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R Boyle
R Johnson
RJ Wright
R Cook

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JGiarratana
PDR
SBilhorn & r/f

106.2/SB/85/1/9

- 1 -

JAN 12 1985

Dr. Donald L. Vieth
Department of Energy
P.O. Box 14100
Las Vegas, NV 89114-4100

Dear Dr. Vieth:

SUBJECT: NNWSI DOE/NRC SUMMARY MEETING NOTES

Enclosed is one copy of the final Summary Meeting Notes from the December 13-14, 1984, meeting on quality assurance. Per our agreement, we received two copies, have signed both and returned one for your use. Following review of the final documents and discussion with M. Glora and J. Blalock, several editorial changes were made to both copies. A list of these changes and their justifications are attached.

If you have any questions or comments, please feel free to call.

ORIGINAL SIGNED BY

James E. Kennedy
Repository Projects Branch
Division of Waste Management

Enclosure:

- 1. Changes to Summary Meeting Notes
Received 12/27
- 2. Summary Meeting Notes

WM Record File

102.2

WM Project 11

Docket No. _____

PDR

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Distribution:

BORN

(Return to WM, 623-SS)

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OFC	:WMRP:ejc	:WMRP	:WMRP	:	:	:	:
NAME	:SBilhorn	:JKennedy *	:HJ Miller	:	:	:	:
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see ltr. to Veith
fr. Kennedy
1/12/85 102.2.

SUMMARY MEETING NOTES
DOE/NRC QUALITY ASSURANCE MEETING
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION
LAS VEGAS, NEVADA
DECEMBER 13-14, 1984

ATTENDEES: Attachment 1

BACKGROUND

This meeting is the first of a series of visits to the NNWSI Site to review and discuss the DOE QA program for the site characterization phase and later phases. The primary purposes of the first visit were for the staff to become familiar with the details of the DOE QA program, and to identify questions concerning implementation and interpretation of NRC QA requirements. The ultimate goal of the site visits is to achieve early agreement between DOE and the NRC staffs on what constitutes an acceptable QA program for licensing.

The scope of review for the first visit was consistent with its overview nature. The DOE-USGS QA and project management organizations and programs to be utilized before, during, and after site characterization phase were presented. The DOE and NRC staffs discussed implementation of various QA program requirements as applicable to site characterization activities through discussion of technical procedures utilized by USGS.

The agenda for the visit is presented in Attachment 2.

DEVELOPMENTS

NNWSI Project Observations - Attachment 3

NRC Comments - Attachment 4

Comments from State of Nevada - Attachment 5

OPEN ITEMS

Both NRC and DOE/NNWSI follow-up actions are contained in Attachment 6.

Agreements - Attachment 7

Attachment 8 - Presentation material

This report was agreed to by DOE and NRC prior to adjournment.

DOE *Walter L. Veith* Date 12/14/84
NRC *Samuel Kennedy* Date 12/14/84

Record Note by NRC

With respect to DOE Observation Number One, the NRC staff indicated during the meeting that information used to support a license application must fall under the Appendix B Quality Assurance Program, as required by NWPA and 10CFR Part 60.

MEETING PARTICIPANT LIST

DATE: DEC 13, 1984PURPOSE: DOE/NRC MEETING - QAPLACE: LAS VEGAS, NV

CALLED BY: _____

NAME	TITLE	ORGANIZATION	LOCATION	PHONE	MAIL STOP
W. D. Altman	Chief, Policy & Prog. Dev., IE	Bethesda	Bethesda	FTS 492-8491	22305
Jim Kennedy	Chief, SWIPS Section, NMSS	Silver Spring	Silver Spring	304 427-4177	62355
John T. Greaves	Section Chief	NRC	"	801-427-4734	62355
CARL JOHNSON	CHIEF-TECH. PROG.	STATE OF NEVADA	CARSON CITY NV	702 885-3744	
Jack Hess	Assoc. Proj. Dir.	DRI - State of Nevada	Las Vegas, NV	702-798-8882	
CRAIG G. WALTER	QA STAFF, BUILT & PROG. DEVEL. EE	NRC	BETHESDA	FTS 492-4787	EW3 305B
William M. Bland	Consultant	NRC NM	Houston, TX 77088	(713)-333-4580	18578
Carl T. Prestholt	On-site Rep	NRC	Las Vegas	FTS 596-6125	
Diana B. Bilhorn	Supp. Proj. Analyst	PM NMSS	Silver Spring	FTS 427-4682	623-55
M. J. Wise	Engineer	SAIC	McLean	703-827-4955	
M.A. GLORA	Licensing Eng.	SAIC	Las Vegas	575-1463	-
JOHN A. TESTMEIER	PROJ. ENGR.	HUGHESWARNER	LAS VEGAS	FTS 575-7763	605
J. R. Rollo	Deputy Asst. Director	USGS	Reston VA	FTS 928-6032	106
ED HOLLEY	GEOLOGIST	USGS	MENLO PARK CA	FTS 467-242	975
Elmer H. Baltz	Geologist	USGS	Denver	776-1273	913
D. D. PORTER	TECH. SUPPORT	BRCC-Golden	Denver	231-9094	
N. RICHARD GLOVER	GROUP LEADER	OQAS/PE-23	GERMANTOWN	FTS 233-5607	G-140
Gene Rush	Hydrologist	USGS	Denver	FTS 776-5307	916
Tom A. York	Staff Member	Los Alamos	Los Alamos, NM	FTS 843-5458	G787
Tom MERSON	STAFF MEMBER	Los Alamos	Los Alamos, NM	FTS 843-5726	G 787
Paul L. Armode	STAFF MEMBER	Los Alamos	Los Alamos, NM	FTS 843-7690	D462
Steve Francis	STAFF MEMBER	Los Alamos	Los Alamos, NM	FTS 843-5726	G787
Rosemary Vidale	Assoc. Grp. Ldr. Inv.	Los Alamos	Los Alamos, NM	FTS 843-0709	J514
Joe Tilleron	Supp. Sealing/Reinforc.	SANDIA	Albuquerque NM	FTS-844-5523	Div 6313
JACK A. CROSS	V.P. & GEN'L MGR.	FENIX & SCISSON, INC	LAS VEGAS NEV	702-295-3627	
L. M. Ford	STAFF MEMBER	SANDIA	ALBUQUERQUE, NM	FTS-844-2176	Div 6313
Gary R. Romero	QA Lead/Inspector	SNL	Albuq, NM	FTS-844-9379	6330
E. W. SHEPHERD	TASK LEADER	SNL	ALBUQUERQUE	FTS-844-0184	6310
J. T. OAKLEY	Los Alamos TPO	LANL	Los Alamos	843-1310	F671
L. B. BALLON	Dir. Proj. Mgr.	LLNL	LIVERMORE CA	FTS 532-4911	L206
M. J. REGENDA	DIRECTOR OF QA	FENIX & SCISSON	MERCURY, NV	702-295-6582	697

MEETING PARTICIPANT LIST

DATE: DEC 13, 1984PURPOSE: DOE/NRC MEETING -QAPLACE: LAS VEGAS, NV

CALLED BY: _____

NAME	TITLE	ORGANIZATION	LOCATION	PHONE	MAIL STOP
J. BLAYLOCK	PRM	WMPO	LAS VEGAS	FTS 575-1125	505
M. P. KUNICH	Asst. Dir. WMPD	WMPO	LAS VEGAS	FTS 575-1126	505
D. L. VIETH	DIRETOR	WMPO	LAS VEGAS	FTS 575-3662	505
M. E. LANGSTON	QA MANAGER	OCRWM	HQ	FTS 252-1252	5A-051
E. W. SULEK	QA MANAGER	WESTON	Rockville, MD	301-963-5216	—
CARL NEWTON	QA MANAGER	DOE-HQ, OGR	Wash. D.C.	FTS 252-1242	RW-23
Bob Baucke	Program Liaison	WMPO	LAS VEGAS	FTS 575-1585	505
Mike Valentine	MAT'L ENGINEER	WMPO	LAS VEGAS	FTS 575-1557 COM. 295-1557	505
V. F. Witherill	Branch Chief	WMPO	Las Vegas	FTS 575-1094	505
T. R. WILLMON	QA Specialist	USGS	DENVER	FTS 776-4924	418
W. W. DUDLEY	TECH. PROT. OFF.	USGS	DENVER	FTS 776-4921	418
P. L. BUSSOLINI	GROUP LEADER	USGS/LANL	Los Alamos	FTS 843-5400	G736
Stephen Mette	QA	SAIC/LV	Las Vegas	FTS 575-0859	517
MILTON Kowalik	QA	SAIC/LV	LAS VEGAS	FTS 575-0866	517
Roll Michels	QA ENGR	LANL	Los Alamos	FTS 843-5816	G755
STAN KLEIN	QA Mgr.	SAIC/LV	Las Vegas	295-0854	517
JOHN R. RINALDI	QA DIRECTOR	DOE	LAS VEGAS	FTS 595-1001	505
V. L. ANGELL	CHIEF, QA	H & N	NTS	295-7140	650
H. N. PLANNER	QA REP	LANL	LOS ALAMOS	FTS 843-1888	F665
J. A. (JACK) BEATON	QA SPECIALIST	LANL	LOS ALAMOS	FTS 843-1370	G755
M. M. AZHIKAKATH	DIRECTOR	REECO	LAS VEGAS	FTS 295-6611	G-25
GARY J. BRACKEN	QA	BWIP-DOE	RICKLAND	FTS 444-6579	5QA
SAM B. SINGER	QA ENGR.	SAIC/LV	LAS VEGAS	FTS 295-0800	517
NANCY VOLTURA	QA ENGR.	DOE/NV	LAS VEGAS	FTS 575-1452	505
JOHN L. DONNELL	QA Specialist	SAIC/LV	LAS VEGAS, NY	FTS 295-0843	517
MONO A. FOX	SR. ENGR.	REECO	LAS VEGAS	295-7106	625
A. K. FOWKES	Q.A. MGR.	REECO	LAS VEGAS	FTS 295-7106	625
Arund Meijer	Staff Member	LANL	LOS ALAMOS	(505) 667-0765	J-519
RALPH H. RICHARDS	Project Engineer	DOE/WMPD/NV	Las Vegas	FTS 575-1124	505
David Jorgenson	Reg. Compl.	SAIC	Las Vegas	FTS 575-1204	517
Michael Voegelé	Reg. Comp.	SAIC	Las Vegas	FTS 575-1460	517

OVER

Attachment 1 (contd.)

NAME	TITLE	ORGI	LOCATION	PHONE	MAIL
UEL S CLANTON	GEOLOGIST	WMPO	LAS VEGAS	FTS 575-1584	505
John R McKail	G.A. Specialist	EJS	Mercury	295-6583	60
Maxwell Blanchard	Branch Chief	WMPO	LAS VEGAS	575-1091	
Szymanski, Jerry S.	Geologist	WMPO	- II -	575-1503	
LARRY JEE	LICENSING ENG.	SAIC	LAS VEGAS	FTS 575 1464	
ELTON STAN	ATTORNEY	DOE	Washington DC	252-6017	EA-11
R.L. MALLOY	G.A. MANAGER	WEC	MTS	295-5847	703
MICHAEL TEUBNER	GEOHYDROLOGIST	SAIC	LAS VEGAS	FTS 575-1204	
SCOTT TYLER	HYDROLOGIST	DRI-STATE	LAS VEGAS	702 798-8932	
Gerald L DePoorter	Geochem. Project Manager	LANL	Los Alamos	FTS -843 1033	F-671

MEETING PARTICIPANT LIST

DATE: 12/14/84
 PLACE: Las Vegas

PURPOSE: DOE/NRC QA Meeting
 CALLED BY: _____

NAME	TITLE	ORGANIZATION	LOCATION	PHONE	MAIL STOP
Gene Rush	Hydrologist	USGS	Denver	FTS 776-5307	416
Mitt Nowlanowski	QA	SAIC	LAS VEGAS	575-2866	517
Jack Hass	Assoc. Proj Dir	DRI-st-h-w	Las Vegas	702-798-8882	—
D. D. Porter	Engineer	SAIC	Golden, Co	303-231-9094	—
Sam B. Singer	QA Enggr.	SAIC/NV	Las Vegas	FTS 575-0850	517
Nancy VOLTURA	QA Enggr.	DOE/NV	Las Vegas	FTS 575-1452	505
JOHN TEGTMEIER	PROT. ENGR.	HOLMES & NARVER	LAS VEGAS	FTS 575-7763	605
Wes Myers	Assoc. Div. Mgr	LANL	Los Alamos	FTS 843-6722	D444
Ron Michels	QA ENGR	LANL	Los Alamos	FTS 843-5816	G755
H.N. PLANNER	QA REP	LANL	Los Alamos	FTS 843-1582	F665
J. A. (BERT) BEATON	QA SPECIALIST	LANL	Los Alamos	FTS 843-1370	G755
Gerald DePoorter	Geochemistry Project Manager	LANL	Los Alamos	FTS 843-1033	F671
Garcia, Romero	QA Coordinator	SNL	Albuq	FTS 844-9379	6330
Arend Meijer	Staff Member	LANL	LOS ALAMOS	FTS 843-0675	J-51
L. M. Ford	SRAP Manager	SANDIA	ALBUQUERQUE	FTS 844-2176	6313
Elmer H. Baltz	Geologist	USGS	Denver	776-6148	913
John McKay	QA	F&S	Mercer	295-6583	697
R. L. MALLOY	QA MANAGER	WEC	NTS	295-5847	703
David Jorgenson	Reg. Comp.	SAIC	Las Vegas	FTS 575-1204	517
LYN BALLOU	DEP TPO	LLNL	LIVERMORE CA	FTS 532-4911	L-206
JOE TILLERSON	Supr. Pack Mech/Sealing	SNL	ALBUQUERQUE	FTS 844-5575	Div 6313
E. W. SHEPHERD	TRK LEADER	SNL	ALBUQUERQUE	FTS 844-0184	6310
D. T. OAKLEY	Los Alamos TPO	LANL	Los Alamos	843-1310	F671
Paul L. Amalt	Staff Member	Los Alamos	LOS ALAMOS NM	FTS 843-7960	D462
S. F. H. H. H.	Activity	DOE	Washington DC	FT 202-6741	SA-11
RALPH H. RICHARDS	Project Engineer	DOE/NV/WMPD	Las Vegas	FTS 575-1124	505
WEL S CLANTON	GEOLOGIST	DOE/NV/WMPD	LAS VEGAS	FTS 575-1589	505
MAXWELL BLANCHARD	BRANCH CHIEF	DOE/NVO	LAS VEGAS	FTS 575-1091	WMPD

AGENDA FOR NRC VISIT TO NNWSI PROJECT
TO REVIEW THE QA PROGRAM

December 13 - 14, 1984
Sahara Space Center, Las Vegas, NV

DAY 1 - December 13, 1984, Room 7

D. L. VIETH, DIRECTOR WMPO. 8:30 - 9:15

- o Opening Discussion and Introductions
- o Discuss Assessment of the Overall Status and Philosophy of QA on the NNWSI Project
- o Review Agenda

OPENING DISCUSSION AND INTRODUCTIONS BY NRC 9:15 - 9:30

- o Discuss Purpose of Visit
- o Review NRC QA Philosophy
- o Introduce NRC and NRC Contractor Participants

BREAK 9:50 - 10:10

NRC QUALITY ASSURANCE REVIEW PLAN 10:10 - 12:30

- o Review Key Requirements in the Review Plan J. Kennedy
- o Note DOE Comments on the Draft which were Not W. Altman
Included and the NRC Rationale for Not Including
- o Entertain Questions from DOE

LUNCH 12:30 - 1:30

D. L. VIETH, DIRECTOR, WMPO 1:30 - 2:00

- o NNWSI Project Organization
- o NNWSI Project Participants and Their Role in the Project
- o Introduce DOE and DOE Contractor Participants

JAMES BLAYLOCK, PROJECT QUALITY MANAGER 2:00 - 3:30

- o QA Organization of the NNWSI Project
- o Hierarchy of QA Requirements
- o Structure of NNWSI Project QA Plans and Procedures
- o NNWSI - Quality Assurance Plan

BREAK 3:30 - 3:45

o NNWSI - SOPs 3:45 - 4:00

M. P. Kunich, Assistant Director, WMPO 4:00 - 5:00

- o WMPO QA Program Plan
- o WMPO QMPs

DAY 2 - December 14, 1984, Room 11

W. W. DUDLEY, USGS. 8:30 - 9:45

- o Broad Overview of USGS Technical Program
- o Explanation of USGS Organization
- o Separation of QA Management Function from QA Implementation
- o Proposed Levels of Quality Control for USGS Activities

BREAK 9:45 - 10:00

P. L. BUSSOLINI, LANL 10:00 - 11:30

- o Organization, Status, and Content of USGS QA Program
- o Explanation of the QAPP
- o Explanation of Administrative Procedures

J. R. WILLMON, USGS 11:30 - 12:15

- o Organization, Status, and General Content of Unit Task Procedures and Detailed Technical Procedures
- o Discuss How Detailed Technical Procedures Address QA Requirements

LUNCH 12:15 - 1:00

EXIT MEETING. 1:00 - 7:00

- o NRC and DOE to Discuss Results of Meeting and Prepare Meeting Minutes.

QUESTIONS TO THE NRC

o NRC QA Direction to the DOE

- Is the NRC's position that if the DOE meets the intent of Appendix A of the NRC QA Review Plan, dated June 1984, the criteria of 10CFR50, Appendix B will be satisfactorily implemented?

or

- Will the NRC recognize another document as being acceptable to follow to implement the criteria of 10CFR50, Appendix B (e.g., NQA-1 or 45.2)?
- o What is the NRC's position regarding a graded QA approach? Will the NRC be involved with activities that are not radiologically related, e.g., other than important to waste isolation or important to safety as per 10CFR60?
- o An important part of Site Characterization and the assessment of the natural barrier for waste isolation is the information gathered from the performance of experiments and research. Where the information obtained is not used directly as input to design performance assessment, or modeling, but is used to point a direction for further activities do the QA requirements of the review plan apply?
- o What is NRC's position regarding the use of information from recognized technical journals as input to design, experiment, or research activities? If used, must this information be verified, validated, or authenticated prior to use?
- o What does NRC mean by conceptual (thought notion, abstract of ideas) as it relates to design control? (ref. 3.1 of NRC QA Review Plan). Conceptual is a basic thought notion or an abstract of ideas. It is the NNWSI position that the QA Controls implied by the NRC QA Review Plan will start with Title I design activities.
- o Is it the NRC's intent that QA become involved in special process qualifications beyond the activities of surveillance and audit? (ref. 9.3 of NRC QA Review Plan)
- o Is the NRC's position that the QA organization should actually perform all inspection activities? (ref. 10.2 of NRC QA Review Plan)
- o What is the NRC's intent regarding further DOE/NRC interchanges, formal inspections/audits, or informal information exchanges? If the later, when will this change?
- o What is the role of NRC I&E in the Waste Management Project?

- o Section 2.3 of the NRC Standard Review Plan contains a quote from NRC Regulatory Guide 4.17 which states in part that "The QA methods should be presented in sufficient detail to allow NRC to make an independent evaluation of the precision, accuracy, reproducibility, analytic sensitivity, and limitation of data acquisition and analysis methods that were used during site exploration and will be used during site characterization." In section 3.1, 2nd paragraph, of the NRC Standard Review Plan, it states, "A list of QA and technical procedures which implement the program description in the Site Characterization Plan should be identified and referenced in the SCP." It appears that the Standard Review Plan has established two different levels of detail for the same requirement. Is it NRC's intent that all the procedures used on the NNWSI Project be paraphrased in the QA section of the SCP or will reference to the procedures satisfy the intent as implied by the NRC QA Review Plan?

NNWSI Project Observations

1. It is DOE/WMPO's understanding based on comments presented in the meeting, that it is not necessary to prepare the SCP under 10CFR50 Appendix B quality assurance control. Rather, it is WMPO's understanding that modifications, revisions, and additions to the technical plans specified in the SCP should be controlled per 10CFR50 Appendix B. (See NRC Record Note, page 2)
2. It is DOE's understanding that deviations from the Quality Assurance Review Plan are acceptable, provided that justifications for any deviation from the plan are submitted for NRC review and approval.
3. In DOE's view, the QA workshop was helpful in establishing and developing lines of communication. Also, the meeting was a valuable step toward defining the appropriate emphasis of the QA program in the context of site characterization for purposes for repository licensing.

NRC Comments

- o As noted in the opening comments, this meeting was intended to be and has been primarily fact finding in nature and limited in scope. In our discussions, we identified a number of areas where additional follow-up and discussion between NNWSI Project staff and NRC staff is needed. Examples noted during this meeting included procurement control, software QA, non-conformance reporting, implementation of verification of calibration status, records management, and what level of detail in terms of prescriptiveness (eg. precision) is appropriate regarding specific technical procedures.
- o NNWSI Project staff recognizes they must develop a Q-List (that is those items and activities important to safety and important to waste isolation) for licensing. NNWSI Project staff recognizes that this list will have to be developed in the near future. NRC and NNWSI Project staff are particularly interested in discussing engineered barriers and how the Q-List would be applied.
- o DOE OCRWM should clarify the definitions of conceptual, Title I, Title II, and Title III designs as applicable for NNWSI site characterization and potential license application, and the schedules for completion of each.
- o NRC is concerned about the use of lead auditors from other than the Nevada Operations Office for auditing contractors participating in the NNWSI Project. It is not clear that with this arrangement these auditing organizations can be sufficiently familiar with the waste management program and the licensing requirements for quality assurance to adequately perform this function. In the opinion of the team, this is not only a field office issue, but should also be addressed by OCRWM.
- o The USGS discussed a preliminary approach for grading of nuclear quality assurance requirements within the "Q" list. Four grades were defined in general terms. Because site characterization work is ongoing, or will be under way in the near future, there is a need for OCRWM/NNWSI Project to decide soon on proposed approaches for grading QA requirements within Level I. The staff recommends that a workshop involving only this subject be organized at the earliest possible time and that the technical and QA staffs of OCRWM/NNWSI, NNWSI contractors, and NRC participate.
- o NRC staff generally agrees with the definitions USGS developed on research and non-research activities; however, DOE should be aware that any tests run under the research procedures may have questionable value in the licensing process.
- o Based on discussions during this meeting, it was determined that USGS supporting the NNWSI Project has a structured approach to QA. This approach could be used by other parts of USGS supporting OGR.

- o The team welcomes strong policy statements and other signals from top management levels associated with the project, emphasizing the importance of QA to the success of the project and the necessity for all project personnel to be a part of the QA program. Jim Devine's (USGS) policy statement in the USGS QAPP, and Don Vieth's presentations as part of this NRC/DOE meeting on QA are examples of this kind of quality-oriented leadership. NRC's reactor experience indicates that successful projects tend to be characterized by a quality attitude that starts at the top and extends down through all levels of management and staff. It was the NRC team's perception that the quality attitude starting at the top of this project, exemplified by the statements of Devine and Vieth, has not fully reached all project levels and participants. Indeed, it appears that some project participants hold a view of QA as unnecessary, burdensome, and an imposition. This view of QA tended to characterize less successful reactor projects studied in the Ford Amendment Study.

- o One of the factors identified in the Ford Amendment Study as contributing to quality or quality assurance problems at some reactor projects was insufficient control and/or oversight over the project by the licensee. Causes for these shortcomings in overall project management included:
 - (a) Insufficient licensee staffing levels devoted to the project, both QA and non-QA.
 - (b) Project management arrangements in which the licensee project management team had insufficient, direct authority to carry out his project responsibilities.
 - (c) Contracting arrangements in which the licensee project management team was limited in its ability to take strong, effective action quickly for substandard performance by contractors.

In light of these lessons learned from the Ford Study, the NRC staff believes that the following areas merit close scrutiny by DOE:

- (a) The numbers of NNWSI DOE staff members, QA and non-QA, assigned to the project.
- (b) The degree to which WMPO has authority over contractors and project participants.
- (c) The leverage which the WMPO has over its contractors and project participants and the degree to which contracts provide incentives consistent with the DOE project goals.

- o In the preceeding remark, the NRC team points out some of the project management challenges facing the DOE project staff. Similar challenges face some of the key project participants, including the USGS. The USGS project team is headed by a Technical Project Officer that has direct administrative control over only three of the above 85 FTE USGS project personnel. Within USGS, the NNWSI Project has to compete with other USGS projects and priorities for personnel and resources. The USGS support for the project originates from six separate locations, complicating the already difficult tasks of project coordination and control, procurement control, records management, and quality oversight of the project by the small QA organization. Based on the lessons of the Ford Amendment Study regarding management structure and control, a project organization such as that within the USGS may not provide adequate direction for an extended period of time without potential for developing significant quality or quality assurance problems.

- o The issue of the delegation of responsibility of specified quality assurance requirements between line management and the quality assurance organization needs clarification. NRC regulations require the establishment of an independent QA organization. This organization is responsible for assuring that an appropriate QA program is established and effectively executed, and that certain work activities have been performed correctly. The lessons of the Ford Study indicate that a heavy quality orientation by project personnel, other than those in the QA organization, is important to both achieving and assuring quality. However, NRC regulations require that the formal QA organization be able to determine whether the QA program is being effectively executed or not. The NNWSI Project must be careful that emphasis on the line responsibilities for quality and QA does not lead to an unbalanced situation in which the required independent QA organization does not or cannot fulfill its Appendix B responsibilities. This issue should be the topic of further discussions.

STATE OF NEVADA COMMENTS

1. While the State agrees with the three levels of quality implemented for this project, we have a concern with the concept of a graded approach to Level I quality. We sense the highest levels of quality control and accountability might be compromised by this approach. We would recommend another meeting to discuss this concept in detail.
2. We would question whether some USGS technical detailed procedures are true procedures. Examples given in the meeting, "Preliminary Procedure for Drilling and Coring of Wet and Dry Lake Sediments" and "Rock and Paleomagnetic Investigations" appear to be very detailed work plans, not specific procedures to accomplish specific work tasks.
3. There was much discussion in the meeting about the data base and the quality levels which will be expected in the licensing process. There is at least 20 years of history in reactor licensing as to the types of data required and the appropriate QA. We suggest DOE review this historical information as background to what may be required in the way of QA documentation in licensing.
4. During the discussion of USGS Technical Procedures we heard no mention of "change order" procedures, i.e., procedures to handle changes in approved work procedures due to field "surprises" or other conditions discovered in field which were not accounted for by work procedures. Does the USGS have a change order procedure?

OPEN ITEMS

- o NRC staff will formally respond to the written questions NNWSI provided NRC prior to the meetings (in attachment 3).
- o The DOE discussed use of Readiness Reviews during site characterization. In reactor licensing, some utilities believe it advantageous to have early NRC involvement in these readiness reviews so that NRC feedback and problems identification are obtained in a timely manner. DOE should consider the potential benefits of early involvement of NRC in this type of activity. NRC staff will forward NNWSI additional background information on this approach, and is prepared to discuss this matter further with DOE.
- o During the meeting it was agreed that NNWSI Project and NRC staffs should review examples of specific geotechnical work (e.g. geologic mapping) to determine if the QA applied is sufficient to meet the needs of licensing.
- o NNWSI described a procedure that is being developed to handle verification of previously generated data (SOP-03-03). NRC staff requests a copy of this procedure as soon as it has been issued (March, 1985).

DOE requests the following from NRC:

1. Written response to the ten questions submitted by DOE prior to the meeting, and discussed on December 13.
2. NRC comments on use of references in procedures without physical incorporation of the content of the reference into the procedure.
3. NRC to provide DOE with documentation indicating the staff's disposition of DOE comments on the QA Review Plan.
4. NRC will provide for DOE consideration, copies of documents including the reactor SRP section which contains discussions of quality assurance as applied to computer codes and the I&E inspection procedure for computer code QA.

AGREEMENTS

It is mutually agreed to hold a series of meetings to more sharply focus the QA program. One topic identified for a future meeting is a discussion of the graded approach in applying quality requirements to work related to safety and waste isolation.



Department of Energy

Nevada Operations Office

P. O. Box 14100

Las Vegas, NV 89114-4100

DEC 27 1984

James E. Kennedy
Nuclear Regulatory Commission
7915 Eastern Avenue
Silver Spring, MD 20910

NNWSI DOE/NRC SUMMARY MEETING NOTES

Enclosed are two signed copies of the Summary Meeting Notes as agreed upon during the December 13-14, 1984, meeting held at Las Vegas, Nevada. Please sign and return one of the copies.

During the meeting, the NNWSI Project staff provided you with two additional documents which were not a part of the formal presentation. Copies of NNWSI-SOP-02-01 and the matrix showing implementing methods of the NNWSI Project for the NRC Review Plan were given to the NRC Staff but were not given to other meeting attendees. Hence, these documents were not included among the attachments to the Meeting Summary Notes.

If you have any comments or questions, please call.

A handwritten signature in cursive script, reading "Donald L. Vieth".

