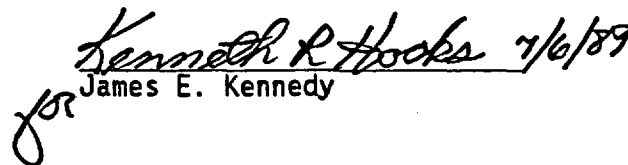


NRC ACCEPTANCE EVALUATION
OF THE
STATE OF NEVADA AGENCY FOR
NUCLEAR PROJECTS/NUCLEAR WASTE PROJECT OFFICE
QUALITY ASSURANCE MANUAL

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1. INTRODUCTION

The U. S. Department of Energy (DOE) established the Yucca Mountain Project Office to investigate whether Yucca Mountain is a suitable site for a high-level radioactive waste repository. The State of Nevada established the Agency for Nuclear Projects/Nuclear Waste Project Office (NWPO) to investigate the potential impact of any such repository on the health, safety, and environment of the residents of Nevada. The NWPO Quality Assurance (QA) Manual was established to ensure that activities performed by NWPO and its contractors relative to the site characterization at Yucca Mountain, comply with applicable QA requirements. NWPO plans to: (1) monitor DOE activities, (2) critically review and analyze data and analyses from DOE and other sources, and (3) conduct independent investigations to appraise DOE data, assumptions, conclusions, designs, and establish NWPO's own data bases and interpretation techniques.

The U. S. Nuclear Regulatory Commission (NRC) reviewed the NWPO QA Manual to determine whether it contained adequate requirements and controls to address NRC's regulations, positions and guidance documents on QA. This Acceptance Evaluation (AE) describes the regulatory criteria against which the NWPO QA Manual was reviewed, summarizes the content of the NWPO QA Manual, and provides a basis for NRC acceptance.

2. BACKGROUND

The NWPO QA Manual is divided into six volumes. On June 28, 1988, the State of Nevada submitted Volume I of the NWPO QA Manual, Revision 0, dated June 10, 1988, to the NRC staff for review. Volume I of the NWPO QA Manual consists of 4 sections namely, the Statement of QA Policy, QA Program, QA Procedures, and a Glossary of Definitions. A draft Compliance Demonstration Report dated July 1, 1988 was submitted to the NRC on July 20, 1988. The purpose of this document was to demonstrate how the NWPO QA Program and implementing procedures comply with the NRC regulations and acceptance criteria as they apply to the State of Nevada's investigations for the impact of the Yucca Mountain site for the high-level radioactive waste repository. The document also explains modifications and deviations from the NRC criteria and where these criteria are not applicable to NWPO's activities. The Compliance Demonstration Report is an information type document to facilitate NRC review of the NWPO QA Manual and is not a part of the overall NWPO QA Manual. The remaining volumes II through VI consist primarily of technical procedures prepared mainly by NWPO's contractors and subcontractors. Volumes II through VI were not reviewed by NRC for its acceptance of the NWPO QA Manual.

As a result of the NRC staff review of the NWPO QA Manual, 32 comments were transmitted to the State of Nevada on November 25, 1988. The 32 comments were discussed and satisfactorily resolved between the State of Nevada and NRC staff at meetings in NRC Headquarters in Rockville, Maryland on February 22, 1989, and May 10, 1989. As a result of satisfactorily resolving the NRC staff's 32 comments, the NRC staff concluded there was sufficient information from which the AE could be developed.

The NRC used the following review criteria and NRC staff positions to determine whether the NWPO QA Manual, Revision 0 addressed the appropriate requirements of 10 CFR Part 60, Subpart G - Quality Assurance, and the applicable quality assurance criteria of Appendix B to 10 CFR Part 50:

- NRC staff Technical Position on Peer Review (see Ref. 1);
- NRC staff Technical Position on Qualification of Existing Data (see Ref.2);
- NRC staff Technical Position on Q-List (see Ref 3.);
- NRC staff Technical Position on Documentation of Computer Codes for High-Level Waste Management (see Ref. 4);
- "Review Plan for High-Level Waste Repository Program Descriptions" (see Ref. 5);
- American National Standards Institute (ANSI)/American Society of Mechanical Engineers (ASME) NQA-1-1986 (see Ref. 6);
- Regulatory Guide 1.28 (endorses ANSI/ASME NQA-1-1983)(see Ref. 7); and
- American National Standards Institute (ANSI)/American Society of Mechanical Engineers (ASME) NQA-1-1983 (see Ref. 8).

3. NRC STAFF REVIEW RESULTS

The NRC staff evaluation of the NWPO QA Manual for each of the 18 criteria of Appendix B to 10 CFR Part 50 is provided below. Each section identifies the areas of the NWPO QA Manual reviewed by the NRC staff, summarizes the QA measures that apply (from the criteria listed above) and the content of the NWPO QA Manual and, where necessary, provides the NRC staff analysis of the justifications for various approaches taken to fulfill the requirements of Subpart G of 10 CFR Part 60.

