QUALITY ASSURANCE AUDIT PLAN FOR

THE YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT OFFICE AUDIT OF

LAWRENCE LIVERMORE NATIONAL LABORATORY

AUDIT NUMBER YMP 91-01

JUNE 3 THROUGH 7, 1991

Prepared by: Richard E. Powe Date: 4/30/91
Richard E. Powe
Lead Technical Specialist

Prepared by: Frank J. Kratzinger Date: 4/30/91
Frank J. Kratzinger
Audit Team Leader

Approved by: _____ Date: _____
Donald G. Horton, Director
Yucca Mountain Quality Assurance Division

1.0 SCOPE

The scope of this audit is to evaluate the Lawrence Livermore National Laboratory (LLNL) Quality Assurance (QA) Program to determine whether it meets requirements and commitments imposed by the Yucca Mountain Site Characterization Project Office (YMPO). This will be accomplished by verifying implementation and effectiveness of the program in place, as well as verifying compliance with requirements.

Discrepancies identified during previous YMPO audits and surveillances of LLNL that have not been closed, will be added to the scope of this audit to determine whether LLNL has taken effective corrective actions in those program areas.

The programmatic and technical elements to be audited, as well as the programmatic elements that have not been included, are identified in Section 5.0 of this audit plan.

2.0 ORGANIZATION TO BE AUDITED

Lawrence Livermore National Laboratory, Livermore, California

3.0 AUDIT SCHEDULE

Final Pre-Audit Team Meeting	9:00 a.m., May 30, 1991 Las Vegas, NV
Pre-Audit Team/Observer Meeting	11:00 a.m., June 3, 1991 Livermore, CA
Pre-Audit Conference	1:00 p.m., June 3, 1991 Livermore, CA
Audit Activities	12:30 - 4:00 p.m., June 3, 1991 Livermore, CA 8:30 a.m. - 4:00 p.m., June 4-6 Livermore, CA 8:30 - 10:30 a.m., June 7, 1991 Livermore, CA
Post-Audit Conference	11:00 a.m., June 7, 1991 Livermore, CA

4.0 REQUIREMENTS TO BE AUDITED AND APPLICABLE REFERENCES

The requirements to be evaluated through the audit process are contained in the programmatic and technical checklists. These checklists were developed from the following documents:

- Yucca Mountain Site Characterization Project Administrative Procedures (Quality) (AP-Qs).

- LLNL Quality Assurance Program Plan (QAPP), Revision 8, and applicable implementing procedures.

The conduct of the audit will be guided by the documents listed below:

- QAAP 18.2, "Audit Program," Revision 3.
- QAAP 16.1, "Corrective Action Requests," Revision 3.
- Audit Observer Inquiry.
- Policy for Participation of State, Tribal, and U.S. Nuclear Regulatory Commission Representative Observers on U.S. Department of Energy (DOE) Audits.
- High Level Waste Division Procedures for Conducting Observation Audits of DOE High Level Waste Repository Program Quality Assurance Audits.

5.0 ACTIVITIES TO BE AUDITED

The audit will be limited to a review of activities in the following areas:

QA Program Elements

1.0 Organization
2.0 Quality Assurance
3.0 Scientific Investigation and Design Control
4.0 Procurement Document Control
5.0 Instructions, Procedures, Plans, and Drawings
6.0 Document Control
7.0 Control of Purchased Items and Services
8.0 Identification & Control of Items, Samples, and Data
12.0 Control of Measuring and Test Equipment
13.0 Handling, Shipping, and Storage
15.0 Control of Non-Conforming Items
16.0 Corrective Action
17.0 Quality Assurance Records
18.0 Audits

The following QA Program Elements, with no activity since the last audit or no applicability to the LLNL scope of work, will not be reviewed during this audit:

9.0 Control of Processes
10.0 Inspection
11.0 Test Control
14.0 Inspection, Test, and Operating Status

Technical Elements

Technical specialists will review the following areas to evaluate performance of ongoing, new, and near-term technical activities:

Work Breakdown	Title
1.2.1.4.5	Geochemical Modeling and Data Base Development
1.2.2.2.2	Hydrologic Properties of Waste Package Environment
1.2.2.3.1.1	Waste Form Testing - Spent Fuel
1.2.2.3.4.2	Thermodynamic Data Determination

In addition, the technical specialists will evaluate the above activities to determine adequacy in the following areas:

1. Technical Qualifications of Scientific Investigators and Design Personnel.

2. Understanding of procedural requirements as they pertain to scientific investigation and design control activities.

3. Adequacy of technical procedures.

4. Development and review of technical products.

If the audit team identifies a need to verify additional programmatic or technical areas during the audit, they will be added to the audit checklists and verified accordingly.

6.0 AUDIT TEAM MEMBERS

Frank J. Kratzinger, Audit Team Leader, Science Applications International Corporation (SAIC), Las Vegas, Nevada
Amelia I. Arceo, Auditor, SAIC, Las Vegas, Nevada
James Blaylock, Auditor, DOE, Las Vegas, Nevada
Edward A. Cocoros, Auditor, MAC Technical Services Company Las Vegas, Nevada
Neil D. Cox, Auditor, SAIC, Las Vegas, Nevada
Mario R. Diaz, Auditor, DOE, Las Vegas, Nevada
Ken T. McFall, Auditor, SAIC, Las Vegas, Nevada
Richard L. Weeks, Auditor, SAIC, Las Vegas, Nevada
Richard E. Powe, Lead Technical Specialist, SAIC, Las Vegas, Nevada
David Stahl, Technical Specialist, SAIC, Las Vegas, Nevada

7.0 AUDIT CHECKLISTS

91-01-1, Programmatic Audit Checklist
91-01-2, Technical Audit Checklist