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(Return to WM, 623-SS)

JBunting  
PJustus  
JGreeves

MEMORANDUM FOR: John J. Linehan, Acting Chief  
Repository Projects Branch, DWM

THRU: James E. Kennedy, Section Leader  
Repository Projects Branch, DWM

FROM: Susan G. Bilhorn  
Repository Projects Branch, DWM

SUBJECT: REPORT OF OBSERVATIONS MADE DURING SAIC QA AUDIT OF  
NNWSI ACTIVITIES AT USGS, DENVER MARCH 10-14, 1986

RBoyle  
SCoplan  
RJohnson  
PHildenbrand  
KStablein  
RCook  
TVerma

The purpose of this note is to document my observations regarding the subject audit. The audit plan, including scope, schedule and audit team, are attached as Enclosure 1.

The USGS is the NNWSI Project participant responsible for most of the geology and hydrology site investigations. SAIC is the contractor for NNWSI providing QA support to the project. The audit team conducting this audit was comprised of SAIC personnel and one participant from DOE headquarters.

Summary:

- The audit team recommended USGS stop work on NNWSI activities because of significant problems found in numerous areas of the USGS QA program.
  - The SAIC/NNWSI audit team recommended a stop work order on NNWSI activities at USGS due to the number of significant problems found in the USGS QA program. USGS issued its own stopwork order at the conclusion of the audit, 3/14/86 (Enclosure 2). This order stops essentially all NNWSI technical activities performed by the USGS except: SCP and Exploratory Shaft Test Plan development; work, the suspension of which would cause unrecoverable loss of information; and research and testing to develop and/or evaluate techniques or procedures to be applied later under appropriate QA. USGS committed to making the necessary improvements to the QA program concentrating first on upgrading the QA plans for those activities which had not been stopped.

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- NNWSI followed-up with an additional stopwork order which also required USGS to submit a plan of action, including milestones and schedules, for upgrading the QA program (see Enclosure 3).
- 2. This SAIC audit was an improvement over those previously observed, particularly with regard to preparation and conduct, however there still appears to be too much emphasis on compliance versus technical adequacy and better preaudit planning is necessary (see discussion under "The Audit").

The Audit:

1. Preparation -

- A. The SAIC audit team was better prepared for this audit than for those audits I observed in 1985. Most team members were aware of USGS QA program and ongoing technical activities. Most were also familiar with the checklist covering their areas of responsibility. In addition, the checklist was tailored to the USGS program, with emphasis on problem areas that had been identified during SAIC's prior review.
- B. Two checklists were prepared for this audit; a programmatic and a technical checklist. The programmatic checklist focused on the 18 criteria of NQA-1, while the technical checklist focused on site investigation plans, peer/technical reviews, and technical procedures.
- C. Coordination between SAIC and USGS prior to the audit was lacking. Audit interviews had not been arranged (schedules and individuals) prior to the preaudit meeting therefore last minute arrangements and adjustments were necessary.
- D. USGS had verbally requested this audit be postponed. The audit schedule conflicted with a performance allocation meeting and development of work plans. While the availability of USGS people (i.e., Principal Investigators) was not a difficulty, the potential problem did exist and such potential conflicts would best be resolved prior to start of the audit. In addition, based on SAIC review of the QA manual, the USGS QA program had already been found seriously deficient. SAIC had cited many of these deficiencies in a meeting with USGS in January, 1986.

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2. USGS Involvement -

J. Wilmon, the USGS/NNWSI QA manager was the prime USGS interface. Others involved in QA activities for USGS/NNWSI who participated in the audit were: Susan Shipley (USGS, Menlo Park QA lead); Darrell Porter (SAIC, Golden-QA contract support); Gene Rush (USGS); Paul Carrera (USGS geologist temporarily assigned as QA support); and a representative from Los Alamos QA support. In addition, Robert Peterson from the Bureau of Reclamation (BOM) participated as an observer. Mr. Peterson is the QA lead for the NNWSI work recently delegated to BOM.

In the entrance meeting J. Wilmon presented a summary of the areas he acknowledged as deficient (Enclosure 4). Though unusual this did indicate an understanding of the problems involved.

3. Conclusion -

A. The audit was highly compliance-oriented in spite of the inclusion of technical team members and reviews of technical activities (see Enclosure 5 as illustration). This differs from the NRC approach to inspections and audits (such as IDI's) which focus more on the quality of technical work than on compliance with QA procedures.

B. In Wednesday's close-out session, during which that day's observations and findings were discussed, the team unanimously concluded that there were enough significant findings to merit a stopwork order. The audit continued until protocol for the stopwork order was decided and initiated by the appropriate individuals. Thursday evening the audit was ended prior to completion of the checklist. The Menlo Park extension of the audit was also canceled at this time.

J. Blaylock, the WMPO QA manager, and E. Cocorus, SAIC QA lead, flew in for consultation and to attend the exit interview.

C. The audit report contains 23 findings (Enclosure 5). The primary problem areas associated with these findings are summarized below.

1. Control of purchased materials and services
  - Procurement documents
  - Contractor QA requirements

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2. Control of test samples
3. Audits
  - Qualification of auditors
  - Conduct and planning of external audits
  - Resolution of internal audit results
4. Calibration of measuring and test equipment
5. Indoctrination, training and certification of persons involved in technical and QA activities
6. Stopwork provisions and procedures
7. Responsibility and authority of USGS organizations involved in NNWSI, including QA department
8. Core library and core sample procedures
9. Peer review records
10. Planning of site investigations
11. Assignment and approval of QA levels

D. OGR issued a report regarding the subject audit on April 4, 1986 (Enclosure 6). To clarify a comment documented in this report (page 2, paragraph 7), I stated at the exit meeting that this represented the best prepared audit that I had observed SAIC conduct for NNWSI to date.

Concerns:

1. USGS admitted that staff size of the QA organization was not adequate. This has apparently been due to administrative difficulties and has not received the necessary management attention. Management support was committed by USGS and NNWSI during the close-out meeting. As follow-up, NNWSI has temporarily assigned one SAIC person (N. Voltura) to USGS to support their current efforts.
2. The recommendation for stopwork was anticipated by USGS to the point that a partial order had been previously drafted. If USGS was aware that problems in the QA program were bad enough to merit a stopwork order, it seems an audit should not have been necessary to cause its issuance.
3. The conditions which merit issuance of a stopwork order on repository activities during prelicensing have not been defined. Also the method, authority and responsibility for recommending a stopwork order based on audit findings are not in place, especially for audits conducted by a contractor, such as SAIC.

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4. A potential problem with independence from cost and scheduling was apparent regarding audits conducted by contractors such as SAIC. In spite of the uncertainty associated with a first time recommendation of a stopwork order, I believe that the SAIC audit team gave undue attention to what they thought SAIC management and NNWSI would want to hear. In addition, the lead auditor was concerned about contacting the NNWSI QA manager to discuss the situation. I consider that if contracting organizations such as SAIC are to function as "extensions of project staff" in the area of QA, that they should feel free to act with project authority and exhibit the necessary independence from cost and scheduling.
5. Core handling and storage problems continue to exist. NNWSI has classified core handling (especially waxing) as a special process as defined in 10 CFR 50 Appendix B which requires application of extra QA measures, but USGS insists core handling can be adequately performed under a normally controlled technical procedure. In addition, NNWSI insists that USGS manage the core library though USGS has requested NNWSI make alternate arrangements.
6. One reason USGS issued an internal stopwork order was to control what activities could continue. Continuation of SCP activities is of concern since persons needed in the QA improvement efforts will be largely unavailable if working on the SCP and the SCP is a critical piece of work that needs adequate QA. It appears the schedule for issuance of the SCP is still a number one priority for NNWSI.

Observations:

1. NNWSI and DOE HQ attribute the term "technical audit" to NRC (initiated by NRC at the site visit, December 1984). NNWSI has been pushed, therefore, to conduct such audits but has been given little direction as to the definition or intent of the term. This has generated numerous interpretations and much confusion. NRC's intent should be clarified.
2. NRC staff have noted that the scope of the audits conducted by DOE/DOE projects have been too optimistic in that they attempt to cover all 18 criteria in less than 4 days. NNWSI has apparently interpreted this to mean that they need only evaluate the criteria which most directly affect the quality of work performed by each contractor and not audit against all 18 criteria stated in the requirements. The intent was, however, that the

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adequacy of QA be evaluated as necessary to determine compliance with the requirements. In order to conduct an adequate evaluation audits may need to be longer or divided into parts. In addition, regular surveillance and review should indicate areas which need greater or lesser attention during audits.

**"ORIGINAL SIGNED BY"**

Susan G. Bilhorn  
Repository Projects Branch  
Division of Waste Management

Enclosures:

- 1. Audit Plan
- 2. USGS Stopwork Order
- 3. NNWSI stopwork order on USGS
- 4. USGS Summary of Deficient QA Program Areas
- 5. Audit Report
- 6. Report of OGR Participation in WMPO QA Audit of USGS Denver

- cc:
- J. Kennedy
  - D. Hedges
  - J. Linehan
  - M. Bell
  - R. Browning
  - P. Prestholt
  - B. Grimes
  - H. Miller
  - T. Ankrum

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# ENCLOSURE 1

*Encl. to Memo of 6/2/86  
to Linahan from Bilhorn  
Rpt. of Observations Made  
during SAIC QA Audit  
102  
Pocket 10*

## NNWSI AUDIT PLAN 86-2A - DENVER

Audit No. 86-2a  
Date 2/18/86

### 1.0 SCOPE

The purpose of this audit is to evaluate the effectiveness of the (USGS) Denver, CO Quality Assurance Program Plan and its procedures with respect to the requirements of NNWSI NVO-196-17 (Rev. 3) and to verify the effectiveness and implementation of (USGS) technical procedures associated with NNWSI activities.

### 2.0 ORGANIZATION TO BE AUDITED

United States Geological Survey (USGS) Denver, CO

### 3.0 AUDIT SCHEDULE

- o Pre-Audit Team Meeting, 1:30 p.m., March 10, 1986 at USGS
- o Opening Meeting, 9:00 a.m., March 11, 1986 at USGS
- o Audit Activities, March 11-14, 1986
- o Closing Meeting, Afternoon of March 14, 1986 or before

### 4.0 REQUIREMENTS TO BE AUDITED

The requirements to be audited are stated in 86-1-1 check list which was generated from the following documents:

- o NNWSI-NVO-196-17-Rev. 3
- o USGS QA Manual and implementing quality and technical procedures
- o Previous Audit 85-12

### 5.0 ACTIVITIES TO BE AUDITED

- o Programmatic QA areas
- o Technical detailed procedures
- o Previous audit findings

### 6.0 AUDIT TEAM MEMBERS

S. Singer, SAIC/QASC	Lead Auditor
N. Voltura, SAIC/QASC	Auditor
J. W. Estella, SAIC/QASC	Auditor
R. F. Cote, SAIC/QASC	Auditor in Training
F. D. Peters, SAIC/QASC	Auditor in Training
E. H. Oakes, SAIC/QASC	Technical Advisor
D. C. Newton, DOE/HQ	Auditor in Training
Paul Prestholt, NRC/HQ	Observer
Susan Bilhorn, NRC/HQ	Observer

WMPO AUDIT PLAN

NO. 86-2A

USGS DENVER COLORADO

PREPARED BY *S. Singer* DATE *2/18/86*  
SAIC/QASC

APPROVED BY *James Blaylock* DATE *2/18/86*  
WMPO PQMO

DISTRIBUTION:

All Team Members

S. B. Singer, SAIC/QASC, Las Vegas, NV  
N. A. Voltura, SAIC/QASC, Las Vegas, NV  
J. W. Estella, SAIC/QASC, Las Vegas, NV  
R. F. Cote, SAIC/QASC, Las Vegas, NV  
F. D. Peters, SAIC/QASC, Las Vegas, NV  
E. H. Oakes, SAIC, Oak Ridge, TN  
D. C. Newton, DOE/HQ  
Paul Prestholt, NRC/HQ  
Susan Bilhorn, NRC/HQ

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NNWSI AUDIT PLAN 86-2B - MENLO PARK

Audit No. 86-2b  
Date 2/18/86

1.0 SCOPE

The purpose of this Audit is to verify by review of objective evidence the effective implementation of the Quality Assurance Program Plan as implemented by USGS at the Menlo Park, California facility.

The USGS QA program will be reviewed to assure that the requirements of NVO-196-17 (Rev. 3) and selected USGS technical procedures are being implemented in accordance with the provisions of the NNWSI Project.