Donald L. Vieth, Director
Waste Management Project Office

WMPO:JB-493

Enclosure:
As stated



**Nevada
Nuclear Waste
Storage Investigations Project**

**DOE/NRC MEETING
ON NNWSI PROJECT
QUALITY ASSURANCE**

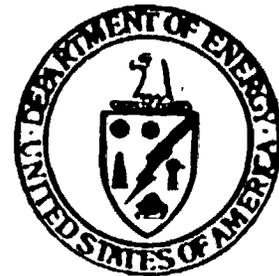
Presented by

**Dr. D.L. Vieth, DOE/NV
WMPO Director**

December 13-14, 1984

Nevada Operations Office

UNITED STATES DEPARTMENT OF ENERGY





PHILOSOPHY REGARDING NRC INTERACTION

- NRC WANTS TO KNOW WHAT IS GOING ON IN THE NNWSI PROJECT
- WMPO/NNWSI PROJECT PARTICIPANTS WANT TO UNDERSTAND THE REGULATORY REVIEW PROCESS AND WHAT WE MUST DO TO GET THROUGH THE REVIEW SUCCESSFULLY.
- INTERACTIONS ARE FOR THE PURPOSE OF HELPING BOTH ORGANIZATIONS UNDERSTAND THE OTHERS' TERRITORY



PHILOSOPHY REGARDING QA

- REPOSITORY IS A "NUCLEAR" FACILITY; IT IS SIGNIFICANTLY DIFFERENT
- DECISION ABOUT CONVENTIONAL MAN-MADE FACILITIES ARE BASED ON CONTROL OF DESIGN, CONSTRUCTION, AND FABRICATION
- THE MAJOR DECISION ABOUT A REOSITORY - ITS LOCATION - WILL BE BASED ON A DESCRIPTION
- A CORRECT DECISION ON SUITABILITY MUST BE MADE ON AN "ACCURATE" DESCRIPTION
- QA IS METHOD OF FORMALIZING ACCURACY OF GEOTECHNICAL RECORDS



NRC PHILOSOPHY REGARDING IMPLEMENTATION OF QA BY DOE

- **WMPO/NNWSI PROJECT PARTICIPANTS WANT TO UNDERSTAND THE PHILOSOPHY OF HOW NRC WILL FOLLOW THE PROJECT FROM A QA VIEWPOINT**



QA PROGRAM OVERALL STATUS

- A FULL TIME QA MANAGER POSITION WAS ESTABLISHED AND FILLED SEPTEMBER 1984 TO PROVIDE A FOCAL POINT FOR IMPLEMENTATION OF THE NNWSI PROJECT QA PROGRAM.
- MANAGEMENT ATTENTION IS BEING EXERTED ON PERCEIVED WEAKNESS IN OUR QUALITY PROGRAMS, I.E., RECORDS MANAGEMENT AND CONTROL CURATION OF SAMPLES, ETC.
- ALL PROJECT PARTICIPANTS PLANS AND PROCEDURES HAVE BEEN REVISED AND ARE BEING REVIEWED.
- NNWSI PROJECT QAP DEFINED A LEVELS APPROACH TO QUALITY AND RECOGNIZES THE IMPORTANCE OF RADIOLOGICAL HEALTH AND SAFETY (MAY 84).
- THE WMPO QAPP AND PROCEDURES WERE APPROVED AND ISSUED FOR IMPLEMENTATION THIS MONTH (DEC. 84).

NNWSI



PROJECT

QA PROGRAM OVERALL STATUS

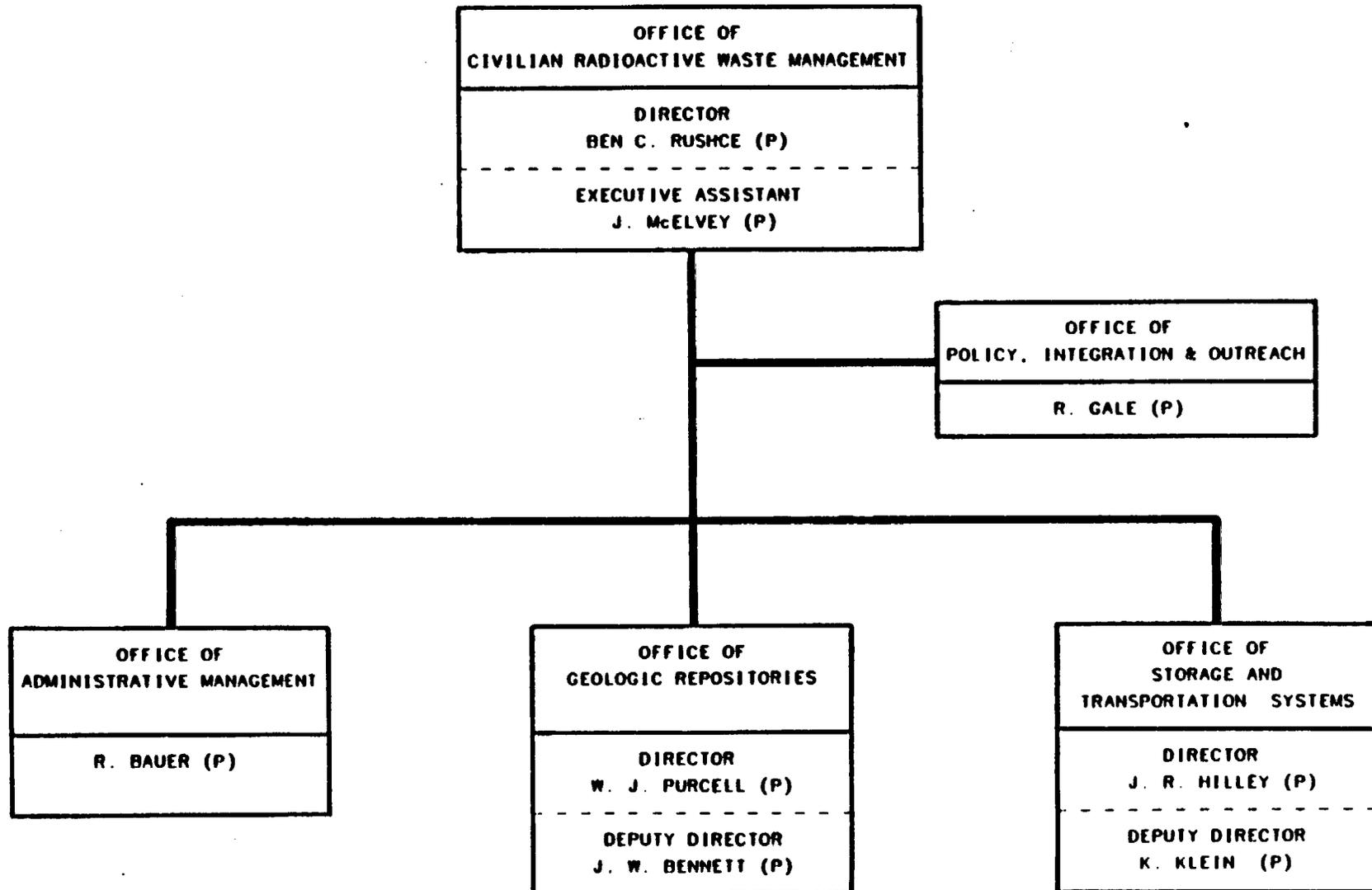
(CONTINUED)

- **STARTING IN JANUARY 85 WE WILL BEGIN AUDITING PARTICIPANTS TO THE REVISED NNWSI PROJECT QAP AND PARTICIPANT QAPP AND PROCEDURES.**
- **WE ARE CONTINUING SEEING IMPROVEMENTS IN THE NNWSI PROJECT PERSONNEL ORGANIZATION ATTITUDES, METHODS, PROCEDURES, AND DOCUMENTATION.**
- **WE ARE CONTINUING TO PLACE HIGH PRIORITY EMPHASIS ON QUALITY ISSUES.**

**NNWSI PROJECT
ORGANIZATIONAL
INTERRELATIONSHIPS**



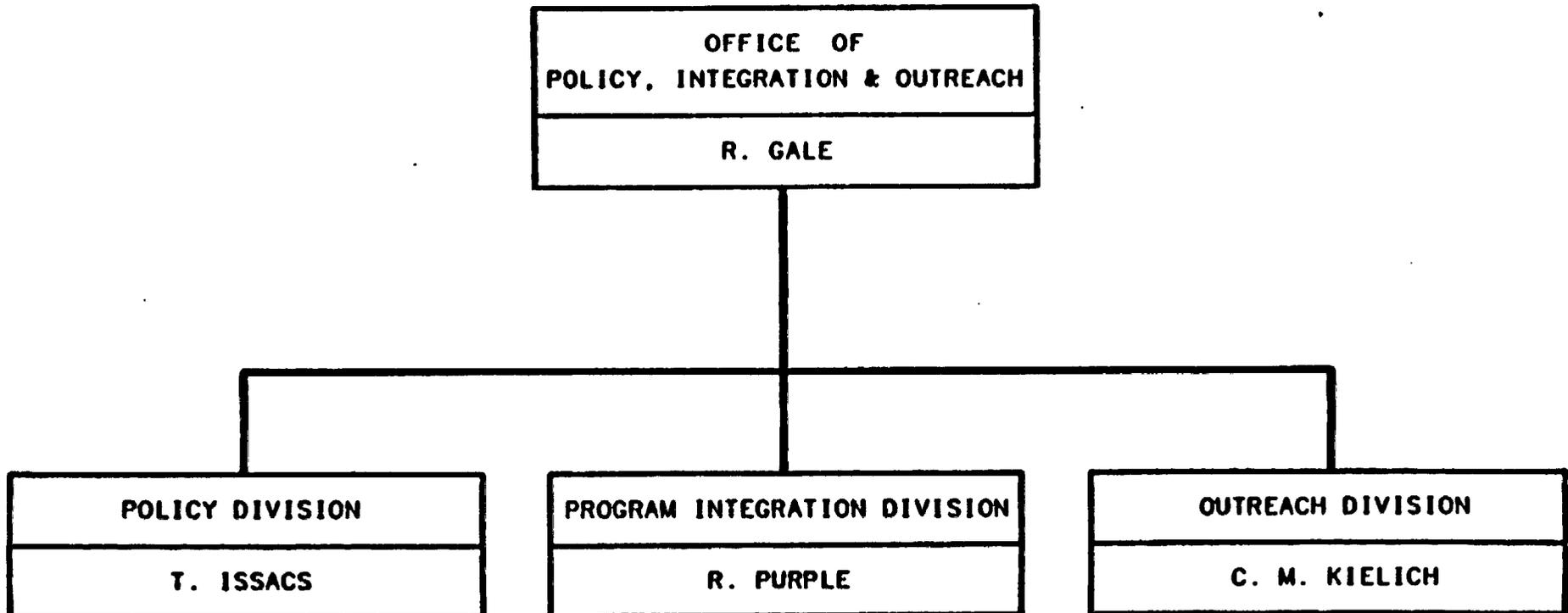
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT



HOSZ
PROJECT

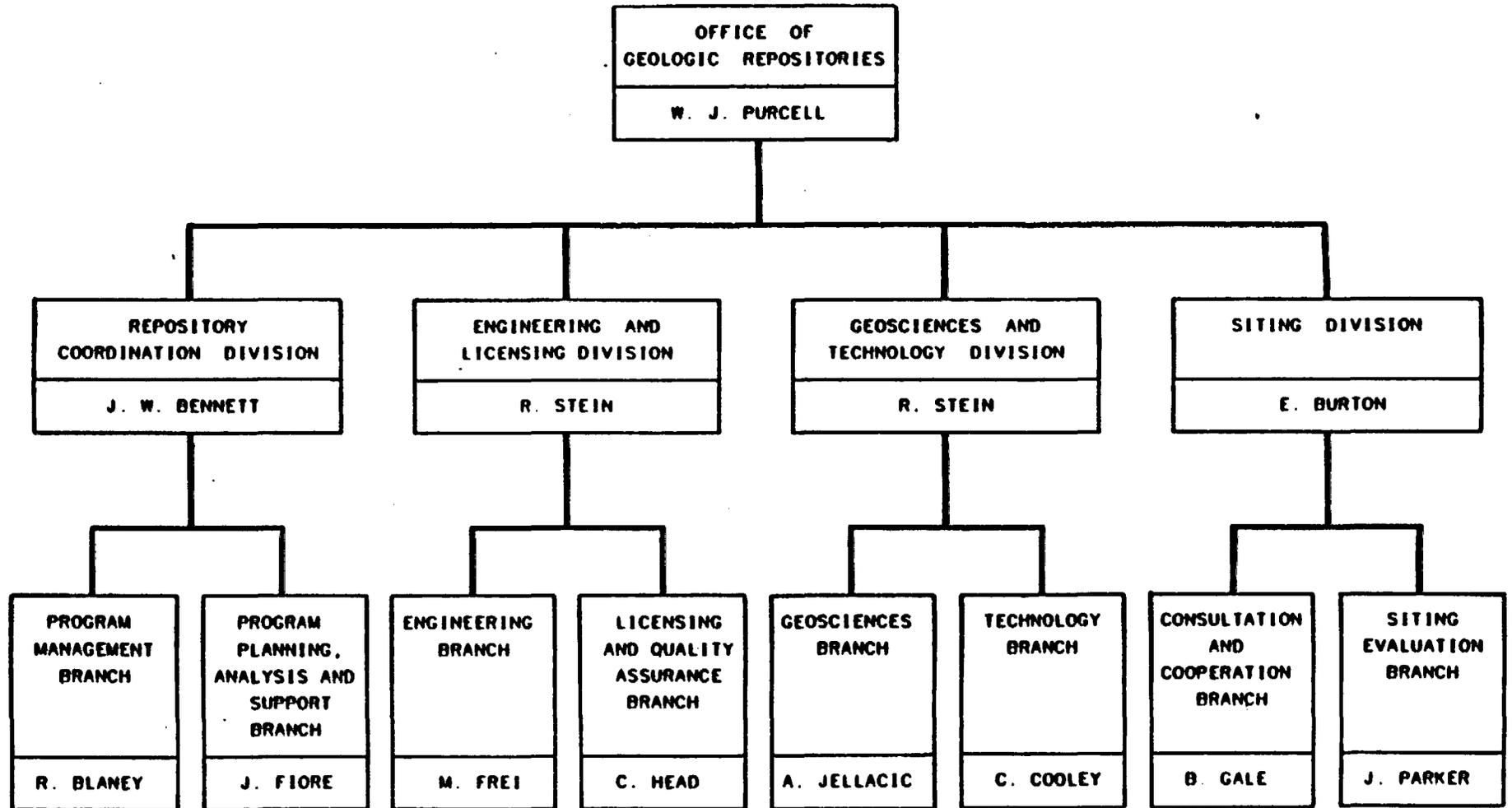


OFFICE OF POLICY, INTEGRATION & OUTREACH





OFFICE OF GEOLOGIC REPOSITORIES

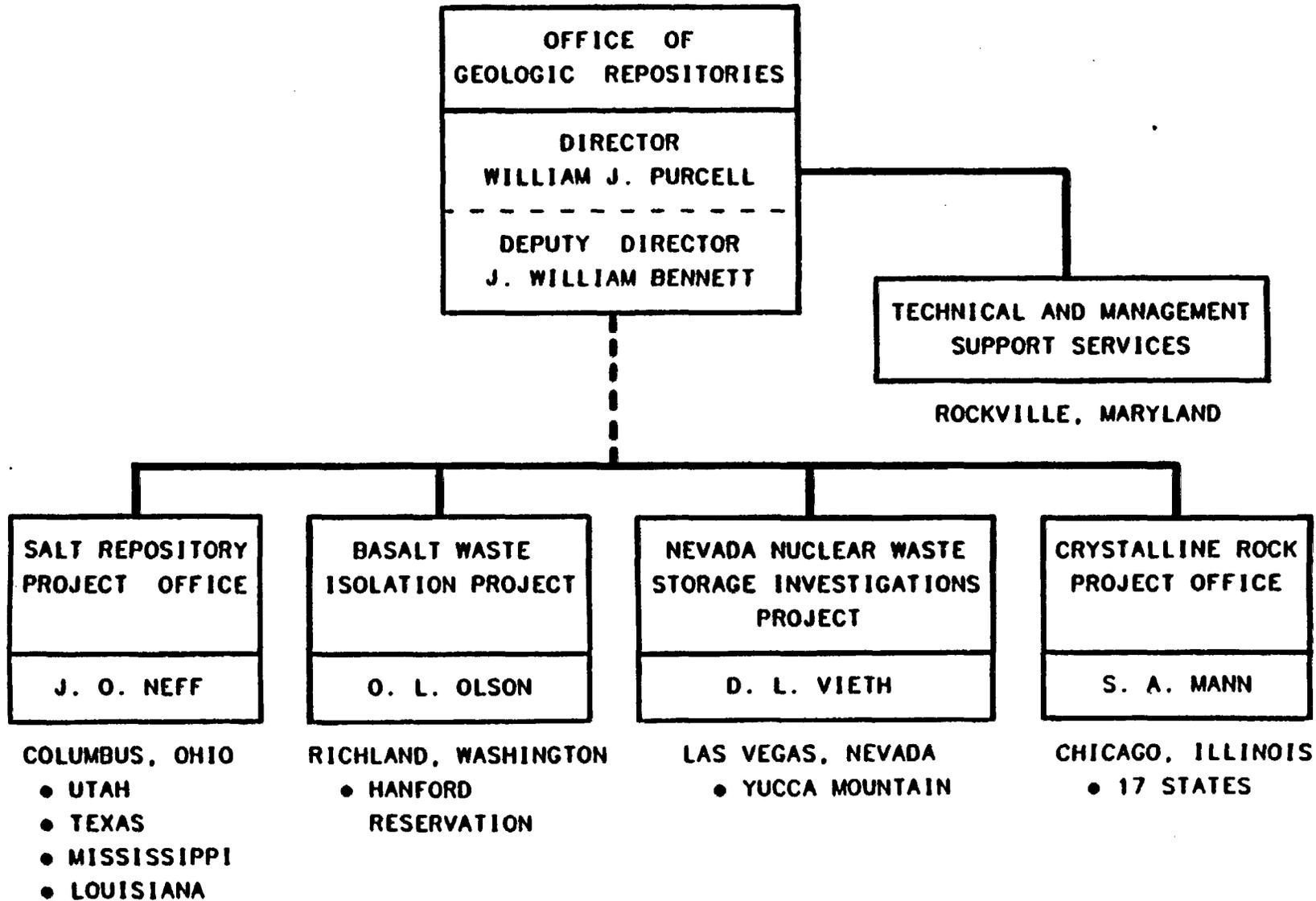


HOZ30H



PROJECT

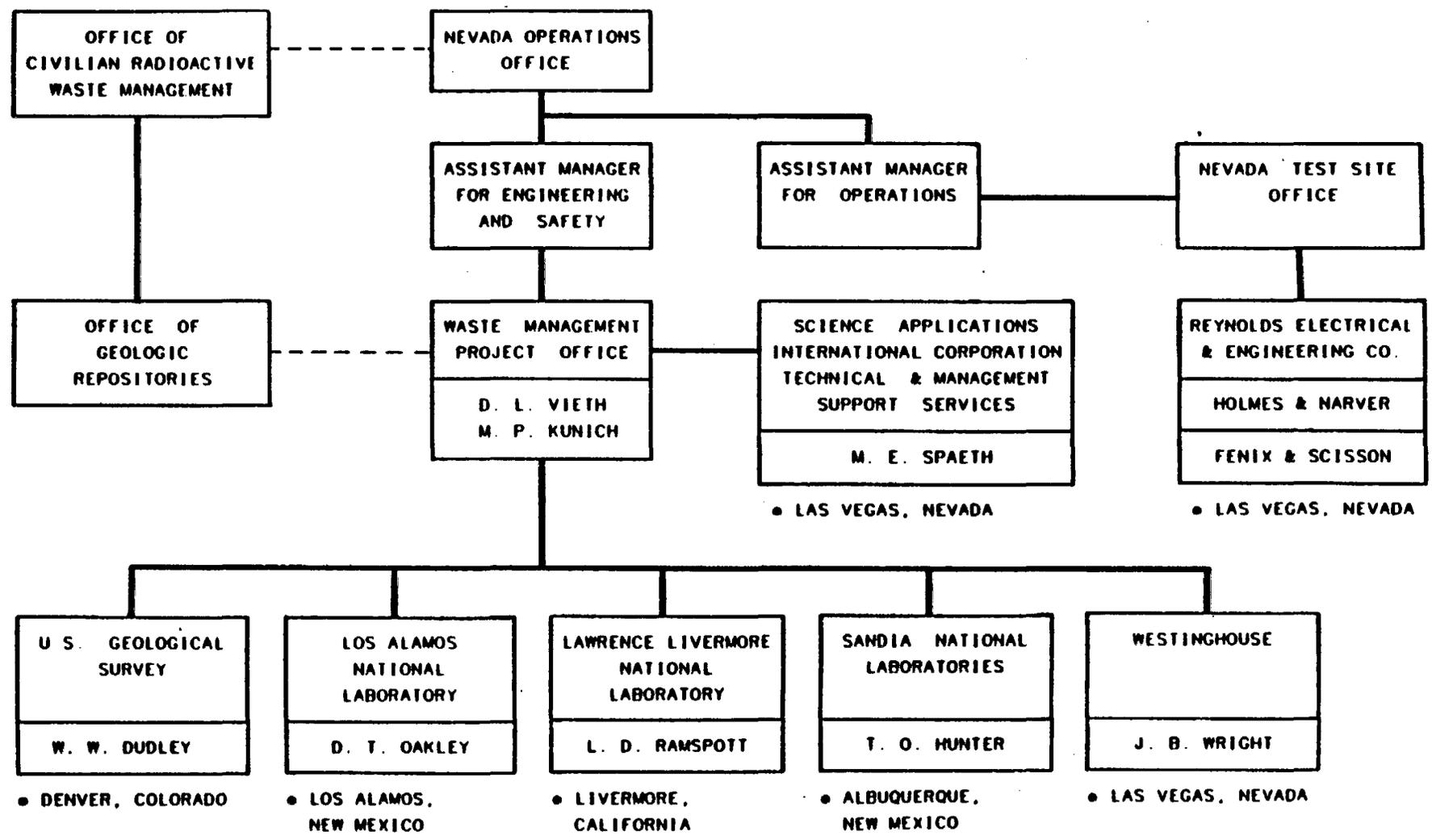
OFFICE OF GEOLOGIC REPOSITORIES



NSN
PROJECT



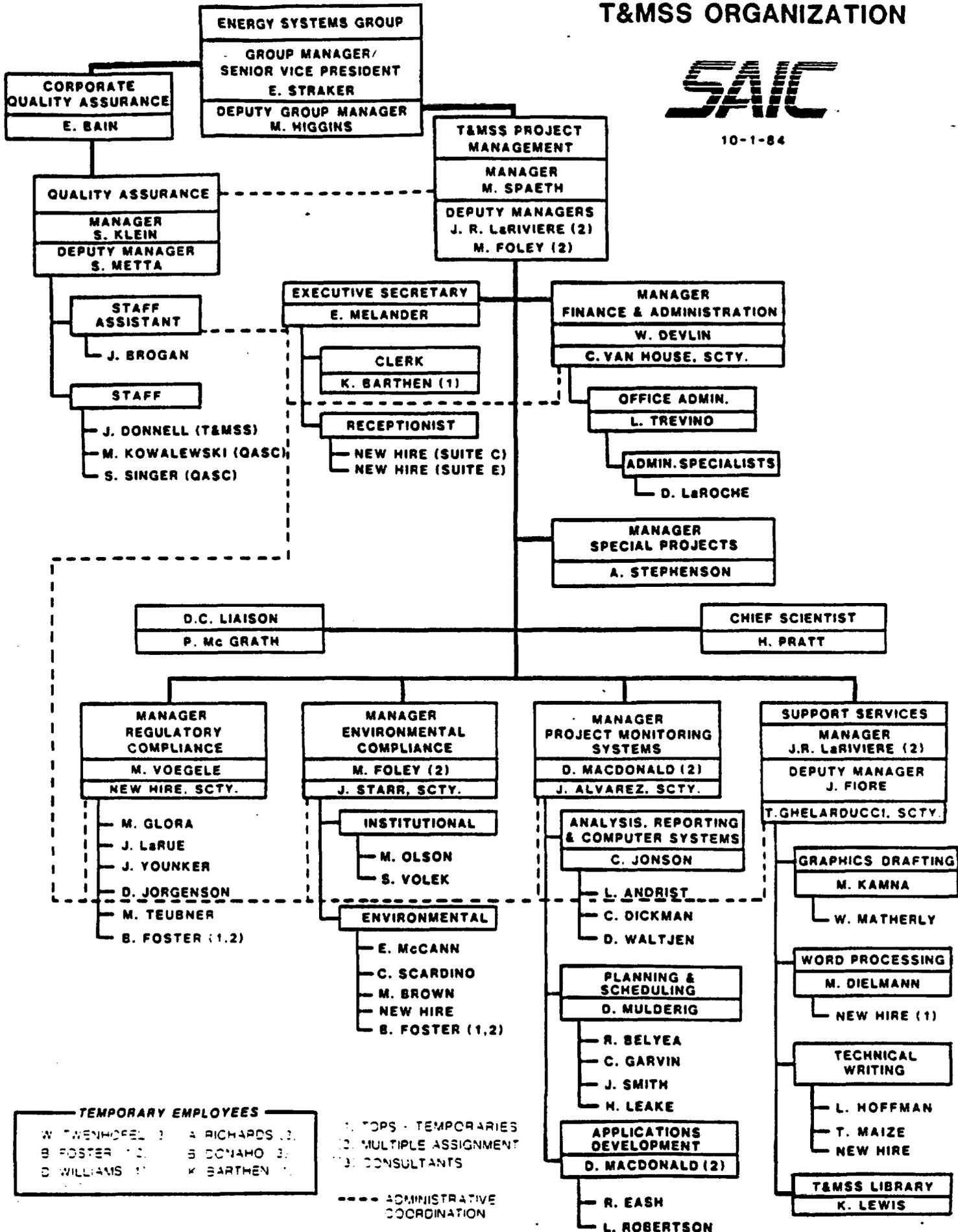
NNWSI PROJECT ORGANIZATION CHART



T&MSS ORGANIZATION



10-1-84



TEMPORARY EMPLOYEES
 W. TWENHOPEL (1) A. RICHARDS (2)
 B. FOSTER (1,2) S. DONAHO (3)
 D. WILLIAMS (1) K. BARTHEN (1)

1) TOPS - TEMPORARIES
 2) MULTIPLE ASSIGNMENT
 3) CONSULTANTS

--- ADMINISTRATIVE COORDINATION



NNWSI PROJECT

CONTRACTORS AND SCOPE OF WORK

- USGS** - GEOLOGIC AND HYDROLOGIC EXPLORATION AND DATA ANALYSIS
- LANL** - GEOCHEMICAL, MINERALOGIC AND PETROGRAPHIC PROPERTIES OF HOST ROCK, VOLCANISM STUDIES, COORDINATION OF EXPLORATORY SHAFT DESIGN AND TEST PLAN
- LLNL** - SPENT FUEL TEST AT CLIMAX, AND WASTE PACKAGE DESIGN, TESTING AND ANALYSIS
- SNL** - THERMAL AND MECHANICAL PROPERTIES OF HOST ROCK, CONCEPTUAL DESIGN OF REPOSITORY, PERFORMANCE ASSESSMENT OF SYSTEM, DEVELOPMENT OF SEALS FOR REPOSITORY, EQUIPMENT DEVELOPMENT
- WESTINGHOUSE** - OPERATE E-MAD FACILITY



NNWSI PROJECT

CONTRACTORS AND SCOPE OF WORK

(CONTINUED)

- H&N** - SITE PREPARATION FOR DRILLING, EXPLORATORY SHAFT DESIGN, SURVEYING

- EG&G** - ENVIRONMENTAL STUDIES AT SITE

- REECO** - NTS SUPPORT SERVICES INCLUDING DRILLING, ROADS, TRENCHING, RADIOLOGICAL MONITORING

- F&S** - MINING AND DRILLING ENGINEERING, FIELD GEOLOGY SUPPORT TO USGS

- SAI** - TECHNICAL AND MANAGEMENT SUPPORT SERVICES INCLUDING REPORTING, SCHEDULING, LICENSING AND PROJECT QUALITY ASSURANCE

