, prevention, and communication. To accomplish groundwater protection, these elements are fully interactive and interdependent.

Hydrogeologic Characterization. Characterization is needed to establish fate and transport rates of contaminants in groundwater and to establish monitoring locations and requirements. This characterization is currently being accomplished through the Hydrogeologic Work Plan (HWP), which was approved by NMED in March 1998. The primary purpose of the HWP is to characterize the hydrogeologic setting in order to design a monitoring network. This site-wide hydrogeologic characterization program is being conducted on an aggregate basis, with optimum sequencing of groups of the regional aquifer wells to meet data needs by reducing uncertainty and risk. The potential sources of contaminants, direction of flow, velocity of flow, and transport processes must be understood to ensure that monitoring wells are optimally located and constructed to detect potential contamination. The scope of the HWP includes data collection in up to 32 regional aquifer wells and 51 alluvial wells, data analysis using modeling tools, and data management. To date, 12 regional aquifer wells and approximately 30 alluvial wells have been completed and are providing the desired geochemical and water level data.

The HWP was designed to be iterative, using analytical tools to learn from each new well. Thus, the number and location of subsequent wells is based on a thorough review of existing data and other relevant information. The Laboratory used EPA's DQO process to develop the HWP and to iterate on the data collection requirements for hydrogeologic characterization. These characterization activities are intended to fulfill regulatory requirements under RCRA/HWA and to satisfy institutional objectives in the Laboratory's Ground Water Protection Management Program (GWPMP) Plan that was submitted to NMED in 1996.

Hydrogeologic characterization is critical to remediation and monitoring. Characterization is not only crucial to identification of the need for remediating identified groundwater contamination, but also for establishing the location and design of monitoring systems to demonstrate the success of remediation of groundwater contaminants. In contrast, the Draft Order requires installation of a fixed set of wells at fixed locations without a technical basis or understanding of the hydrogeologic setting that is needed to design a monitoring network.

Monitoring. Groundwater monitoring has been conducted on and around the Laboratory for more than 50 years. Approximately 80 monitoring locations have included water supply wells, springs, and a limited number of test wells and is described in the GWPMP. NMED and other organizations, however, questioned the adequacy of this existing monitoring system, because the hydrogeologic setting beneath the Laboratory was not adequately understood. The Laboratory then developed the Hydrogeologic Workplan to address this concern. As stated above, the primary purpose of the Hydrogeologic Workplan is to characterize the hydrogeologic setting in order to design a monitoring network. As the characterization work is accomplished, the adequacy of the existing monitoring network will be documented and necessary enhancements will be implemented. The Laboratory will use the resulting monitoring network to comprehensively evaluate groundwater quality. The collected groundwater quality data will be used to verify the effectiveness of PRS remedial actions, potential groundwater remedial actions, and pollution prevention activities in Laboratory operations.

Environmental Restoration. The corrective action program discussed above will assess PRSs and, as necessary, remediate contamination from those PRSs. It will address all potential sources of groundwater contamination by ensuring that the actions at PRSs meet the established groundwater protection criteria. At that point, the focus will be on long-term monitoring to document the effectiveness of the corrective action activities. The comprehensive monitoring network described in the previous sections will be used not only to ensure that implemented remedies remain effective, but also that ongoing operations are conducted in an environmentally sound manner.

Pollution Prevention. The Laboratory has established a Prevention Program that promotes and coordinates pollution prevention and waste minimization improvements. Prevention supports and integrates the reduction of hazardous and radioactive materials in operational processes. It also supports pollution prevention projects that upgrade specific Laboratory operations. This reduces the risk of new environmental releases.

