101 LPDR Wm-10 (2)
(See pocket 2. for Attch)

Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

87-AMC-137

March 31, 1987

WM DOCKET CONTROL CENTER

'87 ABR -6 P1:20

Those on Attached List

Ladies and Gentlemen:

PRESENTATIONS AND COMMITMENTS FROM THE QUARTERLY UPDATE MEETING FOR BASALT WASTE ISOLATION PROJECT AFFECTED PARTIES

Per your request, attached are the presentation materials from the Quarterly Update meeting held January 14-15, 1987. If you have any questions, please contact Mr. Max L. Powell on (509) 376-5267.

Sincerely,

John H. Anttonen, Assistant Manager
for Commercial Nuclear Waste

Attachments

Attachment 1

COMMITMENTS MADE AT QUARTERLY MEETING
(responsible party identified in parentheses)

- The Department of Energy-Richland Operations Office (DOE-RL) will check with the Department of Energy-Headquarters (DOE-HQ) to determine the feasibility of providing the Basalt Waste Isolation Project's (BWIP) affected parties controlled copies of the Quality Assurance plans. (R. P. Saget)

- The DOE-RL will notify affected parties of peer review groups' meetings, reports, etc. (such as the January National Academy of Sciences visit). (M. L. Powell)

- The DOE-RL will determine the feasibility of listing peer reviews on the accessions list. (R. E. May)

- The DOE-RL will take under advisement the request that whenever outside organizations are given access to information, the same information should be provided to participants. (M. L. Powell)

- The DOE-RL will determine for the Nuclear Regulatory Commission onsite representative how many surveillances have been performed on the Site Characterization Plan (SCP) process, and how many nonconformances were identified. (R. T. Johnson)

- The DOE-RL will determine how changes in data are reflected in the accessions list and will determine if errata sheets can be put on the accessions list. (J. E. Mecca)

- The DOE-RL will send to its affected parties an explanation of how and to what extent the 18-criteria Quality Assurance program addresses the 14 risks to the affected parties's interest in the repository program that were identified during the quarterly meeting. (R. T. Johnson)

- The DOE-RL will provide affected parties with the updated Mission Plan. (M. L. Powell)

- At least three interactions will occur at major hold points before the start of Exploratory Shaft drilling: (M. L. Powell)

  - Scoping plans
  - Before start of Large-Scale Hydraulic Stress testing (LHS)
  - After LHS

- The DOE-RL will provide affected parties the data requested at the Hydrology Data Review by the end of January 1987. (K. M. Thompson)

- Any changes to strategies, allocations, or study plans will be visible, documented, and technically justifiable in the same manner as with the SCP, study plans, etc. (J. Graham)

- The DOE-RL will issue study plans 6 to 12 months prior to initiation of described activities and will issue study plans concurrently with SCP release for activities to be conducted within 12 months of the SCP. (J. Graham)

- The DOE-RL will develop a mechanism for releasing papers to participants when they are presented to professional society meetings. (R. E. May)

- The DOE-RL will provide its affected parties copies of papers (viewgraphs and abstracts) presented at the society meetings described in the "Current Geosciences Activities Update." (R. E. May)

- The DOE-RL will send the affected parties the reactive tracer strategy paper, and the groundwater methane report when they complete the DOE approval cycle and are released. (R. E. May)

- The DOE-RL will determine the history of DOE-RL involvement with a Battelle report on the extent of the basalt at Hanford for potential expansion of repository capacity (prepared for DOE-HQ decision makers as a source for the decision to delay the second repository program). Specifically, the DOE-RL will determine who in DOE-RL had opportunity to review it, why it was not on the Accessions List, and what mechanisms will be established to prevent a similar sequence of events. (D. H. Dahlem)

- The DOE-RL will take under advisement the suggestion to develop a study plan to investigate the coupled effect of vertical disturbance above the horizon resulting from thermal expansion within the horizon. (D. H. Dahlem)

- The DOE-RL will follow up on the Yakima Indian Nation's request following the Chernobyl accident for information on N Reactor (operational modes, blueprints, emergency preparedness plans, etc.). (M. L. Powell)

- The next quarterly meeting is tentatively scheduled for April 15-16, 1987. (M. L. Powell)

- The DOE-RL will correct the standard distribution for quarterly meetings to include the Nez Perce Nuclear Waste Policy Act Program Manager, Ron Halfmoon. (M. L. Powell)