- UNIVERSITY OF NEVADA** - ARCHAEOLOGICAL STUDIES AT SITE

NRC QUALITY ASSURANCE

SITE VISITS

DECEMBER 10-19, 1984

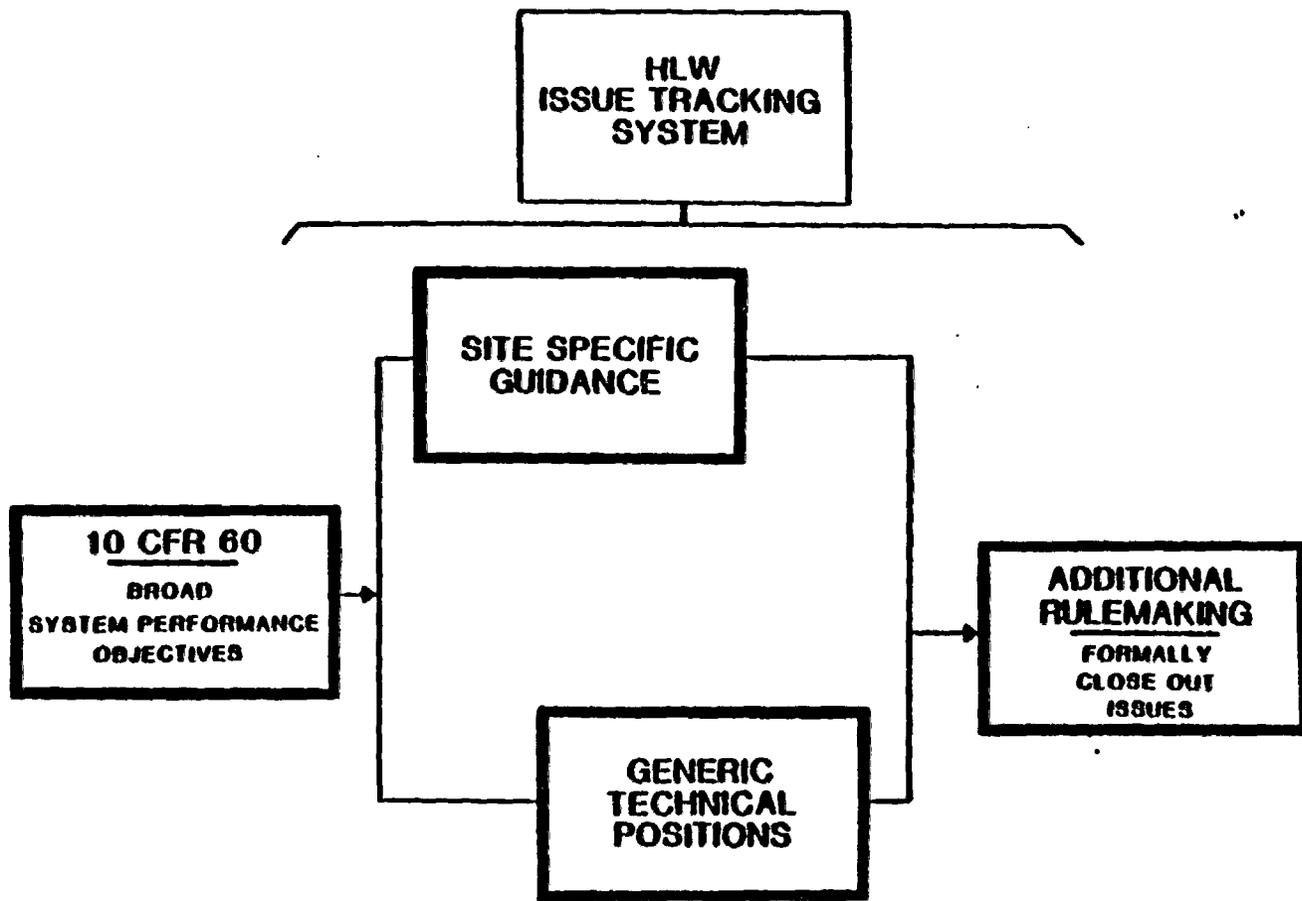
J. E. KENNEDY

- O PRELICENSING CONSULTATION AND GUIDANCE PROGRAM
- O GOALS FOR QA VISITS
- O QA REVIEW PLAN

PRELICENSING CONSULTATION

AND GUIDANCE PROCESS

- O 10 CFR 60 PROCEDURAL RULE
- O NWPA
- O EARLY IDENTIFICATION OF ISSUES AND TIMELY RESOLUTION



NRC HLW LICENSING GUIDANCE PROGRAM

**PRINCIPAL
GUIDANCE MECHANISM**

**SCP/SCA
PROCESS**

**SUPPLEMENTARY
GUIDANCE MECHANISMS**

**SITE TECHNICAL
POSITIONS
(STP'S)**

**DOCUMENTED
TECHNICAL MEETINGS/
TECHNICAL LETTERS**

**SITE SPECIFIC
LICENSING GUIDANCE**

TECHNICAL REVIEWS/WORKSHOPS
(FY 80-84)

	<u>BWIP</u>	<u>NTS</u>	<u>SALT</u>	<u>GENERIC</u>
OVERALL SITE/FIELD REVIEW	3	3	3	
GEOLOGY	2	1	1	
GEOCHEMISTRY	2	3	1	2
HYDROGEOLOGY	7	3	1	
WASTE PACKAGE	2	1	1	
DESIGN (UNDERGROUND TESTING)	5	1	2	1
PERFORMANCE ASSESSMENT	<u>1</u>	<u> </u>	<u>1</u>	<u>2</u>
<u>TOTAL</u>	22	12	10	5

GOALS FOR QA VISITS

- O FACT-FINDING AND FAMILIARIZATION WITH DOE PROGRAM
- O EARLY IDENTIFICATION OF QUALITY ASSURANCE ISSUES
- O DISCUSSION OF QA REVIEW PLAN
- O ULTIMATELY, TO HAVE A DOE QA PROGRAM IN PLACE WHICH WILL ADEQUATELY ASSURE THE QUALITY OF SITE CHARACTERIZATION PHASE WORK

QUALITY ASSURANCE
REVIEW PLAN

- O REASONS FOR DEVELOPMENT
- O PROCESS OF DEVELOPMENT
- O CONTENT
- O RELATIONSHIP TO OTHER QA GUIDANCE
- O FUTURE PLANS

PURPOSES

- O 10 CFR 60 SUBPART G - USE APPENDIX B, 10 CFR PART 50 "AS APPLICABLE AND APPROPRIATELY SUPPLEMENTED BY ADDITIONAL CRITERIA...."
- O RECOGNIZES THAT REPOSITORY IS NOT A REACTOR
- O DEFINE STAFF ACTIONS

PROCESS

- O IE/NMSS JOINT EFFORT
- O REACTOR SRP, CHAPTER 17
- O DRAFT FOR PUBLIC COMMENT, JULY 1983 -
MUCH INTEREST, FEW COMMENTS
- O MEETINGS WITH DOE
- O FORD AMENDMENT STUDY, APRIL 1984 - 60
NEW COMMENTS
- O FINAL ISSUANCE, JUNE 29, 1984

CONTENTS

- 0 DIFFERENT FROM REACTOR SRP WHICH ADDRESSES ONLY PROGRAM DESCRIPTION IN SAR
- 0 GENERAL - INTRODUCTORY TEXT
 - DESCRIPTION OF ONGOING WORK
 - NRC REGULATIONS
 - APPLICATION OF QA TO GEOTECHNICAL WORK
 - DESCRIPTION OF NRC REVIEW PROCESS
 - FIGURES
- 0 SPECIFIC - APPENDIX A
 - 18 CRITERIA TAILORED TO DOE, SC PHASE

IMPLEMENTATION ISSUES

- O HARDWARE QA VS DATA QA, E.G.
 - INSPECTIONS
 - NCR'S
- O SCOPE OF ITEMS AND ACTIVITIES COVERED BY PROGRAM-
THOSE IMPORTANT TO SAFETY AND WASTE ISOLATION
- O QA OF EXISTING DATA
- O LEVEL OF DETAIL IN PROCEDURES
- O INDEPENDENCE OF QA ORGANIZATIONS
- O RECORDS - PRELIMINARY VS FINAL
- O DESIGN CONTROL - WHEN DOES IT START?
- O GRADED QA
- O REPLICATION

RELATIONSHIP TO NQA-1

- O REVIEW PLAN - GREATER SPECIFICITY AND LEVEL OF
DETAIL FOR DOE SITE CHARACTERIZATION PHASE
- O NQA-1 REVISIONS REQUIRED

FUTURE PLANS

- O NQA-1
- O FORD AMENDMENT STUDY RECOMMENDATIONS
- O WILLIAM BLAND STUDY RECOMMENDATIONS
- O EXPERIENCE AT SITES
- O CONSENSUS STANDARDS - ASME/ANSI 2.20, NQA-1
AND ANS-2.24
- O CONFIGURATION CONTROL

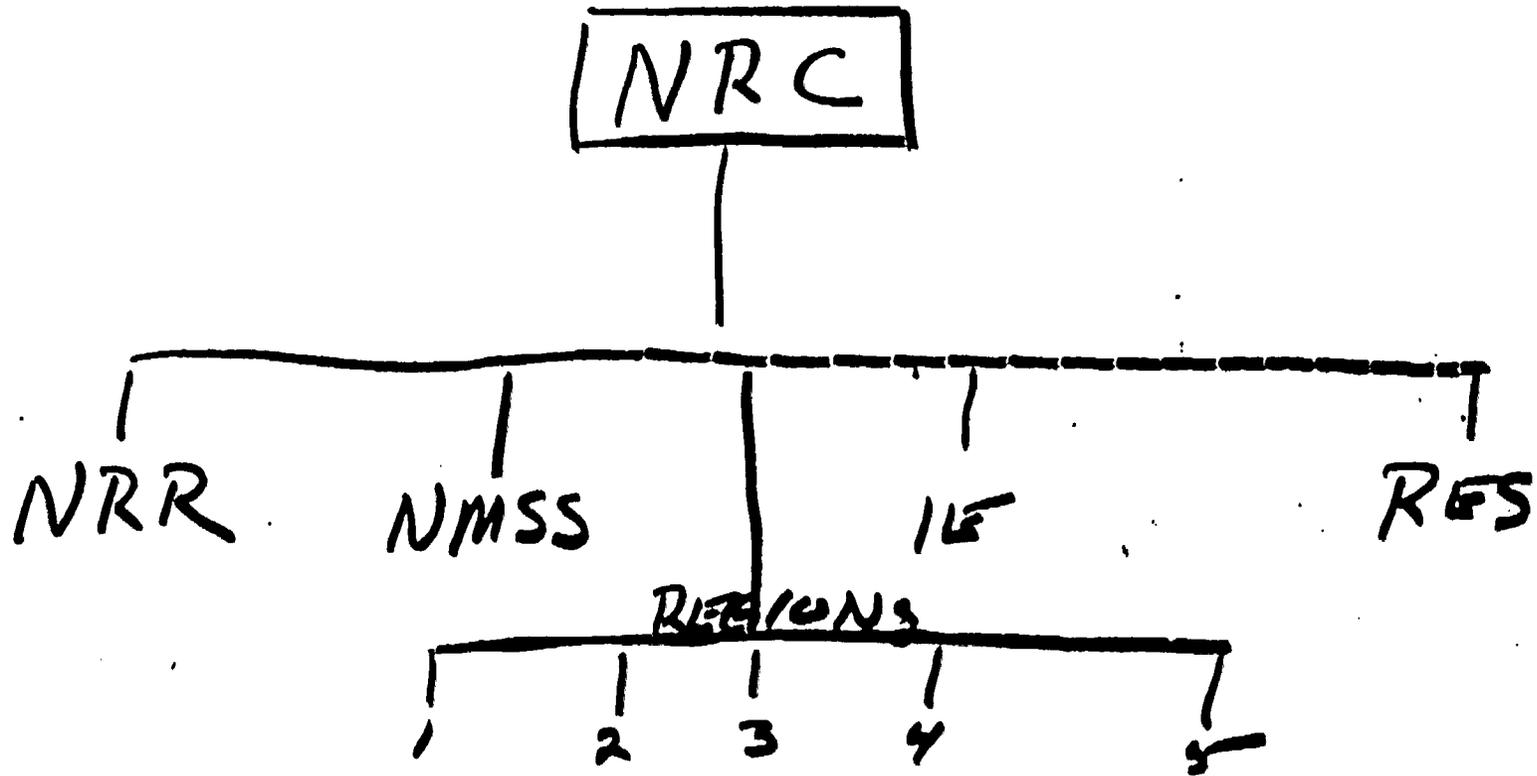
SUMMARY

- O CRITERIA FOR REVIEW NOW IN PLACE
- O SITE VISITS WILL PROVIDE OPPORTUNITY FOR NRC STAFF TO BECOME FAMILIAR WITH DOE PROGRAM
- O IMPLEMENTATION ISSUES WILL BE IDENTIFIED

NRC - DOE

HLW SITE VISITS
FOR

QUALITY ASSURANCE



- NMSS resp for licensing HLW, WRS
- IE has policy lead for QA
- NMSS/IE interface on QA for HLW

QA

LICENSING
DESIGN INSP
IDUP
Some Generic
ISSUES

Policy
Program Development
Special Studies
Codes, Standards
Rules
Research
QA Program Plan

FORD AMENDMENT STUDY

ROOT CAUSES OF PROBLEMS

• INEXPERIENCE

- LACK OF UNDERSTANDING OF PROJECT, OF REGULATORY REQUIREMENTS
- FAILURE TO TREAT NUCLEAR DIFFERENT FROM PAST PROJECTS
- INADEQUATE STAFFING
- OVER RELIANCE ON CONTRACTORS
- FAILURE TO RECOGNIZE SYMPTOMS
- MANY INTERFACES, COMPLEX FIRST OF A KIND PROJECT
- UNPREPARED FOR ACTIVE INTERVENTION

• MANAGEMENT

- LACK OF INVOLVEMENT
- DIFFUSION OF RESPONSIBILITY, DILUTED ACCOUNTABILITY
- VIEW OF QA AS ANOTHER REGULATORY REQUIREMENT, NOT AS MANAGEMENT TOOL OR AS NECESSARY FOR LICENSING
- "TEA KETTLE" SYNDROME
- FALSE SENSE OF SECURITY
- RELIANCE ON NRC TO DETECT PROBLEMS

PREMISES OF QA PROGRAM PLAN

LICENSEES ARE PRIMARILY RESPONSIBLE FOR QUALITY. LICENSEE MANAGEMENT MUST ASSUME RESPONSIBILITY FOR QUALITY AND BE HELD ACCOUNTABLE FOR FAILURES.

SUBSTANTIVE IMPROVEMENTS IN QUALITY MUST COME FROM THE INDUSTRY ITSELF AND CANNOT BE "INSPECTED IN."

THE FOCUS OF NRC AND INDUSTRY QA PROGRAMS SHOULD BE ON PERFORMANCE, NOT PRESCRIPTIVENESS.

NRC AND INDUSTRY QA PROGRAMS SHOULD BE ORIENTED TOWARD PREVENTION AND EARLY DETECTION.

QA PROGRAMMATIC ACTIVITIES TO ASSURE QUALITY SHOULD NOT INTERFERE WITH THE ACHIEVEMENT OF QUALITY.

QA IS A MANAGEMENT TOOL FOR MONITORING AND CONFIRMING WORK. IT IS NOT A SUBSTITUTE FOR MANAGEMENT.

GREATER PREDICTABILITY SHOULD BE RESTORED TO THE LICENSING AND REGULATORY PROCESS. LACK OF PREDICTABILITY HAS AN ADVERSE EFFECT ON QUALITY.

NRC QA PROGRAM PLAN

• COMPUTER SOFTWARE

• MRS, ISFSI

• HLW

• NQA-1

• READINESS REVIEWS

NWPA

NRC

INDEPENDENCE OF QA ORGANIZATION

NRC REGULATOR

REACTOR LESSONS IN QA

NQA-1

DOE

LINE MANAGEMENT RESPONSIBLE

DOE RESPONSIBLE FOR PROJECT

LESSONS APPLICABLE TO NON-
REACTOR ACTIVITIES

NQA-1

HWPA

- REACTORS ARE DIFFERENT FROM HLW REPOSITORIES
- SOME QA MEASURES NOT APPLICABLE TO ALL ACTIVITIES
- NRC NEEDS TO BECOME MORE FAMILIAR WITH DOE PROGRAMS
- DOE NEEDS TO BECOME MORE FAMILIAR WITH NRC POLICIES
- NRC APPROACH TO QA BEING MODIFIED AS A RESULT OF FORD STUDY
- SRP A BASELINE DOCUMENT TO BEGIN PROCESS
- UNIFIED NRC APPROACH
- EVOLUTION
- OPENNESS
- COMMUNICATION



**Nevada
Nuclear Waste
Storage Investigations Project**

**DOE/NRC MEETING
ON NNWSI PROJECT
QUALITY ASSURANCE**

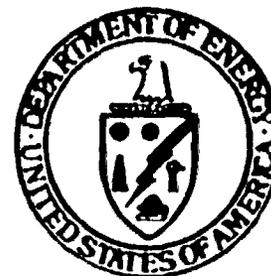
Presented by

**James Blaylock, DOE/NV
NNWSI Project Quality Manager**

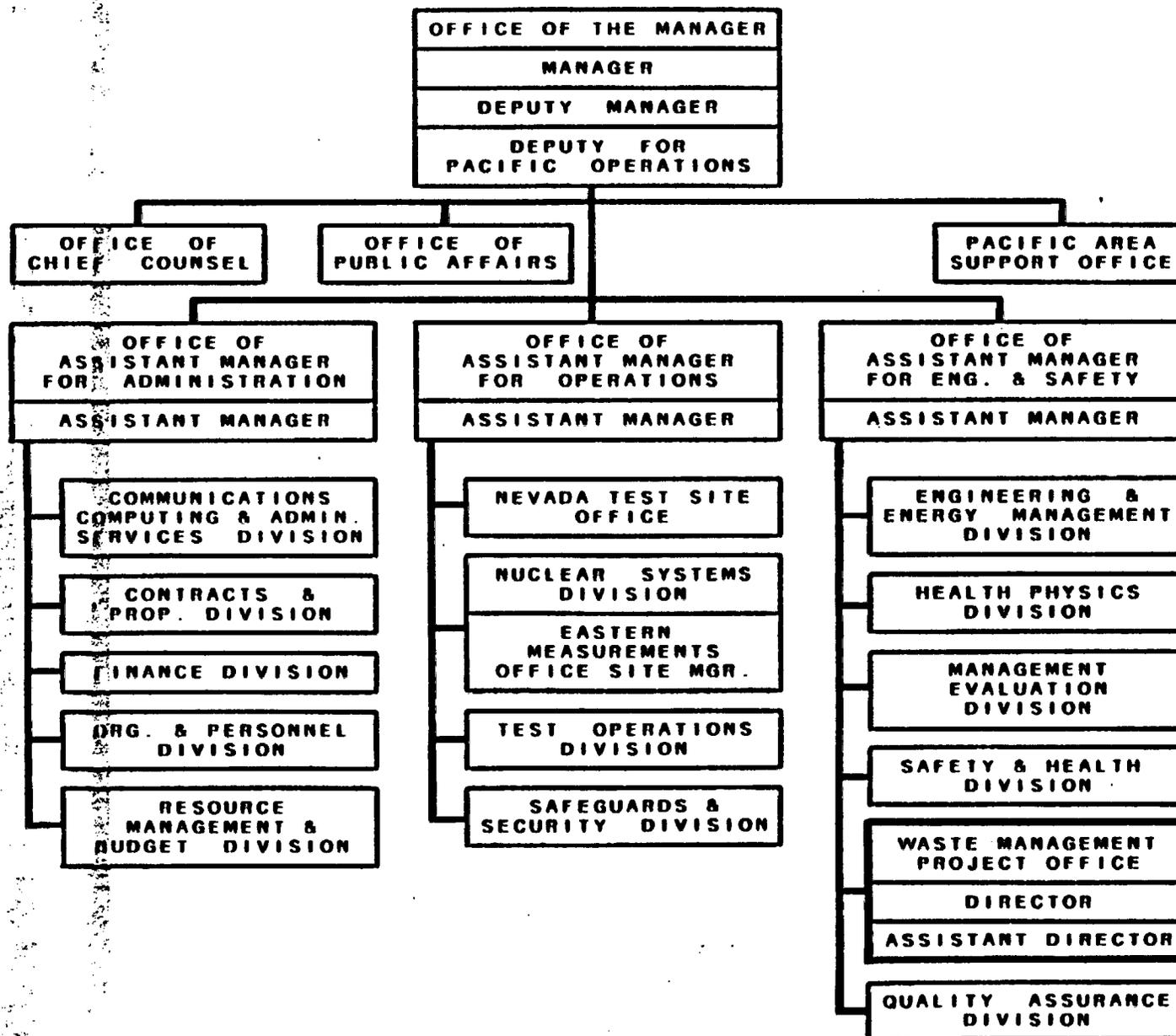
December 13-14, 1984

Nevada Operations Office

UNITED STATES DEPARTMENT OF ENERGY

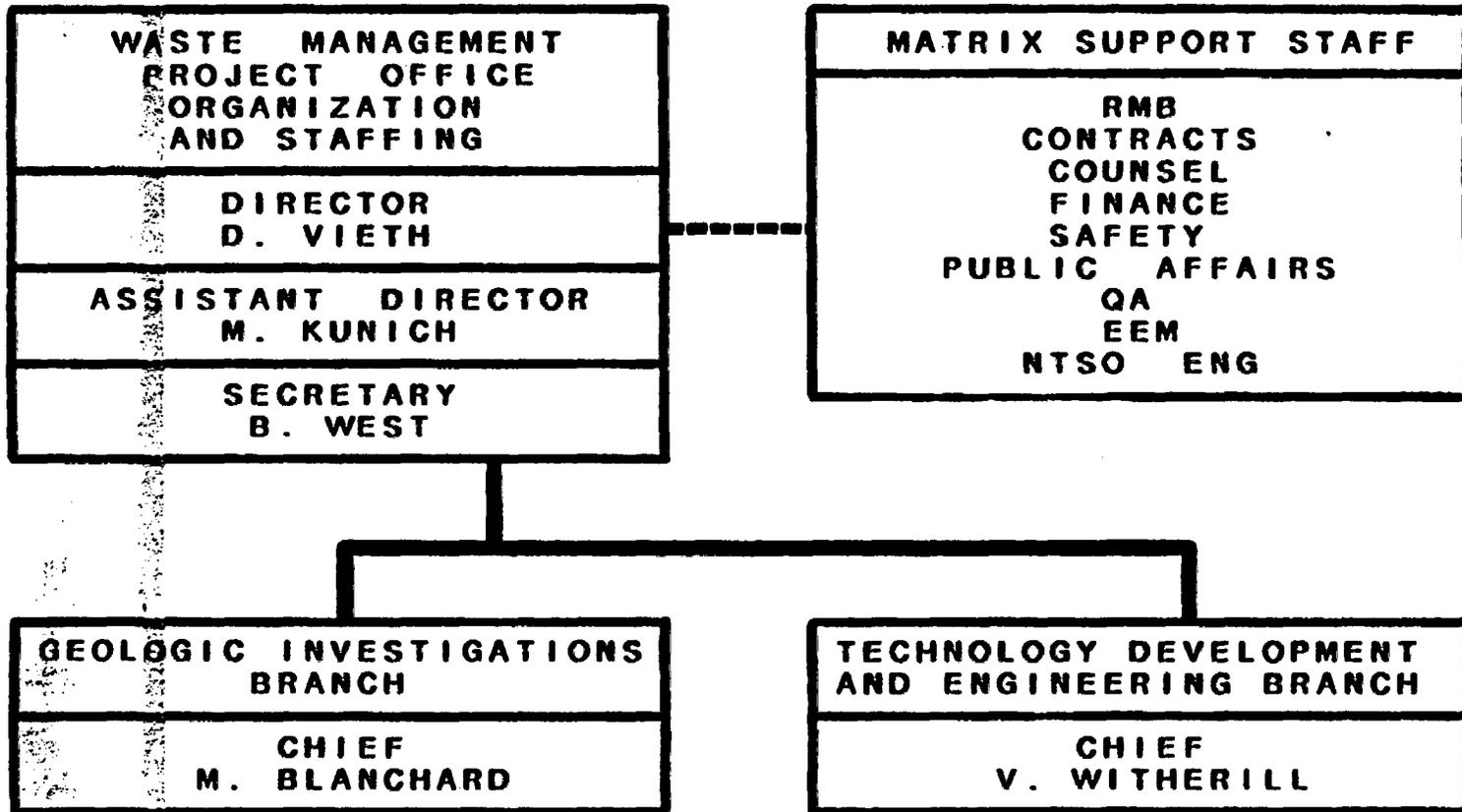


U.S. DOE/NV ORGANIZATION





WMPO ORGANIZATION

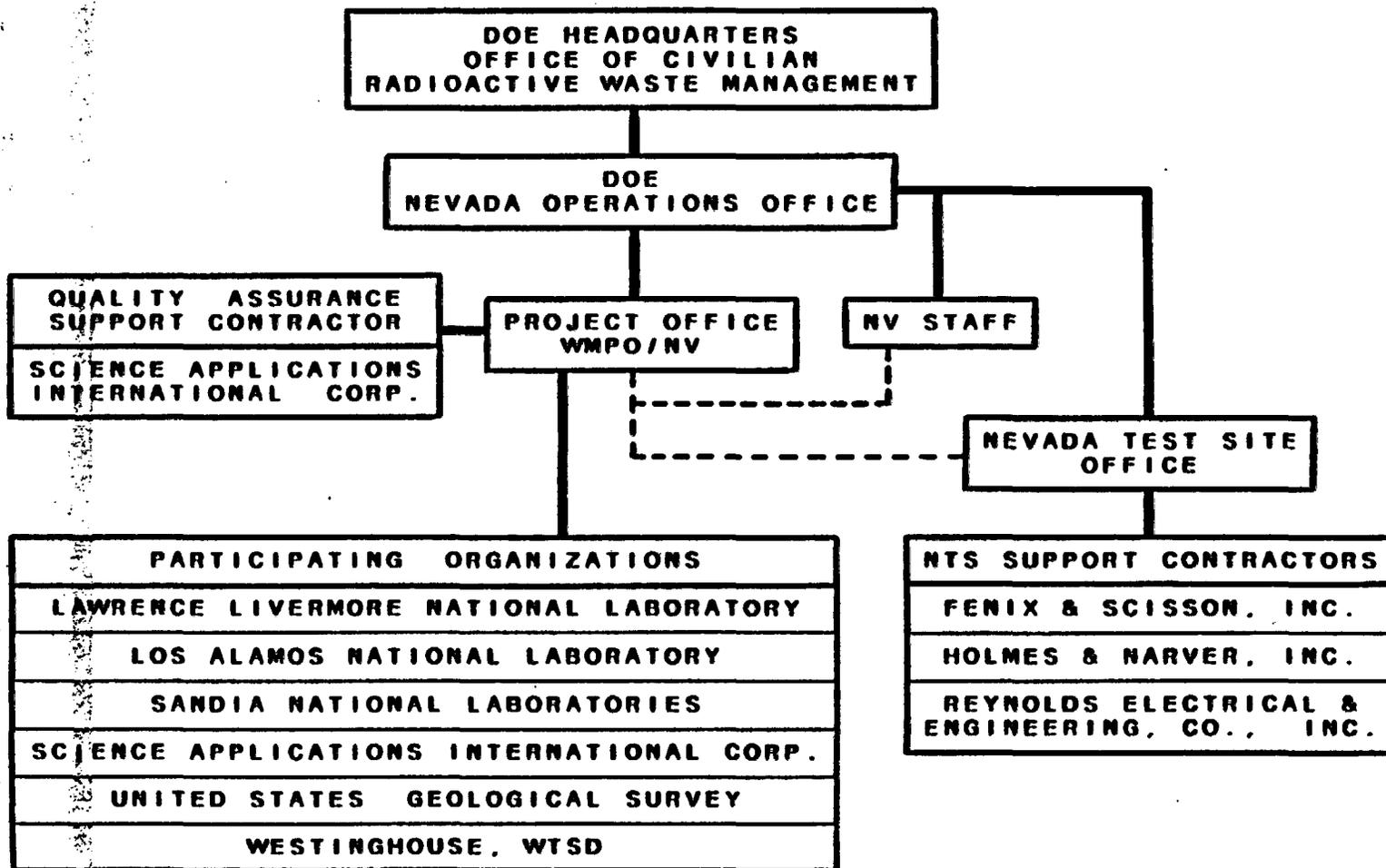


22301
HOSH



PROJECT

NNWSI PROJECT ORGANIZATION



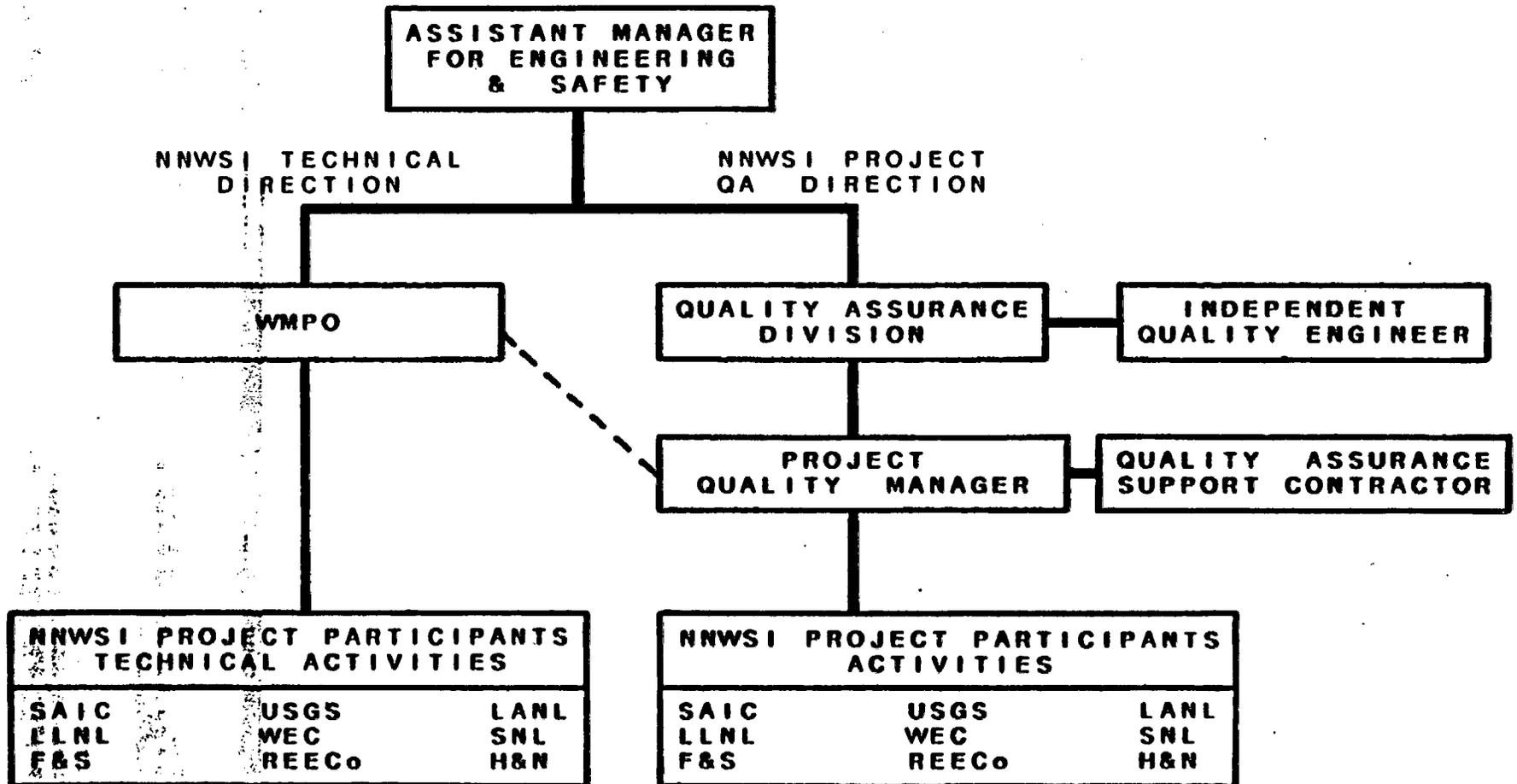
— DOE/NV & Project Participant - Administrative Responsibility, Authority, & Accountability

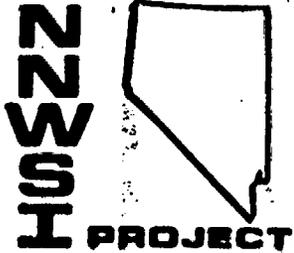
- - - DOE/NV Matrix - Functional Responsibility & Accountability

**NNWSI
PROJECT**



QUALITY ASSURANCE & TECHNICAL DIRECTION FOR THE NNWSI PROJECT





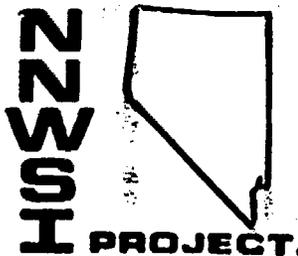
NEVADA NUCLEAR WASTE STORAGE INVESTIGATIONS PROJECT QUALITY ASSURANCE PLAN NVO-196-17

- DESCRIBES THE OVERALL NNWSI PROJECT QUALITY ASSURANCE REQUIREMENTS THAT THE NNWSI PROJECT PARTICIPANTS ARE TO FOLLOW WHEN DEVELOPING THEIR IMPLEMENTING METHODS IN THEIR INDIVIDUAL PROGRAM PLANS.
- PROVIDES GUIDANCE TO THE NNWSI PROJECT PARTICIPANTS TO ACHIEVE A COMMON APPROACH TO MEETING QUALITY REQUIREMENTS.
- QA REQUIREMENTS IMPOSED ARE BASED UPON DOE AND NRC REQUIREMENTS.
- SUPPORTED BY STANDARD OPERATION PROCEDURES (SOPs) WHICH ARE UTILIZED BY ALL NNWSI PROJECT PARTICIPANTS.



