

**NORTHERN NEW MEXICO CITIZENS' ADVISORY BOARD (NNMCAB)  
Recommendation to the Department of Energy  
No. 2008-08  
Improve Documentation for Monitoring Wells Used for LANL Environmental  
Restoration and Cleanup of Legacy Wastes Consistent With Data Quality  
Objectives  
Waste Management Committee and  
Environmental Monitoring and Surveillance Committee**

**Background**

For some time now, Los Alamos National Laboratory (LANL) has performed studies on and collected and evaluated data on groundwater contaminants obtained from samples taken from wells in and around the Consent Order environmental restoration sites. These data have been and will continue to be used for preparing performance assessments, corrective measures evaluations and work plans for each material disposal area (MDA). The data will also be used in conjunction with long-term stewardship of site maintenance. The credibility of the data from these wells is essential for New Mexico Environment Department (NMED) approval of any site restoration work under the Consent Order signed in 2005.

The credibility of much of this groundwater sample data has been challenged, to various extents, by industry experts (reference reports by Bob Gilkeson 2004 - 2008, the EPA Kerr Laboratory 2005 and 2006 and by the National Academy of Scientists 2007) and has been questioned by NMED (reference the rejected work plan for MDA-H). LANL experts have spent considerable resources, both time and money, on attempting to defend the data on a case-by-case basis.

The credibility of these groundwater sample data is fundamental to all LANL MDA work plans, for efficient implementation of the Consent Order and for long-term monitoring of the site. The DOE must establish a consistent and reliable method to install and operate a groundwater monitoring system at LANL that meets the full requirements of the Consent Order, the Resource Conservation and Recovery Act (RCRA) and meets Data Quality Objectives for the detection of trace level constituents that may be released from the legacy waste sites.

DOE has established requirements for Integrated Safety Management Systems (ISMS) and for implementing ISMS on environmental projects. Refer to:  
DOE P 450.4, Safety Management System Policy  
DOE P 450.5, Line Environment, Safety and Health Oversight  
DOE P 450.6, Secretarial Policy Statement, Environment, Safety and Health  
DOE P 411.1, Safety Management Functions, Responsibilities and Authorities Policy

In addition, DOE G 450.4-1B, Integrated Safety Management System Guide, describes an appropriate way to implement these requirements. A fundamental concept of ISMS in

effectively defining and performing work is the establishment of Configuration Management through a documented Design Basis and Design Criteria.

The CAB has heard several presentations on groundwater monitoring wells. The bases for selection of well locations, the drilling methods and the well screen design appear to have some commonalities when establishing the data quality objectives for the constituents to be measured. Documentation of these bases also requires that the accuracy requirements for the specific data to be obtained be justified based on the design of the well in accordance with Data Quality Objectives defined by EPA. The documentation of the bases can also undergo a peer review to ensure the methodology is acceptable to a wide range of experts.

A document that describes the way data quality objectives are met, that has been peer reviewed, and that represents a consistent approach to the overall use of wells to monitor groundwater in potentially affected areas around LANL then becomes the cornerstone for setting specific design criteria for monitoring well use and installation, and may be relied upon for preparing work plans and long term monitoring strategies.

### **Comment**

This Recommendation is prompted by the NNMCAB's observations of the continuing unresolved discussions LANL is engaged in with both critics and NMED on the credibility of groundwater data obtained from many existing monitoring wells. The NNMCAB is concerned that environmental restoration schedules for approved work plans may be impacted by the uncertainty of final resolution

### **Recommendation**

The NNMCAB recommends that DOE support and encourage LANL environmental restoration division management to promote better understanding among the CAB, NMED and independent reviewers of the way that LANL ensures data quality objectives are achieved in their groundwater monitoring program for the MDAs. This can be achieved through improved documentation, which provides the basis for specifying monitoring well design consistent with meeting required data quality objectives on a site-wide level.

### **Intent**

The intent of this recommendation is to support improved documentation to help resolve a data credibility issue that the NNMCAB perceives could have the effect of delaying the start of environmental restoration work at LANL.

### **Effect**

Implementation of this recommendation would result in the LANL environmental restoration organization having the peer reviewed documentation for using groundwater

data to make decisions on corrective measures options and to perform long term monitoring of restored sites in a manner acceptable to meet Consent Order requirements.

**References:**

1. NAS Report on Groundwater Protection at LANL 2007
2. EPA Kerr Lab reports to NNMCAB, dated 11 October 2005 and 10 February 20064
3. Numerous presentations regarding LANL Groundwater Monitoring Program by LANL, Bob Gilkeson, and others at EMSR Committee from July 2004 to present
4. DOE P 450.4, Safety Management System Policy
5. DOE P 450.5, Line Environment, Safety and Health Oversight
6. DOE P 450.6, Secretarial Policy Statement, Environment, Safety and Health
7. DOE P 411.1, Safety Management Functions, Responsibilities and Authorities Policy