- The DOE-RL is developing its Facility-Specific Outreach and Participation Plan and will be contacting participants for input in February or early March. (M. L. Powell)

- The DOE-RL will inform DOE-HQ that the state desires an extra day be provided at the states and Indian tribes quarterly meeting. (M. L. Powell)

Attachment 2

Affected Party Representatives Requesting Copies of Presentations

Rick Waddell
GeoTrans
3300 Mitchell Lane, Suite 250
Boulder, CO 80301

Gary E. Green
NP-NWPA
P. O. Box 305
Lapwai, ID 83540

Glen Lane
CERT
1530 Logan
Denver, CO 80203

Bill Burke
Confederation Tribes Umatilla
Pendleton, OR 97801

Michelle Henry
NP-NWPA
P. O. Box 305
Lapwai, ID 83540

David W. Quaempts
P. O. Box 638
Pendleton, OR 97801

F. K. Kingsvuk
NP-NWPA
P. O. Box 305
Lapwai, ID 83540

Abdul Alkezweeny
1933 Jadwin, Apt #135
Richland, WA 99352

Don Provost
Department of Ecology
Mailstop PV-11
Olympia, WA 98504

Carol A. Peabody
U. S. Department of Energy
1000 Independence Ave, S.W.
RW-223, Room 7F-070
Washington, D.C. 20585

J. E. Mecca
Federal Building
700 Area
Department of Energy

R. D. Siek
1580 Logan
Denver, CO 80203

H. H. Aronson
5041 W. Fair Avenue
Littleton, CO 80123

Ralph Patt
Oregon Water Resource Dept.
Salem, OR 97310

R. T. Halfmoon
NP-NWPA
P. O. Box 305
Lapwai, ID 83540

Larry Calkins
CTUIR-NWSP
P. O. Box 638
Pendleton, OR 97801

Ed Liebon
Battelle-HARC
4000 NE 41 Street
Seattle, WA 98105

Paul Hildenbrand
Nuclear Regulatory Commission
Washington, D.C. 20555

Bob Cook
Nuclear Regulatory Commission
1955 Jadwin
Richland, WA 99352

Jim Worthington
P. O. Box 2381
824 West Lewis, Room 12
Pasco, WA 99302

Attachment 3

Basalt Waste Isolation Project
Technical Update Meeting
January 14-15, 1987
Attendance Sheet

Name	Organization	Telephone
J. H. Anttonen	Department of Energy-Richland Operations Office	(509) 376-75
P. L. Boileau	Department of Energy-Richland Operations Office	(509) 376-5(
M. J. Furman	Department of Energy-Richland Operations Office	(509) 376-7(
J. J. Keating	Department of Energy-Richland Operations Office	(509) 376-7:
James E. Mecca	Department of Energy-Richland Operations Office	(509) 376-5(
Bruce Nicoll	Department of Energy-Richland Operations Office	(509) 376-6(
O. Lee Olson	Department of Energy-Richland Operations Office	(509) 376-7:
M. L. Powell	Department of Energy-Richland Operations Office	(509) 376-5:
R. P. Saget	Department of Energy-Richland Operations Office	(509) 376-7:
K. M. Thompson	Department of Energy-Richland Operations Office	(509) 376-6-
Bill Burke	Confederated Tribes of the Umatilla Indian Reservation	(503) 276-3(
Larry Calkins	Confederated Tribes of the Umatilla Indian Reservation	(503) 276-3(
David W. Quaempts	Confederated Tribes of the Umatilla Indian Reservation	(503) 276-3-
David Wolf, Jr.	Confederated Tribes of the Umatilla Indian Reservation	(503) 276-3
Abdul Alkezweeny	Council of Energy Resource Tribes/ Tribal On-site Representative	(509) 943-5
Steve Hart	Council of Energy Resource Tribes	(303) 832-6
Glen Lane	Council of Energy Resource Tribes	(303) 832-6
Wyatt Rogers	Council of Energy Resource Tribes	(303) 832-6
R. D. Siek	Council of Energy Resource Tribes	(303) 832-6
Richard Waddell	GeoTrans	(303) 440-4