NVO-196-17 (REV. 2) CHANGES

- **QASC INTERFACE CHANGED FROM SNL TO SAI**
- **USE OF QUALITY ASSURANCE LEVEL APPROACH**
- **QUALITY ASSURANCE REQUIREMENTS ASSOCIATED WITH EACH LEVEL**
- **WMPO APPROVAL OF QAPPs AND QA IMPLEMENTING PROCEDURES**
- **WMPO APPROVAL OF NCR DISPOSITIONS ASSOCIATED WITH LEVEL I & II ACTIVITIES**



NNWSI PROJECT QUALITY LEVEL APPROACH

- **RECOGNIZES THE IMPORTANCE OF RADIOLOGICAL SAFETY RELATED AND NON-RADIOLOGICAL SAFETY RELATED NNWSI PROJECT ACTIVITIES**
- **CONTROLS ARE IMPOSED CONSISTENT WITH THE IMPACT TO THE NNWSI PROJECT**
- **LEVEL I - ACTIVITIES WHICH SUPPORT LICENSING AND SITE CHARACTERIZATION**
- **LEVEL II - ACTIVITIES WHICH HAVE IMPACT ON DOE AND WMPO CONCERNS**
- **LEVEL III - ALL OTHER ACTIVITIES**



QUALITY ASSURANCE LEVEL I

RADIOLOGICAL HEALTH AND SAFETY RELATED ACTIVITIES INVOLVING ITEMS OR ACTIVITIES THAT ARE IMPORTANT TO BOTH SAFETY AND/OR WASTE ISOLATION AND THAT ARE ASSOCIATED WITH THE ABILITY OF A NUCLEAR WASTE REPOSITORY TO FUNCTION IN A MANNER THAT PRESENTS OR MITIGATES THE CONSEQUENCES OF A PROCESS OR EVENT THAT COULD CAUSE UNDUE RISK TO THE RADIOLOGICAL HEALTH AND SAFETY OF THE PUBLIC. ITEMS IMPORTANT TO SAFETY ARE THOSE ENGINEERED STRUCTURES, SYSTEMS, AND COMPONENTS ESSENTIAL TO THE PREVENTION OR MITIGATION OF AN ACCIDENT THAT COULD RESULT IN A RADIATION DOSE EITHER TO THE WHOLE BODY OR TO ANY ORGAN OF 0.5 REM OR GREATER EITHER AT OR BEYOND THE NEAREST BOUNDARY OF THE UNRESTRICTED AREA AT ANY TIME UNTIL THE COMPLETION OF THE PERMANENT CLOSURE OF THE REPOSITORY. ITEMS IMPORTANT TO WASTE ISOLATION ARE THOSE BARRIERS WHICH MUST MEET THE CRITERIA THAT ADDRESS LONG-TERM PERFORMANCE OF THE ENGINEERED AND NATURAL BARRIERS TO PREVENT THE RELEASE OF RADIONUCLIDES FROM THE SITE TO THE ACCESSIBLE ENVIRONMENT AFTER PERMANENT CLOSURE. THE CRITERIA FOR ITEMS IMPORTANT TO SAFETY AND WASTE ISOLATION ARE FOUND IN 10CFR60, 40CFR191, AND 40CFR190.

QUALITY ASSURANCE LEVEL II

THOSE SYSTEMS, STRUCTURES, AND COMPONENTS WHICH REQUIRE A LEVEL OF QUALITY SUFFICIENT TO PROVIDE FOR RELIABILITY, MAINTAINABILITY, PUBLIC AND WORKER NON-RADIOLOGICAL HEALTH AND SAFETY, AND OTHER OPERATIONAL FACTORS THAT WOULD HAVE AN IMPACT ON DOE AND WMPO CONCERNS, AND THE ENVIRONMENT.

NZSH



PROJECT

QUALITY ASSURANCE LEVEL III

QUALITY LEVEL III ACTIVITIES ARE DEFINED AS THOSE ACTIVITIES NOT CLASSIFIED AS QUALITY LEVEL I AND II.



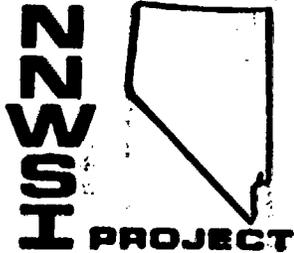
NVO-196-17 (REV. 3) CHANGES

- **CLARIFICATION ON QUALITY LEVELS**
- **DESIGNATION OF PROJECT QUALITY MANAGER**
- **DESIGN CONTROL**
- **PEER REVIEWS**
- **PROCUREMENT DOCUMENT CONTROL - PASS QA REQUIREMENTS TO SUBCONTRACTORS IN PROCUREMENT DOCUMENTS**
- **TEST/EXPERIMENT CONTROL**
- **INFORMATION FROM PROJECT PARTICIPANTS REGARDING AUDITS**



NNWSI QAP NVO-196-17, REV. 3

- NNWSI-SOP-02-01 QAPP REQUIREMENTS
- NNWSI-SOP-03-01 ENGINEERING CONTRACTOR AND SUPPORT SERVICES AT THE NTS
- NNWSI-SOP-03-02 COMPUTER CODE ASSESSMENT
- NNWSI-SOP-03-03 PRE-NNWSI QAP DATA VERIFICATION
- NNWSI-SOP-15-01 NONCONFORMANCE CONTROL SYSTEM
- NNWSI-SOP-17-01 RECORDS MANAGEMENT PLAN



QAPP REQUIREMENTS FOR NNWSI PROJECT PARTICIPANTS NNWSI-SOP-02-01

- DELINEATES THE QUALITY ASSURANCE REQUIREMENTS THAT ARE TO BE ADDRESSED IN THE QA PROGRAM PLANS OF THE NNWSI PROJECT PARTICIPANTS
- PROVIDES A COMPOSITE OF ALL QA REQUIREMENTS OUTLINED IN THE NNWSI PROJECT QAP
- PROVIDES THE NNWSI PROJECT PARTICIPANTS A SINGLE DOCUMENT THAT ASSIMILATES ALL OF THE QA REQUIREMENTS OF THE NNWSI PROJECT
- THIS PROCEDURE IS IN THE DEVELOPMENT STAGE

**NNWSI
PROJECT**



**ENGINEERING, CONSTRUCTION, AND SUPPORT SERVICES
OF THE NTS**

NNWSI-SOP-03-01

- **PROVIDES A UNIFORM APPROACH TO THE METHODS AND RESPONSIBILITIES OF NNWSI PROJECT PARTICIPANTS WHEN ACTIVITIES ARE PERFORMED AT THE NTS FOR NNWSI PROJECT**

NNWSI



PROJECT

COMPUTER CODE ASSESSMENT

NNWSI-SOP-03-02

- **PROVIDES A UNIFORM APPROACH TO THE CONTROLS AND DOCUMENTATION ASSOCIATED WITH THE DEVELOPMENT AND USE OF TECHNICAL COMPUTER CODES ON THE NNWSI PROJECT**
- **APPLIES TO ALL NNWSI PROJECT PARTICIPANTS WHEN DEVELOPING TECHNICAL COMPUTER CODES.**
- **THIS PROCEDURE IS IN THE DEVELOPMENT STAGE**



**VERIFICATION OF
DATA GENERATED PRE-NNWSI PROJECT QAP
NNWSI-SOP-03-03**

- PROVIDES THE METHODS OF CONTROL AND DOCUMENTATION OF INFORMATION THAT WAS GENERATED PRIOR TO A NNWSI PROJECT QAP THAT WILL BE USED TO SUPPORT CURRENT ACTIVITIES
- APPLIES TO ALL NNWSI PROJECT PARTICIPANTS THAT HAVE THE NEED TO UTILIZE SUCH DATA
- THIS PROCEDURE IS IN THE DEVELOPMENT STAGE



NONCONFORMANCE CONTROL SYSTEM

NNWSI-SOP-15-01

- PROVIDES A UNIFORM APPROACH FOR THE RESPONSIBILITIES AND METHODS USED WHEN CONTROLLING NONCONFORMANCES
- APPLIES TO ALL NNWSI PROJECT PARTICIPANTS FOR THE PROCESSING OF NONCONFORMANCES OF NNWSI PROJECT ACTIVITIES

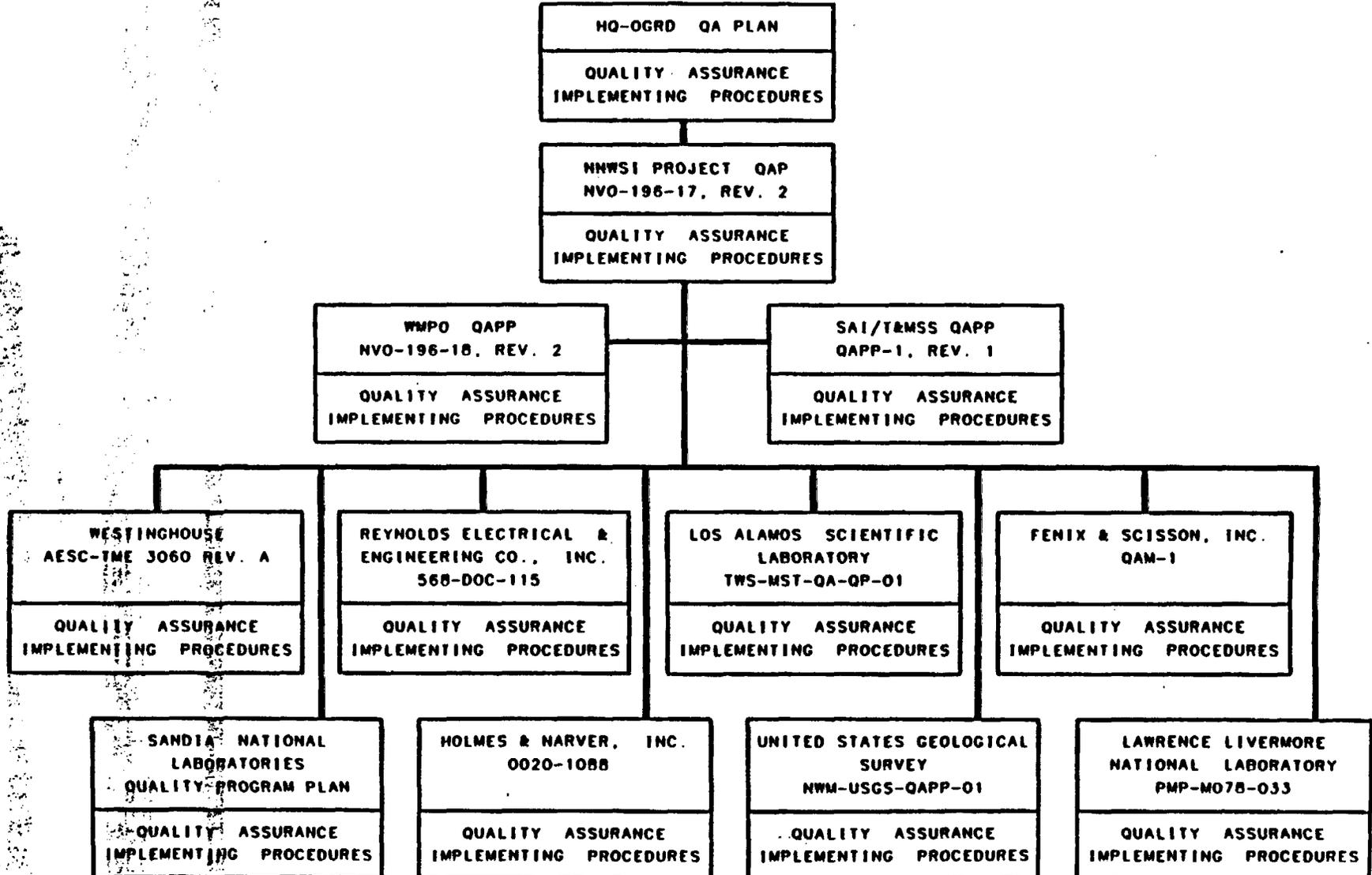


RECORDS MANAGEMENT PLAN NNWSI-SOP-17-01

- **DETAIL THE METHODS AND RESPONSIBILITIES FOR THE PREPARATION, STORAGE, AND RETRIEVABILITY OF QA RECORDS GENERATED BY ALL NNWSI PROJECT PARTICIPANTS**

- **THIS DOCUMENT IS IN THE DEVELOPMENT STAGE**

STRUCTURE OF NNWSI PROJECT QA PLANS & PROCEDURES





HQ-OGRD QA PLAN

- QIP-2.0 HEADQUARTERS REVIEW OF PROJECT QA PLANS AND ADMINISTRATIVE PROCEDURES**
- QIP-3.0 DESIGN CONTROL/REVIEWS**
 - QIP-3.1 PEER REVIEWS**
 - QIP-3.2 TECHNICAL REVIEWS**
- QIP-5.0 PREPARATION AND CONTROL OF OGRD QUALITY IMPLEMENTING PROCEDURES**
- QIP-6.0 CONTROL OF INTERNALLY AND EXTERNALLY GENERATED DOCUMENTS**
- QIP-15.0 UNUSUAL OCCURENCE REPORTING**
- QIP-16.0 SIGNIFICANT PROBLEM REPORTING AND CORRECTIVE ACTION**
- QIP-17.0 QA RECORDS**
- QIP-18.0 EXTERNAL AUDITS**
 - QIP-18.1 HQ PARTICIPATION IN PROJECT QA AUDITS**
 - QIP-18.2 REVIEW OF PROJECT SUBMITTED AUDIT REPORTS**
 - QIP-18.3 AUDITOR TRAINING, QUALIFICATION, AND CERTIFICATION**
 - QIP-18.4 INTERNAL AUDITS**



WMPO QAPP
NVO-196-18, REV. 2

- QMP-01-01 WMPO ORGANIZATION**
- QMP-02-01 INDOCTRINATION**
- QMP-02-02 QUALIFICATION AND CERTIFICATION OF AUDITORS**
- QMP-03-01 PEER REVIEW**
- QMP-06-01 QMP FORMAT AND PREPARATION**
- QMP-06-02 DOCUMENT CONTROL**
- QMP-06-03 DOCUMENT REVIEW/APPROVAL**
- QMP-07-01 SURVEILLANCE**
- QMP-15-01 NONCONFORMANCE CONTROL**
- QMP-16-01 CORRECTIVE ACTION CONTROL SYSTEM**
- QMP-16-02 TREND ANALYSIS**
- QMP-17-01 QA RECORDS**
- QMP-18-01 AUDITS**

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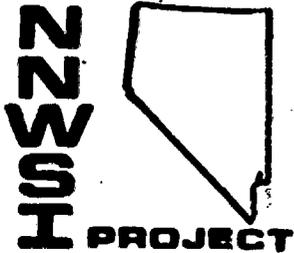


PROJECT

LAWRENCE LIVERMORE NATIONAL LABORATORY

PMP-M078-033

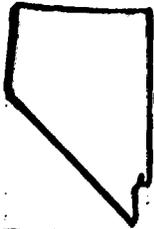
QP-033-01	TECHNICAL REVIEW
QP-033-02	NONCONFORMANCE
QP-033-03	PROCUREMENT CONTROL
QP-033-04	DOCUMENT CONTROL
QP-033-05	RECORD CENTER



HOLMES & NARVER, INC.

0020-1088

QA01 NO. 1	ORGANIZATION AND FUNCTIONS
QA01 NO. 2	MATRIX OF QA REQUIREMENTS VS IMPLEMENTING DOCUMENTS
QA01 NO. 3	QUALITY ASSURANCE PROGRAM AUDIT
QA01 NO. 4	INDOCTRINATION, TRAINING, AND QUALIFICATION OF PERSONNEL
QA01 NO. 6	PROCUREMENT DOCUMENT REVIEW
QA01 NO. 7	SPECIFICATION AND DRAWING REVIEW
QA01 NO. 8	AS-BUILT RECORD DRAWING REVIEW
QA01 NO. 9	DOCUMENT RELEASE AND CHANGE CONTROL
QA01 NO. 10	SOURCE INSPECTION COORDINATION
QA01 NO. 11	SURVEILLANCE INSPECTION REQUIREMENTS
QA01 NO. 12	SOURCE INSPECTION
QA01 NO. 13	USE OF MATERIAL INSPECTION REPORT
QA01 NO. 14	NONDESTRUCTIVE TESTING OPERATIONS
QA01 NO. 15	FIELD INSPECTION
QA01 NO. 16	CONTROL AND CALIBRATION OF EQUIPMENT
QA01 NO. 17	NONCONFORMANCE REPORTING AND ANALYSIS
QA01 NO. 18	CORRECTIVE ACTION
QA01 NO. 19	QUALITY ASSURANCE RECORDS
QA01 NO. 20	QUALITY ASSURANCE REPORTS



SAI/T&MSS QAPP

QAPP-1, REV. 1

- QP 2.1 QUALITY ASSURANCE REVIEW OF TASK PLANS**
- QP 2.2 INDOCTRINATION AND TRAINING OF PERSONNEL PERFORMING QUALITY RELATED FUNCTIONS**
- QP 2.3 AUDITOR QUALIFICATION**
- QP 3.1 DESIGN CONTROL**
- QP 3.2 USE AND CONTROL OF COMPUTER CODES**
- QP 4.1 PROCUREMENT DOCUMENT CONTROL**
- QP 5.1 PREPARATION, REVIEW, AND APPROVAL OF QA PROCEDURES**
- QP 6.1 DOCUMENT CONTROL**
- QP 7.1 CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SUPPLIES**
- QP 8.1 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS**
- QP 9.1 CONTROL OF SPECIAL PROCESSES**
- QP 10.1 CONTROL OF INSPECTIONS**
- QP 11.1 TEST CONTROL**
- QP 12.1 CONTROL OF MEASURING AND TEST EQUIPMENT**
- QP 13.1 HANDLING, STORAGE, AND SHIPPING**
- QP 14.1 CONTROL OF INSPECTION, TEST, AND OPERATING STATUS**
- QP 15.1 NONCONFORMANCE PROGRAM**
- QP 16.1 CORRECTIVE ACTION PROGRAM**
- QP 17.1 RECORDS MANAGEMENT PROGRAM**
- QP 18.1 AUDIT PLANNING, CONDUCT, AND RECORDS**



SANDIA NATIONAL LABORATORIES QUALITY PROGRAM PLAN

WMP-1-1	PROCEDURE FORMAT AND PREPARATION
WMP-1-2	CONTROLLED DOCUMENT TRANSMITTAL
WMP-11-1	TRAINING AND INDOCTRINATION PROGRAM
WMP-11-2	IDENTIFICATION OF SAFETY-RELATED FEATURES
WMP-11-3	QUALITY PROGRAM LEVELS OF EFFORT
WMP-11-4	QAPP CONTROLS AND REVISIONS
WMP-111-1	CONTROL REQUIREMENTS FOR THE DESIGN OF HARDWARE, EXPERIMENTAL PROGRAMS, AND ANALYTIC MODELS
WMP-111-2	TECHNICAL REVIEW AND MANAGEMENT APPROVAL OF DESIGNS FOR HARDWARE, EXPERIMENTAL PROGRAMS, AND ANALYTIC MODELS
WMP-111-3	DESIGN INFORMATION SOURCES
WMP-111-4	DESIGN DEFINITION SYSTEM
WMP-111-7	CONTROL OF DRAWING REVISIONS
WMP-111-9	REQUESTS FOR DESIGN DEFINITION SERVICES
WMP-IV-1	REVIEW AND APPROVAL OF WASTE MANAGEMENT PROGRAM DOCUMENTS
WMP-IV-2	CONTROL OF QUALITY OF PURCHASED MATERIALS, EQUIPMENT, AND SERVICES
WMP-V-1	INTERACTIVE PROCEDURE GENERATION
WMP-VI-1	DOCUMENT CONTROL SYSTEM
WMP-VI-2	CONTRACTOR SOFTWARE QUALITY ASSURANCE PROGRAMS



SANDIA NATIONAL LABORATORIES QUALITY PROGRAM PLAN

(CONTINUED)

WMP-VI-3	QA PROGRAM FOR ACADEMIC STUDIES AND INVESTIGATIONS
WMP-VI-4	CONTRACTOR QA REQUIREMENTS AND GUIDANCE FOR R&D ACTIVITIES
WMP-VII-1	SURVEILLANCE AND TESTING
WMP-VII-4	RECEIVING INSPECTION
WMP-VII-6	A SUPPLIER QUESTIONNAIRE
WMP-VII-7	VERIFICATION OF SERVICES AND ACTIVITIES
WMP-VIII-1	IDENTIFICATION MARKING OF NONWEAPONS MATERIALS
WMP-IX-1	CONTROL OF SPECIAL PROCESSES
WMP-X-1	QUALIFICATION OF INSPECTION AND TEST PERSONNEL
WMP-XI-1	TEST PROCEDURE CONTENT AND CONTROL
WMP-XI-5	TEST/EXPERIMENT LOGBOOK CONTENT AND CONTROL
WMP-XII-2	CALIBRATION PROGRAM
WMP-XII-3	CALIBRATION OF EQUIPMENT, GAGES, AND STANDARDS
WMP-XII-4	CALIBRATION AND CERTIFICATION OF SANDIA-OWNED TESTERS
WMP-XIII-1	HANDLING, SHIPPING, AND STORAGE PROCEDURE
WMP-XIII-2	PROPERTY MOVEMENT
WMP-XIII-3	GENERAL STORAGE OF PROPERTY AND MATERIAL
WMP-XIV-1	STATUS INDICATION OF ITEMS

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PROJECT

SANDIA NATIONAL LABORATORIES QUALITY PROGRAM PLAN

(CONTINUED)

WMP-XV-1	NONCONFORMANCE REPORTING FOR ITEMS AND MATERIALS
WMP-XV-2	NONCONFORMING REPORTING FOR SERVICES AND ACTIVITIES
WMP-XVII-1	QA RECORDS COLLECTION, FILING, STORAGE, AND MAINTENANCE
WMP-XVII-3	CONFERENCE TELECON NOTES
WMP-XVIII-1	QUALITY AUDITS
WMP-SVIII-2	QUALIFICATION OF QUALITY PROGRAM AUDITORS
WMP-XIX-1	SOFTWARE QUALITY ASSURANCE
EP401201	ACQUIRING CONTRACTOR DOCUMENTS UNDER A DEVELOPMENT CONTRACT
EP401212	PREPARATION OF 35 MM MICROFILM APERTURE CARDS
EP401401	QUALIFICATION EVALUATION SYSTEM FOR COMMERCIAL SUPPLIERS
EP401408	INSPECTION PROGRAM REQUIREMENTS
EP401410	USE OF SANDIA CHANGE ORDERS BY CONTRACTORS
EP401413	FIELD OPERATIONS REPRESENTATIVE SUPPORT
EP401414	QUALITY PROGRAM REQUIREMENTS
EP401416	QUALITY PROGRAM REQUIREMENTS
SLEDS	SANDIA LABORATORIES ENGINEERING DRAWING SYSTEM

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PROJECT

**FENIX & SCISSON, INC.
QAM-1**

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- QAP-1.1 F&S, INC., QUALITY ASSURANCE PROGRAM ORGANIZATION AND RESPONSIBILITIES**
 - QAP-2.1 QUALITY ASSURANCE PROGRAM**
 - QAP-3.1 PROCEDURE FOR THE APPROVAL, REVISION, AND DISTRIBUTION OF F&S, INC., ENGINEERING DRAWINGS**
 - QAP-3.2 PROCEDURE FOR THE IDENTIFICATION AND REVIEW OF F&S, INC., DOCUMENTS**
 - QAP-4.2 PROCUREMENT AUTHORIZATION FORM PROCEDURE**
 - QAP-5.1 INSTRUCTIONS, PROCEDURES, AND DRAWINGS**
 - QAP-5.2 PROCEDURE FOR THE DEVELOPMENT OF DRILLING PROGRAMS**
 - QAP-5.3 PROCEDURE FOR THE DOCUMENTATION OF APPROVED CHANGES IN DRILLING PROGRAMS**
 - QAP-6.1 PROCEDURE FOR DOCUMENT CONTROL**
 - QAP-7.1 SUPPLIER SURVEY PROCEDURE**
 - QAP-7.2 SURVEILLANCE INSPECTION REQUIREMENT FORM PROCEDURE**
 - QAP-7.3 SUPPLIER DEVIATION REQUEST PROCEDURE**
 - QAP-7.4 PROCUREMENT PROCEDURE FOR MAJOR ITEMS OF EQUIPMENT AND SUPPLIES**
 - QAP-7.5 MAJOR ACQUISITION SEQUENCE FOR SUBCONTRACTS**

**FENIX & SCISSON, INC.
QAM-1****(CONTINUED)**

- QAP-8.1 IDENTIFICATION AND CONTROL OF ITEMS**
- QAP-8.2 IDENTIFICATION PROCEDURE FOR DOWNHOLE EQUIPMENT**
- QAP-9.1 GENERAL PROCEDURE FOR RADIOGRAPHIC TESTING**
- QAP-9.2 GENERAL PROCEDURE FOR ULTRASONIC TESTING**
- QAP-9.3 GENERAL PROCEDURE FOR LIQUID PENETRATING TESTING**
- QAP-9.4 GENERAL PROCEDURE FOR MAGNETIC PARTICLE TESTING**
- QAP-9.5 OPERATING PROCEDURE FOR THE NDT-120 ULTRASONIC THICKNESS GAGE**
- QAP-9.6 OPERATING PROCEDURE FOR THE INSTRUMATIC HARDNESS TESTER**
- QAP-9.7 INSTALLATION PROCEDURE FOR ROCK BOLTS USING SULFA SET GROUT**
- QAP-9.8 INSTALLATION PROCEDURE FOR ROCK BOLTS USING CELTITE ANCHORS**
- QAP-9.9 GENERAL PROCEDURE FOR SHOTCRETING**
- QAP-9.10 GENERAL PROCEDURE FOR PRESSURE GROUTING**
- QAP-9.11 PROCEDURE FOR CORE SAMPLING OF UNDERGROUND EXPLORATORY SHAFT**
- QAP-9.12 PROCEDURE FOR CUTTINGS AND CORE SAMPLING OF SURFACE EXPLORATORY HOLES**
- QAP-9.13 WELDING PROCEDURE FOR API 5A, J-55 CASING**
- QAP-9.14 PROCEDURE FOR WELDING HY-100 CASING**

**FENIX & SCISSON, INC.
QAM-1****(CONTINUED)**

- QAP-9.15** STANDARD PROCEDURE FOR FIELD FUSION WELDING OF CASING
- QAP-9.16** LOGGING SURVEILLANCE PROCEDURE
- QAP-10.1** PROCEDURE FOR SOURCE INSPECTION OF LARGE DIAMETER CASING
FABRICATION
- QAP-10.2** PROCEDURE FOR SOURCE INSPECTION OF TUBULAR GOODS
- QAP-10.3** PROCEDURE FOR SOURCE INSPECTION OF FABRICATED EQUIPMENT
- QAP-10.4** PROCEDURE FOR SOURCE INSPECTION OF CASTINGS AND FORGINGS
- QAP-10.5** PROCEDURE FOR SOURCE INSPECTION OF MECHANICAL EQUIPMENT
- QAP-10.6** PROCEDURE FOR SOURCE INSPECTION OF ELECTRICAL EQUIPMENT
- QAP-10.7** PROCEDURE FOR RECEIVING INSPECTION OF MATERIALS AND
EQUIPMENT
- QAP-10.8** PROCEDURE FOR RECEIVING INSPECTION OF LARGE DIAMETER WELDED
CASING
- QAP-10.9** PROCEDURE FOR WELDING INSPECTION OF LARGE DIAMETER CASING
INSTALLATION
- QAP-10.10** DRILLING SPECIALIST'S SURVEILLANCE PROCEDURE: UNIT PRICE
CONTRACTOR OPERATIONS