3.1 "Organization" (Criterion I)

The NRC staff has reviewed the description of "Organization" provided in Section 01 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. The responsibilities for establishing and implementing the QA program shall be established.

- b. Persons performing QA functions shall have sufficient independence, authority, and organizational freedom to identify, initiate, recommend, and provide solutions to quality problems.
- c. The responsibilities for achieving and assuring quality shall be clearly established.

Figure 1 shows the general project organization chart for the NWPO QA Program. The ultimate authority for the NWPO QA Program is vested in the Governor and Legislature of the State of Nevada. The NWPO Executive Director has overall responsibility for management of the NWPO and implementation of the State of Nevada's QA policies and objectives. The Administrator of Technical Programs, who reports to the Executive Director, is responsible for the NWPO contractors and vendor/suppliers performing activities within the scope of the NWPO QA Program. The Administrator of Technical Programs coordinates these activities through the Contractor Project Managers.

The Technical Advisory Group, consisting of independent consultants, provides non-mandatory guidance as requested by NWPO.

The Peer Review Group consists of qualified persons selected by the Administrator of Technical Programs, Executive Director, QA Manager, and Technical Advisory Group. The Peer Review Group performs peer reviews in those situations where uncertainties exist in geotechnical/geological data or where methodologies, interpretations, or conclusions cannot be resolved. The procedure for conducting peer reviews, conforms as applicable, to the NRC staff Generic Technical Position provided in NUREG-1297, "Peer Review for High-Level Nuclear Waste Repositories" (see Ref. 1).

The QA Manager reports directly to the Executive Director and is responsible for the QA program, procedures, and reports. The QA Manager has the responsibility and authority for: (1) approving the NWPO QA Manual and changes thereto; (2) identifying quality problems through audits, initiating solutions, and verifying their implementation; (3) recommending stopping work; (4) training and instructing contractor personnel in the implementation of the NWPO QA program and procedures; (5) auditing NWPO, its contractors, and vendors/suppliers; (6) maintaining the NWPO records center for NWPO, contractor and vendor/supplier records; and (7) reviewing and concurring with procurement documents for compliance with NWPO QA requirements. Differences of opinion between the QA Manager and other NWPO personnel or contractor/subcontractor or vendor/supplier staff are resolved by the Executive Director.

Measures have been established to investigate and resolve allegations of inadequate quality in NWPO-sponsored activities that originate from NWPO, contractor/subcontractor, vendor/supplier, or outside sources.

In accordance with the purpose of the NWPO to investigate the potential impact of the high-level nuclear waste facility, NWPO and its contractors will (1) monitor and survey DOE site characterization activities, (2) critically review and analyze data and analyses from DOE and other sources, and

(3) conduct such independent investigations as may be necessary (a) to appraise DOE data, assumptions, conclusions, and designs and (b) to establish NWPO's own data bases and interpretation techniques. The QA Manager will exclusively assure that the aforementioned activities of the NWPO QA Program are accomplished by means of reviewing inspections, surveillances, and audits. Since the QA Manager is the only person in the NWPO QA organization, and reports to the Executive Director, the NRC staff finds this position to have sufficient independence, authority, and organizational freedom to identify, initiate, recommend, and provide solutions to quality problems.

The NRC staff has assessed the information on the "Organization" described in the NWPO QA Manual and finds it meets the applicable regulatory criteria described in Section 2 (Background) of this AE, pertaining to Criterion I of Appendix B to 10 CFR Part 50 for the type of activities the State of Nevada will be involved in. This includes a commitment in the NWPO QA Manual to implement the applicable requirements of ANSI/ASME NQA-1-1986 (see Ref. 6).

3.2 "Quality Assurance Program" (Criterion II)

The NRC staff has reviewed the description of "Quality Assurance Program" provided in Section 02 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. Activities that affect quality shall be planned and documented.
- b. The QA program shall be documented in policies, procedures and instructions.
- c. Management shall regularly assess the QA program for adequacy and implementation.
- d. Personnel performing work affecting quality shall be indoctrinated and trained.
- e. Items and activities important to safety or waste isolation shall be identified and controlled under Appendix B to 10 CFR Part 50, as applicable.
- f. The QA program shall provide control over items and activities to an extent consistent with their importance to safety.

The NWPO QA Manual is divided into six volumes. Volume I of the NWPO QA Manual consists of 4 sections namely, the Statement of QA Policy, QA Program, QA Procedures, and a Glossary of Definitions. Volumes II through VI consist of technical procedures and were not reviewed by NRC. The NWPO QA program governs the activities of NWPO, and its contractors/subcontractors, and vendors/suppliers working as an integrated organization. The program has been written to control activities to accomplish NWPO's objectives as specified in the Statement of QA Policy and in procurement contract documents.