Name	Organization	Telephone
Gary E. Greene	Nez Perce-Nuclear Waste Policy Act Program	(208) 843-22
Ron T. Halfmoon	Nez Perce Tribe	(208) 843-22
Michelle Henry	Nez Perce Tribe	(208) 843-22
Floyd K. Kugzruk	Nez Perce Tribe	(208) 843-22 Extension 38
Bob Cook	Nuclear Regulatory Commission	(509) 943-46
Paul Hildenbrand	Nuclear Regulatory Commission	(301) 427-46
Ralph Patt	Oregon State Water Resource Department	
Steve M. Baker	Rockwell Hanford Operations	(509) 376-47
Madeleine C. Brown	Rockwell Hanford Operations	(509) 376-50
Ted A. Curran	Rockwell Hanford Operations	(509) 376-69
Daniel L. Duncan	Rockwell Hanford Operations	(509) 376-75
Karl A. Hadley	Rockwell Hanford Operations	(509) 376-55
Kunsoo Kim	Rockwell Hanford Operations	(509) 376-02
Susan M. Price	Rockwell Hanford Operations	(509) 376-24
Reed Simpson	Rockwell Hanford Operations	(509) 376-85
H. H. Aronson	Yakima Indian Nation	(303) 794-79
Russell Jim	Yakima Indian Nation	(509) 865-51
Jack Wittman	Yakima Indian Nation	(509) 865-51
Georges V. Abi-Ghanem	EWA/Yakima Indian Nation	(612) 332-0C
Ray W. Wuolo	EWA/Yakima Indian Nation	(612) 332-0C
Ellen Caywood	Washington State Institute for Public Policy	(206) 866-6C Extension 64
Don Provost	Washington State Department of Ecology	(206) 459-6C

Attachment 4

BASALT WASTE ISOLATION PROJECT
QUARTERLY TECHNICAL UPDATE MEETING
JANUARY 14-15, 1987

AGENDA

Wednesday, January 14, 1987

8:30 a.m.	Introductory Remarks	M. L. Powell
8:40 a.m.	Overview of Basalt Waste Isolation Project Status	O. L. Olson
9:00 a.m.	Exploratory Shaft Schedule	R. A. Holten
9:15 a.m.	Site Characterization Plan - SCP Status Report	J. E. Mecca
10:00 a.m.	BREAK	
10:15 a.m.	Site Characterization Plan - (Continued) Status of Issues Resolution Process	J. E. Mecca
11:00 a.m.	SCP Investigations and Study Plans	T. A. Curran
12:00 p.m.	LUNCH BREAK	
1:00 p.m.	Current Geosciences Activities Update	K. M. Thompson
1:30 p.m.	SCP Data Chapters	
	Chapter 1 - Geology	S. M. Price
	Chapter 2 - Geoengineering	K. Kim
	Chapter 3 - Hydrology	S. M. Baker
	Chapter 4 - Geochemistry	M. J. Furman
	Chapter 5 - Climatology	K. R. Simpson
2:45 p.m.	BREAK	
3:00 p.m.	Repository Conceptual Design Report	B. L. Nicoll
3:30 p.m.	SCP Quality Assurance Section 8.6	R. P. Saget/ R. K. Ramsgate
4:30 p.m.	ADJOURN	

AGENDA

Thursday, January 15, 1987

8:30 a.m.	Yakima Program Update	
9:00 a.m.	State of Washington Department of Ecology Update	
9:30 a.m.	BREAK	
9:45 a.m.	Nez Perce Program Update	
10:15 a.m.	CTUIR Program Update	
10:45 a.m.	State of Washington WSIPP Update	
11:15 a.m.	Quality Assurance Overview - Definitions - Status of SWO - Role of Technical Peer Review	R. P. Saget
12:00 p.m.	LUNCH BREAK	
1:30 p.m.	Quality Assurance Overview (Continued)	R. P. Saget
4:30 p.m.	ADJOURN	

January 12, 1987

BASALT WASTE ISOLATION PROJECT

QUARTERLY TECHNICAL UPDATE MEETING

JANUARY 14-15, 1987

Basalt Waste Isolation Project
Quarterly Technical Update Meeting
January 14-15, 1987
Final Agenda

Wednesday

8:30 a.m.	Introductory Remarks	M. L. Powell
8:40 a.m.	Overview of Basalt Waste Isolation Project Status	O. L. Olson
9:00 a.m.	Exploratory Shaft Schedule	R. A. Holten
9:15 a.m.	Site Characterization Plan - SCP Status Report	J. E. Mecca
10:00 a.m.	BREAK	
10:15 a.m.	Site Characterization Plan - Status of Issue Resolution Process	J. E. Mecca
11:00 a.m.	SCP Investigations and Study Plans	T. A. Curran
12:00 p.m.	LUNCH BREAK	

Final Agenda

Wednesday (cont.)