2.0 ORGANIZATION TO BE AUDITED

United States Geological Survey (USGS) Menlo Park, California

3.0 AUDIT SCHEDULE

- o Pre-Audit Team Meeting, 1:30 p.m., March 17, 1986 at USGS
- o Opening Meeting, 9:30 a.m., March 18, 1986
- o Audit Activities, March 18-21, 1986
- o Closing Meeting, Afternoon of March 21, 1986 or before

4.0 REQUIREMENTS TO BE AUDITED

The requirements to be audited are stated in 86-2B-1 checklist which was generated from the following documents:

- o NNWSI-NVO-196-17-REV. 3
- o USGS QA Manual and implementing quality and technical procedures

5.0 ACTIVITIES TO BE AUDITED

- o Technical detailed procedures
- o Previous audit findings

6.0 AUDIT TEAM MEMBERS

A. E. Cocoros, SAIC/QASC  
F. D. Peters, SAIC/QASC  
E. A. Oakes, SAIC  
A. J. Rhodrick, DOE/HQ  
Paul Prestholt, NRC/HQ  
J. R. Rinaldi, QAD, DOE/NV

Lead Auditor  
Auditor in Training/Technical Advisor  
Auditor/Technical Advisor  
AIT/Technical Advisor  
Observer  
Auditor

7.0 AUDIT CHECK LIST NUMBERS

86-2B-1

WMPO AUDIT PLAN

NO: 86-28

USGS MENLO PARK, CALIFORNIA

PREPARED BY *S. Singer* DATE 2/18/86  
SAIC/QASC

APPROVED BY *James Blaylock* DATE 2/18/86  
WMPO/PQM

DISTRIBUTION:

All Team Members

A. E. Cocoros, SAIC, QASC, Las Vegas, NV  
F. D. Peters, SAIC, QASC, Las Vegas, NV  
E. H. Oakes, SAIC, Oak Ridge, TN  
A. J. Rhodrick, DOE/HQ  
Paul Prestholt, NRC/HQ  
J. R. Rinaldi, QAD, DOE/NV

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ENCLOSURE 2



## United States Department of the Interior

GEOLOGICAL SURVEY  
BOX 25046 M.S. AIR  
DENVER FEDERAL CENTER  
DENVER, COLORADO 80225

IN REPLY  
REFER TO:

March 14, 1986

### Memorandum

**To:** All USGS Participants, Nevada Nuclear Waste Storage Investigations

**From:** Chief, Branch of Nevada Nuclear Waste Storage Investigations

**Subject:** STOP-WORK ORDER

This orders the immediate cessation of most USGS work on NNWSI technical activities. The order applies to all work that meets all of the following three criteria:

- (1) The work is intended to produce site-characterization information -- that is, a description of the geologic, tectonic, or hydrologic conditions or processes of Yucca Mountain and its setting.
- (2) The work has not previously been approved in writing by this office and by DOE/WMPO as quality-assurance level III.
- (3) The work can be suspended without causing an irrecoverable loss of information that may later prove to be acceptable in the licensing process.

Work may continue in the following categories:

- (1) Administrative work, with the exception of procurement of equipment, materials, or supplies to be used in site-characterization activities.
- (2) Planning, both internal and as part of the preparation of DOE documents such as the Site Characterization Plan and the Exploratory Shaft Test Plan.
- (3) Work for which the suspension would cause an irrecoverable loss of information. Examples are the seismic monitoring network, monitoring of existing hydrologic networks, logging of neutron holes, monitoring of runoff events, etc.

- (4) Work in progress on degradable samples or features. Examples include mapping of freshly exposed trench walls (but not sampling of materials for analysis), long-term laboratory tests or experiments in which substantial time and cost is already invested, and laboratory measurements on "natural-state" samples that would degrade if the measurements were interrupted.
- (5) Preparation of publications presenting site-characterization information, but only to the point of readiness for colleague review.
- (6) Preparation and processing of abstracts for meetings if the submission deadline is July, 1986, or earlier.
- (7) Prototype testing, experimentation, and other research intended to develop and/or evaluate techniques or procedures to be applied later under quality-assurance requirements.
- (8) All work directed at implementing the requirements of the USGS Quality Assurance Plan (QAP).

Other activities that must continue will be considered but must be authorized by this office.

Except for those working on the FY 88 budget preparation, the Site Characterization Plan, or the technical requirements for the exploratory-shaft facility, implementing the QAP is the highest priority of the USGS/NNWSI at this time. Personnel should be redirected to QA implementation to the fullest extent possible. Those performing exempted work should also be redirected to the QA effort unless the work is of great urgency.

At this time I am not prepared to give specific instructions concerning contracts in place, as this requires coordination with Administrative Division personnel. Branch Chiefs, District Chiefs, the Regional Research Hydrologist (Central Region) or their administrative officers are requested to notify R. V. Watkins, Associate Chief, Branch of NNWSI, by memorandum of contracts that are supported wholly or in part by NNWSI funds. Please include a sufficient description of the scope of work to allow a preliminary determination of whether the work can continue, must be negotiated for temporary redirection, or must be suspended.

I have taken this action in consultation with and upon the recommendation of the USGS/NNWSI QA Manager, Joe Willmon, because of rapidly accumulating evidence that our implementation of our QAP has not been given the priority that it requires. A DOE audit completed today in Denver has confirmed the lack of satisfactory implementation in the activities directed by my office as well as in the scientific work. We are all at fault, and we must all contribute to the remedy. Identification of specific areas in which we must change or improve will be provided as soon as possible.

Assistant Director James F. Devine and NNWSI Project Manager Donald L. Vieth have been advised of and concur with the necessity for this order.

Neither the timing nor the mechanism of release from this order have been identified. However, I anticipate a task-by-task release, probably after special audits of readiness. I also anticipate that the period will range from several weeks to several months.

NNWSI funding will continue for work authorized in this memorandum or subsequently authorized in writing by me or Joe Willmon. Work that is performed in violation of this order will not be reimbursed from NNWSI funds. Documentation of personnel activities on NNWSI funding is required as of March 17, 1986. More detailed instructions will be issued next week.

  
William W. Dudley, Jr.

cc: J. F. Devine, Asst Director, Engineering Geology  
D. L. Vieth, Director, Waste Management Project Office, DOE

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ENCLOSURE 3

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APR 28 1986

W. W. Dudley, Jr.  
Technical Project Officer  
U. S. Geological Survey  
P. O. Box 25046  
Mail Stop 418  
Denver, CO 80225

**SUSPENSION OF U. S. GEOLOGICAL SURVEY (USGS) WORK ON NEVADA NUCLEAR WASTE STORAGE INVESTIGATIONS (NWSI) PROJECT ACTIVITIES BY WASTE MANAGEMENT PROJECT OFFICE (WMPO) (WMPO ACTION ITEM #86-1165)**

This memo is a follow-up to the Quality Assurance (QA) Audit 86-2a and QA Surveillance WMPO/NV-SR-86-023 conducted on the USGS efforts that support the NWSI Project. I want to formally express my concerns about the situation with regard to QA at the USGS. It has been reported to me that the USGS technical staff, people who are committed to executing scientific studies, have not achieved a full appreciation of the importance of QA on this program. This is clearly a USGS management problem. After these many years of effort and expenditures the practice of QA at the USGS has not reached the level necessary to satisfy our standards. Also, it is doubtful that the present USGS work would meet the U. S. Nuclear Regulatory Commission's (NRC) expectations.

I have reviewed your memorandum suspending work at the USGS pursuant to the audit. Your actions are a positive management step necessary to correct the long-standing organizational deficiencies at the USGS in the practice of QA. We believe that your expeditious action in this area was essential in communicating USGS management recognition of the seriousness of this problem within the USGS, and a resolve toward meeting the requirements that are customary in the regulatory arena. It is essential that your scientific staff fully understand the situation, commit to meeting the requirements, and conform to the process as defined in your internal operation manuals. There is no longer any place in this Project for a scientific staff that does not accept and perform in accordance with the requirements established for QA.

We have spent some time reviewing the situation with the Stop Work Order. While we are generally in agreement with your approach, we believe that some additional stipulations need to be added to your directive. The purpose of this memo is to announce the WMPO suspension of work, expand somewhat the scope of your original statement, and outline the role of the Waste Management Project Office (WMPO) in reviewing the work situation before it is restarted.

This suspension of work applies to all USGS work currently being performed for the NWSI Project with the following exceptions:

V. W. Dudley

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1. Planning, both internal and as part of the preparation of the Site Characterization Plan (SCP), the Exploratory Shaft Test Plan (ESTP), the Environmental Assessment (EA), and the Seismic Tectonic Position Paper (STPP:MSB-579).

2. Administrative/management work, with the exception of procurement of equipment, materials, supplies, and services to be used in technical activities unless such procurement can be shown to be critical to the success of those technical activities allowed to continue. If so, the details, including the quality requirements to be applied, shall be provided to WMPO for concurrence prior to proceeding.

03. Work for which the suspension would cause an irrecoverable loss of information.

04. Work in progress on degradable samples or features and laboratory measurements on "natural-state" samples that would degrade if the measurements were interrupted.

5. Preparation and processing of abstracts for meetings if the submission deadline is July 1986 or earlier. These abstracts must be specifically identified and the pertinent information, including manpower resources required, must be provided to the Waste Management Project Office (WMPO) for evaluation of the impact on resources required to achieve implementation of the QA Program.

6. Prototype testing, experimentation, and other research intended to develop and/or evaluate techniques or procedures provided these activities have been approved by WMPO as Quality Assurance Level III. Continuance of these activities must not prevent adequate manpower resources from being applied to the implementation of the QA Program requirements.

7. All work that is necessary to achieve adequate implementation of the USGS QA Program, i.e. procedure development, establishment of Quality Assurance Level assignments, correction of QA Program deficiencies, etc.

This suspension of work also applies to KRWISI Project related activities currently being performed for USGS by subcontractors unless the work can be clearly exempted as described above.

\*Specific activities in these categories or others that USGS strongly believes should be allowed to continue must be identified to WMPO in writing within 10 working days after receipt of this letter. The information to be provided must include the following:

- o Work Breakdown Structure (WBS) task title and numbers
- o Principal Investigator
- o Justification/rationale of why the work must proceed
- o Controls/procedures to be used to assure the data meets QA program requirements.

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V. W. Dudley

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Except for the work that must continue as previously noted, achieving adequate implementation of QA Program requirements is the highest priority of USGS/NNWSI Project at this time. Personnel should be redirected to QA Program implementation to the fullest extent possible. Accordingly, you are directed to develop a plan for the assignment and approval of Quality Assurance Levels (see Surveillance Report WMPO/NV-SR-86-023) which shall include the support package agreed to during the Quality Assurance Level Assignment Sheet (QALAS) Workshop meetings at Science Applications International Corporation during April 7, 9 and 10, 1986, and a plan for correcting the QA Program deficiencies identified during USGS Audit 86-2a so that the USGS work for the NNWSI Project can resume. This plan should identify the specific tasks to be accomplished, establish priorities, and provide a schedule for implementation. Emphasis should be placed on correcting the deficiencies in those areas where work is allowed to continue, i.e. establishment of Quality Assurance Level assignments, qualification and certification of personnel, indoctrination and training, etc. This plan must be submitted to WMPO for review and approval by May 1, 1986. It should be noted that WMPO will perform periodic surveillances of USGS activities to ensure that work is suspended until all required actions are completed and to evaluate progress relative to QA Program implementation.

The conditions for lifting this suspension are as follows:

1. Approval by WMPO of proposed corrective actions and schedules for implementation for the reported audit findings.
2. Approval by WMPO of the USGS Quality Assurance Program Plan (QAPP) revised as a result of the audit.
3. Completion of indoctrination and training of all USGS personnel responsible for achieving quality with the NNWSI program.
4. WMPO approval of Quality Assurance Levels for each NNWSI Project item/activity for which USGS is responsible.
5. WMPO approval of a USGS plan to provide resources for QA coverage at the various locations where USGS is performing ongoing NNWSI Project activities.

At the completion of all of the above conditions a formal removal, in writing, of the suspension will be issued to USGS by WMPO.

Based on the number and nature of the deficiencies identified during USGS Audit 86-2a, it is evident that the USGS QA staff must be supplemented with additional experienced QA personnel in order to assure proper implementation of the USGS QA Program for the NNWSI Project. An unmitigated commitment to achieving this goal is clearly required. If you have any questions, or require further information, please advise.

WMPO:JB-912

Original Signed By  
Donald L. Vieth

Donald L. Vieth, Director  
Waste Management Project Office

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W. W. Dudley

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cc:

W. J. Purcell, DOE/HQ (RW-20), FORS  
D. C. Newton, DOE/HQ (RW-23), FORS  
James Knight, DOE/HQ (RW-23), FORS  
Allen Jelacic, DOE/HQ (RW-24), FORS  
J. R. Willson, USGS, Denver, CO  
H. E. Spaeth, SAIC, Las Vegas, NV  
S. H. Klein, SAIC, Las Vegas, NV  
A. E. Cocoros, SAIC, Las Vegas, NV  
S. J. Singer, SAIC, Las Vegas, NV  
C. R. Rinsidi, QAD, DOE/NV  
T. P. Witherill, KTSO, Mercury, NV  
W. R. Dixon, WMPO, DOE/NV  
L. P. Skousen, WMPO, DOE/NV  
W. B. Blanchard, WMPO, DOE/NV  
James Blaylock, WMPO, DOE/NV

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# ENCLOSURE 4

Handwritten notes and scribbles in the top right corner, including what appears to be a date "11/20/86" and some illegible initials or marks.