To ensure early interaction between the QA Manager and NWPO contractor, and subcontractor organizations, all NWPO contractor, and subcontractor activities that NWPO considers significant to its objectives must be authorized and controlled by QA and/or technical procedures, and by procurement contract documents. The QA Manager also maintains close contact with technical activities by means of progress reports.

The NWPO QA Manual does not address the NRC staff position provided in NUREG-1318 (see Ref. 3) "Technical Position on Items and Activities in the High-Level Waste Geologic Repository Program Subject to Quality Assurance Requirements." The rationale for not addressing NUREG-1318 is that the NWPO objectives do not necessarily coincide with those objectives or activities whose importance for control is defined for DOE in 10 CFR Part 60. 10 CFR Part 60 prescribes the regulations governing the licensing of DOE to receive and process source, special nuclear, and byproduct material at a geologic repository operations area sited, constructed, or operated in accordance with the Nuclear Waste Policy Act of 1982. The NWPO objective is to investigate the potential impact of any high-level nuclear waste repository that DOE may propose at Yucca Mountain for the health, safety, and environment of the residents of Nevada and NWPO will be applying its QA program to those activities, methods, or items.

Independent assessment of the scope, status, adequacy, and compliance of the program with 10 CFR Part 50, Appendix B, and other controlling documents, is accomplished by the Executive Director who maintains close and continuous contact with the QA program through frequent informal meetings and reports from the QA Manager and other program participants. The Executive Director also receives an annual report from the QA Manager summarizing the effectiveness of the QA program and procedures in attaining NWPO's quality assurance objectives. The Executive Director also performs an annual pre-planned and documented assessment of program effectiveness and compliance through an outside consultant, and ensures any necessary corrective actions are taken.

All NWPO and contractor/subcontractor staff performing significant activities governed by the QA program are trained in the QA program and appropriate QA procedures by the QA Manager prior to performing their tasks. Personnel are qualified in accordance with applicable standards and procedures.

The NRC staff has assessed the information on the "Quality Assurance Program" described in the NWPO QA Manual and finds it meets the regulatory criteria described in Section 2 (Background) of this AE, pertaining to Criterion II of Appendix B to 10 CFR Part 50 for the type of activities in which the State of Nevada will be involved. This includes a commitment in the NWPO QA Manual to implement the applicable requirements of ANSI/ASME NQA-1-1986 (See Ref. 6).

3.3 "Design Control" (Criterion III)

The NRC staff has reviewed the description of "Design Control" provided in Section 03 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. Measures shall be established to assure that the regulatory requirements and design bases are correctly translated into specifications, drawings, procedures, and instructions for items important to safety or waste isolation.
- b. The design control program includes general plans and detailed procedures for site characterization data collection and analysis.
- c. Appropriate quality standards shall be specified.
- d. Interfaces between design organizations shall be controlled.
- e. Designs shall be verified for adequacy by individuals or groups other than those who performed the original design.
- f. Design changes shall be subject to control measures commensurate with those applied to the original design.
- g. For design or design activities which involve use of untried or beyond the state of the art techniques, or where detailed technical criteria and requirements do not exist, a peer review should be conducted.
- h. Verification and validation should be performed on computer software.

The design activities performed within the scope of the NWPO QA program will consist of data acquisition and data analysis as opposed to the DOE scope of actually designing repository systems. Therefore, NWPO activities will be mainly limited to critical review and analysis of existing data, surveilling DOE sponsored core drilling, hydrogeologic data collection and review of DOE proposed designs. For the NWPO data acquisition and research programs, the NWPO contractors will be performing such activities as core drilling, sample collection, sample handling, field and laboratory analysis of an investigative nature, geologic mapping, and computer analysis of U. S. Geological Survey seismologic data.

All NWPO design related activities are controlled by technical and QA procedures, and data generated prior to implementation of the NWPO QA Program are qualified in accordance with the applicable portions of the NRC staff position provided in NUREG-1298 (see Ref. 2), "Qualification of Existing Data for High-Level Nuclear Waste Repositories."

Procedures require a documented independent review of NWPO and contractor generated data. The development, control, and use of computer programs will be in accordance with the applicable portions of the NRC staff position provided in NUREG-0856 (see Ref. 4), "Final Technical Position on Documentation of Computer Codes for High-Level Waste Management."

The NRC staff has assessed the information on "Design Control" described in the NWPO QA Manual and finds it meets the applicable regulatory criteria described in Section 2 (Background) of this AE, pertaining to Criterion III of

Appendix B to 10 CFR Part 50 for the type of activities in which the State of Nevada will be involved. This includes a commitment in the NWPO QA Manual to implement the applicable requirements of ANSI/ASME NQA-1-1986 (see Ref. 6).

