

# QUALITY ASSURANCE PROGRAM PLAN

## Yucca Mountain Project

CONTROLLED COPY NO. 017

ISSUED TO: G. HEANEY

ORGANIZATION: SAIC

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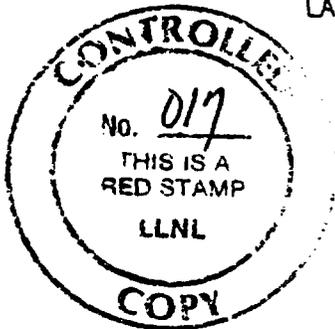
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U. S. NUCLEAR REGULATORY COMMISSION  
SAFETY EVALUATION  
FOR  
LAWRENCE LIVERMORE NATIONAL LABORATORY  
QUALITY ASSURANCE PROGRAM PLAN  
(LLNL QAPP 033-YMP-R)



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## SAFETY EVALUATION

### 1. INTRODUCTION:

The U. S. Department of Energy (DOE) established the Yucca Mountain Project (YMP) to investigate whether Yucca Mountain is a suitable site for the high-level radioactive waste repository. All YMP organizations (i.e., Yucca Mountain Project Office (YMPO), Nevada Test Site (NTS) Support Contractors and Participating Organizations) must meet the requirements described in the Nevada Nuclear Waste Storage Investigations Quality Assurance (QA) Plan NNWSI/88-9, Revision 2 (88-9 QA Plan) and incorporate them into their QA Program Plans (QAPPs) and procedures.

The U. S. Nuclear Regulatory Commission (NRC) staff reviewed the 88-9 QA Plan for the YMP and concluded (ref. Linehan/Stein letter and Safety Evaluation (SE) dated December 30, 1988) that it contained adequate requirements and planned and systematic controls to address the requirements of 10 CFR Part 60, Subpart G and Appendix B to 10 CFR Part 50, in an acceptable manner. The NRC review criteria used in evaluating the 88-9 QA Plan are contained in the "NRC Review Plan for High-Level Waste Repository Quality Assurance Program Descriptions, Revision 2, dated March 1989 (NRC Review Plan).

The detailed NRC staff analysis of the 88-9 QA Plan approaches for meeting the requirements of Appendix B to 10 CFR Part 50 are contained in the 88-9 QA Plan SE. The 88-9 QA Plan can serve as an adequate framework for DOE/YMPO and its project participants to develop specific policies, plans, and procedures to implement the QA program for the YMP. NRC is not evaluating, in this SE, approaches already approved in the 88-9 QA Plan, that Lawrence Livermore National Laboratory (LLNL) has adopted.

This SE documents NRC's review and evaluation of the LLNL QAPP, 033-YMP-R, Revision 0, and Change Notices (CNR 1-0-1, 2-0-1, 8-0-1, and 14-0-1) which commit to comply with the requirements of the 88-9 QA Plan. This SE also describes the regulatory criteria against which the LLNL QAPP was reviewed, provides a basis for NRC staff acceptance, and describes the differences from the 88-9 QA Plan and/or the NRC staff's review criteria.

### 2. BACKGROUND

DOE forwarded the LLNL QAPP, Revision 0 (ref. Appel/Linehan letter dated March 3, 1989), for NRC review and acceptance. The NRC staff reviewed the LLNL QAPP to determine whether it contained adequate requirements and planned and systematic controls to address the applicable criteria of Appendix B to 10 CFR Part 50 which apply to LLNL for the DOE YMP. The NRC staff also reviewed selected procedures that LLNL had prepared to implement the QAPP, as a part of the staff's QAPP evaluation.

As a result of its review of the LLNL QAPP, the NRC staff generated five comments, which were discussed with DOE and the State of Nevada, on May 31, 1989, during a telephone conversation and July 11, 1989, during a meeting at NRC Headquarters in Rockville, Maryland. LLNL generated four Change Notices to resolve the NRC comments, and DOE submitted them for NRC staff review and acceptance on September 7, 1989.

### 3. STAFF EVALUATION

The following sections of the LLNL QAPP are in accordance with the 88-9 QA Plan and meet the applicable criteria of Appendix B to 10 CFR Part 50.