Communication. Since 1998, the DOE and the Laboratory have held quarterly status meetings with NMED, citizens' groups and other interested parties to provide updated information and solicit input on the status of the well drilling program under the HWP. The Northern New Mexico Citizens Advisory Board is also provided regular updates on these programs and special presentations, as needed. Additionally, an External Advisory Group of experts has been established that meets with stakeholders on a semi-annual basis to elicit concerns and feedback on the program. Minutes from the meetings and annual groundwater status reports are distributed to all interested parties. In addition, LANL updates a publicly available web site on a weekly basis (http://wqdbworld.lanl.gov). The database contains comprehensive information on water supply well and monitoring well analytical chemistry data, groundwater levels, well construction, geophysical logs, borehole videos, as well as extensive information on surface water monitoring information.

Watershed Management Program

The Watershed Management Program is responsible for evaluating the Laboratory's impacts to surface water, alluvial groundwater, soils, and sediments on and off the Lab. The program's objectives include full compliance with water quality standards, and evaluating and reducing risk to human health and the environment. The Watershed Management Program is based on EPA guidance on managing from a watershed perspective. For corrective action activities, NMED has approved a watershed approach.

PRSs. Since 1992, the Laboratory has installed, inspected, and maintained erosion controls at PRSs. In 1997, the Laboratory developed Standard Operating Procedure (SOP) 2.01 to identify PRSs that may adversely impact surface water quality. PRSs were prioritized based on their erosion potential using criteria such as proximity to watercourse, percentage of slope, percentage of vegetative cover, and runoff and run-on factors. NMED's Surface Water Quality Bureau saw this process as a model for other storm water permitted facilities in the state.

The Surface Water Assessment Team (SWAT) was established in 1997. The team includes the Laboratory, DOE, NMED's Hazardous Waste Bureau, NMED's Surface Water Quality Bureau and NMED's DOE Oversight Bureau. Based on evaluations of erosion potential, SWAT members recommended installation of Best Management Practices (BMPs) at PRSs with high erosion potential. Erosion assessments have been completed at 1400 sites; 340 sites have moderate to high erosion potential. BMPs have been placed at 220 sites, at a cost of over $500,000. The SWAT determined that 80 sites did not require BMPs due to adequate stabilization, minimal sediment migration potential or lack of contamination. The remaining 40 sites are awaiting SWAT review. This represents a 90% completion rate for evaluating the moderate to high erosion potential SWMUs/AOCs at the Laboratory. The controls include run-on diversion, flow dissipation, sediment filtration, sediment retention, and soil stabilization.

The Laboratory inspects and maintains these erosion controls quarterly or after a half-inch rain event. After the Cerro Grande Fire, the Laboratory coordinated with NMED to evaluate 65 PRSs burned by the fire, and promptly replaced damaged erosion controls.

Site-Wide Monitoring. For more than 30 years, the Laboratory has operated its Environmental Surveillance Program. This program has always included monitoring of surface water, alluvial groundwaters, sediments, and soils. The Laboratory has voluntarily expanded the intensity of

runoff monitoring over the past seven years to now include nearly 80 automated gauging stations across the Laboratory. For storm water, the Laboratory is one of the most intensively monitored facilities in the world.

The Laboratory NPDES Multi-Sector General Permit (MSGP) is administered by EPA and covers point source discharges of storm water from industrial activities. About 40 of the 80 stations are used to collect samples to comply with the MSGP. However, voluntary monitoring under the Watershed Management Program includes an exhaustive analytical suite at all 80 stations. The analytical requirements under the Watershed Management Program are much more comprehensive than the analytical parameters required for compliance with the MSGP. In the interest of responsible stewardship of the lands entrusted into the Laboratory's care the sampling frequency also exceeds what is required for compliance with the MSGP. Watershed monitoring is designed to detect, for example, contamination coming from a Laboratory operation, or from a discharge that has received inadequate treatment, or from an unreported spill, or resulting from erosion of a PRS. The monitoring program is also designed to evaluate impacts from natural sources. This information guides the Laboratory in controlling or remediating impacts from current or historic operations. Watershed monitoring will also indicate whether efforts to revegetate headwaters burned by the Cerro Grande Fire are successful.