3.4 "Procurement Document Control" (Criterion IV)

The NRC staff has reviewed the description of "Procurement Document Control" provided in Section 04 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. Procurement documents shall include all applicable requirements.
- b. Procurement documents shall require contractors or subcontractors to develop a QA program implementing portions or all of the requirements of Appendix B to 10 CFR Part 50.

Since NWPO or its contractors do not design repository facilities, there are no procurement efforts directed towards aspects of design bases. The NWPO QA Manual however, does contain provisions to control the procurement of services, equipment, and materials for NWPO and its contractors. The QA Manager performs a documented review and approval of all procurement documents to assure compliance with QA requirements. The Executive Director or Administrator of Technical Programs assign a qualified individual to review and approve procurement documents for technical adequacy.

The NRC staff has assessed the information on "Procurement Document Control" described in the NWPO QA Manual and finds it meets the applicable regulatory criteria described in Section 2 (Background) of this AE, pertaining to Criterion IV of Appendix B to 10 CFR Part 50 for the type of activities the State of Nevada will be involved in. This includes a commitment in the NWPO QA Manual to implement the applicable requirements of ANSI/ASME NQA-1-1986 (see Ref. 6).

3.5 "Instructions, Procedures, and Drawings" (Criterion V)

The NRC staff has reviewed the description of "Instructions, Procedures and Drawings" provided in Section 05 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. Activities affecting quality shall be accomplished in accordance with instructions, drawings, and procedures.
- b. Instructions, drawings, and procedures shall include or reference acceptance criteria.

NWPO and contractor activities are conducted in accordance with established NWPO QA and technical procedures. When instructions and drawings are used, they are included as part of the NWPO procedures. Instructions, drawings, and procedures are required to include appropriate quantitative and qualitative acceptance criteria to determine activities have been satisfactorily accomplished.

The NRC staff has assessed the information on "Instructions, Procedures, and Drawings" described in the NWPO QA Manual and finds it meets the applicable regulatory criteria described in Section 2 (Background) of this AE, pertaining to Criterion V of Appendix B to 10 CFR Part 50 for the type of activities the State of Nevada will be involved in. This includes a commitment in the NWPO QA Manual to implement the applicable requirements of ANSI/ASME NQA-1-1986 (see Ref. 6).

3.6 "Document Control" (Criterion VI)

The NRC staff has reviewed the description of "Document Control" provided in Section 06 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. Measures shall be established for the preparation, review, approval, and issuance of documents that prescribe activities affecting quality.
- b. Document changes shall be properly controlled.

The NWPO QA Manual requires that the preparation, review, issuance and revision of data acquisition/analyses, technical and QA procedures be controlled to assure that only correct documents are used. Documents and changes to documents are required to state appropriate QA requirements and be approved by the QA Manager. Obsolete documents are required to be controlled and a master list must be established, to identify the current list of documents.

The NRC staff has assessed the information on "Document Control" described in the NWPO QA Manual and finds it meets the applicable regulatory criteria described in Section 2 (Background) of this AE, pertaining to Criterion VI of Appendix B to 10 CFR Part 50 for the type of activities the State of Nevada will be involved in. This includes a commitment in the NWPO QA Manual to implement the applicable requirements of ANSI/ASME NQA-1-1986 (see Ref. 6).

3.7 "Control of Purchased Materials, Equipment and Services" (Criterion VII)

The NRC staff has reviewed the description of "Control of Purchased Materials, Equipment and Services" provided in Section 7 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. Measures shall be established to assure that purchased material, equipment, and services conform to procurement documents.
- b. Measures shall be established for source evaluation and selection.
- c. Objective evidence of quality shall be furnished by the contractor or subcontractor.
- d. The effectiveness of the control of quality by contractors and subcontractors shall be periodically assessed.

The NWPO QA Manual requires NWPO to control purchased material, items, and services purchased for its own use and final control of those purchases by its contractors to assure conformance to the requirements specified in procurement documents. This is accomplished by means of periodic audits, surveillances, certificate of conformance reviews, evaluation of contractor selections, and receiving inspection.

The NRC staff has assessed the information on "Control of Purchased Materials, Equipment, and Services" described in the NWPO QA Manual and finds it meets the applicable regulatory criteria described in Section 2 (Background) of this AE, pertaining to Criterion VII of Appendix B to 10 CFR Part 50 for the type of activities the State of Nevada will be involved in. This includes a commitment in the NWPO QA Manual to implement the applicable requirements of ANSI/ASME NQA-1-1986 (see Ref. 6).

3.8 "Sample Identification and Control" (Criterion VIII)

The NRC staff has reviewed the description of "Sample Identification and Control" provided in Section 08 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. Items and samples shall be identified and controlled according to procedures.
- b. Correct identification of samples is verified and documented before release for use or analysis.
- c. Items shall be identified throughout fabrication, erection, installation and use of the item.
- d. Identification should be on the sample or its container when possible, or on records traceable to them.