## IMPLEMENTATION OF THE QA MANUAL NNWSI-USGS QA PROGRAM

- 1.01 Manual Upgrade/Maintenance: The manual is not yet complete with at least 4 to 6 additional chapters to be added soon. The existing chapters are subject to revision which should occur semi-annually, at least for the first year. The first revision should be planned for the end of the second quarter, FY 86.
- 2.01 Management Assessment: This takes place once per year, and requires gathering the essential documents to provide for the review. In the view of QA, this is an important step and cannot be taken lightly as it affects the program's credibility. Action on this element should be directed toward the end of the year.
- 2.02 Indoctrination/Training: This consists of familiarizing the program participants of the QA requirements through exposure to the controlling laws, documents, and implementing procedures. A program of required reading, and meeting presentation should be made to all participants for completion within a six-month period.
- 2.03 Worker Certification: It is required that evidence of a worker's credentials be retained as accredited by a more senior Program participant. This can be accomplished by completing the form as presented in procedure NWM-USGS-QMP-2.03. A system for assuring completion of this task and its required updating needs to be put into place. This should begin at once, and six months seems to be a reasonable time to accomplish it.
- 3.01 Levels Assignment: All activities or items concerning quality related work are required to have an assigned quality level. By the procedure, this level assignment is to be done by the Principal Investigator under the assurance responsibilities of the QA office. Experience has already shown that this element of the PI's work will require a significant amount of assistance from the QA office. This is envisioned as being a continuing task with the heaviest QA involvement at the front end, which may strain the manpower resources for a short period. Because of the retrofit necessity, this task must begin at once.
- 3.02
- 3.03 Software QA: This is another item assigned to the Principal Investigator. However, it will require surveillance and assistance for implementation. The implementing procedure remains to be written for this criteria, awaiting the issuance of the Project SOP.
- 4.01 Procurement Document Control: All procurement must be done under QA procedures according to the QA Manual. The QA office has responsibility to assure that the PI and the purchasing office have complied.

- 5.01 Technical Procedures: This activity is primarily a responsibility of the Principal Investigator. However, experience has shown that a large QA Office commitment is required to keep the generation of the essential procedures up with the work being performed. "Mechanizing" the procedure preparation has been a big help, but it does not complete the requirement. It is a QA office responsibility to perform the procedure distribution and to keep the essential records of the distribution and revisions, which will be further discussed under "document control". The preparation, approval and control of technical procedures is an on-going activity which requires multiple level involvement.
- 6.01 Document Control: This is a QA office assignment requiring considerable supervisory and clerical help. A tracking system is required to assure that the necessary distribution is realized, and to provide the record that the distribution was made in a timely manner. Work on this tracking system should begin at once, but its completion is of lower priority than many other items of implementation. The main thrust for priority in this section is the potential effectiveness for its use in management of the QA implementation.
- 7.01 Control of Purchased Material: This criteria pertains to equipment and critical purchases that could affect the quality of the work. The QA office effort is largely one of record keeping, and assurance that the job is getting done. The procurement office is under instruction to enforce the procedures as described in this procedure. Further details need to be spelled out in this area, which will be included in the next revision of the QA Manual. Responsibilities for the revisions continue with the QA office, while the responsibility for vendor certification has been assigned to Los Alamos National Laboratory for the current fiscal year.
- 10.1 Surveillance: This is the process of policing the activities to see that the QA procedures are being followed. While the QA office does not perform all the surveillances, they are responsible for keeping track of what surveillances were performed, and to follow up on the appropriate dispositions. Surveillance of the various tasks of the QA Program will begin immediately, and will continue.
- 11.01 Tentative Technical Procedures: For those work areas where a standard procedure cannot be prepared, provision is made in the QA Manual to document the work method and pertinent descriptions in a tentative format for use until the work has progressed to a state where a formal definite procedure can be prepared. This is the assigned responsibility of the Principal Investigator. However, assistance and or advice will be required in the process. This assistance is available from the outset; and the PI's will be encouraged to use this procedure whenever it legitimately can be used.
- 12.0 Calibrations: All equipment used must be calibrated by the user on a schedule described in the technical procedure. The rules on calibration are strict, and complete records are a requirement. The QA

office is responsible only for the record portion and for providing the regular schedule; but this responsibility extends to routine reminders of when recalibrations are due, in addition to assuring that the calibrations are being performed according to the procedures. This task also requires a tracking system to be used as a management tool as well as for providing the record of the calibrations performed. While there already exists a QA calibration file, it requires revision and updating to be effectively used in the management sense. An update of this file will be a mid-level priority, with emphasis on keeping the calibrations up to date.

- 15.01 Nonconformance/Corrective Actions: Any nonconformance prepared by  
16.01 an audit, surveillance, or other action must be handled according to a rigid procedure, until fully dispositioned. The QA office will be preparing some of the nonconformances for various reasons, but the bulk of the time will be consumed by resolving the issues, record keeping and paper handling.
- 17.01 Records Management: All documents supporting the data that will be used in the licensing process must become part of the official record. QA records are well defined, and it is the responsibility of the QA office to achieve a complete record. Currently the records program, in compliance with and under training of the Project office in Las Vegas, is performed by the SAIC-Golden office. It is expected that revisions to the established records procedures will be required as the overall program evolves and when SOP-17 is issued. Implementation in this area is already underway and it will continue uninterrupted by other priorities.
- 18.01 Audits: Auditing is a large part of the policing activity, and it is an important part of the QA program. This activity requires specially qualified participants, especially in the role of the lead auditor. The audits are performed according to a definite procedure, including scheduling and planning. The scheduling, assurance of their completion, and follow up on audit findings is a requirement of the QA office. Performance of the USGS internal audits is currently contracted to Los Alamos National Laboratory.

QA Administrative Function: The effort of administration is necessary for program planning and implementation, to hold the work effort together, and to assist with the fire fights as they occur. QA program evaluation, understanding of Project QA requirements and their changes; and directing any resulting corrective actions also is an important part of the administrative function.

IMPLEMENTATION OF THE QA MANUAL  
NNWSI-USGS QA PROGRAM

Task Description	Man Mos	(MONTH)											
		10	11	12	1	2	3	4	5	6	7	8	9
1.01 Manual Upgr/Maint:	5.5				*****	*****	*****						*****
2.01 Mgmt Assessment:	1.0												*****
2.02 Indoctr/Training:	6.5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
2.03 Worker Cert:	1.25			*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
3.01 Levels Assignment:	3.0	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
3.02													
3.03 Software QA:	1.25									*****	*****	*****	*****
4.01 Procurmt Dcmt Cont:	2.0	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
5.01 Tech Procs:	13.0	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
6.01 Document Cont:	3.5	*****		*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
7.01 Cont Purch Matl:	.75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
10.01 Surveillance:	2.25	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
11.01 Tentative Proc:	1.75	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
12.01 Calibrations:	2.5	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
15.01 Nonconformance/ 16.01 Corrective Act:	3.25	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
17.01 Records Mgt:	25.0	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
18.01 Audits:	2.5							*****	*****	*****	*****	*****	*****
QA Admin Function:	17.0	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

ENCLOSURE 5



**Department of Energy**

Nevada Operations Office

P. O. Box 14100

Las Vegas, NV 89114-4100

WASTE MANAGEMENT CONTROL CENTER

'86 APR 23 P3:15

APR 17 1986

W. W. Dudley, Jr.  
Technical Project Officer for NNWSI  
U.S. Geological Survey  
Post Office Box 25046  
418 Federal Center  
Denver, CO 80225

WASTE MANAGEMENT PROJECT OFFICE (WMPO) AUDIT OF U.S. GEOLOGICAL SURVEY (USGS) QUALITY ASSURANCE PROGRAM (86-2a) DENVER (WMPO ACTION ITEM #86-1103)

Enclosed is the report of Quality Assurance Audit 86-2a which was conducted for the Waste Management Project Office (WMPO) at the U.S. Geological Survey (USGS) Denver on March 11-14, 1986.

The audit was conducted to verify implementation and evaluate the effectiveness of the USGS/Denver Quality Assurance Program Plan and its procedures with respect to the requirements of the NNWSI Project NVO-196-17 (Rev. 3) and the applicable SOPs, and to verify the implementation of the Quality Assurance Program as it relates to the USGS Quality Assurance Manual. The audit did not imply acceptance or non-acceptance of the USGS QAPP and procedures. Emphasis was placed upon the status of the USGS technical areas and the reviews of the USGS published technical reports.

The audit team reviewed sufficient objective evidence related to USGS work activities to determine whether the QA program requirements were being satisfactorily implemented per NNWSI-NVO-196-17 (Rev. 3) and its applicable SOPs.

As a result of the evaluation, the audit team identified twenty-two (22) deficient conditions adverse to quality and five (5) significant observations. This large number of significant audit findings indicated an almost total lack of QA program implementation and therefore, the Lead Auditor concluded that he would recommend WMPO issue a Stop Work Order for USGS/Denver and Menlo Park facilities. Audit Finding Sheets 862a-1 through 862a-22 are enclosed for your disposition. Please review the findings, complete the response section, and return your response within thirty (30) working days after receipt of this report.

Unless otherwise noted in the audit report, formal response to the observations is optional. All responses to the findings shall be addressed to the Director, WMPO.

W. W. Dudley, Jr.

-2-

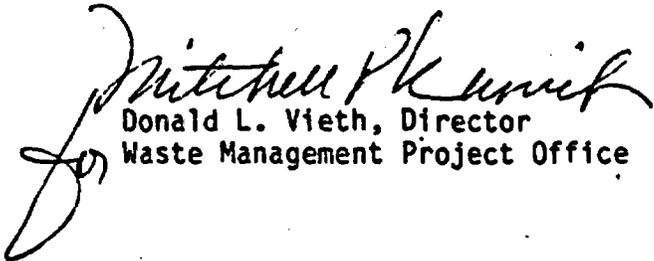
If you have any questions regarding this audit, please contact James Blaylock at FTS 575-1125.

WMPO:JB-1046

Enclosures:  
As stated

cc w/encl.:

V. J. Cassella, DOE/HQ (RW-22), FORS  
D. C. Newton, DOE/HQ (RW-23), FORS  
E. W. Sulek, Weston, Rockville, MD  
J. R. Willmon, USGS, Denver, CO  
J. A. Pattillo, Los Alamos, NM  
S. H. Klein, SAIC, Las Vegas, NV  
A. E. Cocoros, SAIC, Las Vegas, NV  
S. B. Singer, SAIC, Las Vegas, NV  
E. H. Oakes, SAIC, Reno, NV  
R. W. Gray, MED, DOE/NV  
M. B. Blanchard, WMPO, DOE/NV  
James Blaylock, WMPO, DOE/NV  
Paul Prestholt, NRC/HQ  
Susan Bilhorn, NRC/HQ

  
Donald L. Vieth, Director  
Waste Management Project Office

WMPO QUALITY ASSURANCE AUDIT REPORT

AUDIT NUMBER: 86-2a OF USGS/DENVER

CONDUCTED ON: MARCH 11-14, 1986

PREPARED BY *A. C. Lewis*  
LEAD AUDITOR SAIC/QASC

DATE *7/8/86*

APPROVED BY *James Blaylock*  
WMPO PQM

DATE *4/10/86*

## 1.0 INTRODUCTION

This report contains the results of the Nevada Nuclear Waste Storage Investigations (NNWSI) Project Quality Assurance (QA) Audit Number 86-2a of the U.S. Geological Survey (USGS) conducted on March 11-14, 1986. The audit was conducted in accordance with the requirements of the Waste Management Project Office (WMPO) QA Audit procedure QMP-18-01.

The audit was conducted to verify implementation and evaluate the effectiveness of the USGS/Denver Quality Assurance Program Plan and its procedures with respect to the requirements of the NNWSI Project NVO-196-17 (Rev. 3) and the applicable SOPs, and to verify the implementation of the Quality Assurance Program as it relates to the USGS Quality Assurance Manual. The activities audited were:

- o Programmatic Quality Assurance; and
- o Technical Activities.

Within these activities, the audit team concentrated its efforts in the following areas:

- o Quality Assurance operations;
- o Laboratory test activities; and
- o Technical activities and documents.

A checklist was used to expedite the review of documents and records in the USGS files and to record information resulting from discussions with USGS personnel. The checklist items were developed using the following documents:

- o NNWSI Project NVO-196-17 (Rev. 3) and the applicable SOPs
- o USGS QAPP and QA Procedures
- o USGS Technical Procedures.