An example of the Watershed Management Program's watershed approach, and its commitment to coordination among state, federal, and local agencies, is the PCB sampling and evaluation program. In the past two years, an NMED representative sampled for PCBs in canyons draining the Laboratory and the Los Alamos County townsite. PCBs are not detectable using the EPA approved analytical method, but are detectable using a new, more sensitive method. In response, the Laboratory invited the State, County, and Pueblos to participate in developing a study to measure low-level PCBs in Los Alamos canyons, as well as in the Rio Grande above and below the Laboratory. Water, sediments, soils, and fish in the watershed region above Cochiti Reservoir will be sampled. While literature shows that PCBs are ubiquitous in the environment due to widespread past use in electrical transmission and other industrial uses, as well as airborne distribution, the study will attempt to determine if there is a background concentration of PCBs in various media that is necessary to understand and interpret PCB measurements associated with activities at LANL or Los Alamos County. This background may be useful in interpreting PCB data from other parts of New Mexico.

Point Source Discharges. In addition to these monitoring and storm water programs, the Laboratory has an NPDES permit, issued by EPA and certified by NMED, that contains industrial wastewater discharge limits. The Laboratory has 19 MSGP Storm Water Pollution Prevention Plans to control pollutants in storm water from its industrial activities.

Data. Data from these programs are freely available to regulatory agencies and to the public at a Laboratory website: http://wqdbworld.lanl.gov. It is also available, with discussion and interpretation, in the annual Environmental Surveillance Report published by the Laboratory.

In addition to ongoing monitoring programs the Laboratory is continuing to develop a model predicting erosion from PRSs, uncontaminated areas, canyon sides and canyon bottoms. This model will allow the Lab to implement cost effective mitigations with increased confidence. The

Watershed Management Program will continue to improve understanding of natural processes at work in the watersheds as they recover from the fire, and improve understanding of the nature and movement of potential contaminants from PRSs and other sources.

Other Programs. In addition to the Laboratory's Watershed Management Program, other programs augment ongoing efforts. For example, the Laboratory has solicited bids to construct a subsurface "reactive barrier" consisting of filtering materials that would cleanse alluvial groundwaters of contaminants. Depending on the success of the reactive barrier, it may serve as a cost-effective model for removing contaminants at other canyons and sites in New Mexico.

Central to the Laboratory's Watershed Management Program is a commitment to improved coordination among federal and state agencies, Pueblos, municipalities and stakeholders. To that end, DOE and the Laboratory formed and are currently active participants in the Pajarito Plateau Watershed Partnership. The Partnership is made up of representatives from NMED, Pueblos, citizen groups, U.S. Forest Service, Bandelier National Monument, and Los Alamos County. Its purpose is to protect, improve and/or restore the quality of water in the Pajarito Plateau Watershed with a focus on erosion control. The Partnership has high-level management support as a working group of the multi-agency East Jemez Natural Resource Council. The Partnership has been awarded a 319 Grant from the State for conducting outreach and demonstration projects. The Partnership is developing another 319 Grant proposal for conducting watershed activities to control erosion.

Conclusion

Under DOE's authority, the Los Alamos National Laboratory has demonstrated itself as a good steward of natural and cultural resources within the 43 square mile federal reservation. LANL has established meaningful risk reduction efforts addressing historical operations and environmental contamination. I believe it is critical for LANL to implement the Accelerated Environmental Management Program which focuses on completion of legacy transuranic waste disposition at WIPP, protection of the regional aquifer, cleanup of watersheds which could have the potential for off-site transport, and long-term stewardship of remediated areas as well as operational areas of the Laboratory. With the implementation of this 13 year, intensive program, the Laboratory can meet the expectations of its owner, regulators and the public while maintaining its national security mission.

If you have any questions, or concerns, please contact me at (505) 667-2211.

Sincerely,

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