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MEMORANDUM FOR: David Brooks, Acting Section Leader
Geochemistry Section
High Level Technical Review Branch

FROM: Paul J. Bembia
Geochemistry Section

SUBJECT: Trip Report for the DOE Waste Management Project Office
Quality Assurance Audit of Los Alamos National Laboratory
Support of the Nevada Nuclear Waste Storage Investigation
Project, Los Alamos, NM, March 30 - April 3, 1987.

The purpose of this trip was to observe the DOE WMPO quality assurance audit of the Los Alamos National Laboratory NNWSI program. Areas audited included the Quality Assurance Program Plan (QAPP), quality assurance implementing procedures, and the Mineralogy/Petrology, Sorption/Precipitation, and Solubility technical programs. This audit was of particular interest to the NRC since the audit would determine if LANL is prepared for the QA mini-audit to be conducted by the NRC at the laboratory in May.

The audit team consisted of nine auditors from Scientific Applications International Corporation (SAIC), and one auditor from DOE Headquarters (see attached audit plan for a listing of the audit team). Of the nine SAIC auditors, three were "technical specialists" with geoscience backgrounds, two were QA specialists with geoscience backgrounds, and the others were QA specialists with various backgrounds. Paul Prestholt, the NRC NNWSI On-Site Representative, John Rinaldi, QA Director from DOE Nevada, and I were observers.

The audit was divided into two major task areas, one with a technical focus, and the other with an administrative or programmatic focus (See attached audit plan). The technical portion of the audit consisted primarily of a review of the detailed technical procedures (DP's) identified in the Scientific Investigation Plans (SIP's) for the Mineralogy/Petrology, Solubility, and Sorption/Precipitation technical programs. The related Quality Plans (QP's) from the WMPO Quality Assurance Program Plan were also within the scope of the audit. Since the NRC mini-audit in May will examine the Mineralogy/Petrology technical program and any related QAPP issues, Paul Prestholt and I spent most of our time with the technical audit team.

The technical audit team visited each principal investigator (and his or her technicians and assistants) doing work within the audited technical areas. Each principal investigator was asked a series of questions based upon the

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audit team's prior review of the SIP's, DP's and QP's. Each of the issues or concerns examined by the audit team was closed out by the end of the audit either by the auditee providing a satisfactory response to the auditors concerns, or where concerns remained, by the issuance of a standard deficiency report (SDR), observation, or recommendation. As a result of the technical portion of the audit, three SDR's, five observations, and three recommendations were issued. None of the audit findings, however, were considered to be a threat to the continuation of the NNWSI work at LANL, and all involved in the audit (including the NRC observers) concluded that the lab is ready for the NRC audit of the Mineralogy/Petrology program.

Although this audit was more technically oriented than previous audits, the questions raised often dealt more with record keeping and sample tracking than with strict technical issues. The NRC mini-audit team has therefore decided to place more emphasis on technical concerns, focusing more on those areas of the detailed technical procedures which may introduce uncertainty to the quality of the data collected.

I feel that the audit was handled very well by all involved. The members of the audit team did a thorough, professional job. John Estella of SAIC, who was the lead auditor, did a fine job in organizing the team and coordinating their activities with the LANL technical people and QA organization. I should also mention that the LANL technical people were very cooperative with the auditors and the NRC observers.

Some issues were identified during the audit which need to be examined further by the NRC. These include the independence of the Los Alamos NNWSI QA organization from project cost and schedule considerations, the QA status of the NNWSI core samples and of data collected from this core, and the validation/verification of computer codes and computer code databases. These issues may not all be within the scope of the upcoming audit, however they should at some time be examined by the NRC in more detail.

The trip was a success in that much information was gained first hand that will facilitate preparation and planning for the upcoming NRC audit. Information gathered will aid in defining the focus of the NRC audit. Lists of key personnel, organizational charts, and laboratory layouts were obtained and given to our QA personnel for their audit planning. Issues of potential concern which should be examined further by the NRC were also identified during the trip. This trip was also personally rewarding in that I was given the opportunity to meet with the individuals who are planning and performing the technical investigations of the NNWSI program, and to see first hand the facilities where some of this work will be carried out.

I was given a variety of information during the audit, including lists of key personnel involved in the three technical programs audited, Los Alamos National Laboratory organization charts, the audit plan, audit checklists, the detailed technical procedures and quality procedures, the draft SDR's, observations and recommendations as well as other information. If you would like to see any of these documents, or have any questions, please contact me.



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