## 2.0 AUDIT TEAM PERSONNEL

S. B. Singer, SAIC/QASC, Lead Auditor  
N. A. Voltura, SAIC/QASC, Auditor  
J. W. Estella, SAIC/QASC, Auditor  
R. F. Cote, SAIC/QASC, Auditor in Training (AIT)  
F. D. Peters, SAIC/QASC, Auditor in Training/Technical Advisor  
D. C. Newton, DOE/HQ, Auditor in Training (AIT)  
E. H. Oakes, SAIC, Auditor/Technical Advisor  
Paul Prestholt, NRC/HQ, Observer  
Susan Bilhorn, NRC/HQ, Observer

## 3.0 SUMMARY OF RESULTS

The audit team agreed that the USGS was not complying with the requirements of their Quality Assurance Program Plan and were not adequately implementing the existing supporting procedures.

A total of twenty-two (22) findings of nonconformance and five (5) significant observations were reported representing thirteen (13) of the sixteen (16) elements reviewed. This resulted in a recommendation by the Lead Auditor to the WMPO Project Quality Manager (PQM) that a Stop Work Order be issued. The details of the findings and observations are described in Section 5.0 of this report. To the extent audited, the following elements were found to be either in compliance or are not addressed by the USGS QA Program and are as follows:

Element 6. Document Control: Was not audited.

Element 10. Inspection: USGS does not perform inspection.

Element 11. Test/Experiment Control: No findings.

Element 14. Inspection, Test, and Operating Status is covered under other procedures at USGS.

Element 15. Nonconformance: None have been written to date.

The balance of the 18 QA criteria were audited. A fundamental problem in conducting this audit was that procedures required by NNWSI NVO-196-17, Rev. 3 were not implemented or they did not exist. Therefore, due to both of these problems, the USGS was determined to be not in compliance with NNWSI NVO-196-17, Rev. 3. It was also noted that there was a lack of training of personnel in all areas of the USGS Quality Assurance Program.

#### 4.0 AUDIT MEETINGS

The audit commenced with an opening meeting on March 11, 1986. The purpose, scope, and agenda of the audit were reviewed with the USGS personnel and USGS assigned coordinators for the various elements to be audited. The results of the audit were thoroughly reviewed with USGS personnel at a close-out meeting held on March 14, 1986. At that time, a handwritten rough draft of the proposed audit findings and observations was given to USGS management.

#### 4.1 OPENING AND CLOSING MEETING ATTENDEES

Paul Prestholt, NRC  
Nancy Voltura, SAIC/QASC  
Carl Newton, DOE/HQ  
Forrest Peters, SAIC/QASC  
Ed Oakes, SAIC, Reno, NV  
Leonard Wallitz, USGS/Denver  
Gene Rush, NHP, Denver  
Warren Hofstra, NHP, Denver  
William Dudley, USGS/Denver  
Sam Singer, SAIC/QASC  
Joe Willmon, USGS/Denver  
Susan Bilhorn, NRC/DWM  
Ron Cote, SAIC/QASC  
John Estella, SAIC/QASC  
Paul Carrera, USGS/Denver  
\*\*Susan Shipley, USGS/Menlo Park

Bob Peterson, BOR/Denver  
Art Guthrie, Los Alamos, NM  
\*James Blaylock, PQM/WMPO  
\*Darrell Porter, SAIC/Golden, CO  
\*Bob Wise, SAIC/Golden, CO  
\*Richard Watkins, USGS/Denver  
\*William Nilson, USGS/Denver  
\*Robert Raup, USGS/Denver  
\*Ed Cocoros, SAIC/QASC

\* Exit Meeting only  
\*\* Opening Meeting only

#### 4.2 PERSONS CONTACTED DURING THE AUDIT

Paul Carrera, USGS  
Joe Willmon, USGS  
Susan Shipley, USGS  
Arthur Guthrie, Los Alamos  
Joe Rosenbaum, USGS  
L. A. Anderson, USGS  
Linda Watson, SAIC  
M. S. Whitfield, USGS  
Chuck Freestone, USGS  
Bob Peterson, USGS  
Eugene Rush, USGS  
Darrell Porter, SAIC

#### 5.0 FINDINGS AND OBSERVATIONS

The following findings of nonconformance were recorded during the audit. The requirement, documents, and details of the requirements are presented in the respective attached Audit Finding Sheets Numbers 862a-1 thru 22.

Finding No. 862a-1

The USGS QA Program does not have a WMPO-approved QA procedure in place to address source evaluation and selection.

Finding No. 862a-2

A J-13 water sample was found in a container which had no identification other than the number J-13. When the engineer was asked for any other documents that were traceable to the sample, his reply was, "These documents are not available."

Finding No. 862a-3

A sample review of procurement documents identified inconsistent implementation of USGS-QMP-4.01 in the following areas:

1. Neither the purchase requisition nor the NNWSI Project QA Procurement Form consistently identify any of the following for QA Level I items or services: technical requirements, QA Program requirements, Rights of access, Documentation requirements, provision for reporting nonconformances. Requisitions # 4810-0116, 1/14/86; 4810-0041-86, 10/1/85; 4810-0109-86, 1/8/86; 4810-33310T, 12/27/85; 4810-0088, 12/17/85.
2. Lack of documented evidence of USGS' QA Manager's review and approval of the requisition and the QA Procurement form. Requisitions found deficient were #4810-0017-86, 9/18/85; #4810-0015-86, 8/20/85; #4810-0007-86, 8/85.
3. USGS personnel have approved the USGS NNWSI Project QA Procurement form for the USGS QA Manager without documented authority to do so.
4. Copies of all as-issued QA Level I procurement documents are not being forwarded to WMPO.

Finding No. 862a-4

NNWSI-USGS-QMP-18.01, Rev. 0, does not address program provisions for conducting external audits of suppliers/contractors to USGS.

Finding No. 862a-5

A review of the Rock Properties Measurement Lab revealed lack of compliance/implementation in the following areas:

1. The QA Calibration Form is not being completed for each instrument requiring calibration and is not being sent to the USGS QA Office prior to the instrument's use.
2. The USGS QA Office is not entering this information into a calibration system -- to include all affected instruments.
3. The calibration status of instruments is not being displayed at a readily accessible location. Stickers are not affixed to each instrument denoting the calibration status.
4. Nonconformance reports have not been written for instruments that display no calibration status sticker.
5. No documented certifications are on file for personnel performing equipment calibrations.
6. Calibration standards used for calibration of instruments are not traceable to the National Bureau of Standards (NBS) or other known standards. Where NBS standards do not exist, the reference standard is not supported by certificates, reports or data sheets attesting to the date, accuracy and conditions under which the results were obtained.

7. The method and interval of calibration for each item has not been defined, based on the type of equipment stability, characteristics, required accuracy, intended use, manufacturer's recommendations or other conditions that affect measurement controls.
8. Instruments out of calibration are not tagged or segregated.
9. Calibration forms, which are QA Level I or II documents, are not processed as NNWSI Project QA records.

Finding No. 862a-6

There is no documentation of indoctrination and training of USGS personnel performing quality related activities. It should also be noted that there is no apparent central control or accountability of the USGS personnel working on the NNWSI Project to ensure that these personnel are properly indoctrinated, trained, and certified.

Finding No. 862a-7

There are no certifications of personnel who perform reviews of technical documents. In addition, many of the USGS technical personnel certifications do not define the area of responsibility for which these personnel are certified. Examples of such certifications are those of the following personnel: Edwardo A. Rodriguez, David A. Ponce, Gary D. Hamilton, John H. Healy, Robert J. Munroe, Brennen O'Neill, William H. Prescott, Joann M. Stock, Joseph F. Svitek, Walter E. Wendt, Robert H. Colburn, Edward E. Criley, Ronald M. Kaderabek, Jeff Wilson, Dean Whitman. In some instances, the work experience included on the certifications of USGS technical personnel does not support the activities which they are certified to perform. Examples of such certifications are those of the following personnel: Susan Shipley, Paul E. Carrara, Richard Hay, Pamela Jenks, Christine Arthur, Michael Chornak, Ibrahim Palaz. Also, the certifications of Robert O. Castle and Kenneth A. Sargent were not approved by the next higher supervisory level as required by USGS

procedure NNWSI-USGS-QMP-2.03, Rev. 0, paragraph 3.2. Certifications for Castle and Sargent had no approvals. It should be noted that the USGS QA program does not establish certification criteria for the USGS technical personnel. The basis for certification as described on the USGS certification form is subjective in nature. This also applies to the certification of Fenix and Scisson geologists who implement USGS activities. In addition, there are no provisions in the USGS QA program for USGS to either accept or concur with lab contractor's certifications since these certifications are performed by F&S personnel.

Finding No. 862a-8

The USGS QA program does not adequately address provisions for USGS QA personnel and QA support contractors to stop unsatisfactory work. Although USGS-NNWSI-QMP-10.01, RO, para. 4.4 does state that the QA manager has authority to stop work during course of a surveillance, it is not documented as to how this activity is implemented. It should be noted that the stop work authority appears to be limited to those activities identified during the surveillance. No apparent provisions exist to stop unsatisfactory work identified during audits, inspections or by other means.

Finding No. 862a-9

The USGS QAPP-Rev. 0, Sec. QMP-1.0 does not delineate the responsibility and authority of each organization involved in the execution of activities affecting quality, and does not address external and internal interfaces between organizational units. In the case of internal interfaces, the Geological Division QA Specialist Central and QA Specialist Western Division, and Nuclear Hydrology QA Specialist responsibilities and authorities are not defined and documented. The aforementioned QA personnel as depicted in the USGS Organization Chart do not appear to have access to management levels such that they have the required organizational freedom including sufficient independence from cost and schedule when opposed to safety considerations. Note: see AFS 862a-1. Additionally, the USGS QA organization does not clearly delineate the authority and responsibility

for the external interfaces between organizational units performing activities affecting quality e.g., Los Alamos National Laboratory which is performing internal and external audits for the USGS and the Bureau of Reclamation which is performing site characterization activities including, but not limited to, surface hydrology.

Finding No. 862a-10

The USGS QAPP, Rev. 2 does not address provisions for the Quality Assurance program to control activities associated with operation of the core library facilities at the NTS for handling, storing, and distributing material samples and core for the commercial nuclear waste management activities at the NTS as required by the NNWSI Quality Assurance Plan. Note: refer to AFS 862a-11 for additional information.

Finding No. 862a-11

The USGS Quality Assurance program does not maintain WMPO approved QA administrative procedures for the storage, handling, and shipping of core samples and other materials associated with NNWSI Project activities to preclude damage, loss, or deterioration by environmental conditions. This condition is of particular concern since the USGS is responsible, in part, for the operation of the core library facilities at the NTS including, handling, storing, and distributing material samples and core for the commercial nuclear waste management activities at the NTS. Note: refer to AFS 862a-10 for additional information.

Finding No. 862a-12

The USGS Quality Assurance Plan does not address provisions to be established for the qualification of personnel, equipment, and procedures and for the control of special process verification methods to be documented for core sample preparation. This condition is of particular

concern since the USGS has and is presently processing core samples for NNWSI Project activities prior to the development, review, and approval by WMPO of these special process procedures.

Finding No. 862a-13

(Part 1) Many of the publication files requested for review did not contain peer-review comments. In several publication files that did contain peer-review comments, resolution of the comments by the author(s) was unclear.

(Part 2) WMPO asked several interviewees to produce the written peer-review procedures in effect prior to NNWSI-USGS-QMP-3.04, R0; evidence that these procedures existed was not produced.

Finding No. 862a-14

The USGS has been and is performing numerous site investigations for the NNWSI Project, as listed in the Work Breakdown Structure Dictionary, without any approved site investigation plans, and therefore, has been and is violating the QA Program requirements (See AFS 862a-14). The referred paragraphs clearly prohibit any site investigations from being performed, until and unless, a site investigation plan has been prepared, technically reviewed, and approved by WMPO.

It is true that extensive plans are in existence, or are in preparation, for the Site Characterization Plan (SCP) and the Exploratory Shaft Test Plan (ESTP), but these plans are not in effect at this time. The USGS has generally failed to provide, or to technically review, site investigation plans for their activities within the site exploration phase of this project.

It is also true that the USGS did prepare a Work Plan for the USGS Participation in the Nevada Nuclear Waste Storage Investigations Project, for the fiscal year 1985 activities, but this was apparently a preliminary draft which was never completed, reviewed, or submitted to WMPO for

approval. A similar document was also prepared for the fiscal year 1986, but again, this was also apparently a preliminary draft which has not yet been completed, reviewed, or submitted to WMPO for approval. These documents do not therefore, fulfill the requirements of NVO-196-17, Para. 3.2.2 and 3.2.3. (See Audit Finding 862a-15.)

Finding No. 862a-15

The USGS QAPP does not provide for the planning of the site investigation activities affecting quality as required by Para. 2.1 of NVO-196-17, Rev. 3, as further amplified in Para. 2.1.2 of SOP-02-01, Rev. 0, and Para. 3.2.2 and 3.2.3 of NVO-196-17, Rev. 3.