1:00 p.m.	Current Geosciences Activities Update	K. M. Thompson
1:30 p.m.	SCP Data Chapters	
	Chapter 1 Geology	S. M. Price
	Chapter 2 Geoengineering	K. Kim
	Chapter 3 Hydrology	S. M. Baker
	Chapter 4 Geochemistry	M. J. Furman
	Chapter 5 Climatology and Meteorology	K. R. Simpson
2:45 p.m.	BREAK	
3:00 p.m.	Repository Conceptual Design Report	B. L. Nicoll
3:30 p.m.	SCP Quality Assurance Section 8.6	R. P. Saget/ R. K. Ramsgate
4:30 p.m.	ADJOURN	

Final Agenda (cont.)

Thursday

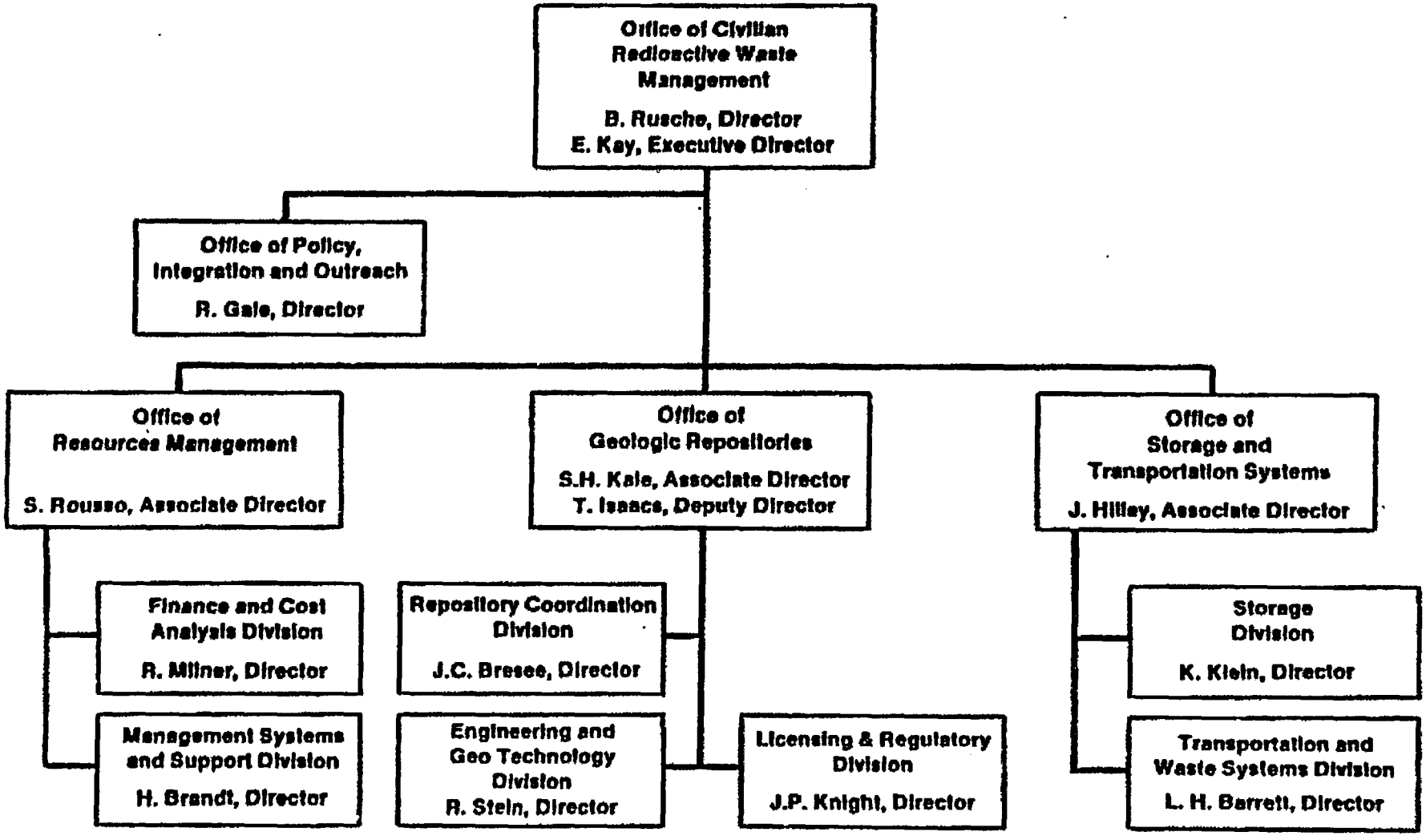
8:30 a.m.	Yakima Program Update	
9:00 a.m.	State of Washington Department of Ecology Update	
9:30 a.m.	BREAK	
9:45 a.m.	Nez Perce Program Update	
10:15 a.m.	CTUIR Program Update	
10:45 a.m.	State of Washington WSIPP Update	
11:15 a.m.	Quality Assurance Overview - Definitions - Status of SWO - Role of Technical Peer Review	R. P. Saget
12:00 p.m.	LUNCH BREAK	
1:30 p.m.	Quality Assurance Overview (cont.)	R. P. Saget
4:30 p.m.	ADJOURN	

