

U. S. NUCLEAR REGULATORY COMMISSION
SAFETY EVALUATION
FOR
U. S. GEOLOGICAL SURVEY
QUALITY ASSURANCE PROGRAM PLAN
(USGS QAPP-01, REV. 5)

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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. DOE's Yucca Mountain Project Office (YMPO) operates and manages the YMP. All YMP organizations (i.e., 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. Safety Evaluation (SE) transmitted with a letter from Linehan to Stein, dated December 30, 1988) that it contained adequate requirements and planned and systematic controls to meet the requirements of 10 CFR Part 60, Subpart G and 10 CFR Part 50, Appendix B 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 staff is not reevaluating in this SE, the approaches, already approved in the 88-9 QA Plan, that the U. S. Geological Survey (USGS) has adopted.

This SE documents NRC's review and evaluation of USGS's QAPP-01, Revision 5, and Interim Change Notice No. 1 (ICN-1) which commit to comply with the requirements of the 88-9 QA Plan. This SE also provides the basis for NRC staff's acceptance and describes the differences from the 88-9 QA Plan and /or the NRC Review Plan.

2. BACKGROUND

On April 14, 1989, DOE forwarded the USGS QAPP-01, Revision 5 for NRC staff review and acceptance. The NRC staff reviewed and evaluated the USGS 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, and the guidance contained in the NRC Review Plan, which apply to the USGS for the DOE YMP. The NRC staff also reviewed selected procedures that the USGS had prepared to implement the QAPP, as part of the staff's QAPP evaluation.

As a result of its review of the USGS QAPP, the NRC staff generated five comments, which were discussed with DOE and the State of Nevada during a June 7, 1989, telephone conversation. The USGS QAPP was revised to resolve NRC's comments, and resubmitted for NRC staff review and acceptance on September 7, 1989. Five additional minor comments were generated during this review. NRC staff discussed these comments with DOE and the State

of Nevada, during an October 2, 1989, telephone conversation. These comments were resolved satisfactorily during this telephone conversation, and DOE made a commitment to incorporate these comments in its next revision of the USGS QAPP. Since these involve only minor clarifications of the QAPP, they do not affect the NRC staff's acceptance of the QAPP in this SE.

3. STAFF EVALUATION

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

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

- a. Section 1, "Organization" (Criterion I)
- b. Section 2, "Quality Assurance Program" (Criterion II)
- c. Section 4, "Procurement Document Control" (Criterion IV)
- d. Section 5, "Instructions, Procedures, Plans and Drawings" (Criterion V)
- e. Section 6, "Document Control" (Criterion VI)
- f. Section 7, "Control of Purchased Items and Services" (Criterion VII)
- g. Section 8, "Identification and Control of Items, Samples and Data" (Criterion VIII)
- h. Section 12, "Control of Measuring and Test Equipment" (Criterion XII)
- i. Section 13, "Handling, Shipping and Storage" (Criterion XIII)
- j. Section 15, "Control of Nonconforming Items" (Criterion XV)
- k. Section 16, "Corrective Action" (Criterion XVI)
- l. Section 17, "Quality Assurance Records" (Criterion XVII)
- m. Section 18, "Audits" (Criterion XVIII)

3.2 USGS QAPP Sections Differing from 88-9 QA Plan, and/or 88-9 QA Plan Areas Not Applicable, Plus NRC Acceptance Rationale

The following sections of the USGS QAPP describe those areas that differ from the 88-9 QA Plan and/or those areas of the 88-9 QA Plan that do not apply to the USGS QAPP. NRC staff's acceptance rationale for these sections is also provided:

3.2.1 Section 3, "Scientific Investigation and Design Control" (Criterion III)

The USGS QAPP criterion for scientific investigation and design control has adopted the 88-9 QA Plan requirements and applies them to all scientific investigations and design input activities performed in support of the YMP. Since the USGS does not perform actual design, design analysis or design verification activities, the controls for these activities have not been included in the QAPP. Data collection and analysis activities are covered by the USGS QAPP controls. The NRC staff finds this approach acceptable and consistent with the 88-9 QA Plan.

3.2.2 Section 9, "Control of Processes" (Criterion IX)

The requirements of this section apply to engineered items and scientific investigations for process control. The activities associated with the USGS scientific investigations do not include processes that need to be controlled according to this criterion. Those scientific investigation

activities requiring control are governed by technical procedures and other portions of the QAPP. Accordingly, this section of the QAPP has been excluded. The NRC staff finds the exclusion of this section from the USGS QAPP acceptable and consistent with the approach described in the 88-9 QA Plan.

3.2.3 Section 10, "Inspection" (Criterion X)

The requirements of this section apply to engineered items and do not apply to scientific investigation activities. Therefore, the provisions of Criterion 10 have been excluded from this QAPP. The elements of the USGS scientific investigation requiring "inspection" type activities (quality controls), such as receiving acceptance, technical reviews and document compliance are covered by the QAPP under other appropriate criteria. NRC finds the exclusion of Criterion 10 from the USGS QAPP acceptable and consistent with the approach described in the 88-9 QA Plan.

3.2.4 Section 11, "Test Control" (Criterion XI)

In the USGS scientific investigation program, the only tests made are calibration tests. Calibration requirements for the USGS scientific investigations program are covered under Criterion 12 of the QAPP. Therefore, the requirements of Criterion 11 are not needed for USGS activities and are excluded from the USGS QAPP. The NRC staff finds this exclusion of Criterion 11 from the USGS QAPP acceptable and consistent with the approach described in the 88-9 QA Plan.

3.2.5 Section 14, "Inspection, Test and Operating Status" (Criterion XIV)

The requirements of this section apply to engineered items and do not apply to scientific investigations. Because the USGS is not producing engineered items in its scientific investigations for YMP, the requirements of this criterion are excluded from the USGS QAPP. The NRC staff finds the exclusion of this criterion from the USGS QAPP acceptable and consistent with the approach described in the 88-9 QA Plan.

4. CONCLUSION

Based on its review and evaluation, the NRC staff concludes that the USGS QAPP-01, Revision 5, and ICN-1 meet the requirements of 10 CFR Part 60, Subpart G and the applicable criteria of Appendix B to 10 CFR Part 50. The USGS QAPP-01, Revision 5 and ICN-1 are consistent with the guidance contained in the NRC Review Plan, Revision 2, dated March 1989, and in the documents listed below:

- ° ANSI/ASME, NQA-1, "Quality Assurance Program Requirements for Nuclear Facilities," 1986.
- ° U. S. Nuclear Regulatory Commission, Generic Technical Position, "Peer Review for High-Level Nuclear Waste Repositories," NUREG-1297, 1987.
- ° 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 USGS QAPP and ICN-1 comply with the 88-9 QA Plan that the NRC staff accepted December 30, 1988. The NRC staff review of the USGS QAPP concludes it meets the aforementioned guidance and NRC staff positions or has provided acceptable alternatives. The NRC staff has evaluated the alternatives and modifications and finds them to be acceptable.

On the basis of its detailed review and evaluation of the USGS QAPP, 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.