Finding No. 862a-16

Certifications of audit personnel who have performed supplier evaluations are not on file at USGS. Therefore, the acceptability of the supplier evaluations performed by these individuals cannot be determined.

Finding No. 862a-17

USGS contracts with various support contractors (e.g.) Inst. of Geophysics/Planetary Physics, Petrographic Services, Colorado School of Mines, and others do not specify that these contractors will implement the USGS QA Program for their activities nor does objective evidence exist to demonstrate that these contractors have an equivalent program which meets the requirements of the NNWSI Project QA Plan.

Finding No. 862a-18

The USGS QA program does not address provisions to control the utilization of limited calendar life items or samples (e.g., water samples) to assure that these items or samples are not used after such time that their chemical and physical properties may change which would affect the resulting data.

Finding No. 862a-19

There is no objective evidence to support performance of the required QA Manager review. In addition there are no provisions in the USGS technical procedures to require that this sample documentation be provided to the USGS QA Manager for review.

Finding No. 862a-20

Copies of some required records, such as audits and reviews of technical publications, are neither identifiable or retrievable.

Finding No. 862a-21

1. USGS records are being processed/reviewed using an unapproved QA procedure - "QA Records Management Guidelines" dated 1/28/86.
2. Measures have not been established to identify/document those personnel who are authorized to validate records.

Finding No. 862a-22

No documentation, USGS Corrective Action Request (CAR), has been generated to identify numerous recurring conditions adverse to quality. There are 29 outstanding/open audit findings identified by Los Alamos for USGS which have not been resolved; many of these identify recurring conditions.

Observations

The following observations were noted during the audit:

Observation No. 01

A report prepared by Will Carr (OFR-84-854) met the "Letter" of the requirements described in NNWSI-USGS-QMP-3.04, RO (Technical Review of NNWSI Publications). This procedure states, in part, that there will be

two peer reviewers for each report prepared by the USGS. One of the reviewers of this open-file report, however, recommended (in writing) that another geologist review the report because of his familiarity with certain parts of the subject matter. There is no record of this third review taking place. Therefore, a question arises concerning the adequacy of the technical review of this publication.

#### Observation No. 02

In NNWSI-USGS-QMP-17.01, RO, Sec. 5, Para. 5.4.4 it states that documents must be sent to the "Record Processing Center" within two weeks of completion. This schedule seems rather unrealistic, and may require a revision of the procedure.

#### Observation No. 03

The USGS has adopted a procedure (QMP-3.04, Rev. 0) for the technical review of NNWSI-USGS publications, but this procedure does not address the problem of data, interpretations, conclusions, recommendations, and/or reports which are not "published" officially by the USGS. The danger exists that some data, interpretations, conclusions, recommendations and/or "reports" could be used for a Quality Level I purpose, without any technical review, because the USGS QAPP does not address this problem. If this did happen, then it would be a violation of the intent of SOP-02-01. The USGS should address this problem somehow.

#### Observation No. 04

Part 1 - NNWSI-USGS-QMP-2.01, Rev. 0, requires that the status, adequacy and effectiveness of the NNWSI-USGS Quality Assurance Program be assessed annually. This assessment is required to be documented in a Management Assessment Report which is to be issued by October 31 of each year. This procedure carries an effective date of 8/24/85 and was approved by WMPD on

9/27/85. No Management Assessment Report has been issued to date, presumably due to the short time the USGS QA Program has been implemented. Based on discussions with the USGS QA Manager, this assessment is scheduled to be performed in September of 1986.

Part 2 - Per the USGS procedure, the USGS Assistant Director assigns responsibility for resolving quality-related problems and conditions adverse to quality which are identified in the Management Assessment Report. There is no method described regarding how these quality-related problems and conditions adverse to quality are documented, tracked or verified, for closure and there is no apparent involvement by Quality Assurance in this process. A response to this observation is required.

Observation No. 05

Based on the number and nature of the findings identified as well as the USGS estimates of manpower necessary to effectively implement the USGS QA Program, it appears evident that the USGS QA organization is inadequately staffed to achieve proper implementation of the QA Program at USGS.

6.0 CORRECTIVE ACTION

A written response to Audit Finding Sheets (AFSs) 862a-1 through 862a-22 (enclosed) is required. USGS should review and investigate the findings to determine the cause and schedule appropriate action to prevent recurrence. The response to the findings shall be in writing and included on, or attached, to the AFSs for return to WMPO within thirty (30) working days after receipt. In the event that the corrective action cannot be completed within thirty (30) days, the response shall indicate a schedule date for completion. A follow-up response by USGS must be sent to WMPO when the action has been completed. All responses shall be addressed to the Director, WMPO, and a copy shall be sent to the Lead Auditor (S. B. Singer, SAIC). A formal answer to all observations except observation No. 4 is optional. Observation No. 4 requires a response.



# WMPO AUDIT FINDING SHEET (AFS)

N-QA-02  
6/85

(To be used for all AFSs with added sheets as required.)

Audit Finding No. 862a-1 Audited Checklist Reference 862a-1-7.1.1-2

Audited Organization USGS - Denver

Organization Unit QA Activity Control of Purchased Material, Equipment and Services

Response Assigned To W. W. Dudley, Jr. Reported By (Auditor) N. Voltura/S. Singer

Requirement (Cite) NNWSI-SOP-02-01, Rev. 0 (1) Para. 5.1.1 states in part: "Activities that affect quality shall be prescribed by documented instructions, procedures ... of type appropriate to the circumstances and shall be accomplished in accordance (cont'd

Finding Contrary to the above, the USGS QA Program does not have a WMPO-approved QA procedure in place to address source evaluation and selection.

Approved By LA S. Singer 4/8/86 Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV James Blaylock 4/10/86 Date \_\_\_\_\_

Response (To be completed by audited organization.) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response  
 Satisfactory  Unsatisfactory  
 Reviewed by LA/Date \_\_\_\_\_  
 Reviewed by WMPO/NV/Date \_\_\_\_\_

Corrective Action Implementation  
 Satisfactory  Unsatisfactory  
 Reviewed by LA/Date \_\_\_\_\_  
 Reviewed by WMPO/NV/Date \_\_\_\_\_  
 Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

WMPO Audit Finding No. 862a-1 cont'd

Req. cont'd

with these instructions, procedures . . ." (2) Para. 7.1 states in part:

"Measures shall be established to ensure that purchased material, equipment and services conform to the procurement documents. These measures shall include provisions, as appropriate, for source evaluation and selection . . ."



# WMPO AUDIT FINDING SHEET (AFS)

N-QA-02  
6/85

(To be used for all AFSs with added sheets as required.)

USGS QMP-8.01

Audit Finding No. 862a-2 Audited Checklist Reference Rev. 0 Para. 4.1.3

Audited Organization USGS - Denver

Organization Unit Metrology Lab  
Rock Preparation Room Activity Identification & Control of Samples

Response Assigned To W. W. Dudley, Jr. Reported By (Auditor) S. Singer

Requirement (Cite) NNWSI-USGS-OMP 8.01 Rev. 0 Section 1. Identification & Control of Geologic & Hydrologic Samples, Para. 1 Purpose, states: "This procedure defines the method of identification and control of geologic and hydrologic samples to (cont'd)

Finding Contrary to the above J-13 water sample was found in a container which had no identification other than the number J-13. When the engineer was asked for any other documents that were traceable to the sample, his reply was, "These documents are not available."

Approved By LA S. Singer 4/2/86 Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV James Blaylock 4/10/86 Date \_\_\_\_\_

Response (To be completed by audited organization) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response Reviewed by LA/Date \_\_\_\_\_  
 Satisfactory  Unsatisfactory

Reviewed by WMPO/NV/Date \_\_\_\_\_

Corrective Action Implementation Reviewed by LA/Date \_\_\_\_\_  
 Satisfactory  Unsatisfactory

Reviewed by WMPO/NV/Date \_\_\_\_\_

Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

WMPO Audit Finding No. 862a-2 cont'd

Req. cont'd

assure their traceability until they are destroyed." Para. 2 Scope of Compliance, states in part: "This procedure is applicable to all geologic and hydrologic samples generated by USGS which support Quality Levels I and II activities for NNWSI Project." Para. 4.1. "Information needed for each sample will include its location, sampling plan, lot or batch, collector, date of collection, storage location and physical description. This data shall be on documents traceable to the sample throughout the samples' collection preparation, analysis and storage."



# WMPO AUDIT FINDING SHEET (AFS)

N-QA-02  
6/85

(To be used for all AFSs with added sheets as required.)

Audit Finding No. 862a-3 Audited Checklist Reference 862a-1-4.2.2

Audited Organization USGS - Denver

Organization Unit QA Activity Procurement Doc. Control

Response Assigned To W. W. Dudley, Jr. Reported By (Auditor) N. Voltura/S. Singer

Requirement (Cite) NNWSI-USGS-QMP-4.01, Rev. 0 states: Para. 1: Purpose: "To establish controls for ensuring that requisition documents include the applicable statements, references or clauses to obtain procurement objectives for NNWSI Project related (cont'd)"

Finding Contrary to the above, a sample review of procurement documents identified inconsistent implementation of USGS-QMP-4.01 in the following areas: (1) neither the purchase requisition nor the NNWSI QA Procurement Form consistently identify any of the following for QA Level I items or services: technical requirements, QA Program (cont'd)

Approved By LA *N. Singer* 4/2/86 Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV *Jane Blaylock* 4/10/86 Date \_\_\_\_\_

Response (To be completed by audited organization.) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response Reviewed by LA/Date \_\_\_\_\_

Satisfactory  Unsatisfactory Reviewed by WMPO/NV/Date \_\_\_\_\_

Corrective Action Implementation Reviewed by LA/Date \_\_\_\_\_

Satisfactory  Unsatisfactory Reviewed by WMPO/NV/Date \_\_\_\_\_

Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

WMPO Audit Finding No. 862a-3 cont'd

Req. cont'd

services, activities or items." Para. 4.3 states in part: "Level I items/services -- In addition to 4.1 and 4.2, requisition documents shall include provisions as deemed necessary and applicable by the purchaser for the following: Technical requirements . . . , QA Program requirements . . . , Rights of Access . . . , Documentation Requirements . . . , Nonconformance reporting requirements . . ."

Para. 5.3 "QA Manager reviews & approves the requisition & QA Procurement forms . . .

Copies of the requisition documents for Level I items/services are forwarded to . . . WMPO . . ."

Finding cont'd

requirements, Rights of access, Documentation requirements, provisions for reporting nonconformances. Requisition #s - 4810-0116, 1/14/86; 4810-0041-86, 10/1/85; 4810-0109-86, 1/8/86; 4810-33310T, 12/27/85; 4810-0088, 12/17/85. (2) Lack of documented evidence of USGS' QA Manager's review and approval of the requisition and the QA Procurement form. Requisition #4810-0017-86, 9/18/85; #4810-0015-86, 8/20/85; #4810-0007-86, 8/85. (3) USGS personnel have approved the USGS NNWSI QA Procurement form for the USGS QA Manager without documented authority to do so. (4) Copies of all as-issued QA Level I procurement documents are not being forwarded to WMPO.



# WMPO AUDIT FINDING SHEET (AFS)

(To be used for all AFSs with added sheets as required)

Audit Finding No. 862a-4 Audited Checklist Reference 862a-18.2.1.2

Audited Organization USGS - Denver

Organization Unit QA Activity Audits

Response Assigned To W. W. Dudley, Jr. Reported By (Auditor) N. Voltura/S. Singer

Requirement (Cite) NNWSI SOP-02-01, Rev.0 Para. 18.2.1 states in part: "Internal & external audits shall be scheduled in a manner that shall provide coverage & coordination with ongoing QA program activities..." Para. 18.2.1.2 External Audits - Elements (cont'd)

Finding Contrary to the above, NNWSI-USGS-QMP-18.01, Rev. 0 does not address program provisions for conducting external audits of suppliers/contractors to USGS.

Approved By LA S. Singer 4/7/86 Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV James Blaylock 9/10/86 Date \_\_\_\_\_

Response (To be completed by audited organization.) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response Reviewed by LA/Date \_\_\_\_\_

Satisfactory  Unsatisfactory Reviewed by WMPO/NV/Date \_\_\_\_\_

Corrective Action Implementation Reviewed by LA/Date \_\_\_\_\_

Satisfactory  Unsatisfactory Reviewed by WMPO/NV/Date \_\_\_\_\_

Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

WMPO Audit Finding No. 862a-4 cont'd

Req. cont'd

of a supplier's QA program shall be audited by the purchaser . . ."



# WMPO AUDIT FINDING SHEET (AFS)

N-QA-C  
6/85

(To be used for all AFSs with added sheets as required)

QMP-12.01 para 3  
through 9 & SOP-0  
page 37 & 38 - of  
para 12.1.4

Audit Finding No. 862a-5

Audited Checklist Reference

Audited Organization USGS - Denver

Organization Unit Rock Properties  
Measurements Lab

Activity Control of M & TE

Response Assigned To W. W. Dudley, Jr.