The NWPO QA Manual procedures require that legible and permanent identification is maintained either on the sample or their container and be traceable to the appropriate document. Correct verification of samples is verified and documented prior to release for use or analysis.

The NRC staff has assessed the information on "Sample Identification and Control" described in the NWPO QA Manual and finds it meets the applicable regulatory criteria described in Section 2 (Background) of this AE, pertaining to Criterion VIII of Appendix B to 10 CFR Part 50 for the type of activities the State of Nevada will be involved in. This includes a commitment in the NWPO QA Manual to implement the applicable requirements of ANSI/ASME NQA-1-1986 (see Ref. 6).

3.9 "Control of Special Processes" (Criterion IX)

The NRC staff has reviewed the description of "Control of Special Processes" provided in Section 09 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. Processes affecting the quality of items or services shall be controlled.
- b. Special processes that control or verify quality, such as welding, heat treating, and non-destructive examination, shall be performed using qualified personnel, using qualified procedures, in accordance with specified requirements.

NWPO performs no special processes for the design or construction of the repository or for site characterization. Consequently, there are no special process activities that are within the scope of this definition as defined in the NRC Review Plan or ANSI/ASME NQA-1-1986 (see Ref. 6). NWPO considers their "processes" to be synonymous with "activities" that affect quality and will control such in accordance with appropriate instructions, procedures, and drawings.

The NRC staff has assessed the information on "Control of Special Processes" described in the NWPO QA Manual and finds it meets the applicable regulatory criteria described in Section 2 (Background) of this AE, pertaining to Criterion IX of Appendix B to 10 CFR Part 50 for the type of activities the State of Nevada will be involved in.

3.10 "Inspection, Surveillance, and Monitoring" (Criterion X)

The NRC staff has reviewed the description of "Inspection, Surveillance, and Monitoring" provided in Section 10 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. Inspections to verify conformance of an item or activity to specified requirements shall be planned and executed.
- b. Inspections shall be performed by individuals other than those who performed or directly supervised the activity being inspected.
- c. Hold points should be used, as appropriate.

In accordance with the objectives of the NWPO QA Program, most of the NWPO activities will consist of surveilling and observing the DOE and DOE contractor activities. NWPO inspection activities will be limited to receiving inspection of purchased items pertaining to NWPO-sponsored activities. Surveillance, observation, and receiving inspection activities will be performed by qualified individuals independent of the activity. Technical procedures will provide the identification of characteristics, activities, or items to be inspected or monitored.

The NRC staff has assessed the information on "Inspection, Surveillance, and Monitoring" described in the NWPO QA Manual and finds it meets the regulatory criteria described in Section 2 (Background) of this AE, pertaining to Criterion X of Appendix B to 10 CFR Part 50 for the type of activities the State of Nevada will be involved in. This includes a commitment in the NWPO QA Manual to implement the applicable requirements of ANSI/ASME NQA-1-1986 (see Ref. 6).

3.11 "Test Control" (Criterion XI)

The NRC staff has reviewed the description of "Test Control" provided in Section 11 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. A test program shall be established to assure that all structures, systems, and components will perform satisfactory in service.
- b. The program shall be performed in accordance with written test procedures which incorporates test requirements and acceptance limits.
- c. Test procedures shall include provisions for assuring that all prerequisites for a test have been met, that adequate test instrumentation is available and used, and that the test is performed under suitable environmental conditions.
- d. Test results shall be documented and evaluated.

There are no NWPO or contractor activities within the scope of the definition of "Test Control" in ANSI/ASME NQA-1-1986 (see Ref. 6) since NWPO and its contractors perform technical activities of an investigative nature or laboratory research. NWPO investigative activities are performed with technical procedures prepared and approved in accordance with the NWPO QA Manual.

The NRC staff has assessed the information on "Test Control" described in the NWPO QA Manual and finds it meets the applicable regulatory criteria described in Section 2 (Background) of this AE, pertaining to Criterion XI of Appendix B to 10 CFR Part 50 for the type of activities the State of Nevada will be involved in.

3.12 "Control and Calibration of Measuring Equipment" (Criterion XII)

The NRC staff has reviewed the description of "Control and Calibration of Measuring Equipment" provided in Section 12 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. Measures shall be established to assure that tools, gages, instruments, and other measuring and testing devices used in activities affecting quality are properly controlled, calibrated, and adjusted to maintain accuracy within the necessary limits.

Control and calibration of measuring equipment for the NWPO QA Program is implemented by technical procedures. The scope of the technical procedures cover all measuring equipment in which faulty accuracy or precision can affect the data generated by the equipment and analyses. The technical procedures also require traceability of calibration standards to nationally recognized standards or documentation of acceptability of the calibration standard where recognized standards do not exist.