#### 3.1 LLNL QAPP Sections in Accordance with 88-9 QA Plan and Appendix B, 10 CFR Part 50

- a. Section 1, "Organization" (Criterion I)
- b. Section 2, "Quality Assurance Program" (Criterion II)
- c. Section 3, "Scientific Investigation Control and Design Control" (Criterion III)
- d. Section 4, "Procurement Document Control" (Criterion IV)
- e. Section 5, "Instructions, Procedures, Plans, and Drawings" (Criterion V)
- f. Section 6, "Document Control" (Criterion VI)
- g. Section 7, "Control of Purchased Items and Services" (Criterion VII)
- h. Section 8, "Identification and Control of Items, Samples, and Data" (Criterion VIII)
- i. Section 9, "Special Processes" (Criterion IX)
- j. Section 10, "Inspections" (Criterion X)
- k. Section 11, "Test Control" (Criterion XI)
- l. Section 12, "Control of Measuring and Test Equipment" (Criterion XII)
- m. Section 13, "Handling, Storage, and Shipping" (Criterion XIII)
- n. Section 14, "Inspection, Test, and Operating Status" (Criterion XIV)
- o. Section 15, "Control of Nonconforming Items" (Criterion XV)
- p. Section 16, "Corrective Action" (Criterion XVI)
- q. Section 17, "Quality Assurance Records" (Criterion XVII)
- r. Section 18, "Audits" (Criterion XVIII)

### 4. CONCLUSION

Based on its evaluation, the NRC staff concluded that the LLNL QAPP, Revision 0 and Change Notices (CNR 1-0-1, 2-0-1, 8-0-1, and 14-0-1) meet the requirements of 10 CFR Part 60, Subpart G and the applicable criteria of Appendix B to 10 CFR Part 50. The provisions to meet these requirements are contained in the NRC Review Plan, Revision 2, dated March 1989 and in the following documents, which are referenced in the Review Plan:

- c. ANSI/ASME, NQA-1, "Quality Assurance Program Requirements for Nuclear Facilities," 1986.
- c. U. S. Nuclear Regulatory Commission, Generic Technical Position, "Peer Review for High-Level Nuclear Waste Repositories," NUREG-1297, 1987.
- c. U. S. Nuclear Regulatory Commission, Generic Technical Position, "Qualification of Existing Data for High-Level Nuclear Waste Repositories," NUREG-1298, 1987.

- U. S. Nuclear Regulatory Commission, "Technical Position on Items and Activities in the High-Level Waste Geologic Repository Program Subject to Quality Assurance Requirements," NUREG-1318, 1988.
- U. S. Nuclear Regulatory Commission, "Final Technical Position on Documentation of Computer Codes for High-Level Waste Management," NUREG-0856, 1982.

The LLNL QAPP complies with the 88-9 QA Plan that the NRC staff accepted December 30, 1988. The NRC staff review of the LLNL QAPP concludes that it meets the aforementioned guidance and NRC staff positions.

On the basis of its detailed review and evaluation of the LLNL QAPP and the Change Notices, the NRC staff concludes that it contains adequate requirements and planned and systematic controls that address each of the applicable criteria of Appendix B to 10 CFR Part 50, in an acceptable manner.

Subject: PREFACE

Approved:  
*[Signature]* 12/19/88  
LLNL-YMP Leader

The Quality Assurance Program Plan contains the requirements of the quality assurance program of the Lawrence Livermore National Laboratory's Yucca Mountain Project (LLNL-YMP). Implementing Procedures based on these requirements are maintained in the Quality Procedures Manual. Technical implementing procedures are maintained in the Technical Implementing Procedures Manual.

The QAPP, Quality Procedures Manual, and the Technical Implementing Procedures Manual collectively constitute the requirements and quality program procedures governing the LLNL-YMP.

Recommendations to improve the accuracy and completeness of these procedures are encouraged. It is only through a cooperative effort and commitment to quality by everybody that the quality assurance program can be effective.

It is the policy of the LLNL-YMP Leader to apply quality assurance methods to the extent necessary to assure that items and data produced in support of the YMP can be shown to be of adequate quality to be used in support of a DOE repository license application to the NRC.