Reported By (Auditor) S. Singer

Requirement (Cite) Chapter 12 Control of Measuring and Test Equipment Section 1, 2. SCOP

OF COMPLIANCE. This procedure applies to all USGS instruments that require calibration in support of the NNWSI Project. It applies to all NNWSI-USGS personnel and their (con

Finding A review of the Rock Properties Measurement Lab revealed lack of compliance/im  
plementation in the following areas: (1) the QA Calibration Form is not being completed  
each instrument requiring calibration and is not being sent to the USGS QA Office prior  
to the instrument's use. (2) The USGS QA Office is not entering this information (con

Approved By LA S. Singer 4/8/86

Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV James Bleylock 4/10/86

Date

Response (To be completed by audited organization.) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Corrective Action Implementation  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

WMPO Audit Finding No. 862a-5 cont'd Req. cont'd

contractors. 4. RESPONSIBILITIES. 4.1 The

Principal Investigator (PI) is responsible for ensuring that USGS-controlled instruments requiring calibration meet the requirements of this procedure.

5. PROCEDURE. 5.1 A QA Calibration Form (Attachment 1) shall be completed by the PI or a delegate for each instrument requiring calibration and sent to the

USGS QA Office prior to the instrument's use. 5.2 The USGS QA Office shall enter the information into a calibration system, and provide the originating

PI a copy of the information. 5.5 The PI is responsible for ensuring that the calibration status of instruments are displayed at some readily accessible

location. To comply, a sticker shall be affixed to each instrument denoting the calibration status according to one of the following three categories:

1. Showing equipment identification, date calibrated, date recalibration is due, procedure number and calibrator.
2. Indicating the equipment identification, "OPERATOR TO CALIBRATE", and the procedure number.
3. Showing the equipment

identification and "NO CALIBRATION REQUIRED". 5.6 Nonconformance reports shall be prepared in accordance with NNWSI-USGS-QMP-15.01 for instruments that are used after the recalibration due date or displays no calibration status sticker.

6. QA REQUIREMENTS. 6.1 Personnel performing equipment calibration shall be certified to have the qualifications necessary to perform the required cali-

bration. These qualifications shall be based on training and experience and documented according to procedure NNWSI-USGS-QMP-2.03. 6.2 Calibration

standards used for calibration of instruments shall be traceable to the National Bureau of Standards (NBS) or other known standards; this includes primary and working standards. If NBS standards do not exist, the reference standard used shall be supported by certificates, reports, or data sheets attesting to the

WMPO Audit Finding No. 862a-5 cont'd

Req. cont'd

date, accuracy, and conditions under which the results were obtained. If reference standards are used, they will be stored and handled in such a way as to maintain the required accuracy and characteristics of the standard.

6.3 The method and interval of calibration for each item shall be defined, based on the type of equipment stability, characteristics, required accuracy, intended use, the manufacturer's recommendations, and other conditions that affect measurement control. Instruments that are out of calibration shall be tagged or segregated and shall not be used until they have been recalibrated. If any instrument is found to be out of calibration consistently, then it shall be repaired or replaced. A calibration shall be performed when the accuracy of the instrument is suspect. 8. RECORDS MANAGEMENT. The calibration forms and any other documents associated with this procedure which are Quality Level I or II documents shall be processed as an official NNWSI QA record.

WMPO Audit Finding No. 862a-5 cont'd

Finding cont'd

into a calibration system -- to include all affected instruments. (3) The calibration status of instruments is not being displayed at a readily accessible location. Stickers are not affixed to each instrument denoting the calibration status in accordance with Para. 5.5 above. (4) Nonconformance reports have not been written for instruments that display no calibration status sticker. (5) No documented certifications are on file for personnel performing equipment calibrations. (6) Calibration standards used for calibration of instruments are not traceable to the NBS or other known standards. Where NBS standards do not exist, the reference standard is not supported by certificates, reports or data sheets attesting to the date, accuracy and conditions under which the results were obtained. (7) The method and interval of calibration for each item has not been defined, based on the type of equipment stability, characteristics, required accuracy, intended use, manufacturer's recommendations or other conditions that affect measurement controls. (8) Instruments out of calibration are not tagged or segregated. (9) Calibration forms, which are QA Level I or II documents, are not processed as NNWSI QA records.



# WMPO AUDIT FINDING SHEET (AFS)

(To be used for all AFSs with added sheets as required)

Audit Finding No. 862a-6 Audited Checklist Reference 862a-1 Page 7 of

Audited Organization USGS

Organization Unit Various Activity Indoctrination & Training

Response Assigned To W. W. Dudley, Jr. Reported By (Auditor) J. W. Estella

Requirement (Cite) NNWSI-USGS-QMP-2.02, Rev. 0, paragraph 4.1 requires that all personnel performing quality related activities receive indoctrination and training to the extent necessary to perform their specific functions. Paragraph 4.2 states that the (cont'd)

Finding Contrary to the above cited requirement, there is no documentation of indoctrination and training of USGS personnel performing quality related activities. It should also be noted that there is no apparent central control or accountability of the USGS personnel working on the NNWSI Project to ensure that these personnel are (cont'd)

Approved By LA *S. Chavez* 4/8/86 Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV *Jane Blyford* 4/10/86 Date \_\_\_\_\_

Response (To be completed by audited organization) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response

Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Corrective Action Implementation

Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

WMPO Audit Finding No. 862a-6 cont'd

Req. cont'd

indoctrination and training activities shall be documented and retained as a QA record.

Finding cont'd

properly indoctrinated, trained, and certified.



# WMPO AUDIT FINDING SHEET (AFS)

(To be used for all AFSs with added sheets as required)

Audit Finding No. 862a-7 Audited Checklist Reference 862a-1 pg 10 of

Audited Organization USGS

Organization Unit Various Activity Personnel Certifications

Response Assigned To W. W. Dudley, Jr. Reported By (Auditor) J. W. Estella

Requirement (Cite) NNWSI-SOP-02-01, Rev. 0 requires that personnel performing Quality Le  
I activities be certified to show competence to perform their specific duties, e.g.  
design verification, document review, surveillance, etc.

Finding Contrary to the above cited requirement, there are no certifications of personn  
who perform reviews of technical documents. In addition, many of the USGS technical  
personnel certifications do not define the area of responsibility for which these  
personnel are certified. Examples are: Edwardo A. Rodriquez, David A. Ponce, (cont'd)

Approved By LA A. B. Singer 4/8/86 Response Due Date 30 days aft  
Receipt of  
Report

Approved By WMPO/NV James Blylock 4/10/86 Date \_\_\_\_\_

Response (To be completed by audited organization.) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Corrective Action Implementation  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

WMPO Audit Finding No. 862a-7 cont'd

Finding cont'd

Gary D. Hamilton, John H. Healy, Robert J. Munroe, Brennen O'Neill, William H. Prescott, Joann M. Stock, Joseph F. Svitek, Walter E. Wendt, Robert H. Colburn, Edward E. Criley, Ronald M. Kaderabek, Jeff Wilson, Dean Whitman. In some instances, the work experience included on the certifications of USGS technical personnel does not support the activities which they are certified to perform. Examples are: Susan Shipley, Paul E. Carrara, Richard Hay, Pamela Jenks, Christine Arthur, Michael Chornak, Ibrahim Palaz. Also, the certifications of Robert O. Castle and Kenneth A. Sargent were not approved by the next higher supervisory level as required by USGS procedure NNWSI-USGS-QMP-2.03, Rev. 0, paragraph 3.2; these certifications had no approvals at all. It should be noted that all the personnel certifications available for USGS technical personnel were completed within the 2 weeks prior to this audit. It should also be noted that the USGS QA program does not establish certification criteria for the USGS technical personnel. The basis for certification as described on the USGS certification form is subjective in nature. This also applies to the certification of Fenix and Scisson geologists who implement USGS activities. In addition, there are no provisions in the USGS QA program for USGS to either accept or concur with these certifications since these certifications are performed by F&S personnel.



# WMPO AUDIT FINDING SHEET (AFS)

(To be used for all AFSs with added sheets as required)

862a-1, pg 1 of 10

Audit Finding No. 862a-8 Audited Checklist Reference Ques. (1)

Audited Organization USGS

Organization Unit QA Activity I Organization

Response Assigned To W. W. Dudley, Jr. Reported By (Auditor) R.F. Cote/J.W. Estella

Requirement (Cite) NVO-196-17-Rev. 3, pg. 8, para. 1.8, states in part: quality assurance

personnel shall report to management levels such that they have sufficient authority a

organizational independence to identify quality problems; to initiate, recommend (cor

Finding Contrary to the above requirements the USGS QA program does not adequately

address provisions for USGS QA personnel and QA support contractors to stop unsatisfac

tory work. Although USGS-NNWSI-QMP-10.01,RO, para. 4.4 does address that the QA manag

has authority to stop work during course of a surveillance, it is not documented (cont

Approved By LA S. Augier 4/7/86 Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV James Blylock 4/10/86 Date \_\_\_\_\_

Response (To be completed by audited organization.) \_\_\_\_\_

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\_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response Reviewed by LA/Date \_\_\_\_\_

Satisfactory  Unsatisfactory

Reviewed by WMPO/NV/Date \_\_\_\_\_

Corrective Action Implementation

Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

\_\_\_\_\_

WMPO Audit Finding No. 862a-8 cont'd

Req. cont'd

or provide solutions; to verify implementation of solutions; and to stop unsatisfactory work.

Finding cont'd

as to how this activity is implemented. It should be noted that the stop work authority appears to be limited to those activities identified during the surveillance. No apparent provisions exist to stop unsatisfactory work identified during audits, inspections or by other means.

QUESTIONS

# WMPO AUDIT FINDING SHEET (AFS)

N-QA-0  
6/85

(To be used for all AFSs with added sheets as required.)

862a, pg 2 of 102  
Ques. 2, 3, 4a; pg  
of 102, Ques. 7, 8

Audit Finding No. 862a-9

Audited Checklist Reference

Audited Organization USGS

Organization Unit QA

Activity Organization (I)

Response Assigned To W. W. Dudley, Jr.

Reported By (Auditor) R.F. Cote/J.W. Estella

Requirement (Cite) NNWSI-SOP-02-01-Rev. 0, Sec. 1.0, para. 1.2.4 organization states: "I more than one organization is involved in the execution of activities affecting quality then the responsibility & authority of each organization shall be established (cont'd)

Finding Contrary to the above requirements, the USGS QAPP-Rev. 0, Sec. QMP-1.0 does not delineate in writing the responsibility & authority of each organization involved in the execution of activities affecting quality, and does not address external and internal interfaces between organizational units. In the case of internal interfaces, (cont'd)

Approved By LA A. Shugis 4/9/86

Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV James B. Baylock 4/10/86

Date

Response (To be completed by audited organization.)

Implementation Date Submitted By Date

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date

Reviewed by WMPO/NV/Date

Corrective Action Implementation  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date

Reviewed by WMPO/NV/Date

Reaudit Date

Remarks

Audit Finding Closed  LA Concurrence/Date

Reference and Number(s) for unsatisfactory reaudit

WMPO Audit Finding No. 862a-9 cont'd

Req. cont'd

clearly and documented. The external interfaces between organizations and the internal interfaces between organizational units and changes thereto shall be documented. Interface responsibilities shall be defined and documented."

NNWSI-SOP-02-01-Rev. 0, Par. 1.1.1; Organization, states in part . . . the authority and duties of persons and organizations performing activities affecting quality shall be clearly established and delineated in writing.

Finding cont'd

the Geological Division QA Specialist Central & QA Specialist Western Division, and Nuclear Hydrology QA Specialist responsibilities and authorities are not defined and documented. The aforementioned QA personnel as depicted in the USGS Organization Chart do not appear to have access to management levels such that they have the required organizational freedom including sufficient independence from cost and schedule when opposed to safety considerations. Note: see AFS-86-2A-1. Additionally, the USGS QA organization does not clearly delineate in writing the authority and responsibility for the external interfaces between organizational units performing activities affecting quality e.g. Los Alamos National Laboratory who is performing internal and external audits for the USGS and the Bureau of Reclamation who is performing site characterization activities including, but not limited to, surface hydrology.



# WMPO AUDIT FINDING SHEET (AFS)

(To be used for all AFSs with added sheets as required.)

Audit Finding No. 862a-10 Audited Checklist Reference Ques. 5.

Audited Organization USGS

Organization Unit QA Activity II Program

Response Assigned To W. W. Dudley, Jr. Reported By (Auditor) R.F. Cote/J.W. Estella

Requirement (Cite) NNWSI-SOP-02-01-Rev. 0, Sec. 2.0, Par. 2.1.1; Program; states in part. the program shall identify the systems, structures, components, and activities to be covered by the QA Program Plan.