The NRC staff has assessed the information on "Control and Calibration of Measuring Equipment" described in the NWPO QA Manual and finds it meets the applicable regulatory criteria described in Section 2 [Background] of this AE, pertaining to Criterion XII of Appendix B to 10 CFR Part 50 for the type of activities the State of Nevada will be involved in. This includes a commitment in the NWPO QA Manual to implement the applicable requirements of ANSI/ASME NQA-1-1986 (see Ref. 6).

3.13 "Sample Handling, Storage, and Shipping" (Criterion XIII)

The NRC staff has reviewed the description of "Test Control" provided in Section 13 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. Measures shall be established to control the handling, storage, shipping, cleaning, and preservation of material and equipment.
- b. When necessary, special protective environments, such as an inert gas atmosphere, shall be specified and provided.

Technical procedures, approved by the Project Manager, QA Manager, and Administrator of Technical Programs, provide the requirements to control custody, handling, preservation, storage, packaging, shipping, and retrieval of samples acquired by NWPO, NWPO contractors, or from DOE. Such activities are performed by trained and qualified individuals, identified and protected from damage, loss or physical deterioration.

The NRC staff has assessed the information on "Sample Handling, Storage, and Shipping" described in the NWPO QA Manual and finds it meets the applicable regulatory criteria described in Section 2 (Background) of this AE, pertaining to Criterion XIII of Appendix B to 10 CFR Part 50 for the type of activities the State of Nevada will be involved in. This includes a commitment in the NWPO QA Manual to implement the applicable requirements of ANSI/ASME NQA-1-1986 (see Ref. 6).

3.14 "Inspection, Test, and Operating Status " (Criterion XIV)

The NRC staff has reviewed the description of "Inspection, Test, and Operating Status" provided in Section 14 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. The status of inspections and tests performed on items shall be established by markings, such as stamps, tags, labels, routing cards or other suitable means.
- b. These status markings shall provide for identification of items which have passed required inspections and tests.
- c. Measures shall be established for indicating the operating status of structures, systems, and components, such as by tagging of valves and switches, to prevent inadvertent operation.

Since neither NWPO or its contractors perform inspection, test, and operating activities in accordance with the requirements of Criterion 14 of Appendix B to 10 CFR Part 50, this criterion is not totally applicable.

The NRC staff has assessed the information on "Inspection, Test, and Operating Status" described in the NWPO QA Manual and finds it meets the applicable regulatory criteria described in Section 2 (Background) of this AE, pertaining to Criterion XIV of Appendix B to 10 CFR Part 50 for the type of activities the State of Nevada will be involved in.

3.15 "Nonconformances" (Criterion XV)

The NRC staff has reviewed the description of "Control of Nonconforming Items" provided in Section 15 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. Measures shall be established to control items and activities which do not conform to requirements.
- b. Nonconforming items and activities shall be reviewed and accepted, rejected, repaired, or reworked in accordance with procedures.

For the NWPO QA Program, nonconformances result from activities or purchases by NWPO or its contractors. Procedures require nonconformances to be identified and prevented from inadvertent use prior to dispositioning and corrective action. All nonconformances are required to be reported to the QA Manager. The QA Manager also reviews nonconformances to determine trends and root causes.

The NRC staff has assessed the information on "Control of Nonconforming Items" described in the NWPO QA Manual and finds it meets the applicable regulatory criteria described in Section 2 (Background) of this AE, pertaining to Criterion XV of Appendix B to 10 CFR Part 50 for the type of activities the State of Nevada will be involved in. This includes a commitment in the NWPO QA Manual to implement the applicable requirements of ANSI/ASME NQA-1-1986 (see Ref. 6).

3.16 "Corrective Action" (Criterion XVI)

The NRC staff has reviewed the description of "Corrective Action" provided in Section 16 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. Measures shall be established to assure that conditions adverse to quality are promptly identified and corrected.
- b. For significant conditions adverse to quality (i.e., those which, if uncorrected, would have a serious effect on safety or operability), the cause of the condition and the corrective action taken shall be documented and reported to management.

Corrective action is required for nonconformances and significant conditions adverse to quality. A nonconformance is defined in the aforementioned Section XV and a condition adverse to quality is a condition that has, has had, or could have a serious effect on the quality of data or conclusions critical to NWPO's objectives. Both nonconformances and significant conditions adverse to quality require corrective action to be taken in a timely manner. Corrective action is implemented in accordance with established procedures which requires the QA Manager to document, evaluate and report significant conditions to quality to immediate and upper management. If a significant condition adverse to quality is determined to exist, a stop-work order may be issued.

The NRC staff has assessed the information on "Corrective Action" described in the NWPO QA Manual and finds it meets the applicable regulatory criteria described in Section 2 (Background) of this AE, pertaining to Criterion XVI of Appendix B to 10 CFR Part 50 for the type of activities the State of Nevada will be involved in. This includes a commitment in the NWPO QA Manual to implement the applicable requirements of ANSI/ASME NQA-1-1986 (see Ref. 6).