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PROJECT

**FENIX & SCISSON, INC.
QAM-1**

(CONTINUED)

- QAP-10.11 DRILLING SPECIALIST'S SURVEILLANCE PROCEDURE: COST PLUS
FIXED FEE CONTRACTOR OPERATIONS**
- QAP-10.12 MINING INSPECTOR'S SURVEILLANCE PROCEDURE**
- QAP-10.13 MINING SPECIALIST'S SURVEILLANCE PROCEDURE**
- QAP-11.1 PROCEDURE FOR PERMEABILITY TEST OF UNDERGROUND EXPLORATORY
HOLES**
- QAP-11.2 PROCEDURE FOR THE INSPECTION AND TESTING OF EQUIPMENT FOR
DOWNHOLE USE**
- QAP-11.3 PROCEDURE FOR INSPECTION, TESTING, AND USE OF GROUT AND CTE
TUBING**
- QAP-11.4 SURVEILLANCE OF SEISMIC TESTING ACTIVITIES**
- QAP-12.1 CALIBRATION PROCEDURE**
- QAP-13.1 HANDLING, STORAGE, AND SHIPMENT**
- QAP-14.1 INSPECTION, TEST, AND OPERATING STATUS**
- QAP-15.1 PROCEDURE FOR REPORTING NONCONFORMANCE**
- QAP-16.1 CORRECTIVE ACTION PROCEDURE**
- QAP-17.1 QUALITY ASSURANCE RECORDS PROCEDURE**
- QAP-18.1 NNWSI QUALITY ASSURANCE RECORDS PROCEDURE**
- QAP-18.1 AUDIT PROCEDURE**



LOS ALAMOS SCIENTIFIC LABORATORY

TWS-MST QA-QP-01

QMR 1	QUALITY ASSURANCE MANAGEMENT PLANNING
QMI 1-1	QUALITY PROGRAM MANAGEMENT
QMI 1-2	QUALITY ASSURANCE PLANNING FOR DEVELOPMENT PROGRAMS
QMI 1-5	MANAGEMENT REVIEWS OF THE QUALITY ASSURANCE PROGRAM
QMR 2	DESIGN AND DEVELOPMENT QUALITY PROCEDURES
QMI 2-1	DESIGN REVIEW
QMI 2-2	FAILURE STUDIES
QMI 2-3	RELEASE OF DESIGN
QMI 2-4	CONTROL OF DESIGN CHANGES
QMI 2-5	QUALITY ASSURANCE REVIEW OF DESIGN DOCUMENTS
QMR 3	WORK INSTRUCTIONS AND WORK COMPLETION RECORDS
QMI 3-1	WORK INSTRUCTION PROCEDURES
QMR 4	PROCUREMENT CONTROL
QMR 4-1	PROCUREMENT CONTROL PROCEDURES
QMI 4-2	PROCUREMENT PROCEDURES AND INSTRUCTIONS
QMR 5	SUPPLIER QUALITY EVALUATION
QMI 5-1	SUPPLIER EVALUATION AND SURVEY
QMI 5-2	ACCEPTABLE SOURCE LIST
QMR 6	CONTROL AND IDENTIFICATION OF ITEMS AND MATERIALS
QMI 6-1	STANDARD MATERIAL IDENTIFICATION AND CONTROL PRACTICES

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PROJECT

**LOS ALAMOS SCIENTIFIC LABORATORY
TWS-MST QA-QP-01**

(CONTINUED)

QMR 7	CONTROL OF SPECIAL PROCESSES
QMR 8	INSPECTION AND TEST
QMI 8-1	INSPECTION AND TEST PLANS
QMI 8-2	INSPECTION AND TEST INSTRUCTIONS
QMI 8-3	RECEIVING INSPECTION
QMI 8-4	SOURCE SURVEILLANCE AND INSPECTION
QMI 8-5	OVERCHECKING INSPECTION
QMI 8-6	IN-PROGRESS AND FINAL INSPECTION AND TEST
QMI 8-7	SHIPPING INSPECTION
QMI 8-8	CONDITIONAL ACCEPTANCE OF ITEMS AND MATERIAL
QMI 8-9	OVERCHECKING OF DIAGNOSTIC EXAMINATIONS
QMR 9	CONTROL AND CALIBRATION OF STANDARDS AND MEASURING AND TESTING EQUIPMENT
QMI 9-1	ACQUISITION AND CALIBRATION CONTROL OF STANDARDS AND MEASURING AND TESTING EQUIPMENT

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PROJECT

**LOS ALAMOS SCIENTIFIC LABORATORY
TWS-MST QA-QP-01**

(CONTINUED)

QMR 12	CORRECTIVE ACTION
QMI 12-1	PROCEDURES FOR CORRECTIVE ACTION
QMR 13	CODES AND STANDARDS
QMR 14	QUALITY RECORDS
QMI 14-1	PROCEDURE FOR ESTABLISHING AND CONTROLLING QUALITY RECORDS
QMR 15	QUALITY AUDITS
QMI 15-1	QUALITY AUDIT PROCEDURE
QMR 16	UNUSUAL OCCURRENCE REPORTING
QMI 16-1	REPORTING, INVESTIGATION, AND CORRECTIVE ACTIONS FOR UNUSUAL OCCURRENCES
QMR 18	RELIABILITY ASSURANCE
QMI 18-1	RELIABILITY REQUIREMENTS AND ANALYSIS
QMR 19	OPERATIONS REQUIREMENTS
QMR 20	MAINTENANCE AND MODIFICATION REQUIREMENTS

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PROJECT

**REYNOLDS ELECTRICAL & ENGINEERING CO., INC.
568-DOC-115**

568-DOC-122	QUALITY ASSURANCE PROGRAM
4.1	QUALITY MANAGEMENT
4.1.2	INSPECTION STAMP CONTROL
4.1.3	AUDIT QUALITY ACTIVITIES
4.1.4	QUALITY RECORDS
4.1.5	PROCEDURES
4.2	DESIGN INFORMATION, REVIEW, AND CONTROL
4.2.1	DESIGN REVIEW
4.2.2	SHOP DRAWINGS
4.2.3	ENGINEERING DRAFTING STANDARDS
4.2.4	DESIGN INFORMATION CONTROL
4.3	PROCUREMENT
4.3.1	SUBCONTRACTOR/SUPPLIER QUALIFICATION AND EVALUATION
4.3.2	QUALITY ASSURANCE - PURCHASED ITEMS
4.3.3	SUPPLIER PERFORMANCE RATING SYSTEM
4.3.4	PROCUREMENT DOCUMENT REVIEW
4.4	RECEIVING AND MATERIAL CONTROL
4.4.1	INSPECTION INSTRUCTIONS
4.4.2	RECEIVING INSPECTION
4.4.3	SAMPLING PLANS

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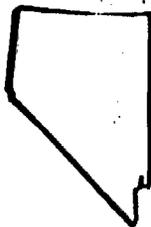
PROJECT

**REYNOLDS ELECTRICAL & ENGINEERING CO., INC.
568-DOC-115**

(CONTINUED)

- 4.4.4 STRUCTURAL BOLT AND NUT INSPECTION
- 4.4.5 SOURCE INSPECTION
- 4.4.6 NONCONFORMING MATERIAL
- 4.4.7 STRUCTURAL BOLT AND NUT PROGRAM
- 4.5 FIELD INSPECTION
- 4.5.1 CABLE TESTING
- 4.5.2 INSPECTION OF FIELD CONSTRUCTION AND FABRICATION
- 4.6 PROCESS CONTROL
- 4.6.1 SPECIAL OPERATIONS
- 4.6.2 DRILL RIG INSPECTION AND CERTIFICATION
- 4.6.3 NONDESTRUCTIVE TESTING PERSONNEL QUALIFICATION, AND
CERTIFICATION
- 4.6.4 N.D.T. CONTRACTOR QUALIFICATIONS, CERTIFICATION, AND
AUDIT
- 4.6.5 PROPOANE TANK RELOCATION
- 4.6.6 BOILER AND PRESSURE VESSEL PROGRAM
- 4.6.7 WELDER CERTIFICATION
- 4.6.8 WELDING INSPECTOR QUALIFICATION AND CERTIFICATION

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PROJECT

**REYNOLDS ELECTRICAL & ENGINEERING CO., INC.
568-DOC-115**

(CONTINUED)

- 4.6.9 WIRE ROPE SOCKET INSTALLER CERTIFICATION
- 4.6.10 EMPLACEMENT RIG CERTIFICATION
- 4.6.11 CLASSIFICATION OF STRUCTURAL NONSTRUCTURAL COMPONENTS FOR
NDT
- 4.6.12 FIRE SPRINKLER SYSTEM INSTALLATION
- 4.6.13 ELEVATOR INSPECTION PROGRAM
- 4.6.14 CERTIFICATION REQUIREMENTS FOR QUALITY/AUDIT PERSONNEL
- 4.7 MEASUREMENT AND CALIBRATION
- 4.7.1 CALIBRATION PROGRAM
- 4.7.2 CALIBRATION OF ELECTRICAL AND ELECTRONIC INSTRUMENTATION
- 4.7.3 CALIBRATION OF FLOWMETERS
- 4.7.4 PRESSURE SYSTEMS INSPECTION PROCEDURE

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PROJECT

WESTINGHOUSE AESD-TME 3060, REV. A

QMP 1-1N	AESD-NEVADA OPERATIONS ORGANIZATION
QMP 2-1N	AESD-NEVADA OPERATIONS QUALITY ASSURANCE PROGRAM
QMP 2-2N	PREPARATION OF QUALITY METHODS AND PROCEDURES
QMP 2-3N	QUALITY ASSURANCE PLANNING AND CODES
QMP 2-4N	QUALIFICATION OF QUALITY ASSURANCE PROGRAM AUDIT PERSONNEL
QMP 2-5N	QUALIFICATION OF INSPECTION AND TEST PERSONNEL
QMP 2-6N	QUALIFICATION OF NONDESTRUCTIVE EXAMINATION PERSONNEL
QMP 3-1N	DESIGN CONTROL
QMP 3-2N	DRAWING AND SPECIFICATION REVIEWS
QMP 4-1N	QUALITY REQUIREMENTS FOR PROCUREMENT DOCUMENTS
QMP 4-2N	PROCUREMENT DOCUMENT CONTROL
QMP 5-1N	INSTRUCTIONS, PROCEDURES, AND DRAWINGS
QMP 6-1N	DOCUMENT CONTROL
QMP 7-1N	SUPPLIER QUALITY SURVEYS AND EVALUATIONS
QMP 7-2N	APPROVAL REQUESTS
QMP 7-3N	SOURCE INSPECTION
QMP 7-4N	CONTROL OF PURCHASED ITEMS AND SERVICES

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PROJECT

WESTINGHOUSE AESD-TME 3060, REV. A

(CONTINUED)

QMP 8-1N	IDENTIFICATION AND CONTROL OF ITEMS
QMP 9-1N	WELDING CONTROL
QMP 9-2N	CONTROL OF SPECIAL PROCESSES
QMP 10-1N	INSPECTION PLANNING
QMP 10-2N	STANDARD INSPECTION TOOLS, GUAGES, AND EQUIPMENT
QMP 10-3N	MATERIALS OVERCHECK
QMP 10-4N	INSPECTION AT AESD-NEVADA OPERATIONS
QMP 10-5N	RELEASE OF ITEMS
QMP 10-6N	STATISTICAL PLANNING, ANANLYSIS, AND CONTROL
QMP 10-7N	END ITEM DOCUMENTATION
QMP 11-1N	TEST CONTROL
QMP 12-1N	CALIBRATION AND CONTROL OF TEST EQUIPMENT
QMP 12-2N	CALIBRATION AND CONTROL OF INSPECTION DEVICES
QMP 13-1N	HANDLING, STORAGE, AND SHIPPING
QMP 14-1N	INSPECTIONS, TEST, AND OPERATING STATUS
QMP 15-1N	CONTROL OF NONCONFORMING ITEMS
QMP 15-2N	VARIATION REQUEST
QMP 15-3N	FIELD DEFICIENCY NOTICE
QMP 15-4N	STOP WORK ORDERS

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PROJECT

**WESTINGHOUSE
AESD-TME 3060, REV. A**

(CONTINUED)

QMP 16-1N	CORRECTIVE ACTIONS (INTERNAL)
QMP 16-2N	CORRECTIVE ACTIONS (SUPPLIERS)
QMP 17-1N	QUALITY ASSURANCE RECORDS
QMP 18-1N	INTERNAL AUDITS
WN-DPN-101	DATA MANAGEMENT PLAN
WN-DPN-539	AESD-NEVADA OPERATIONS TRAINING PROGRAM PLAN
DP-120	PRODUCT ASSURANCE MANUALS
DP-203	PRODUCT ASSURANCE PLANS
DP-305	DRAWING PREPARATION, APPROVAL, RELEASE, AND STORAGE
DP-310	ENGINEERING DRAWING DISTRIBUTION, STORAGE, AND CONTROL
DP-470	PROJECT CONTROL
DP-538	PERSONNEL INDOCTRINATION AND TRAINING
DP-620	PURCHASE REQUISITION AND CHANGE NOTICE
DP-906	IDENTIFICATION AND REPORTING OF SUBSTANTIAL SAFETY, HAZARDS, SIGNIFICANT DEFICIENCIES, OR UNREVIEWED SAFETY QUESTIONS
DP-N-325	CALIBRATION AND CONTROL OF STANDARDS AND TEST EQUIPMENT
DP-N-620	PROCESSING OF PURCHASE REQUISITIONS TO SUPPORT CONTRACTORS

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PROJECT

**WESTINGHOUSE
AESD-TME 3060, REV. A**

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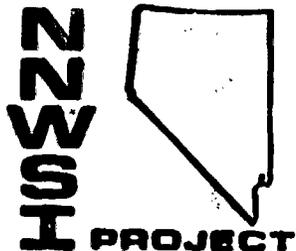
DP-N-652	RECEIVING PURCHASED ITEMS AND/OR SERVICES AT THE E-MAD FACILITY
EP-100	PREPARATION, APPROVAL, RELEASE, AND CONTROL OF AESD-NEVADA OPERATIONS TECHNICAL PROCEDURES AND INSTRUCTIONS
EP-101	DRAFTING PROCEDURES
EP-102	PREPARATION OF EQUIPMENT SPECIFICATIONS
EP-103	DESIGN VERIFICATION
EP-104	PREPARATION OF ENGINEERING RELEASE AND CHANGE ORDERS
EP-105	PREPARATION OF FIELD CHANGE NOTICES
EP-106	PROCESSING SUPPORT CONTRACTOR WORK ORDERS
EP-107	PREPARATION OF NEVADA OPERATIONS WORK ORDERS



UNITED STATES GEOLOGICAL SURVEY

NWM-USGS-QAPP-01

NWM-USGS-QAPP-01, R1	QUALITY ASSURANCE PROGRAM PLAN FOR NEVADA NUCLEAR WASTE STORAGE INVESTIGATIONS
NWM-USGS-QP-01, R1	DOCUMENT CONTROL
NWM-USGS-QP-02, R1	CONTROL OF QUALITY ASSURANCE RECORDS
NWM-USGS-QP-03, R1	CONTROL OF NONCONFORMING MATERIALS, COMPONENTS, AND PROCESSES
NWM-USGS-QP-04, R1	CONTROL FOR CORRECTIVE ACTION
NWM-USGS-QP-05, R2	AUDITING
NWM-USGS-QP-06, R2	INSTRUMENT CALIBRATION
NWM-USGS-QP-07, R0	PROCUREMENT
NWM-USGS-QP-09, R0	SURVEILLANCE
NWM-USGS-UTP-01, R0	HYDROLOGIC INVESTIGATIONS
NWM-USGS-UTP-02, R0	GEOPHYSICAL INVESTIGATIONS
NWM-USGS-UTP-03, R0	GEOLOGIC INVESTIGATIONS
NWM-USGS-UTP-04, R0	SEISMOLOGICAL INVESTIGATIONS
NWM-USGS-UTP-10, R0	FENIX & SCISSON DRILL SITE UNIT TASK PROCEDURE
NWM-USGS-HP-01, R0	METHODS FOR DETERMINING WATER LEVEL
NWM-USGS-HP-03, R0	HYDROLOGIC TRACEJECTOR TEST
NWM-USGS-HP-04, R0	HYDROLOGIC SURGING
NWM-USGS-HP-05, R0	HYDROLOGIC SWABBING



UNITED STATES GEOLOGICAL SURVEY

NWM-USGS-QAPP-01

(CONTINUED)

NWM-USGS-HP-06, R0	HYDROLOGIC PUMPING TEST
NWM-USGS-HP-08, R0	METHODS FOR DETERMINATION OF INORGANIC SUBSTANCES IN WATER
NWM-USGS-HP-10, R0	HYDROLOGIC PACKER TEST
NWM-USGS-HP-11, R0	METHODS FOR DETERMINATION OF RADIOACTIVE SUBSTANCES IN WATER
NWM-USGS-HP-12, R0	PROCEDURES FOR HANDLING AND FIELD TESTING OF THE CORE FROM UNSATURATED BORE HOLES
NWM-USGS-HP-13, R0	COLLECTION AND FIELD ANALYSIS OF UNSATURATED ZONE GROUND WATER SAMPLES
NWM-USGS-HP-14, R0	METHODS FOR CALIBRATING THERMOCOUPLE PSYCHROMETERS FOR MEASURING THE WATER POTENTIAL OF PARTIALLY SATURATED MEDIA
NWM-USGS-HP-16, R0	COLLECTION AND PRESERVATION OF ATMOSPHERIC PRECIPITATION SAMPLES FOR ISOTOPE ANALYSIS
NWM-USGS-HP-23, R0	COLLECTION AND FIELD ANALYSIS OF SATURATED ZONE GROUND WATER SAMPLES
NWM-USGS-GP-01, R0	GEOLOGIC MAPPING



UNITED STATES GEOLOGICAL SURVEY

NWM-USGS-QAPP-01

(CONTINUED)

NWM-USGS-GP-02, R0	SUBSURFACE INVESTIGATIONS
NWM-USGS-GP-03, R0	STRATIGRAPHIC STUDIES
NWM-USGS-GP-04, R0	STRUCTURAL STUDIES
NWM-USGS-GP-05, R0	GEOLOGIC SUPPORT ACTIVITIES
NWM-USGS-GP-06, R0	GEODETIC, LEVELING, AND TRILATERATION SURVEYS
NWM-USGS-SP-01, R0	EARTHQUAKE LOCATION PROCEDURES
NWM-USGS-SP-02, R0	PROCEDURE FOR CALCULATING FREQUENCY OF RECURRENCE CURVES
NWM-USGS-SP-03, R0	SEISMIC ZONING PROCEDURE
NWM-USGS-SP-04, R0	EARTHQUAKE MAGNITUDE DETERMINATION PROCEDURE
NWM-USGS-SP-05, R0	PROCEDURE FOR THE DETERMINATION OF EARTHQUAKE SOURCE PARAMETERS
NWM-USGS-SP-06, R0	PROCEDURE FOR THE DETERMINATION OF EARTHQUAKE FOCAL MECHANISM
NWM-USGS-SP-07, R0	GEOPHYSICS: TELESEISMIC P-RESIDUAL STUDY OF THE TECTONIC ENVIRONMENT
NWM-USGS-SP-08, R0	SEISMIC STUDY OF THE TECTONIC ENVIRONMENT
NWM-USGS-GCP-01, R0	RADIOMETRIC-AGE DATA BANK

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PROJECT

UNITED STATES GEOLOGICAL SURVEY

NWM-USGS-QAPP-01

(CONTINUED)

NWM-USGS-GCP-02, R0	LABELING, IDENTIFICATION, AND CONTROL OF GEOCHRONOLOGY SAMPLES AND SEPARATES
NWM-USGS-GCP-03, R0	URANIUM - SERIES DATING
NWM-USGS-GCP-04, R0	URANIUM - TREND DATING
NWM-USGS-GCP-05, R0	RADIUM - EQUIVALENT URANIUM, THORIUM, AND POTASSIUM ANALYSIS BY GAMMA-RAY SPECTROMETRY
NWM-USGS-GCP-06, R0	POTASSIUM-ARGON DATING
NWM-USGS-GCP-07, R0	GEOCHEMICAL MINERAL SEPARATION
NWM-USGS-GCP-08, R0	FISSION TRACK DATING
NWM-USGS-GCP-09, R0	SPIKE CALIBRATION
NWM-USGS-GPP-01, R0	GRAVITY MEASUREMENT AND DATA REDUCTION
NWM-USGS-GPP-02, R0	HEAT FLOW STUDIES RELATED TO NUCLEAR WASTE STORAGE INVESTIGATIONS
NWM-USGS-GPP-04, R0	IN-SITU STRESS INVESTIGATIONS
NWM-USGS-MDR-01, R0	IDENTIFICATION, HANDLING, STORAGE, AND DISPOSITION OF DRILL-HOLE CORE AND SAMPLES
NWM-USGS-MDR-02, R0	DOCUMENTATION OF COMMUNICATIONS, DECISIONS, AND INDEPENDENT ACTIONS
NWM-USGS-FS-02, R0	CERTIFICATION OF FENIX & SCISSON GEOLOGISTS



QUESTIONS TO THE NRC

- **NRC QA DIRECTION TO THE DOE**
 - IS THE NRC'S POSITION THAT IF THE DOE MEETS THE INTENT OF APPENDIX A OF THE NRC QA REVIEW PLAN, DATED JUNE 1984, THE CRITERIA OF 10 CFR 50, APPENDIX B WILL BE SATISFACTORILY IMPLEMENTED?

OR

 - WILL THE NRC RECOGNIZE ANOTHER DOCUMENT AS BEING ACCEPTABLE TO FOLLOW TO IMPLEMENT THE CRITERIA OF 10 CFR 50, APPENDIX B (E.G., NQA-1 OR 45.2)?
- **WHAT IS THE NRC'S POSITION REGARDING A GRADED QA APPROACH? WILL THE NRC BE INVOLVED WITH ACTIVITIES THAT ARE NOT RADIOLOGICALLY RELATED E.G., OTHER THAN IMPORTANT TO WASTE ISOLATION OR IMPORTANT TO SAFETY AS PER 10 CFR 60?**



QUESTIONS TO THE NRC

(CONTINUED)

- AN IMPORTANT PART OF SITE CHARACTERIZATION AND THE ASSESSMENT OF THE NATURAL BARRIER FOR WASTE ISOLATION IS THE INFORMATION GATHERED FROM THE PERFORMANCE OF EXPERIMENTS AND RESEARCH. WHERE THE INFORMATION OBTAINED IS NOT USED DIRECTLY AS INPUT TO DESIGN, PERFORMANCE ASSESSMENT, OR MODELING, BUT IS USED TO POINT A DIRECTION FOR FURTHER ACTIVITIES DO THE QA REQUIREMENTS OF THE REVIEW PLAN APPLY?
- WHAT IS THE NRC'S POSITION REGARDING THE USE OF INFORMATION FROM RECOGNIZED TECHNICAL JOURNALS AS INPUT TO DESIGN, EXPERIMENT, OR RESEARCH ACTIVITIES? IF USED, MUST THIS INFORMATION BE VERIFIED, VALIDATED, OR AUTHENTICATED PRIOR TO USE?
- WHAT DOES NRC MEAN BY CONCEPTUAL AS IT RELATES TO DESIGN CONTROL? (REF. 3.1 OF NRC QA REVIEW PLAN) CONCEPTUAL IS A BASIC THOUGHT NOTION OR AN ABSTRACT OF IDEAS. IT IS THE NNWSI PROJECT POSITION THAT THE QA CONTROLS IMPLIED BY THE NRC QA REVIEW PLAN WILL START WITH TITLE I DESIGN ACTIVITIES.



QUESTIONS TO THE NRC

(CONTINUED)

- IS THE NRC'S INTENT THAT QA SHOULD BECOME INVOLVED IN SPECIAL PROCESS QUALIFICATIONS BEYOND THE ACTIVITIES OF SURVEILLANCE AND AUDIT? (REF. 9.3 OF NRC QA REVIEW PLAN)
- IS THE NRC'S POSITION THAT THE QA ORGANIZATION SHOULD ACTUALLY PERFORM ALL INSPECTION ACTIVITIES? (REF. 10.2 OF NRC QA REVIEW PLAN)
- WHAT IS THE NRC'S INTENT REGARDING FURTHER DOE/NRC INTERCHANGES, FORMAL INSPECTIONS/AUDITS, OR INFORMAL INFORMATION EXCHANGES? IF THE LATER, WHEN WILL THIS CHANGE?
- WHAT IS THE ROLE OF NRC I&E IN THE WASTE MANAGEMENT PROJECT?



QUESTIONS TO THE NRC

(CONTINUED) —

SECTION 2.3 OF THE NRC STANDARD REVIEW PLAN CONTAINS A QUOTE FROM NRC REGULATORY GUIDE 4.17 WHICH STATES IN PART THAT "THE QA METHODS SHOULD BE PRESENTED IN SUFFICIENT DETAIL TO ALLOW THE NRC TO MAKE AN INDEPENDENT EVALUATION OF THE PRECISION, ACCURACY, REPRODUCIBILITY, ANALYTIC SENSITIVITY, AND LIMITATION OF DATA ACQUISITION AND ANALYSIS METHODS THAT WERE USED DURING SITE EXPLORATION AND WILL BE USED DURING SITE CHARACTERIZATION." IN SECTION 3.1, 2ND PARAGRAPH, OF THE NRC STANDARD REVIEW PLAN, IT STATES, "A LIST OF QA AND TECHNICAL PROCEDURES WHICH IMPLEMENT THE PROGRAM DESCRIPTION IN THE SITE CHARACTERIZATION PLAN SHOULD BE IDENTIFIED AND REFERENCED IN THE SCP." IT APPEARS THAT THE STANDARD REVIEW PLAN HAS ESTABLISHED TWO DIFFERENT LEVELS OF DETAIL FOR THE SAME REQUIREMENT. IS IT NRC'S INTENT THAT ALL THE PROCEDURES USED ON THE NNWSI PROJECT BE PARAPHRASED IN THE QA SECTION OF THE SCP OR WILL REFERENCE TO THE PROCEDURES SATISFY THE INTENT AS IMPLIED BY THE NRC QA REVIEW PLAN?



**Nevada
Nuclear Waste
Storage Investigations Project**

**DOE/NRC MEETING
ON NNWSI PROJECT
QUALITY ASSURANCE**

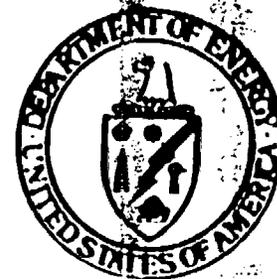
Presented by

**M.P. Kunich DOE/NV
WMPO Assistant Director**

December 13-14, 1984

Nevada Operations Office

UNITED STATES DEPARTMENT OF ENERGY





**WASTE MANAGEMENT PROJECT OFFICE
QUALITY ASSURANCE PROGRAM PLAN
NVO-196-18**

- IDENTIFIES THE POLICY AND PROCEDURES USED BY WMPO, BY THE DOE/NV MATRIX SUPPORT, AND BY QASC PERSONNEL

- DETAILS THE METHODS TO MEET THE REQUIREMENTS OF NVO-196-17, NNWSI PROJECT QUALITY ASSURANCE PLAN



WASTE MANAGEMENT PROJECT OFFICE QUALITY ASSURANCE PROGRAM PLAN TABLE OF CONTENTS

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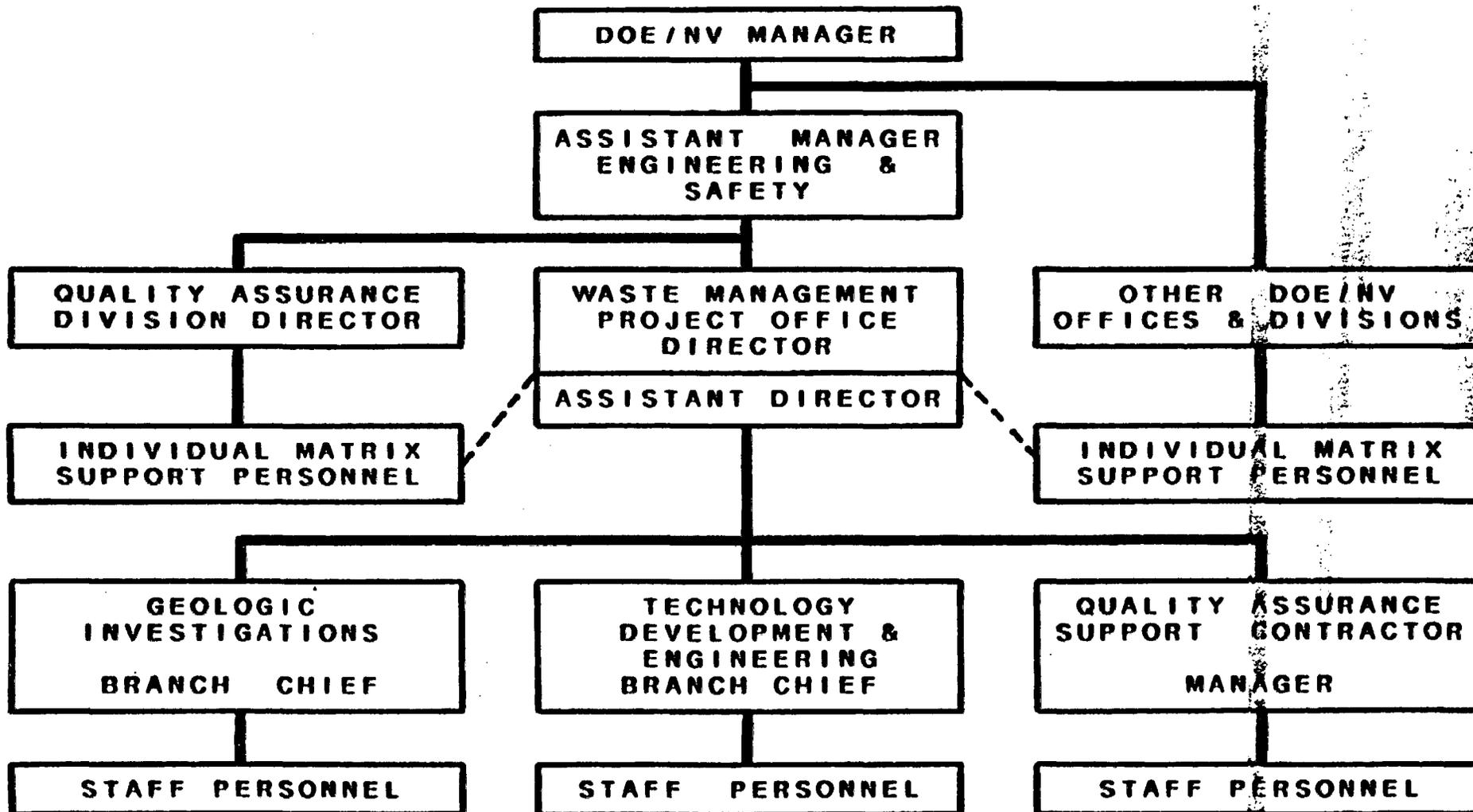
**WASTE MANAGEMENT PROJECT OFFICE
ORGANIZATION
QMP-01-01**

- DESCRIBES THE ORGANIZATION AND RESPONSIBILITIES OF THE WASTE MANAGEMENT PROJECT OFFICE.