Finding Contrary to the above requirement; the USGS QAPP, Rev. 2 does not address provisions for the Quality Assurance program to control activities associated with operation of the core library facilities at the NTS for handling, storing, and distributing material samples and core for the commercial nuclear waste management activities (con

Approved By LA [Signature] 4/8/86 Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV [Signature] 4/10/86 Date \_\_\_\_\_

Response (To be completed by audited organization.) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV.

Corrective Action Response  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Corrective Action Implementation  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

WMPO Audit Finding No. 862a-10 cont'd

Finding cont'd

at the NTS as required by the NNWSI Quality Assurance Plan. Note: refer to AFS-86-2A-11 for additional information.



# WMPO AUDIT FINDING SHEET (AFS)

N-QA-6/85

(To be used for all AFSs with added sheets as required)

862a-1, pg 45 of 102 Ques. (3) and 60 of 102 Ques. (

Audit Finding No. 862a-11

Audited Checklist Reference

Audited Organization USGS

Organization Unit QA

Activity (13) Storage Handling & Shipping

Response Assigned To W. W. Dudley, Jr.

Reported By (Auditor) R.F. Cote/J.W. Estella

Requirement (Cite) Req. No. 1 NVO-196-17-Rev. 3, Sec. 5.0, par. 5.1, states in part all activities affecting quality on the NNWSI project will be performed utilizing approved instructions, procedures, drawings, or other documents. . (cont'd)

Finding Contrary to the above requirement; the USGS Quality Assurance program does not maintain WMPO approved QA administrative procedures for the storage handling & shipping of core samples and other materials associated with NNWSI activities to preclude damage loss, or deterioration by environmental conditions. This condition is of (cont'd)

Approved By LA S. Sengier 4/19/86

Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV James Blaylock 4/10/86

Date

Response (To be completed by audited organization)

Implementation Date Submitted By Date

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date  
Reviewed by WMPO/NV/Date

Corrective Action Implementation  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date  
Reviewed by WMPO/NV/Date

Reaudit Date

Remarks

Audit Finding Closed  LA Concurrence/Date

Reference and Number(s) for unsatisfactory reaudit

WMPO Audit Finding No. 862a-11 cont'd

Req. cont'd

Req. No. 2 NVO-196-17-Rev. 3, Sec. 5.0, Par. 5.1, states: QA administrative procedures or documents provide instructions for implementation and application of NVO-196-17 and the participating organizations' . . . QAPPs. Req. No. 3 NVO-196-17-Rev. 3, Sec. 5.0, Par. 5.3, states in part: the administrative QA procedures will require WMPO review and approval prior to use.

Finding cont'd

particular concern since the USGS is responsible in part for the operation of the core library facilities at the NTS including, handling, storing, and distributing material samples and core for the commercial nuclear waste management activities at the NTS. Note: refer to AFS 86-2A-10 for additional information.

33900



# WMPO AUDIT FINDING SHEET (AFS)

N-QA-0  
6/85

(To be used for all AFSs with added sheets as required.)

Audit Finding No. 862a-12

Audited Checklist Reference 862a-1, pg 44 of 102 Ques.(1) and

Audited Organization USGS

Organization Unit QA

Activity (9) Control of Processes

Response Assigned To W. W. Dudley, Jr.

Reported By (Auditor) R.F. Cote/J.W. Estella

Requirement (Cite) Req. No. 1 NVO-196-17-Rev. 3, Sec. 9.0, Par. 9.2; states; when special processes are required to control quality, the use of qualified personnel, equipment, and procedures is necessary, the criteria for qualification of personnel, equipment, and

Findings Contrary to the above requirement(s), the USGS Quality Assurance Plan does not address provisions to be established for the qualification of personnel, equipment, and procedures and for the control of special process verification methods to be documented for core sample preparation. This condition is of particular concern since the (cont'd

Approved By LA A. Singer 4/2/86

Response Due Date 30 days after Receipt of Report

Approved By WMPO/IV James Blylock 4/10/86

Date \_\_\_\_\_

Response (To be completed by audited organization.) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/IV

Corrective Action Response  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_  
Reviewed by WMPO/IV/Date \_\_\_\_\_

Corrective Action Implementation  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_  
Reviewed by WMPO/IV/Date \_\_\_\_\_  
Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

WMPO Audit Finding No. 862a-12 cont'd

Req. cont'd

and procedures, and the maintenance of the qualification records will be specified in the participating organizations' and NTS support contractors' QA programs. Special process verification methods and criteria will also be documented and retained. Req. No. 2 NVO-196-17-Rev. 3, Sec. 9.0, Par. 9.3; states in part . . . examples of special processes include, but are not limited to . . . core sample preparation. Req. No. 3 NVO-196-17-Rev. 3, Sec. 9.0, Par. 9.4; states; for QA Level I activities, the participating organizations and NTS support contractors will forward their special process procedures to WMPO for review and approval prior to use.

Finding cont'd

USGS has and is presently processing core samples for NNWSI activities prior to the development review and approval by WMPO of these special process procedures.

035000



# WMPO AUDIT FINDING SHEET (AFS)

N-QA-024  
6/85

(To be used for all AFSs with added sheets as required.)

Audit Finding No. 862a-13 Audited Checklist Reference 86-2a, pages 6, 8, 9, 11, 13-15.

Audited Organization U.S. Geological Survey - Denver

Organization Unit Geologic/Hydrologic Divs. Activity Quality Assurance Records Peer-Review Documentation

Response Assigned To W. W. Dudley, Jr. Reported By (Auditor) Ed Oakes

Requirement (Cite) (Part 1) NNWSI 196-17, Rev. 0 (1980), Sec. 17, Para. 17.1 and USGS-QAPP-01 R0, Sec. 17 states that sufficient records, including the results of technical

reviews, will be maintained to support conclusions reached from investigations, (cont'

Finding (Part 1) Many of the publication files requested for review did not contain peer review comments. In several publication files that did contain peer-review comments, resolution of the comments by the author(s) was unclear. (Part 2) WMPO asked several interviewees to produce the written peer-review procedures in effect prior to (cont'd)

Approved By LA S. Sturges 4/9/86 Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV James Blaylock 4/10/86 Date \_\_\_\_\_

Response (To be completed by audited organization) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response Reviewed by LA/Date \_\_\_\_\_

Satisfactory  Unsatisfactory Reviewed by WMPO/NV/Date \_\_\_\_\_

Corrective Action Implementation Reviewed by LA/Date \_\_\_\_\_

Satisfactory  Unsatisfactory Reviewed by WMPO/NV/Date \_\_\_\_\_

Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

WMPO Audit Finding No. 862a-13 cont'd

Req. cont'd

and (Part 2) NNWSI 196-17 Rev. 0 (1980), Sec. 6, Para. 6.1. states that each participating organization have existing written procedures which describe how They control their own quality-related documents.

Finding cont'd

NNWSI-USGS-QMP-3.04, Rev. 0; evidence that these procedures existed was not produced.



# WMPO AUDIT FINDING SHEET (AFS)

N-QA-C  
6/85

(To be used for all AFSs with added sheets as required.)

Audit Finding No. 862a-14 Audited Checklist Reference 862a-2, pg 3 #3 & #6

Audited Organization USGS - Denver

Organization Unit Site Investigation Activity Documentation

Response Assigned To W. W. Dudley, Jr. Reported By (Auditor) Forrest D. Peters

Requirement (Cite) NVO 196-17 Rev. 3 Para. 3.2.2 and 3.2.3 3.2.2 Prior to the start of site investigation, the responsible Participating Organization shall develop a plan which will describe the tests and experiments which will be utilized to determine the (cont'd)

Finding The USGS has been and is performing numerous site investigations for the NNWSI project, as listed in The Work Breakdown Structure Dictionary, without any approved site investigation plans, and therefore, has been and is violating the requirements of the referred paragraphs. The referred paragraphs clearly prohibit any site (cont'd)

Approved By LA *H. L. ...* 4/8/86 Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV *Jane Blaylock* 4/10/86 Date \_\_\_\_\_

Response (To be completed by audited organization.) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Corrective Action Implementation  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

WMPO Audit Finding No. 862a-14 cont'd

Req. cont'd

geologic, hydrologic, geotechnical, or tectonic mean values and range of uncertainties of the natural host formation. The plan shall present sufficient detail to determine whether or not the activities to be conducted, the methods of analyzing the data to be gathered, and the modeling methods will ensure that the end results will provide sufficient information necessary to evaluate the characteristics of the natural barriers against the criteria specified in 10 CFR 191.

3.2.3 The responsible Participating Organization shall conduct a technical review on the plan prior to the start of any activities associated with the plan.

Finding cont'd

investigations from being performed, until and unless, a site investigation plan has been prepared, technically reviewed, and approved by WMPO.

It is true that extensive plans are in existence, or are in preparation, for the site characterization plan (SCP) and the exploratory shaft test plan (ESTP), but these plans are not in effect at this time. The USGS has generally failed to provide, or to technically review, site investigation plans for their activities within the site exploration phase of this project.

It is also true that the USGS did prepare a Work Plan for the USGS Participation in the Nevada Nuclear Waste Storage Investigation, for the fiscal year 1985 activities, but this was apparently a preliminary draft which was never completed, reviewed, or submitted to WMPO for approval. A similar document was also prepared for the fiscal year 1986, but again, this was also apparently a preliminary draft which has not yet been completed, reviewed, or submitted to WMPO for approval. These documents do not therefore, fulfill the requirements of NVO 196-17 Para 3.2.2 and 3.2.3.

(See Audit Finding 862a-15.)



# WMPO AUDIT FINDING SHEET (AFS)

N-QA-02  
6/85

(To be used for all AFSs with added sheets as required)

862a-2 pg. 3

Audit Finding No. 862a-15 Audited Checklist Reference #4 & #6

Audited Organization USGS - Denver

Organization Unit QA Activity Preparation of USGS QAPP

Response Assigned To W. W. Dudley, Jr. Reported By (Auditor) Forrest D. Peters

Requirement (Cite) NVO 196-17 Rev. 3 Para. 2.1, 3.2.2, and 3.2.3. SOP 02-01 Para. 2.1.2

The QAPPs shall provide for the planning and accomplishment of activities affecting quality under suitable controlled conditions. Controlled conditions include the (cont'

**Finding** The USGS QAPP does not provide for the planning of the site investigation activities affecting quality as required by (Para. 2.1) of NVO 196-17 Rev. 3, as further amplified in Para. 2.1.2 of SOP 02-01 Rev. 0, and Para. 3.2.2. and 3.2.3 of NVO 196-17 Rev. 3.

Approved By LA *A. Singer* 4/8/86 Response Due Date 30 days after Receipt of Report

Approved By WMPO/IV *James Blaylock* 4/10/86 Date \_\_\_\_\_

Response (To be completed by audited organization) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/IV

Corrective Action Response

Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/IV/Date \_\_\_\_\_

Corrective Action Implementation

Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/IV/Date \_\_\_\_\_

Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

WMPO Audit Finding No. 86-2a-15 cont'd

Req. cont'd

use of appropriate equipment, suitable environmental conditions for accomplishing the activity, assurance that prerequisites for the given activity have been satisfied, and control for verification of quality activities. SOP 02-01 2.1.2 Activities that affect quality should be planned and documented to assure a systematic approach. Planning should result in the documented identification of methods and organizational responsibilities. Planning should be performed as early as practical and no later than the start of those activities that are to be controlled to assure interface compatibility and a satisfactory approach to QA. NVO 196-17 3.2.2 Prior to the start of a site investigation, the responsible Participating Organization shall develop a plan which will describe the tests and experiments which will be utilized to determine the geologic, hydrologic, geotechnical, or tectonic mean values and range of uncertainties of the natural host formation. The plan shall present sufficient detail to determine whether or not the activities to be conducted, the methods of analyzing the data to be gathered, and the modeling methods will ensure that the end results will provide sufficient information necessary to evaluate the characteristics of the natural barriers against the criteria specified in 10 CFR 191. 3.2.3 The responsible Participating Organization shall conduct a technical review on the plan prior to the start of any activities associated with the plan.



# WMPO AUDIT FINDING SHEET (AFS)

(To be used for all AFSs with added sheets as required)

Audit Finding No. 862a-16 Audited Checklist Reference (See note below)

Audited Organization USGS - Denver

Organization Unit QA Activity Supplier Evaluations/Certification of Personnel

Response Assigned To W. W. Dudley, Jr. Reported By (Auditor) N. Voltura/S. Singer

Requirement (Cite) SOP-02-01, Rev. 0 Para. 17.1.1 states: "Sufficient records shall be maintained to furnish evidence of activities that affect quality. The records shall include at least the following: . . . qualifications of personnel . . ."

Finding Contrary to the above, certifications of audit personnel who have performed supplier evaluations are not on file at USGS. Therefore, the acceptability of the supplier evaluations performed by these individuals cannot be determined.