3.17 "Quality Assurance Records" (Criterion XVII)

The NRC staff has reviewed the description of "Quality Assurance Records" provided in Section 17 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. Records furnishing evidence of quality shall be maintained.
- b. Records include results of reviews, inspections, tests, audits, monitoring of work performance, materials analyses, qualifications of personnel, procedures, and equipment.
- c. Records shall be identifiable and retrievable.
- d. Requirements and responsibilities for record transmittal, distribution, retention, maintenance, and disposition shall be established and documented.

The NWPO QA Program requires records to be kept to furnish evidence of quality and activities consistent to NWPO's objectives. The NWPO QA Program requires records to be legible, reproducible, identifiable, and complete. The QA Manager is in charge and control of all records which are permanently maintained in the NWPO Records Center. The records and storage center does not comply with ANSI/ASME NQA-1 Supplement 17S-1 since NWPO is not responsible for site characterization or design activities.

The NRC staff has assessed the information on "Quality Assurance Records" described in the NWPO QA Manual and finds it meets the applicable regulatory criteria described in Section 2 (Background) of this AE, pertaining to Criterion XVII of Appendix B to 10 CFR Part 50 for the type of activities the State of Nevada will be involved in. This includes a commitment in the NWPO QA Manual to implement the applicable requirements of ANSI/ASME NQA-1-1986 (see Ref. 6).

3.18 "Audits" (Criterion XVIII)

The NRC staff has reviewed the description of "Audits" provided in Section 18 of the NWPO QA Manual against the criteria identified in Section 2 of this AE. These criteria, in summary, are:

- a. QA audits shall be planned and documented to verify compliance with all aspects of the program and to determine the effectiveness of the program.
- b. The preparation, performance, reporting, response, and follow-up of audit activities shall be controlled.
- c. Follow-up action shall be taken, where indicated.

The QA Manager is responsible for all audits of NWPO's contractors. The QA Manager is assisted by independent technical auditors to perform audits of activities, procedures, documents, records and facilities to evaluate compliance with the NWPO QA Program. Special audits (including follow-up audits) will be conducted to verify implementation of corrective action in response to nonconformances and significant conditions adverse to quality. Each activity is audited at least once per year or once in the life of the activity, whichever is sooner.

The NWPO QA Program receives an independent assessment of the scope, status, adequacy, and compliance by the Executive Director.

The NRC staff has assessed the information on "Audits" described in the NWPO QA Manual and finds it meets the applicable regulatory criteria described in Section 2 (Background) of this AE, pertaining to Criterion XVIII of Appendix B to 10 CFR Part 50 for the type of activities the State of Nevada will be involved in. This includes a commitment in the NWPO QA Manual to implement the applicable requirements of ANSI/ASME NQA-1-1986 (see Ref. 6).