WMPO ORGANIZATION

(INCLUDING MATRIX & QASC SUPPORT)



— DOE / NV & Project Participant Administrative Responsibility, Authority and Accountability

- - - DOE / NV Matrix Support Functional Responsibilities and Accountabilities



INDOCTRINATION AND TRAINING OF PERSONNEL PERFORMING QUALITY RELATED FUNCTIONS

QMP-02-01

- **ESTABLISHES THE METHODS OF INDOCTRINATION AND TRAINING**

- **ESTABLISHES THE METHODS OF DOCUMENTING SUITABLE QA PROFICIENCY AND PERIODIC EVALUATION OF THAT PROFICIENCY**

- **APPLIES TO ALL WMPO, DOE/NV MATRIX SUPPORT, AND QASC PERSONNEL PERFORMING NNWSI PROJECT ACTIVITIES**



QUALIFICATION AND CERTIFICATION OF AUDITORS

QMP-02-02

- ESTABLISHES THE BASIS AND METHODS FOR THE QUALIFICATION AND CERTIFICATION OF AUDITORS, LEAD AUDITORS, AND AUDITORS IN TRAINING

- QUALIFICATION AND CERTIFICATION APPLIES TO PERSONNEL ASSIGNED TO PERFORM NNWSI PROJECT AUDITS



PEER REVIEW

QMP-03-01

- ESTABLISHES THE RESPONSIBILITIES AND METHODS TO BE UTILIZED BY WMPO WHEN CONDUCTING OR HAVING OTHERS CONDUCT PEER REVIEWS.
- APPLIES WHEN THERE IS A UNIQUE APPLICATION, THE WORK INVOLVES METHODS OR TECHNIQUES BEYOND THE CURRENT STATE OF THE ART, AND WHEN NEW OR UNUSUAL TECHNIQUES ARE USED BY NNWSI PROJECT PARTICIPANTS
- PEER REVIEWS ARE CONDUCTED BY ORGANIZATIONS THAT ARE INDEPENDENT OF THE ORGINATING ORGANIZATION



QMP FORMAT AND PREPARATION

QMP-06-01

- OUTLINES THE METHODS BY WHICH QUALITY MANAGEMENT PROCEDURES ARE TO BE PREPARED, APPROVED, AND CONTROLLED
- IDENTIFIES INDIVIDUALS RESPONSIBLE FOR APPROVAL
- IDENTIFIES MINIMUM DISTRIBUTION



DOCUMENT CONTROL

QMP-06-02

- **DESCRIBES THE SYSTEM FOR CONTROL OF QUALITY RELATED DOCUMENTS GENERATED BY WMPO**

- **IDENTIFIES THE WMPO DOCUMENTS THAT ARE CONTROLLED**
 - **NVO-196-17 NNWSI PROJECT QA PLAN**
 - **NNWSI PROJECT STANDARD OPERATING PROCEDURES**
 - **NVO-196-18 WMPO QA PROGRAM PLAN**
 - **WMPO QUALITY MANAGEMENT PROCEDURES**



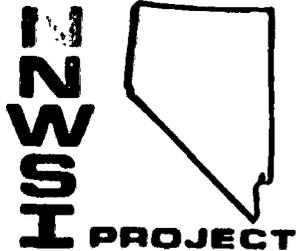
DOCUMENT REVIEW AND APPROVAL

QMP-06-03

- **DEFINES THE RESPONSIBILITIES AND METHODS FOR THE CONTROL, REVIEW AND APPROVAL OF NNWSI PROJECT DOCUMENTS SUBMITTED TO WMPO**

- **IDENTIFIES THE NNWSI PROJECT QUALITY RELATED DOCUMENTS WHICH REQUIRE REVIEW AND APPROVAL BY WMPO**

- **IDENTIFIES THE INDIVIDUALS RESPONSIBLE FOR THE REVIEWS AND APPROVALS**



DOCUMENTS REQUIRING REVIEW

DOCUMENTS

- NNWSI QAP
- WMPO QAPP
- NNWSI SOPs
- QMPs

PARTICIPATING ORGANIZATION & NTS SUPPORT CONTRACTOR

- QAPPs
- QA IMPLEMENTING PROCEDURES
- DOCUMENTATION OF QUALITY LEVELS ASSIGNED TO AN ACTIVITY
- SPECIAL PROCESS PROCEDURES (LEVEL I)
- TEST PROCEDURES (LEVEL I)
- NCR DISPOSITIONS (LEVEL I & II)
- RECORDS LIST
- TEST PLANS (LEVEL I)
- DESIGN DRAWINGS, SPECIFICATIONS, AND CRITERIA (LEVEL I & II)
- PEER REVIEW REPORTS
- SITE CHARACTERIZATION PLAN
- SAFETY ANALYSIS DIRECTIVES

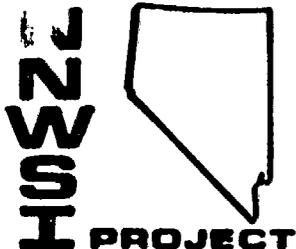
REVIEWERS

QAD DIRECTOR PQM
 QAD QASC DIRECTOR PQM
 QAD DIRECTOR PQM
 QAD QASC DIRECTOR PQM

QASC PQM
 QASC PQM
 QASC BRANCH CHIEF PQM
 NISO* BRANCH CHIEF QASC
 BRANCH CHIEF DIRECTOR
 DIRECTOR BRANCH CHIEF
 PQM QASC
 DIRECTOR BRANCH CHIEF
 PQM

*FOR NTS SUPPORT CONTRACTOR DESIGN DOCUMENTS ONLY

NOTE: UNDERSCORED REVIEWERS ALSO HAVE APPROVAL RESPONSIBILITY



SURVEILLANCE

QMP-07-01

- **ESTABLISHES THE RESPONSIBILITIES AND PROVIDES THE METHODS FOR CONDUCTING SURVEILLANCE ACTIVITIES**
- **APPLIES TO ALL SURVEILLANCE ACTIVITIES CONDUCTED BY, OR FOR WMPO ON THE NNWSI PROJECT PARTICIPANTS' ACTIVITIES**
- **PROVIDES STANDARD FORMAT FOR SURVEILLANCE REPORTS**
- **NCRs ARE ISSUED WHEN UNSATISFACTORY CONDITIONS ARE OBSERVED**



NON-CONFORMANCE CONTROL

QMP-15-01

- **DEFINES THE RESPONSIBILITIES AND METHODS FOR PROCESSING NONCONFORMANCE ON THE ACTIVITIES OF WMPO OR OTHER ORGANIZATIONS**

- **FOLLOWS THE NWWSI PROJECT SOP-15-01 PROCEDURES EXCEPT FOR RESPONSIBILITIES ON NCRs INITIATED BY WMPO ON WMPO (i.e., PQA EQUALS PQSC AND DISPOSITIONING BY BRANCH CHIEFS)**



CORRECTIVE ACTION CONTROL SYSTEM

QMP-16-01

- **ESTABLISHES THE METHODS AND RESPONSIBILITIES FOR THE IDENTIFICATION AND CONTROL OF CORRECTIVE ACTION REQUESTS GENERATED BY WMPO**

- **APPLIES WHEN THERE IS AN IDENTIFIED NEED TO ESTABLISH MEASURES WHICH WILL BE TAKEN TO RECTIFY NNWSI PROJECT CONDITIONS THAT ARE ADVERSE TO QUALITY**



TREND ANALYSIS

QMP-16-02

- ESTABLISHES THE METHOD AND ASSIGNS THE RESPONSIBILITY FOR THE PERFORMANCE OF TREND ANALYSIS

- BASED ON INFORMATION FROM NONCONFORMANCE REPORTS AND AUDIT FINDING SHEETS



QUALITY ASSURANCE RECORDS

QMP-17-01

- DESCRIBES THE WMPO METHODS OF COLLECTION, INTERIM STORAGE, AND MAINTENANCE OF QA RECORDS
- APPLIES TO QA RECORDS GENERATED BY WMPO
- AWAITING REVISIONS BASED ON THE CONCLUSIONS FROM A REVIEW OF THE PRESENT NWSI PROJECT RECORDS MANAGEMENT PLAN



**AUDIT SYSTEM
FOR THE WASTE MANAGEMENT PROJECT OFFICE
QMP-18-01**

- ESTABLISHES THE RESPONSIBILITIES AND PROVIDES THE METHODS FOR PLANNING, CONDUCTING, AND DOCUMENTING AUDITS CONDUCTED BY WMPO

- APPLIES TO WMPO AUDITS OF NNWSI PROJECT PARTICIPANTS AS WELL AS INTERNAL WMPO AUDITS

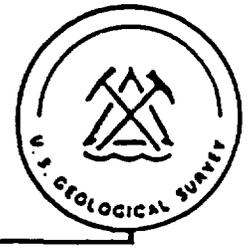
- AUDIT REPORTS ARE PREPARED AND ISSUED TO APPROPRIATE MANAGEMENT FOR INFORMATION AND ACTION



QA AUDIT SCHEDULE

FY 1985

AUDIT NUMBER	DATE	ORGANIZATION
85-1	JANUARY	LLNL
85-2	FEBRUARY	USGS
85-3	FEBRUARY	WMPO/NV
85-4	MARCH	LANL
85-5	APRIL	F&S
85-6	APRIL	WMPO/NV
85-7	MAY	SAIC T&MSS
85-8	JUNE	USGS MENLO PARK
85-9	JUNE	WMPO/NV
85-10	JULY	REECo
85-11	JULY	WMPO/NV
85-12	AUGUST	SNL
85-13	AUGUST	WMPO/NV
85-14	SEPTEMBER	H&N
85-15	SEPTEMBER	WESTINGHOUSE