Approved By LA S. Singer 4/8/86 Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV Jane Blaylock 4/10/86 Date \_\_\_\_\_

Response (To be completed by audited organization) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response  
 Satisfactory  Unsatisfactory  
 Reviewed by LA/Date \_\_\_\_\_  
 Reviewed by WMPO/NV/Date \_\_\_\_\_

Corrective Action Implementation  
 Satisfactory  Unsatisfactory  
 Reviewed by LA/Date \_\_\_\_\_  
 Reviewed by WMPO/NV/Date \_\_\_\_\_  
 Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

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# WMPO AUDIT FINDING SHEET (AFS)

N-QA-C  
6/85

(To be used for all AFSs with added sheets as required)

Audit Finding No. 862a-17 Audited Checklist Reference 862a-1, pg 4 of 102 Ques. 6.A, 6.

Audited Organization USGS

Organization Unit QA Activity Organization (I)

Response Assigned To W.W. Dudley, Jr. Reported By (Auditor) R.F. Cote/J.W. Estella

Requirement (Cite) NNWSI-USGS-QMP-1.01, RO. Pg. 5 of 5, Par. 4.10; states: "All support other contractors with activities directed at the NNWSI-USGS Project shall either comply with the requirements of the NNWSI-USGS QA Program Plan as specified by contract (cont'

Finding Contrary to the above requirement, USGS contracts with various support contracts (e.g.) Inst. of Geophysics/Planetary Physics, Petrographic Services, Colorado School of Mines, and others do not specify that these contractors will implement the USGS QA Program for their activities nor does objective evidence exist to demonstrate (cont'd

Approved By LA L. Singer 4/8/86 Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV James Blylock 4/10/86 Date \_\_\_\_\_

Response (To be completed by audited organization.) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response  
 Satisfactory  Unsatisfactory  
Reviewed by LA/Date \_\_\_\_\_

Corrective Action Implementation  
 Satisfactory  Unsatisfactory  
Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_  
Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

WMPO Audit Finding No. 862a-17 cont'd

Req. cont'd

or they shall have an equivalent program of their own."

Finding cont'd

that these contractors have an equivalent program which meets the requirements of the NNWSI Project QA Plan.



# WMPO AUDIT FINDING SHEET (AFS)

N-QA-6/85

(To be used for all AFSs with added sheets as required.)

862a, pg 43 of 11

Audit Finding No. 862a-18

Audited Checklist Reference Ques. 7

Audited Organization USGS

Organization Unit QA

Activity Criteria (8)

Response Assigned To W. W. Dudley, Jr.

Reported By (Auditor) R.F. Cote/J.W. Estell

Requirement (Cite) NNWSI-SOP-02-01-Rev. 0, Sec. 8.0, Par. 8.2.2.2, states: items or samples having limited calendar life, or items having limited operating life or cycles shall be identified and controlled to preclude use of items or samples for which (cont

Finding Contrary to the above requirements, the USGS QA program does not address provisions to control the utilization of limited calendar life items or samples (e.g.) water samples to assure that these items or samples are not used after such time that their chemical and physical properties may change which would affect the resulting data.

Approved By LA L. Singer 4/8/86

Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV James Blaylock 4/10/86

Date \_\_\_\_\_

Response (To be completed by audited organization) \_\_\_\_\_

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\_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Corrective Action Implementation  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

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WMPO Audit Finding No. 862a-18 cont'd

Req. cont'd

the shelf life or operating life has expired.



# WMPO AUDIT FINDING SHEET (AFS)

N-QA-02-6/85

(To be used for all AFSs with added sheets as required)

Audit Finding No. 862a-19 Audited Checklist Reference 862a-1 pg.43 of 1

Audited Organization USGS

Organization Unit Quality Assurance Activity Identification and Control of Materials, Parts & Components

Response Assigned To \_\_\_\_\_ Reported By (Auditor) J. W. Estella

Requirement (Cite) NNWSI-USGS-QMP-8.01, Rev. 0, paragraph 3 requires the identification geologic and hydrologic samples to be controlled from initial collection through disposal and that this identification be correlated from the sample to (cont'd)

Finding Contrary to the above cited requirement, there is no objective evidence to support that the required QA Manager review is being performed. In addition there are no provisions in the USGS technical procedures to require that this sample documentation be provided to the USGS QA Manager for review.

Approved By LA [Signature] 4/9/86 Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV James Blaylock 4/10/86 Date \_\_\_\_\_

Response (To be completed by audited organization) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Corrective Action Implementation  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

WMPO Audit Finding No. 862a-19 cont'd

Req. cont'd

pertinent documents. Paragraph 5 of this procedure requires that once the sample has undergone all tests and analyses, the sample documents must be reviewed for completeness and adequacy by the QA Manager. This review must be documented by signature of the QA Manager.



# WMPO AUDIT FINDING SHEET (AFS)

N-QA-02  
6/85

(To be used for all AFSs with added sheets as required)

Audit Finding No. 862a-20 Audited Checklist Reference 862a, pg. 72, Ques. (1)

Audited Organization U.S. Geological Survey - Denver

Organization Unit Record Processing Center Activity Quality Assurance Records

Response Assigned To W. W. Dudley, Jr. Reported By (Auditor) Ed Oakes

Requirement (Cite) NNWSI-SOP-02-01 (RO), Sec. 17, Para. 17.1.1 requires that specific records be maintained in the USGS's "Record Processing Center."

Finding Copies of some required records, such as audits and reviews of technical publications, are neither identifiable or retrievable.

Approved By LA L. Lujick 4/8/86 Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV James Blaylock 4/10/86 Date \_\_\_\_\_

Response (To be completed by audited organization) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response

Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Corrective Action Implementation

Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_



# WMPO AUDIT FINDING SHEET (AFS)

N-QA-02  
6/85

(To be used for all AFSs with added sheets as required.)

Audit Finding No. 862a-21 Audited Checklist Reference Page 82 of 102

Audited Organization USGS - Denver

Organization Unit Records Processing Center Activity QA Records

Response Assigned To W. W. Dudley, Jr. Reported By (Auditor) Ed Oakes

Requirement (Cite) SOP-02-01, Rev. 0 (1) Para. 5.1.1 states in part: "Activities that affect quality shall be prescribed in documented instructions, procedures . . . of a type appropriate to the circumstances . . ." Para. 5.3.1 states in part: (cont'd)

Finding (1) Contrary to requirements 1 & 2 above, USGS records are being processed/reviewed using an unapproved QA procedure - "QA Records Management Guidelines" dated 1/28/86. (2) Contrary to requirement 3 above, measures have not been established to identify/document those personnel who are authorized to validate records.

Approved By LA S. Singer 4/8/86 Response Due Date 30 days after Receipt of Report

Approved By WMPO/NV James Blylock 4/10/86 Date \_\_\_\_\_

Response (To be completed by audited organization.) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response

Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Corrective Action Implementation

Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

WMPO Audit Finding No. 862a-21 cont'd

Req. cont'd

". . . QA administrative documents for Level I shall be approved by WMPO before they can be used." (2) USGS-QMP-17.01, Para. 4.3 states in part: "The Records Administrator is responsible for management and implementation of the USGS records management system. This includes instituting a program to review potential QA records to ensure their completeness, suitability and legibility, and for retention processing. The Administrator will also be responsible for receipt control, indexing and submittal to the PRC." (3) USGS-QMP-17.01, Para. 5.5 states in part: "All documents, including controlled documents, are to be stamped, initialed, or signed and dated by authorized personnel, or otherwise authenticated, appropriate to the class of the documents . . ."



# WMPO AUDIT FINDING SHEET (AFS)

N-QA-02  
6/85

(To be used for all AFSs with added sheets as required.)

Audit Finding No. 862a-22 Audited Checklist Reference 862a-16.5.1

Audited Organization USGS - Denver

Organization Unit OA Activity NCR, CAR and Audit Procedures

Response Assigned To W. W. Dudley, Jr. Reported By (Auditor) N. Voltura/S. Singer

Requirement (Cite) NNWSI-USGS-QMP-16.01, Rev. 0 Para. 5.1 states in part: ". . . Periodic examination of Nonconformance Reports, Audit Reports, or other documents often reveal the need for a CAR, but a CAR also may be issued as a result of any observation (cont

Finding Contrary to the above, no documentation, USGS CAR, has been generated to identify numerous recurring conditions adverse to quality. There are 29 outstanding/open audit findings identified by LANL for USGS which have not been resolved; many of these identify recurring conditions.

Approved By LA S. Singer 4/8/86 Response Due Date 30 days aft Receipt of Report  
Approved By WMPO/NV James Blaylock 4/10/86 Date \_\_\_\_\_

Response (To be completed by audited organization) \_\_\_\_\_

Implementation Date \_\_\_\_\_ Submitted By \_\_\_\_\_ Date \_\_\_\_\_

To be completed by lead auditor (LA) and reviewed by WMPO/NV

Corrective Action Response  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Corrective Action Implementation  
 Satisfactory  Unsatisfactory

Reviewed by LA/Date \_\_\_\_\_

Reviewed by WMPO/NV/Date \_\_\_\_\_

Reaudit Date \_\_\_\_\_

Remarks \_\_\_\_\_

Audit Finding Closed  LA Concurrence/Date \_\_\_\_\_

Reference and Number(s) for unsatisfactory reaudit \_\_\_\_\_

WMPO Audit Finding No. 862a-22 cont'd

Req. cont'd

which discloses a ". . . recurring adverse situation or condition."

# ENCLOSURE 6

## Report of OGR Participation in WMPO QA Audit of USGS - Denver

Auditing Organization: Waste Management Project Office,  
Nevada Operations Office

Audited Organization: United States Geological Survey, Denver

Dates of Audit: March 11 - 14, 1986

Audit Scope: (1) Programmatic (all 18 criteria)  
(2) Technical (Selected technical reports supporting EA)

Audit Team Members: Sam Singer, SAIC (Lead Auditor)  
Nancy Voltura, SAIC (Auditor)  
John Estella, SAIC (Auditor)  
Ron Cote, SAIC (Auditor in Training)  
Forest Peters, SAIC (Auditor in Training)  
Ed Oakes, SAIC (Technical Advisor)  
Carl Newton, DOE-HQ (Auditor in Training)  
Paul Prestholt, NRC-HQ (Observer)  
Susan Billhorn, NRC-HQ (Observer)

### Summary of Audit:

The audit was divided into three teams. The first team, led by Sam Singer, conducted a programmatic audit of criteria 4, 6, 7, 12, 15, 16 and 18. John Estella led a second team in a programmatic audit of criteria 1, 2, 8, 9, 10, 13 and 14. The second team was also responsible for verification of corrective action taken in response to the findings from the previous audit (#85-12). A third team led by Ed Oakes conducted a technical audit in which selected reports referenced in the Environmental Assessment were reviewed for adequacy. The third team also examined criteria 3, 5, 11, and 17 and some selected test procedures.

At the end of the second day of the audit it was apparent to all audit team members that the USGS work was not being controlled by the QA program and that significant problems adverse to quality were prevalent. The team unanimously voted to recommend to the WMPO project manager that he stop work at USGS until the significant problems were corrected.

At the exit meeting the Audit Team Leader reviewed the 25 expected findings from the audit. The most serious, in my opinion, are:

1. The lack of an indoctrination and training program which has led to an ignorance among USGS personnel of quality requirements, such as instrument calibration and the conduct of peer reviews, and an apathy by management and workers toward documentation of quality achievement.
2. The lack of detailed site investigation plans describing the work that USGS proposes to do for WMPO over the next year.
3. The failure to clearly delineate authority and responsibility within the USGS organization and between USGS and other participants, such as the Bureau of Reclamation.
4. The lack of assigned quality levels to the work activities being performed.

Evaluation of Conduct of Audit:

The audit checklist was excellent. The questions were well thought out and thorough. No important areas seemed to have been overlooked and the questions were phrased in such a manner that they were readily understandable by both auditor and auditee.

The pre-audit meeting for the audit team was a very good idea and well handled. The conduct and scope of the audit, and use of the checklist was explained well. I also think the daily team meetings after each day's activities were invaluable.

The audit team leader and members were very professional in their conduct of the audit. At the exit meeting one of the NRC observers said she had never seen a team so well prepared. I concur.

Some areas that offer a potential for improvement in the future are:

- 1) An advance copy of the checklist to all team members would have been useful.
- 2) Some time set aside each day to discuss questions of the checklist would be useful - perhaps at the beginning of each day.

- 3) I was sorry to see only SAIC people - no DOE-WMPO representatives were on the audit (except at the exit meeting).
- 4) I was stunned by the "lack of respect" exhibited by the USGS management for the QA Audit - the team was told at the entrance meeting they would be prohibited from interviewing principal investigators because they were working on more important matters. This situation would probably not have been turned around except for the presence of DOE-HQ on the audit and some aggressive intervention.
- 5) The role of USGS observers was not discussed at either the pre-audit team meeting or the entrance meeting and probably should have been.
- 6) There was no schedule for interviews of USGS personnel by WMPO audit teams.
- 7) There was no briefing by USGS on their organization at the entrance meeting. Such a briefing would be helping in determining the responsibilities of those being interviewed in the audit and in how they relate to other departments in USGS.

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