4. CONCLUSION

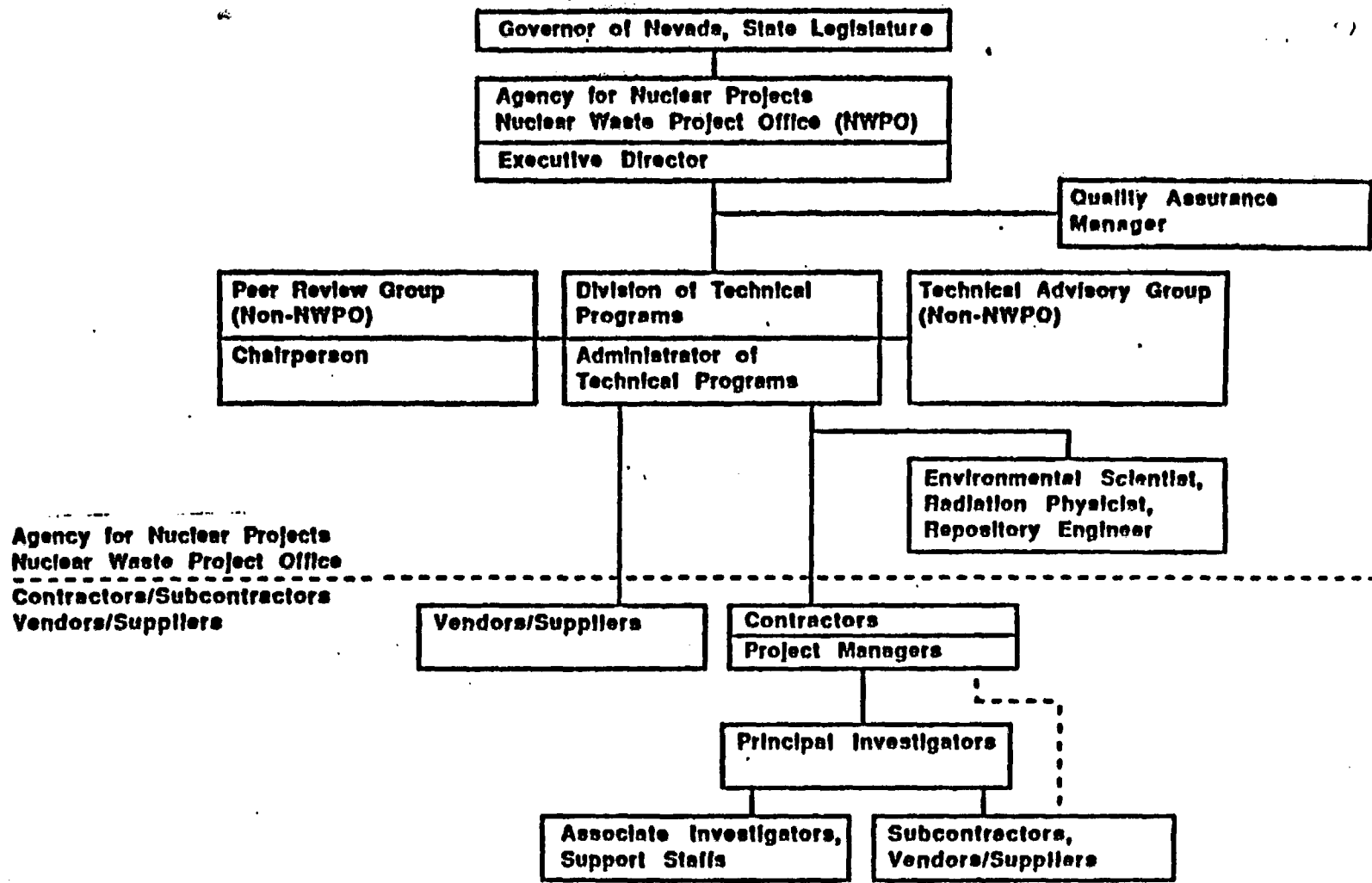
The NRC staff reviewed the NWPO QA Manual and believes that it meets the criteria of 10 CFR Part 60, Subpart G and Appendix B to 10 CFR Part 50 as applicable. NRC guidance to address Subpart G is contained in the "Review Plan for High-Level Waste Repository Quality Assurance Program Descriptions," (see Ref. 5) and the NRC staff Technical Positions on "Peer Review," "Existing Data," "Q-List," and "Documentation of Computer Codes" (NUREGs 1297, 1298, 1319 and 0856 respectively (see Refs. 1, 2, 3 and 4)). In addition, ANSI/ASME NQA-1-1986 (see Ref. 6), and Regulatory Guide 1.28 (see Ref. 7) (endorses ANSI/ASME NQA-1-1983, see Ref. 8) were used as review criteria. The NRC staff review of the NWPO QA Manual concludes that it meets the aforementioned guidance for the type of activities the State of Nevada will be involved in, or has provided acceptable alternatives or rationale where the NRC guidance is not applicable. The NWPO describes these alternatives and rationale for the areas of the Q-list; design control; special processes; inspection; testing; inspection, test and operating status; and quality assurance records. The NRC has evaluated these exceptions commensurate with the State of Nevada's objectives to investigate the Yucca Mountain site for the high-level

radioactive waste repository to determine the potential impact on the health, safety, and environment of the residents of Nevada. The NRC staff finds these alternatives acceptable.

Based on its detailed review of the NWPO QA Manual, the NRC staff concludes the NWPO QA Manual contains sufficient requirements and planned and systematic controls to address each of the appropriate criteria of Appendix B to 10 CFR Part 50 in an acceptable manner.

5. REFERENCES

1. U.S. Nuclear Regulatory Commission Generic Technical Position, "Peer Review for High-Level Nuclear Waste Repositories," NUREG-1297, 1987.
2. U.S. Nuclear Regulatory Commission Generic Technical Position, "Qualification of Existing Data for High-Level Nuclear Waste Repositories," NUREG-1298, 1987.
3. 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.
4. U.S. Nuclear Regulatory Commission, "Final Technical Position on Documentation of Computer Codes for High-Level Waste Management," NUREG-0856, 1983.
5. U.S. Nuclear Regulatory Commission, "NRC Review Plan: Quality Assurance Programs for Site Characterization of High Level Nuclear Waste Repositories," Rev. 0.
6. American National Standards Institute (ANSI)/American Society of Mechanical Engineers (ASME), NQA-1, "Quality Assurance Program Requirements for Nuclear Facilities," 1986.
7. U.S. Nuclear Regulatory Commission, "Quality Assurance Program Requirements (Design and Construction)," Regulatory Guide 1.28, Rev. 3, 1985.
8. American National Standards Institute (ANSI)/American Society of Mechanical Engineers (ASME), NQA-1, "Quality Assurance Program Requirements for Nuclear Facilities," 1983.



State of Nevada
 Agency for Nuclear Projects
 Nuclear Waste Project Office
 Quality Assurance Program

Figure 1, General Project Organization Chart