OVERVIEW OF SITE INVESTIGATIONS
AND USGS TECHNICAL ACTIVITIES

U S G S O R G A N I Z A T I O N
F O R Q U A L I T Y A S S U R A N C E

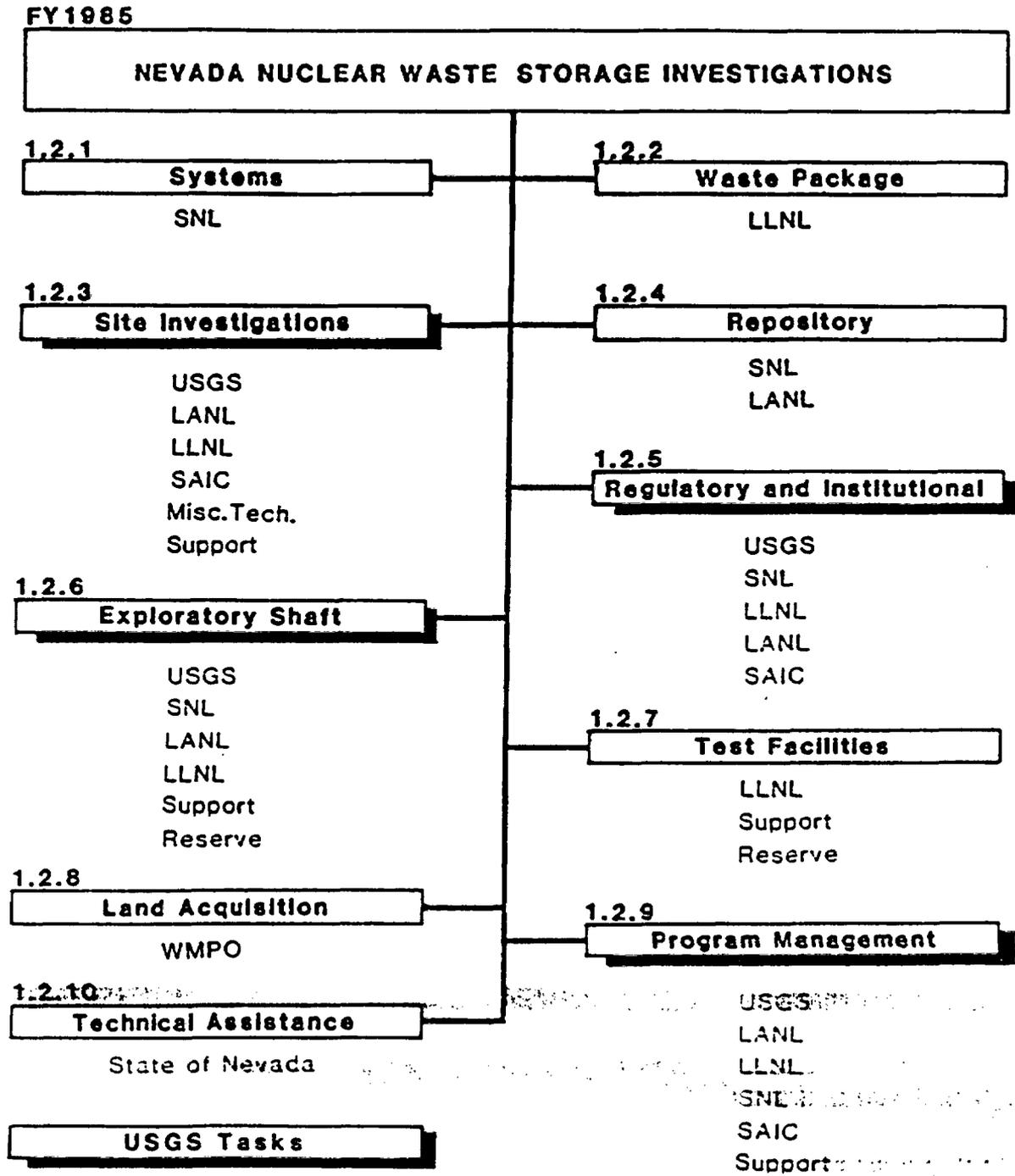
QUALITY ASSURANCE PROGRAM MEETING
LAS VEGAS, NEVADA
DECEMBER 14, 1984

**HOVZ2
H030H**

PROJECT

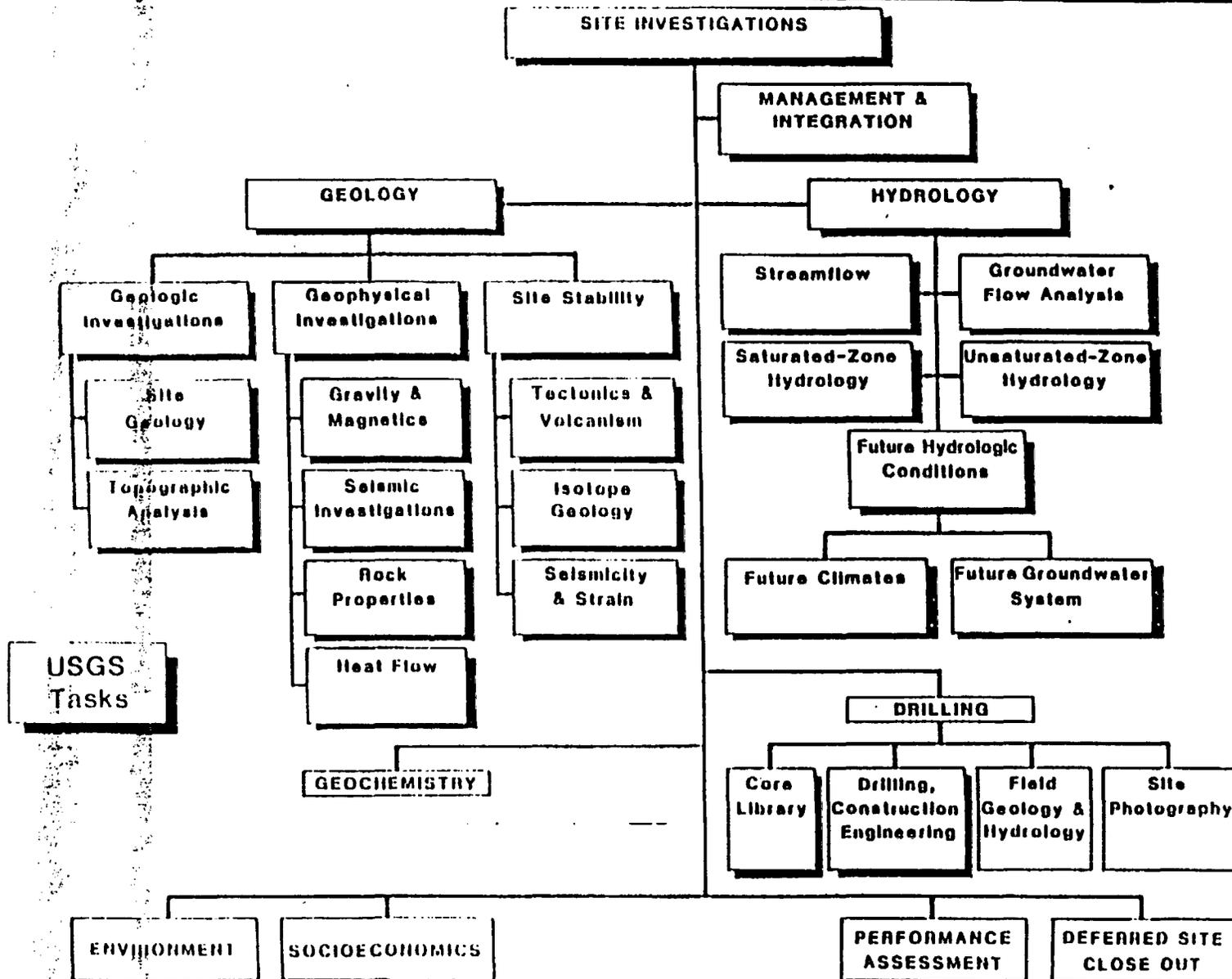


NNWSI Major Project Elements





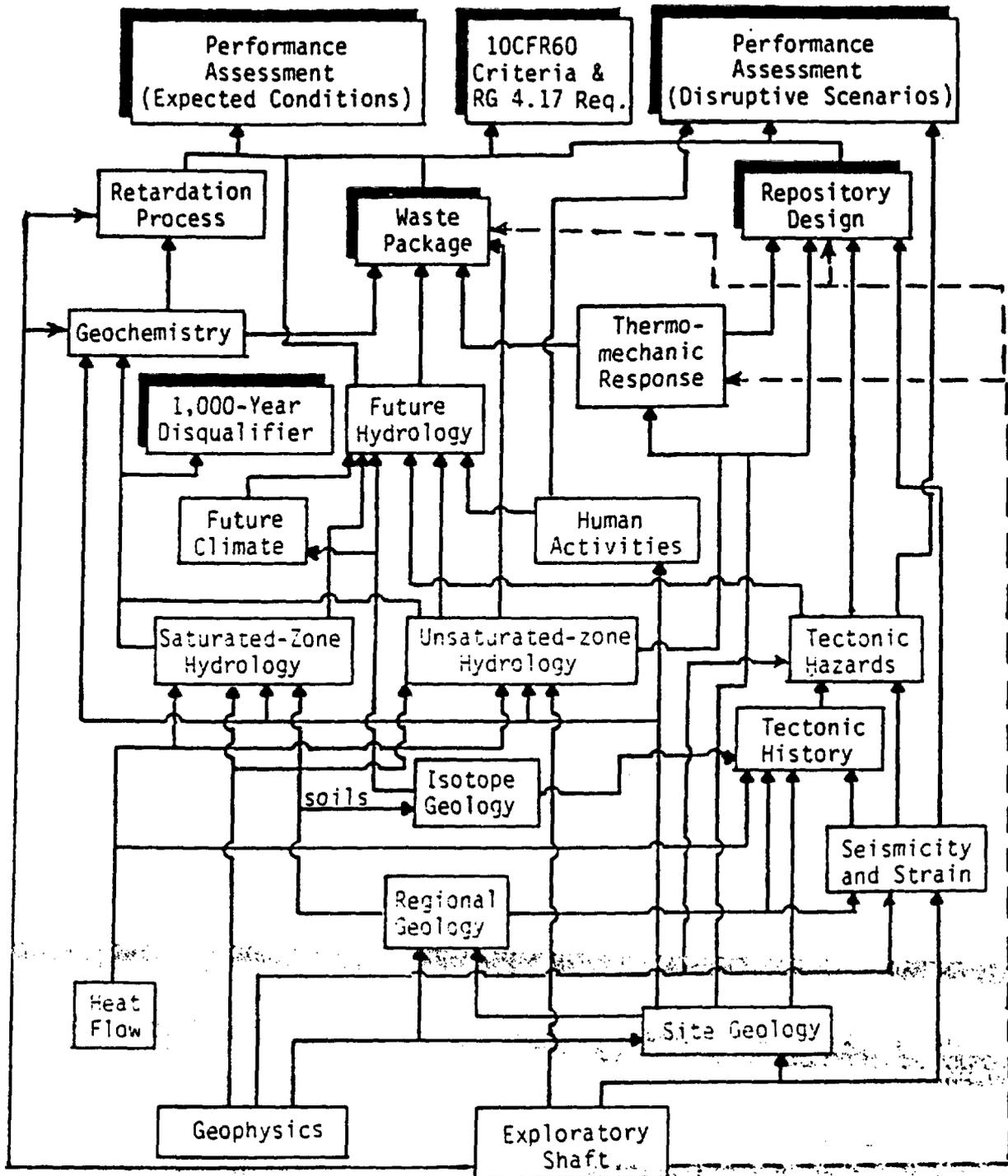
Organization of Site Investigations



USGS Tasks

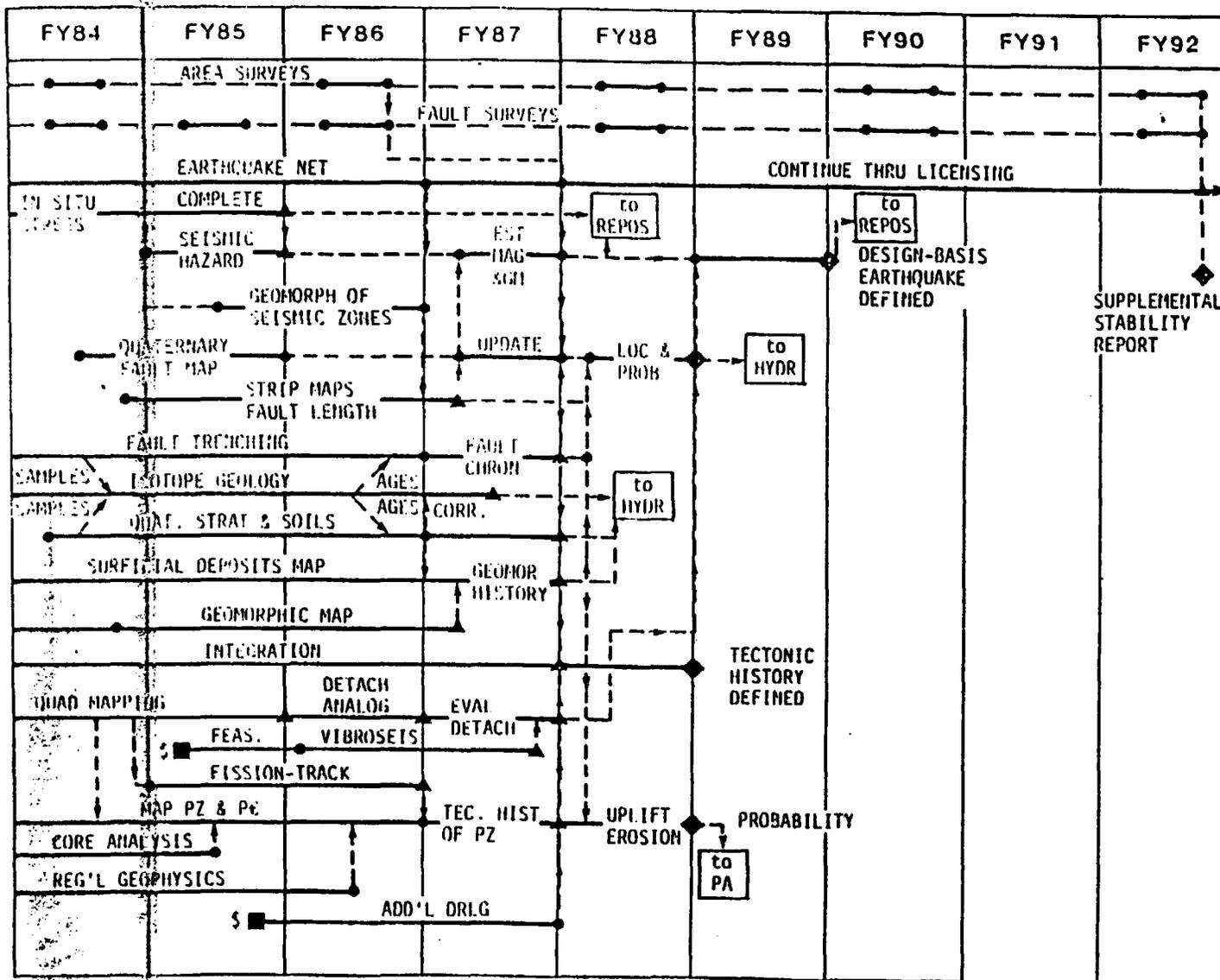


Site Characterization Input to Licensing Requirements

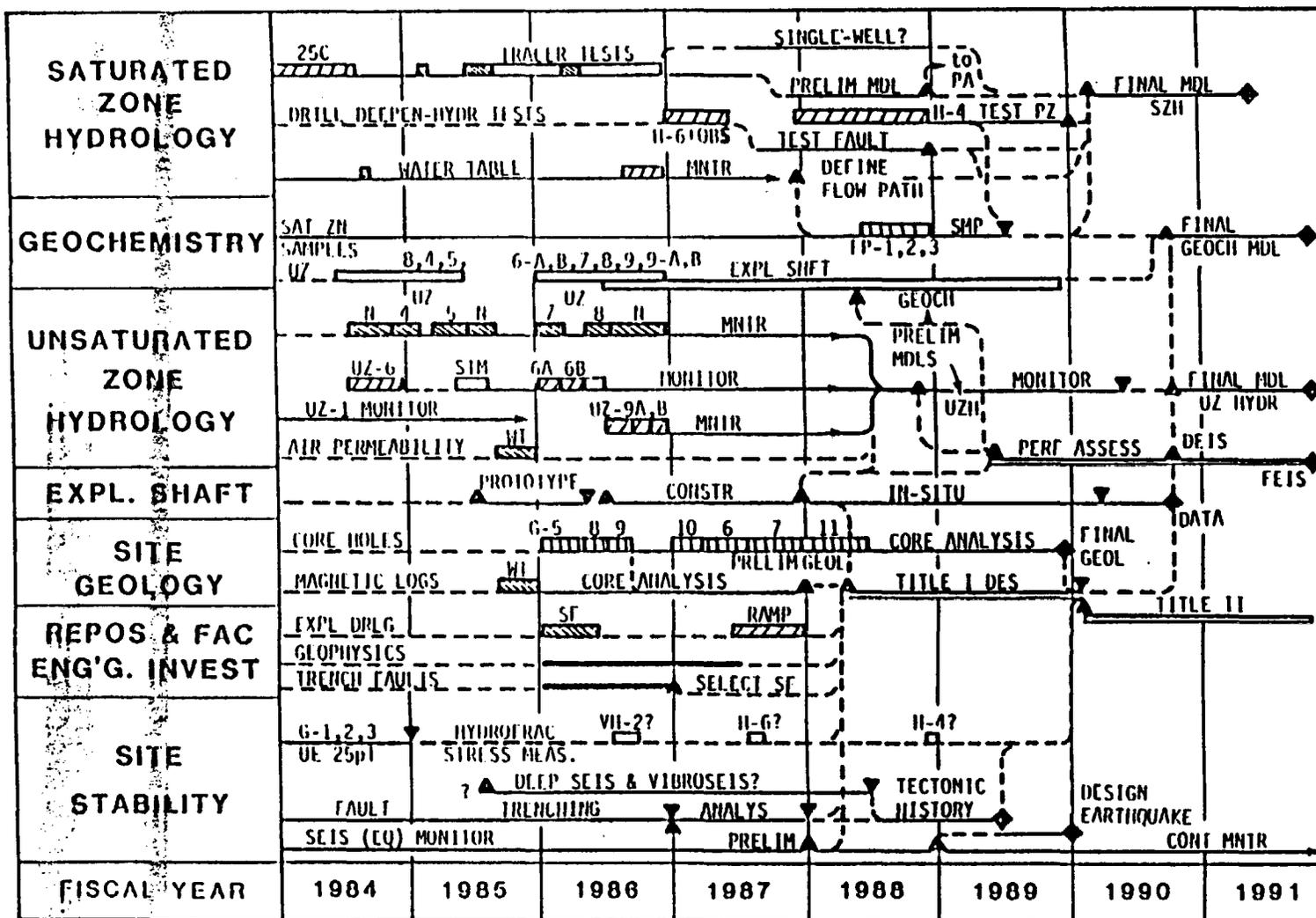




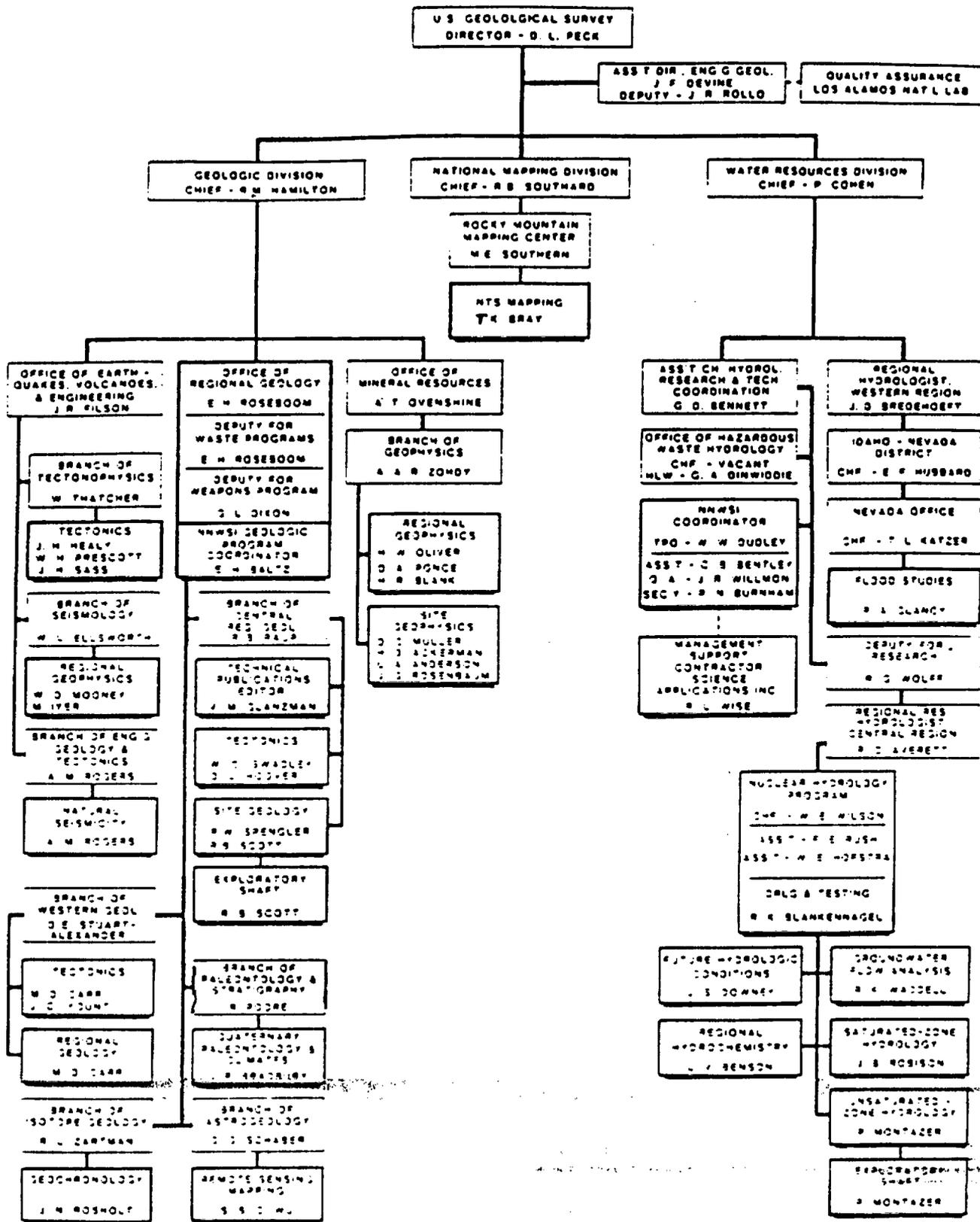
Site Stability and Isotope Geology



Relation of Drilling, Testing and Sampling to Design and Performance Assessment

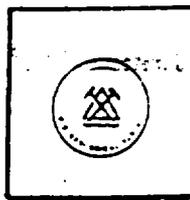


USGS ORGANIZATION



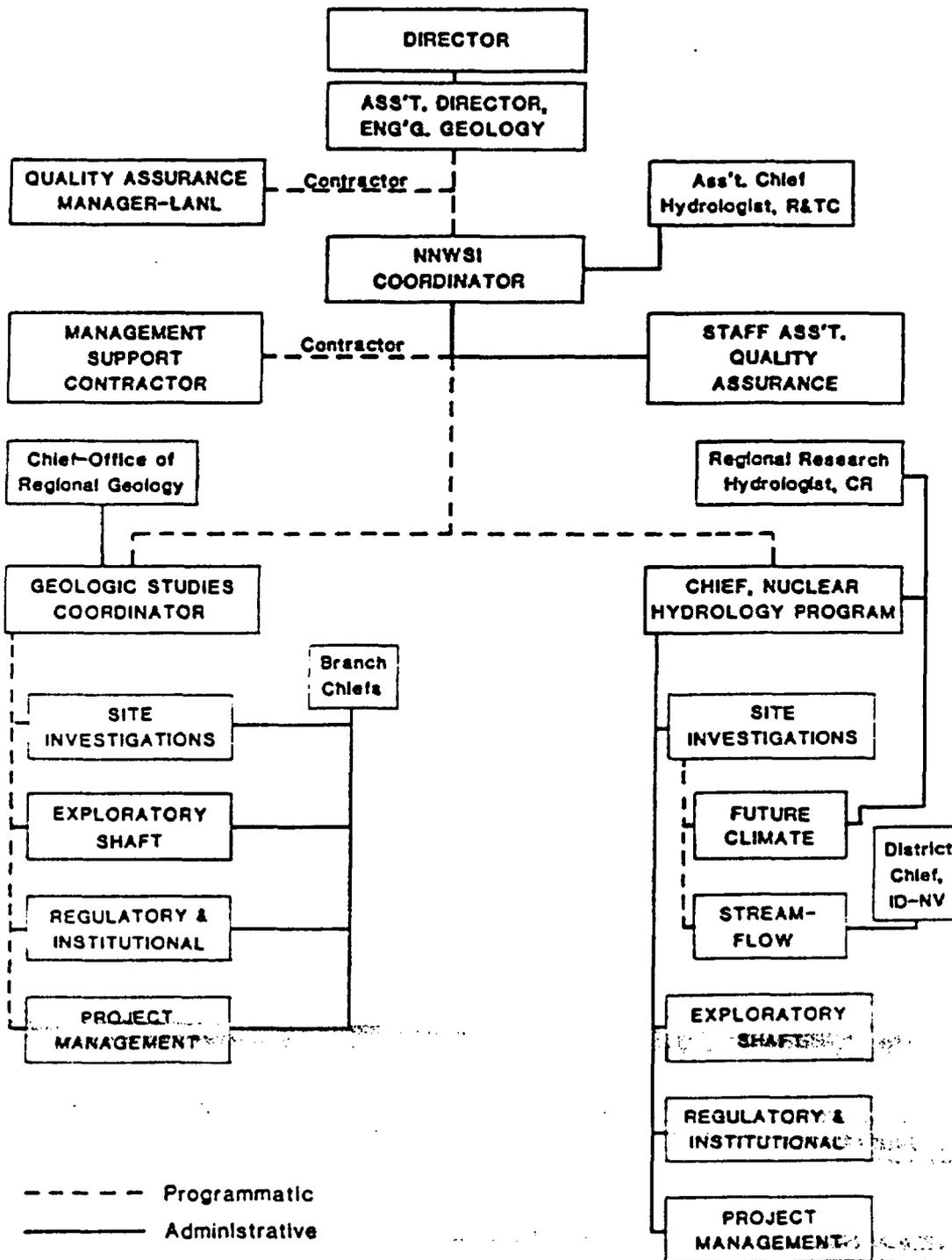
United States Geological Survey

NNWSI PROJECT 8/13/84





USGS Organization, NNWSI Programmatic Vs. Administrative



STATEMENT OF POLICY

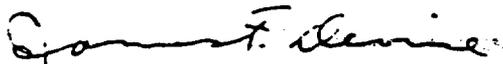
The U.S. Geological Survey (USGS) is dedicated to conducting high-quality research and investigative studies for the U.S. Department of Energy (DOE) as part of their high-level nuclear waste disposal program.

In order to meet future licensing requirements of the Nuclear Regulatory Commission for repository sites selected by DOE, the USGS has established a Quality Assurance Program for project work conducted for the DOE by the USGS at potential waste repository sites. The Assistant Director for Engineering Geology has the overall responsibility for the Quality Assurance Program of the USGS. The Quality Assurance Office of the Los Alamos National Laboratory (LANL) is developing the details of the USGS Quality Assurance Program. The authority for development of the USGS Quality Assurance Program is hereby assigned to the Quality Assurance Manager (LANL).

It is the Quality Assurance Manager's responsibility to provide program leadership, to assure compliance with program requirements, to coordinate resolution of problems, and to assure the proper implementation of the Quality Assurance Program.

To be effective this program must be understood, accepted, and fully implemented by each USGS employee holding responsibility for high-level waste repository investigations conducted for DOE.

Changes to the Quality Assurance Program will be issued as necessary to reflect revisions or additions to legal requirements and DOE or USGS standards. Suggested improvements should be submitted to the Quality Assurance Manager for evaluation.



James F. Dewness

Assistant Director for
Engineering Geology



DIVISION OF
QUALITY - ASSURANCE
RESPONSIBILITIES



QUALITY ASSURANCE MANAGER

- 0 SUPPORT DIRECTOR'S OFFICE FOR ALL HLW PROJECTS
- 0 QAPP
- 0 QP - ADMINISTRATIVE PROCEDURES
- 0 APPROVE NiWSI SUPPLEMENTS TO QAPP, QP'S
- 0 APPROVE TECHNICAL PROCEDURES
- 0 DOCUMENT CONTROL
- 0 AUDITS & SURVEILLANCE
- 0 APPROVE CORRECTIVE ACTIONS & DISPOSITION OF NONCONFORMANCES
- 0 TRAINING

PROJECT COORDINATION OFFICE

- 0 ORIGINATE TECHNICAL PROCEDURES
- 0 ORIGINATE NiWSI SUPPLEMENTS TO QAPP, QP'S
- 0 CONTROL OF EQUIPMENT, ITEMS, SERVICES, AND PROCESSES
- 0 IDENTIFY AND MAINTAIN QUALITY ASSURANCE RECORDS
- 0 INITIATE CORRECTIVE ACTIONS
- 0 IMPLEMENT REQUIREMENTS OF QAPP, QP'S, TDP'S

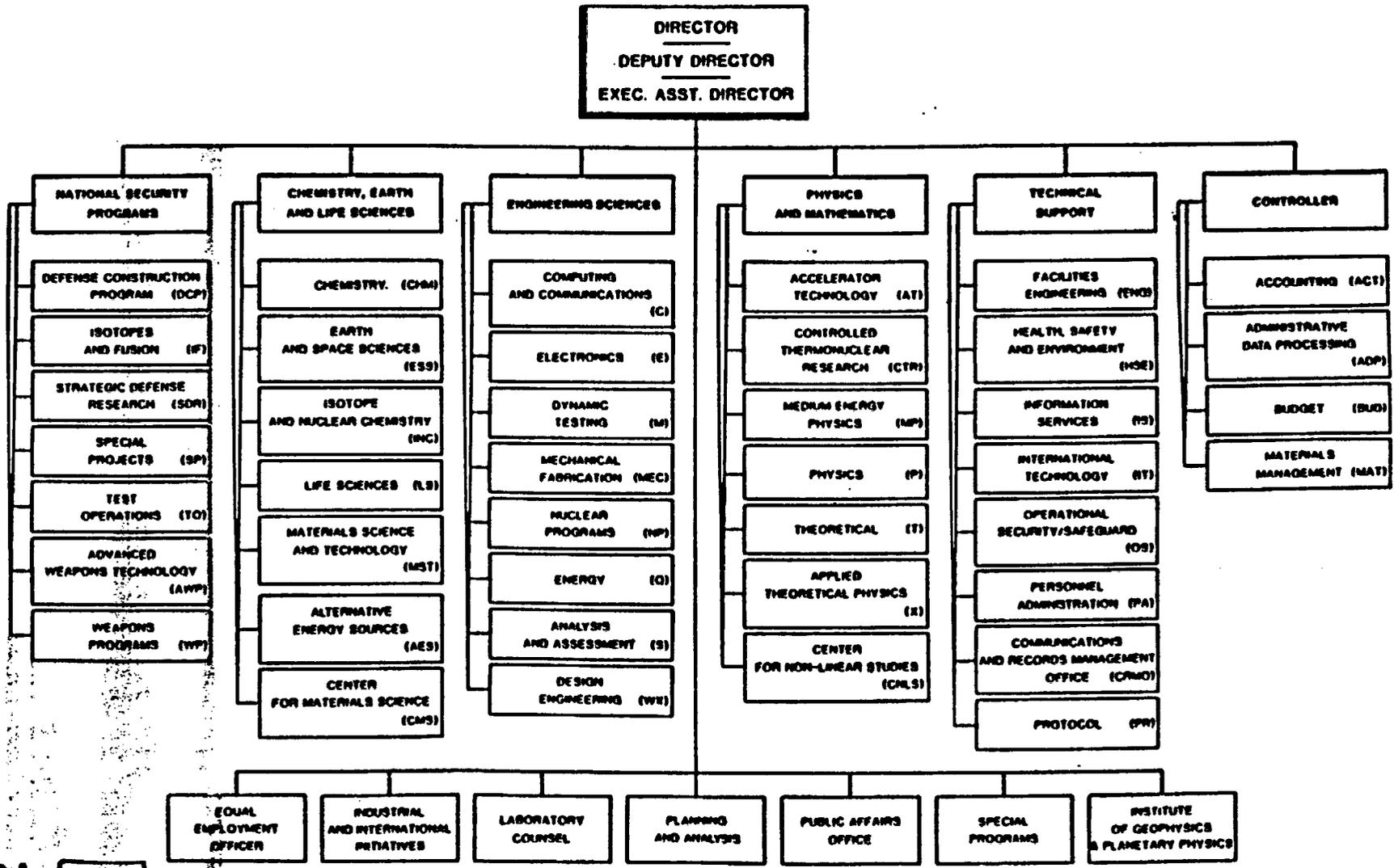
**THE USGS QUALITY ASSURANCE
PROGRAM FOR NNWSI WASTE
MANAGEMENT ACTIVITIES**

**P.L. BUSSOLINI
Los Alamos National Laboratory
December 1984**



Los Alamos

LOS ALAMOS ORGANIZATION



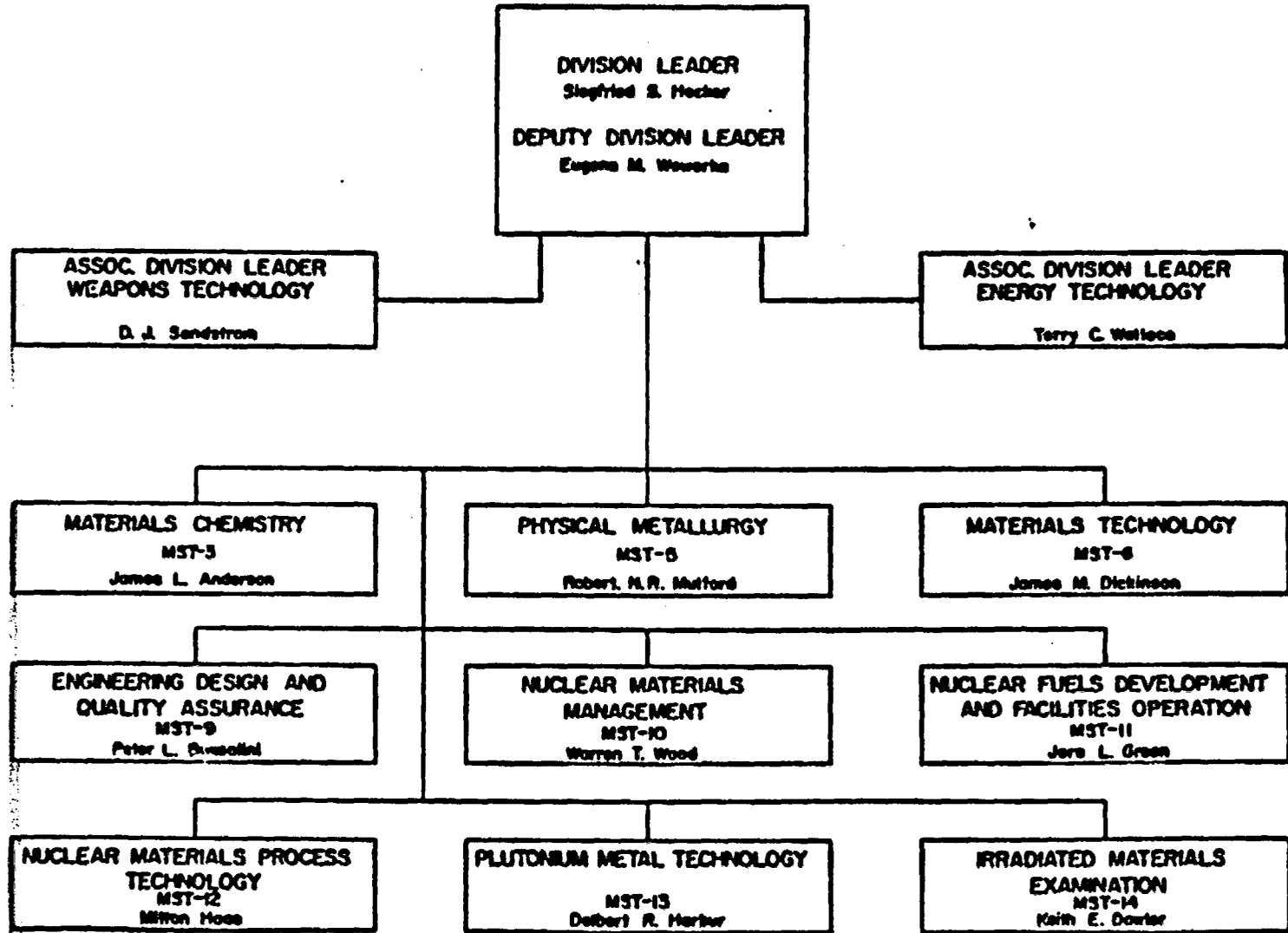


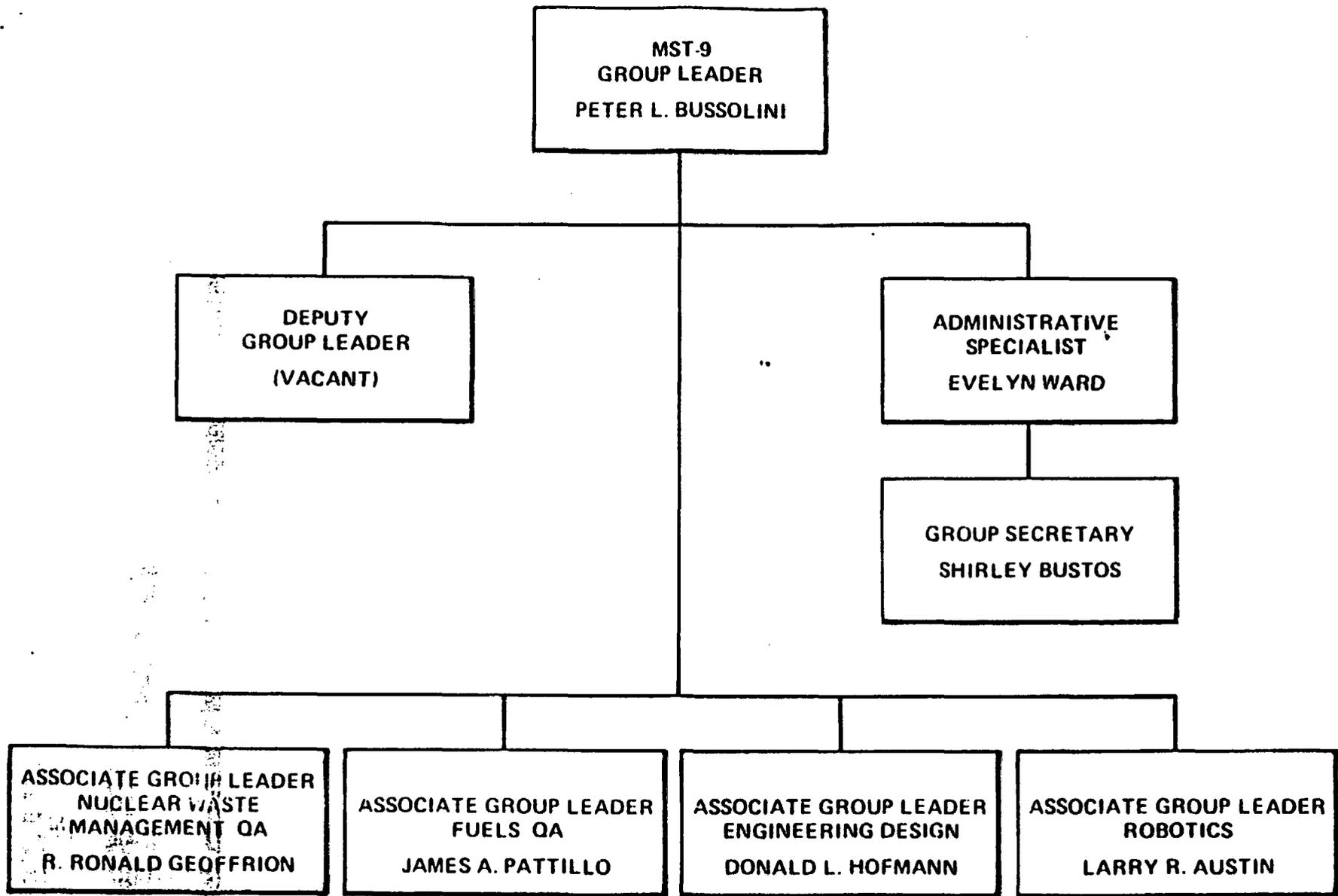
HUSZ PROJECT

Los Alamos
 Los Alamos National Laboratory
 Los Alamos, New Mexico 87545

APRIL 1984

MATERIALS SCIENCE AND TECHNOLOGY (MST) DIVISION





WASTE MANAGEMENT QUALITY ASSURANCE

ASSOCIATE
GROUP LEADER

R.R. GEOFFRION

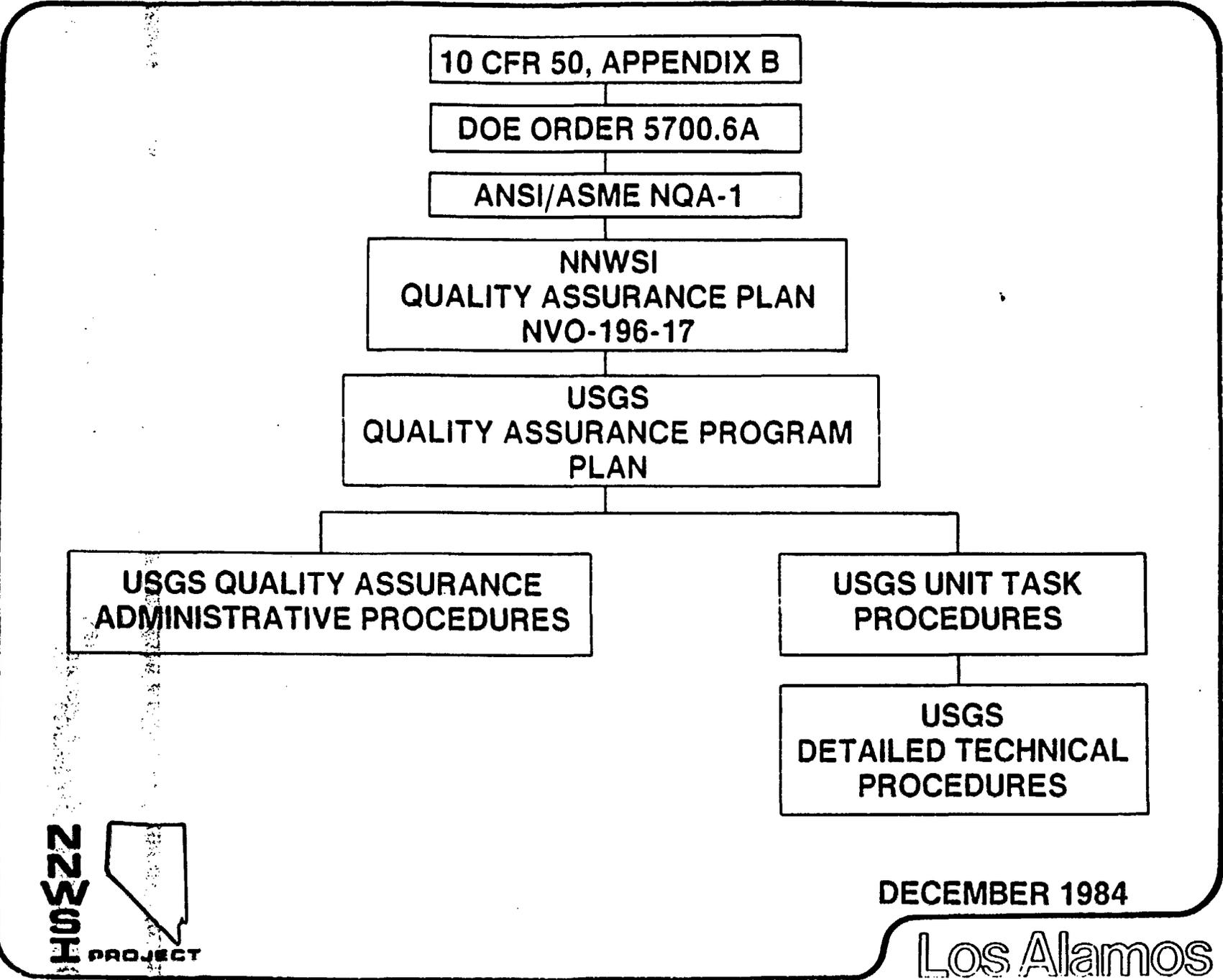
- R.D. MICHELS, SM
- A.H. DAVIS, SM
- M.A. ROGERS, SM
- F.L. KERSTIENS, ASM III
- J.A. BEATON, ASM II
- R.C. WILHELM, ASM II

DECEMBER 1984

2230H
PROJECT



Los Alamos



DECEMBER 1984

Los Alamos

QUALITY ASSURANCE PROGRAM PLAN

- A TRANSITION DOCUMENT - A ROAD MAP
- PROVIDES TRANSLATION OF NUCLEAR POWER PLANT - QUALITY ASSURANCE LANGUAGE TO EARTH SCIENCE-SITE CHARACTERIZATION LANGUAGE
- STATES HOW NQA-1 WILL BE MET
- STATES QUALITY ASSURANCE REQUIREMENTS WHERE SPACE ALLOWS
- REFERS TO ADMINISTRATIVE QUALITY ASSURANCE PROCEDURES
- REFERS TO USGS UNIT TASK PROCEDURES (WORK PLANS)



DECEMBER 1984

Los Alamos

UNIT TASK PROCEDURES

- GEOLOGY
- HYDROLOGY
- SEISMOLOGY
- GEOPHYSICS
- GEOCRONOLOGY
- FENIX AND SCISSON DRILL SITE

DECEMBER 1984



Los Alamos

UNIT TASK PROCEDURES

PURPOSE

SCOPE

DESCRIPTION OF WORK

SPECIFIC REQUIREMENTS

WORK PERSONNEL, QUALIFICATIONS, AND TRAINING

INTERFACES

EQUIPMENT AND FACILITIES

ITEM IDENTIFICATION AND TRACEABILITY

DOCUMENTATION

LISTING OF TECHNICAL PROCEDURES

CALIBRATION

MILESTONES



DECEMBER 1984

Los Alamos

DETAILED TECHNICAL PROCEDURES

- GEOLOGY PROCEDURES-GP (7 APPROVED PROCEDURES)
- SEISMOLOGY PROCEDURES-SP (8 APPROVED PROCEDURES)
- GEOCHRONOLOGY PROCEDURES-GCP (9 APPROVED PROCEDURES)
- GEOPHYSICS PROCEDURES-GPP (8 APPROVED PROCEDURES)
- MULTIDISCIPLINE PROCEDURES-MDP (2 APPROVED PROCEDURES)
- FENIX AND SCISSON PROCEDURES-FS (1 APPROVED PROCEDURE)
- HYDROLOGY PROCEDURES-HP (37 APPROVED PROCEDURES)



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DETAILED TECHNICAL PROCEDURES

PURPOSE

INSTRUCTION ON HOW TO PERFORM WORK

EQUIPMENT

INSTRUCTIONS ON HOW TO OPERATE EQUIPMENT

CALIBRATION

ACCEPTANCE OR REJECTION CRITERIA

DOCUMENTATION

REFERENCES

ATTACHMENTS



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ADMINISTRATIVE QUALITY ASSURANCE PROCEDURES

- DOCUMENT CONTROL
- CONTROL OF QUALITY ASSURANCE RECORDS
- CONTROL OF NONCONFORMING MATERIALS, COMPONENTS, AND PROCESSES
- CONTROL FOR CORRECTIVE ACTION
- AUDITING
- INSTRUMENT CALIBRATION
- PROCUREMENT
- SURVEILLANCE

2230H

PROJECT

DECEMBER 1984

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ADMINISTRATIVE QUALITY ASSURANCE PROCEDURES

DOCUMENT CONTROL

- **LISTS TYPES OF DOCUMENTS**
 - QA PROGRAM PLAN
 - ADMINISTRATIVE QA PROCEDURES
 - UNIT TASK PROCEDURES
 - DETAILED TECHNICAL PROCEDURES
- **SUGGESTED CONTENT**
- **IDENTIFICATION SYSTEM**
- **RESPONSIBILITY FOR WRITING**
- **RESPONSIBILITY FOR REVIEWING**
- **RESPONSIBILITY FOR APPROVING**
- **DISTRIBUTION INSTRUCTIONS**
- **REVISION CONTROL**



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ADMINISTRATIVE QUALITY ASSURANCE PROCEDURES

CONTROL OF QUALITY ASSURANCE RECORDS

- **RESPONSIBILITY TO INITIATE - PRINCIPAL INVESTIGATOR OR QA ENGINEER**
- **INDEXED.**
- **IDENTIFIED AND RETRIEVABLE**
- **RETENTION TIME**
- **RECORD STORAGE - STANDARD METAL FILE CABINETS**
- **ENVIRONMENTAL CONTROL**
- **TRANSMITTAL TO NTS FOR PERMANENT STORAGE**

DECEMBER 1984

2230H

PROJECT.