PROJECT OVERVIEW

O. L. OLSON

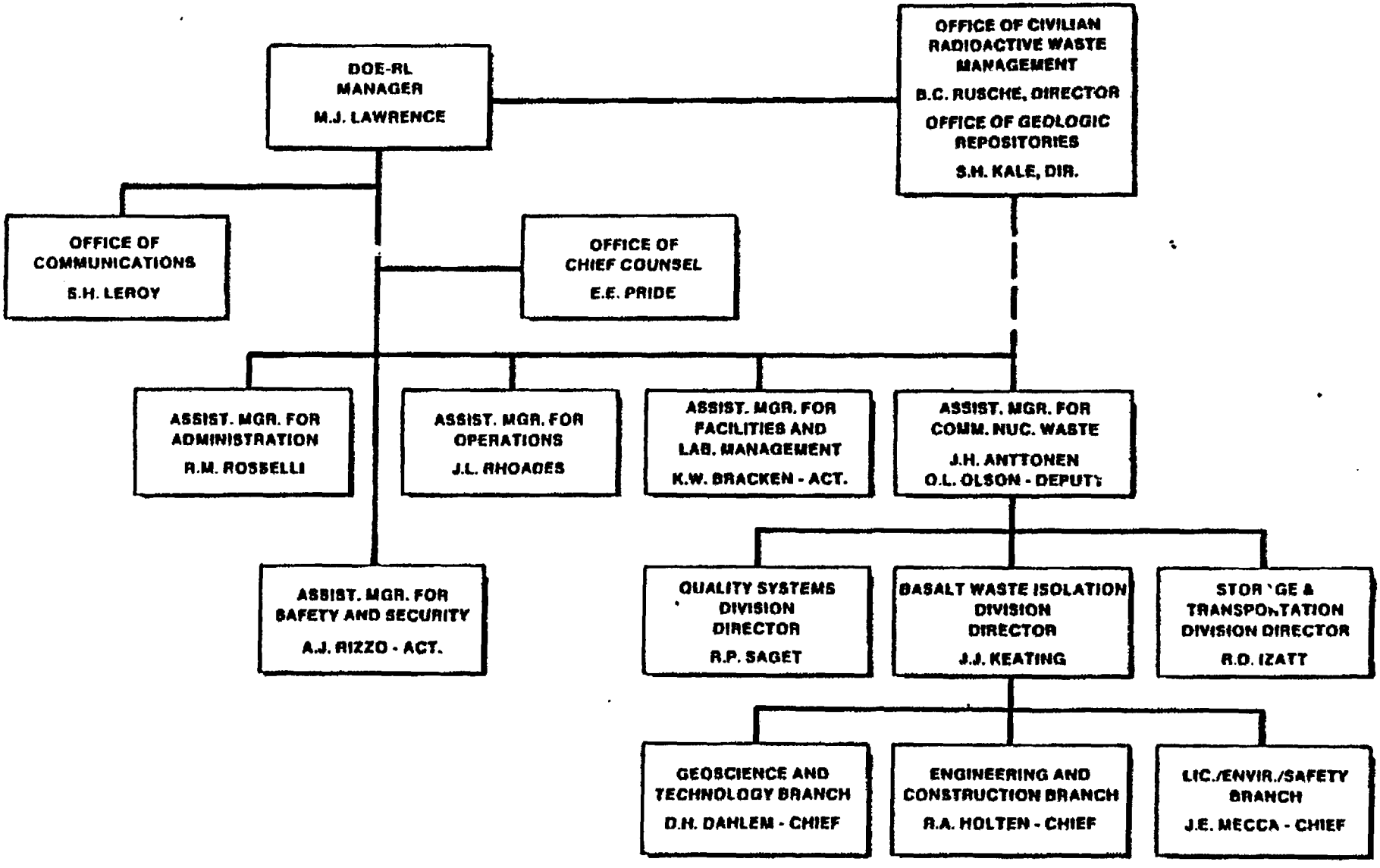
U.S. DEPARTMENT OF ENERGY