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ADMINISTRATIVE QUALITY ASSURANCE PROCEDURES

CONTROL OF NONCONFORMING MATERIALS, COMPONENTS, AND PROCESSES

- IDENTIFICATION OF NONCONFORMING CONDITION
- INITIATION OF NCR REPORT
- DISPOSITION
- HOLD TAGS
- QA REVIEW BOARD
- RELEASE FOR USE
- REVISIONS
- NCR STATUS LOG
- TRENDING

DECEMBER 1984



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**UNITED STATES GEOLOGICAL SURVEY
QUALITY ASSURANCE
NONCONFORMANCE REPORT**

NCR No. 0001

IDENTIFICATION		1 Project	2 Area	
3 Hold Tag No		4 Document Approval		
5 Description and Cause of Nonconformance 				
6 Originator	7 Date	8 Quality Assurance Specialist/Engineer		9 Date
10 PROPOSED DISPOSITION 				
11 Technical Approval		12 Date	13 Corrective Action Report Required? Yes No	
14 QUALITY ASSURANCE REVIEW BY JARD APPROVAL				15 DATE
16 Quality Assurance Mgr. Supervisor		17 Date	18 Other	
19 Other		20 Date	21 Other	
22 Other		23 Date	24 Other	
25 DISPOSITION ACCOMPLISHED		26 Quality Assurance Specialist/Engineer		27 Date
28 FINAL APPROVAL		29 Quality Assurance Manager		30 Date
DISTRIBUTION				

FORM USGS QU 12 Rev. 6/84



ADMINISTRATIVE QUALITY ASSURANCE PROCEDURES

CONTROL FOR CORRECTIVE ACTION

- SIGNIFICANT OR RECURRING DISCREPANCY
- INITIATION OF C.A.R.
- PROPOSED CORRECTIVE ACTION
- QA REVIEW BOARD
- VERIFICATION
- QA MANAGER FINAL APPROVAL
- REVISIONS
- STATUS LOG



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UNITED STATES GEOLOGICAL SURVEY CORRECTIVE ACTION REPORT

CAR # _____

IDENTIFICATION		1 NCR # _____	2 AUDIT # _____	3 OTHER _____
4 DESCRIPTION AND CAUSE OF ITEM OR EVENT REQUIRING CORRECTIVE ACTION				
5. ORIGINATOR	6. DATE	7. Q.A. APPROVAL		8. DATE
CORRECTIVE ACTION		9. ACTION PROPOSED TO PRECLUDE REPETITION		
Q.A. REVIEW BOARD APPROVAL		10. PRINCIPAL INVESTIGATOR		11. DATE
12. PROJECT COORDINATOR	13. DATE	14. Q.A. MANAGER	15. DATE	
16. OTHER	17. DATE	18. OTHER	19. DATE	
CORRECTIVE ACTION VERIFICATION		20. Q.A. APPROVAL		21. DATE
FINAL APPROVAL		22. Q.A. APPROVAL		23. DATE
DISTRIBUTION				



ADMINISTRATIVE QUALITY ASSURANCE PROCEDURES

AUDITING

- SCHEDULE
- QUALIFIED AUDITORS
- AUDIT PLAN
- AUDIT CHECKLISTS
- AUDIT FINDINGS
- AUDIT OBSERVATIONS
- AUDIT REPORT
- CORRECTIVE ACTION
- VERIFICATION AND CLOSE-OUT
- TREND ANALYSIS

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UNITED STATES GEOLOGICAL SURVEY
QUALITY ASSURANCE
AUDIT OBSERVATION REPORT

Audit No. _____

Date _____

Audited Organization _____

Auditors _____

Observation No. _____ This observation does not require formal response but should be considered by the audited organization.

Discussion

Technical Management

Date

Audit Team Leader

Date

FORM-USGS-QA-05-REV-6/94



ADMINISTRATIVE QUALITY ASSURANCE PROCEDURES

INSTRUMENT CALIBRATION

- USED FOR ALL M&TE AFFECTING QUALITY
- WRITTEN CALIBRATION PROCEDURES
- CERTIFIED PERSONNEL
- STANDARDS
- STORAGE OF M&TE AND STANDARDS
- UNCALIBRATED OR QUESTIONABLE M&TE
- CALIBRATION INTERVALS
- CALIBRATION DATA RECORDS
- CALIBRATION CARDS
- STICKERS

ZZOH
PROJECT.



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QA Calibration Card

Instrument Description _____
Identification Number _____
Date Calibrated _____
Date Recalibration Due _____
Calibration Procedure = _____
Location _____
Group _____
Calibrated By _____
Calibration Range _____
Calibration References _____
Comments _____

FORM QA CC 24



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Ident. _____
NOT FOR DATA COLLECTION
CALIBRATION NOT REQUIRED
QA-CL-30

Ident. _____
NOT FOR DATA COLLECTION
CALIBRATION NOT REQUIRED
QA-CL-30

For QA Work

Ident. _____
OPERATOR TO CALIBRATE
Procedure No. _____
QA-CL-21

For QA Work

Ident. _____
OPERATOR TO CALIBRATE
Procedure No. _____
QA-CL-21

For QA Work

Ident. _____
Date Calibrated _____
Recalibrated Due _____
Procedure No. _____
Calibrator _____
QA-CL-20

For QA Work

Ident. _____
Date Calibrated _____
Recalibrated Due _____
Procedure No. _____
Calibrator _____
QA-CL-20



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ADMINISTRATIVE QUALITY ASSURANCE PROCEDURES

PROCUREMENT

- **PURCHASE REQUISITION DOCUMENTS**
 - SCOPE OF WORK
 - TECHNICAL REQUIREMENTS
 - QA REQUIREMENTS
 - RIGHT OF ACCESS
 - DOCUMENTATION
- **PROGRAMMATIC IMPACT - "QA REQUIRED"**
- **QUALITY ASSURANCE REVIEW**
- **SOURCE EVALUATION**



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ADMINISTRATIVE QUALITY ASSURANCE PROCEDURES

SURVEILLANCE

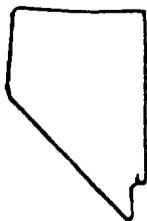
- CERTIFIED SURVEILLANCE PERSONNEL
- SURVEILLANCE SCHEDULE
- WRITTEN CHECK LIST
- HOLD POINTS
- SURVEILLANCE REPORTS
- DISCREPANCY CLOSE-OUT

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Los Alamos

22301
H



PROJECT

PROPOSED GRADING OF
QUALITY-CONTROL REQUIREMENTS

FOR

SITE INVESTIGATIONS
LICENSING INFORMATION



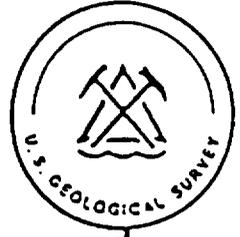
OBJECTIVES

- 0 MAINTAIN THROUGH DOCUMENTATION OF QUALITY CONTROL FOR ACTIVITIES CLOSELY RELATED TO PREDICTION OF RADIOLOGICAL HEALTH & SAFETY

- 0 PROGRESSIVELY RELAX REQUIREMENTS FOR ACTIVITIES DECREASINGLY IMPORTANT TO PERFORMANCE ASSESSMENT, IN ORDER TO:
 - PREVENT WASTE OF MONEY
 - OPTIMIZE USE OF TIME
 - OPTIMIZE PERSONNEL SKILLS
 - OPTIMIZE USE OF DATA NOT COLLECTED UNDER QA PROGRAM



SITE INVESTIGATIONS
(LEVEL I INFORMATION)

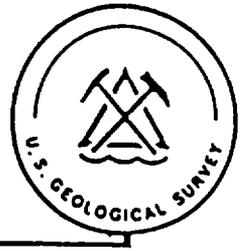


LICENSING INFORMATION RELATED TO RADIOLOGICAL HEALTH
AND SAFETY AND TO ESSENTIAL DESIGN FUNCTIONS:

- 0 PERFORMANCE ASSESSMENT
- 0 EMPLACEMENT AND RETRIEVAL
- 0 WASTE-PACKAGE DESIGN DATA
- 0 REPOSITORY DESIGN DATA



SITE INVESTIGATIONS
(PROPOSED LEVEL IA)



- 0 ACTIVITY PRODUCES DATA THAT ARE A SIGNIFICANT AND ESSENTIAL PART OF THE DATA BASE FOR DIRECT, FINAL CALCULATIONS FOR LEVEL I ASSESSMENT OR DESIGN.

- 0 QA REQUIREMENTS FULLY APPLICABLE.

- 0 DATA COLLECTED OUTSIDE OF QA PROGRAM ARE NOT ADMISSIBLE UNLESS MAJOR VERIFICATION IS PERFORMED WITH FULL QA.

2230H
PROJECT



SITE INVESTIGATIONS
(PROPOSED LEVEL IB)



0 ACTIVITY PRODUCES INFORMATION THAT SIGNIFICANTLY SUPPORTS EVALUATION OF THE ACCURACY OR VALIDITY OF THE DATA BASE FOR LEVEL I ASSESSMENT OR DESIGN, BUT IS NOT A PART OF THE DATA BASE.

OR

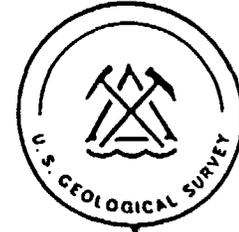
- 0 ACTIVITY PRODUCES DATA THAT SIGNIFICANTLY, BUT NOT DOMINANTLY, INFLUENCE THE SELECTION OF REPRESENTATIVE VALUES USED IN LEVEL I CALCULATIONS.
- 0 SPECIFIED, LESS RIGOROUS APPLICATION OF MOST OF 18 CRITERIA, EMPHASIS ON CONCEPTUAL PLANNING, WELL DOCUMENTED RECORDS, PEER REVIEW, AND PERSONNEL QUALIFICATIONS.
- 0 INFORMATION COLLECTED OUTSIDE OF QA PROGRAM ADMISSIBLE ONLY WITH RECONSTRUCTION AND CERTIFICATION OF METHODS, DATA, PEER REVIEW OF RESULTS, AND PERSONNEL QUALIFICATIONS. NOT A DOMINANT PART OF THE INFORMATION BASE. VERIFICATION CHECKS MAY BE PERFORMED.

H0322



PROJECT

SITE INVESTIGATIONS
(PROPOSED LEVEL IC)



- Q ACTIVITY IS ONE OF SEVERAL INDEPENDENT ACTIVITIES CONTRIBUTING TO A BROAD BASE OF INFORMATION THAT IS NOT USED DIRECTLY IN LEVEL I CALCULATIONS BUT WHICH MAY CONTRIBUTE TO A CONCEPTUAL UNDERSTANDING OF CONDITIONS OR PROCESSES THAT ARE CONSIDERED IN FORMULATING CALCULATIONAL MODELS.

- O EMPHASIS ON DOCUMENTATION OF METHODS AND DATA, COLLEAGUE AND/OR PEER REVIEW, AND PERSONNEL QUALIFICATIONS.

- O INFORMATION COLLECTED OUTSIDE OF QA PROGRAM ADMISSIBLE AS A NON-DOMINANT PART OF DATA BASE WITH REASONABLE EVIDENCE OF COLLEAGUE/PEER REVIEW AND PERSONNEL QUALIFICATIONS, OR AS A DOMINANT PART OF DATA BASE WITH THE ABOVE EVIDENCE AND VERIFICATION TESTS OR STUDIES.

HOZZZ
PROJECT



SITE INVESTIGATIONS
(PROPOSED LEVEL ID)



- 0 ACTIVITY PRODUCES INFORMATION USED IN FORMULATING BROAD CONCEPTS OF NATURAL CONDITIONS OR PROCESSES WITHIN THE CANDIDATE AREA.

OR

- 0 ACTIVITY PRODUCES INFORMATION THAT IS USED, TOGETHER WITH A SIGNIFICANT BODY OF ADDITIONAL INFORMATION, TO PLAN THE SITE INVESTIGATIONS.
- 0 QA RECORD CONSISTS OF REPORT(S) OF RESULTS AND GENERAL DESCRIPTION OF METHODS, AND OF RECORD OF COLLEAGUE REVIEW AND AGENCY APPROVAL.
- 0 INFORMATION COLLECTED OUTSIDE OF QA PROGRAM ADMISSIBLE WITH REASONABLE EVIDENCE OF COLLEAGUE REVIEW AND A DOCUMENTED EVALUATION BY NNWSI OR INDEPENDENT PEER.



QA PROCEDURES

(ORGANIZATION, STATUS AND GENERAL CONTENT)

- UNIT TASK PROCEDURES
- TECHNICAL DETAILED PROCEDURES



UNIT TASK PROCEDURES
(QA PLANNING DOCUMENT)

- o IDENTIFIES TECHNICAL DETAILED PROCEDURES

- o IDENTIFIES RESEARCH ACTIVITIES



UNIT TASK PROCEDURES

- 0 THE USGS IS EVALUATING THE CONTINUED NEED FOR THE UNIT TASK PROCEDURES BECAUSE THE QA REQUIREMENTS CAN BE ACHIEVED IN OTHER DOCUMENTS:
- NNWSI WORK PLANS
 - TECHNICAL DETAILED PROCEDURES



TECHNICAL DETAILED PROCEDURES

o RESEARCH ACTIVITIES

DEFINITION: THOSE ACTIVITIES THAT EXCEED
THE STATE OF THE ART

SHALL BE IDENTIFIED, DOCUMENTED AND RECEIVE
INDEPENDENT TECHNICAL REVIEW AT DEFINED
INTERVALS. DOCUMENTS SHALL CONTAIN SUFFI-
CIENT INFORMATION TO DESCRIBE THE ACTIVITY
SUCH THAT A TECHNICAL DETAILED PROCEDURE
MAY BE PREPARED WHEN THE RESEARCH ACTIVITY IS
CONCLUDED

o NON-RESEARCH ACTIVITIES

- SHALL PROVIDE SUFFICIENT DESCRIPTION OF WORK
ACTIVITIES SUCH THAT A QUALIFIED PERSON PER-
FORMING THE TASK AT A LATER DATE UNDER THE
SAME CONDITIONS COULD PRODUCE THE REQUIRED
RESULTS



TECHNICAL DETAILED PROCEDURES
(REQUIREMENTS)

CONTENT SPECIFIED BY QAPP

- PURPOSE
- INSTRUCTION ON HOW TO PERFORM WORK
- DESCRIPTION OF EQUIPMENT TO BE USED
- INSTRUCTIONS ON HOW TO OPERATE EQUIPMENT
- INSTRUCTIONS ON HOW TO CALIBRATE EQUIPMENT
- QUANTITATIVE OR QUALITATIVE ACCEPTANCE CRITERIA
- DESCRIPTION OR EXAMPLE OF DOCUMENTATION
- IDENTIFICATION AND CONTROL OF SAMPLES
- REFERENCES
- ATTACHMENTS



TECHNICAL DETAILED PROCEDURES
(APPROACHES TO PREPARATION)

- 0 TECHNICAL PERSONNEL ARE PROVIDED WITH QA TRAINING, INCLUDING THE PREPARATION OF TECHNICAL DETAILED PROCEDURES
 - PROVIDED EXAMPLES OF TECHNICAL DETAILED PROCEDURES
 - PROVIDED REQUIRED OUTLINE
 - PROVIDED QUESTIONNAIRE



TECHNICAL DETAILED PROCEDURES
(REQUIREMENTS)

USGS
QUESTIONNAIRE
CONTENT

QAPP REQUIREMENTS

- (1.0) PURPOSE
- (4.0) INSTRUCTION ON HOW TO PERFORM WORK
- (4.5) DESCRIPTION OF EQUIPMENT TO BE USED
- (4.3) INSTRUCTIONS ON HOW TO OPERATE EQUIPMENT
- (5.0) INSTRUCTIONS ON HOW TO CALIBRATE EQUIPMENT
- (4.8) QUANTITATIVE OR QUALITATIVE ACCEPTANCE
CRITERIA
- (6.0) DESCRIPTION OR EXAMPLE OF DOCUMENTATION
- (7.0) IDENTIFICATION AND CONTROL OF SAMPLES
- (9.0) REFERENCES
- (10.0) ATTACHMENTS

2230H



PROJECT



TECHNICAL DETAILED PROCEDURES
(REVIEW)

- o NWM-USGS-HP-26, R0
- o TITLE: "METHOD FOR CALIBRATING WATER-LEVEL MEASUREMENT EQUIPMENT USING THE REFERENCE STEEL TAPE"
- o OBJECTIVE: TO PROVIDE A METHOD FOR PERIODICALLY CALIBRATING EQUIPMENT USED IN DETERMINING THE DEPTH TO WATER LEVEL.
- o COMMENTS:
 - A FIELD PROCEDURE
 - PERFORMED BY TECHNICIANS
 - ~~VERY DETAILED WITH NO REFERENCES~~

USGS NNWSI QUALITY ASSURANCE
TECHNICAL DETAILED PROCEDURE
INFORMATION COLLECTION FORM

A. QA Procedure Number NWM-USGS-____-____, RO. Section _____
Subject of Procedure Section _____
Interviewer _____, Responder _____ Date _____

B. The information supplied on this form is meant to be:

- a draft presentation for the procedure preparation, or
- information to prepare a draft.

Information Statement*: _____

* Note: It would be most helpful if the information is presented in draft form. Additional pages may be attached to expand this form, if required. In the event only data on background information are presented, it may be in the form of interview notes and/or pertinent documents provided during the interview. If documents are supplied, they each should be identified and itemized in this section.

USGS-WILLMON
ATTACHMENT 2

October 20, 1994

QUALITY ASSURANCE PROGRAM DOCUMENTATION

Table 1

PROGRAM PLAN (OAPP)

NWM-USGS-OAPP-01, R1 Quality Assurance Program Plan for Nevada Nuclear Waste Storage Overhaul Activities

QUALITY ASSURANCE PROCEDURES

NWM-USGS-QP-01, R1 Document Control
NWM-USGS-QP-02, R1 Control of Quality Assurance Records
NWM-USGS-QP-03, R1 Control of Nonconforming Materials, Components, & Processes
NWM-USGS-QP-04, R1 Control for Corrective Action
NWM-USGS-QP-05, R2 Auditing
NWM-USGS-QP-06, R2 Instrument Calibration
NWM-USGS-QP-07, R2 Procurement
NWM-USGS-QP-08, R2 Surveillance

UNIT TASK PROCEDURES (UTP)

NWM-USGS-UTP-01, R2 Hydrologic Investigations
NWM-USGS-UTP-02, R2 Geophysical Investigations
NWM-USGS-UTP-03, R2 Geological Investigations
NWM-USGS-UTP-04, R2 Seismicity Investigations
NWM-USGS-UTP-05, R2 Geochronology Investigations
NWM-USGS-UTP-06, R2 Field & Laboratory Testing Unit Task Procedures

GENERAL INVESTIGATIVE

NWM-USGS-GP-01, R2 Geologic Mapping
NWM-USGS-GP-02, R2 Subsurface Investigations
NWM-USGS-GP-03, R2 Stratigraphic Studies
NWM-USGS-GP-04, R2 Structural Studies
NWM-USGS-GP-05, R2 Geological Support Activities
NWM-USGS-GP-06, R2 Geodesy, Leveling, and TIE Establishment
NWM-USGS-GP-07, R2 Surveys
NWM-USGS-GP-08, R2 Geologic Trending Studies

USGS QUALITY ASSURANCE DOCUMENT INDEX (CONT'D).

Volume II -- Continued.

MULTIDISCIPLINE PROCEDURES (MDP)

NWM-USGS-MDP-01, R0 Identification, Handling, Storage, and Disposition of Drill-Hole Core and Samples
 NWM-USGS-MDP-02, R0 Documentation of Communications, Decisions, and Independent Actions

FENIX & SCISSION PROCEDURES (FS)

NWM-USGS-FS-02, R0 Certification of Fenix & Scisson Geologists

Volume III

HYDROLOGY PROCEDURES (HP)

NWM-USGS-HP-01, R0 Methods for Determining Water Level
 NWM-USGS-HP-02, R0 Acoustic Televiwer Investigations
 NWM-USGS-HP-03, R0 Hydrologic Tracejector Test
 NWM-USGS-HP-04, R0 Hydrologic Surging
 NWM-USGS-HP-05, R0 Hydrologic Swabbing
 NWM-USGS-HP-06, R0 Hydrologic Pumping Test
 NWM-USGS-HP-08, R0 Methods for Determination of Inorganic Substances in Water
 NWM-USGS-HP-10, R1 Packer-Injection and Shut-In Tests
 NWM-USGS-HP-11, R0 Methods for Determination of Radioactive Substances in Water
 NWM-USGS-HP-12, R0 Procedures for Handling and Field Testing of the Core from Unsaturated Bore Holes
 NWM-USGS-HP-13, R0 Collection and Field Analysis of Unsaturated Zone Ground Water Samples
 NWM-USGS-HP-14, R1 Method for Calibrating Peltier Type Thermocouple Psychrometers for Measuring Water Potential of Partially Saturated Media
 NWM-USGS-HP-15, R0 Method for Calibrating Heat-Dissipation Sensors for Measuring In Situ Matric Potential Within Porous Media
 NWM-USGS-HP-16, R1 Collection and Preservation of Atmospheric Precipitation Samples for Isotope Analysis
 NWM-USGS-HP-17, R0 Method of Calibration and Testing for Operation of Pressure Transducers for Air Permeability Studies in the Unsaturated Zone
 NWM-USGS-HP-18, R0 Frequency of Equipment Calibration for Unsaturated Zone Testing, Nevada Test Site
 NWM-USGS-HP-19, R0 Method for Identification, Transport, and Handling of Instrumentation Packages and Equipment for Field Testing in the Unsaturated Zone at NTS
 NWM-USGS-HP-20, R0 Instructions for Operation of a Standard Dead-Weight Tester

A Program to Develop
Technical Detailed Procedures
for the USGS Quality Assurance Program
of the NNWSI Project

Introduction:

The USGS Quality Assurance (QA) Program has been developed to provide documented assurance of the accuracy, validity and applicability of the field, office and laboratory processes, investigations and research being used in support of the DOE's Nevada Nuclear Waste Storage Investigations (NNWSI). The documentation consists of a series of Technical Detailed Procedures which describe specific work activities, methods and responsibilities relative to quality assurance. These Technical Detailed Procedures are based on the USGS requirements for QA documentation as defined in the Quality Assurance Program Plan (NWM-USGS-QAPP-01) Sections 1.1 (QA activities) and 5.2 (content requirements), and as defined in the Quality Assurance Procedure - Document Control (NWM-USGS-QP-01) Section 3.5 (document identification) and 5.0 (preparation, review, content, approval and distribution). This Technical Detailed Procedure, however, is subordinate in the QA documentation hierarchy to the Unit Task Procedures which describe the Quality Assurance requirements for the various investigations.

The USGS NNWSI Project management directs that the Technical Detailed Procedures should be uniform in content, concise and of similar format. The purpose of this QA Technical Detailed Procedure Information Form is to gather information which will be compiled and retained at the USGS NNWSI QA office in Denver where draft procedures will be prepared with assistance from the designated technical author. To facilitate draft preparation, it is imperative that the spaces provided on the following pages be completed with the appropriate information in adequate detail to organize the data and to substantiate the facts. To help with organization of the input, the form has been structured parallel with the format of the Technical Detailed Procedure, and explanatory information is presented where required. Portions of the procedure draft relating to the "boiler plate" have been omitted from this form. However, certain pre-written portions have been included for the procedure preparer to get a feel for the input required, or for the responsibility that he is to assume with the procedure.

Before beginning to complete the form, please review the full form and become acquainted with its organization and the breakdown of the subject matter into categories. As many pages of explanation or reference materials as required may be attached; but please keep in mind that it is desirable to have the procedure as brief as possible. For conciseness, it is recommended that standard procedures, discussion of methods, etc., be incorporated by reference whenever possible. Such references can be attached, if short, or placed on the shelf at the work site, as appropriate.

II. QA PROCEDURE DEVELOPMENT DATA

1.0 PURPOSE OF PROCEDURE

- 1.1 This procedure provides a means of assuring the accuracy, validity, and applicability of the methods used to <7>

(State work

activity such as "Measure in situ stress", "Map the geology"

"Measure physical properties of rock", etc)

2.0 SCOPE OF COMPLIANCE

This section refers to the regulatory requirements and does not require any input here.

3.0 PERSONNEL REQUIREMENTS AND RESPONSIBILITIES

- 3.1 The USGS NNWSI Project Coordinator shall have overall responsibility for the management and quality of the work activities of this procedure as conducted by the USGS for the NNWSI Project, and for the proper use of data derived from these activities.

- 3.2 The Principal Investigator for the work described under this procedure shall have direct responsibility for the management and quality of said investigations and measurements conducted by the USGS for the NNWSI Project, and for the proper use of data derived from these activities.

- 3.3 The <11>

(Title of person performing or responsible for this work)

assigned responsibilities for activities as described in this procedure by the USGS for the NNWSI Project shall have the immediate responsibility for supervising the performance of this technical procedure for the USGS.

- 3.4 USGS personnel assigned the responsibility of the activities of this procedure shall become familiar with details of the following USGS Quality Assurance documents:

QA Program Plan: NWM-USGS-QAPP-01.R1

QA Procedures: NWM-USGS-QP-01 to 10, R<8>

Unit Task Procedure: NWM-USGS-UTP-<9>__, R<10>__

4.6 Assumptions: <18>

(Assumptions of design, performance and inter-

pretation, referencing when possible)

An Information Collection Form supplements this statement: Yes ___ No ___

4.7 Data Generation: <19>

(Description of input and output data

relative to the stated objectives)

An Information Collection Form supplements this statement: Yes ___ No ___

4.8 Limitations of the Procedure

In general, the use of the procedure is limited by <20>

(Any

constraints that might affect the results obtained)

Limitations imposed by equipment used:

(Frequency response, ..

pressure limits, limit accuracy, flow rates, depth limits, etc.)

Limitations imposed by accessibility and physical barriers include:

(accessibility, depth limits, electronic noise, etc)

Limitations imposed by emerging technology include:

(State of

the art of equipment, etc.)

4.9 Other (_____): _____

(Anything believed pertinent but not covered above)

5.0 CALIBRATION REQUIREMENTS

Calibration <21> (is) (is not) an important part of this Technical Procedure. It is understood that all instruments, and methods where appropriate, will be calibrated according to appropriate standards prior to obtaining data that will be cited in support of the NNWSE Project.

7.0 IDENTIFICATION AND CONTROL OF SAMPLES

7.1 As part of the data records and documentation, all samples are identified according to a procedure that includes <26>

(State

how samples are marked, handled and stored.)

7.2 The collected and identified samples shall reside in the control of <27>

(Title)

(State where samples are stored, and their eventual disposition.)

8.0 MODIFICATIONS

Significant procedural changes that are instituted in any field, laboratory or office methods, shall be fully documented in subsequent revisions of this Technical Detailed Procedure, and will be subject to QA, peer review, and signature approval.

8.1 If it is necessary to deviate from this approved procedure, the <29> shall be informed; and the procedural changes shall be documented and signed by both <29>

(Investigator--Title)

and <30> before proceeding.

(Supervisor)

9.0 REFERENCES

(Use standard USGS format)