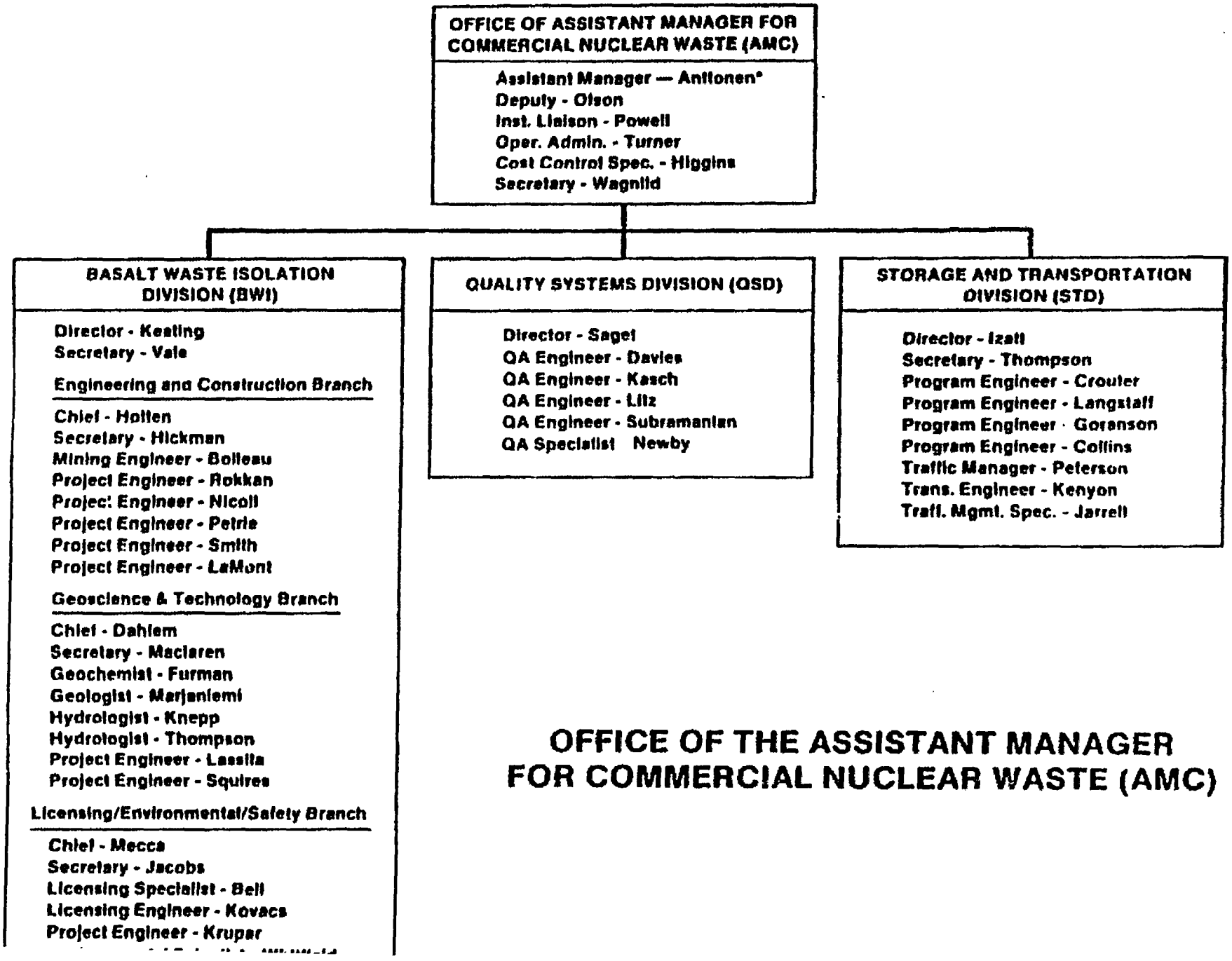
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT



BASALT WASTE ISOLATION PROJECT

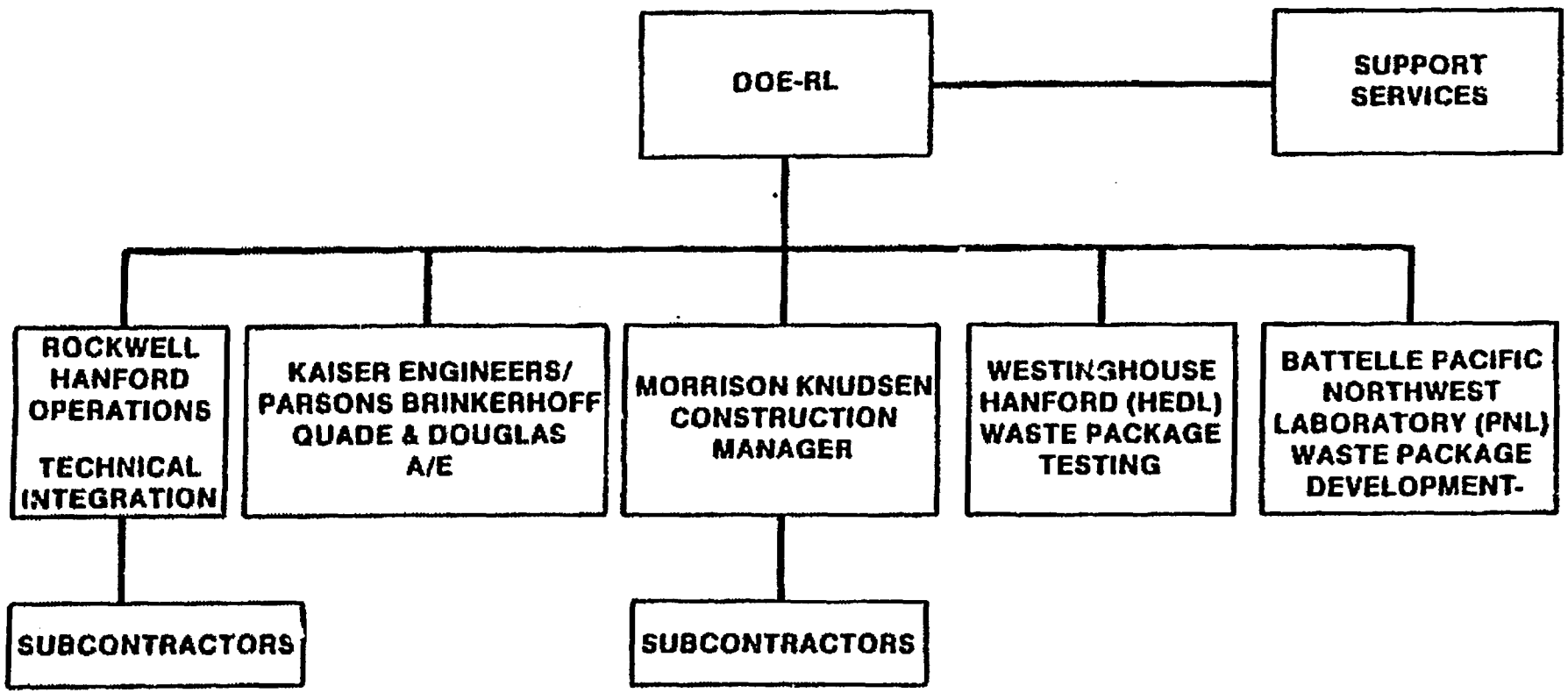
PROJECT MANAGEMENT ORGANIZATION



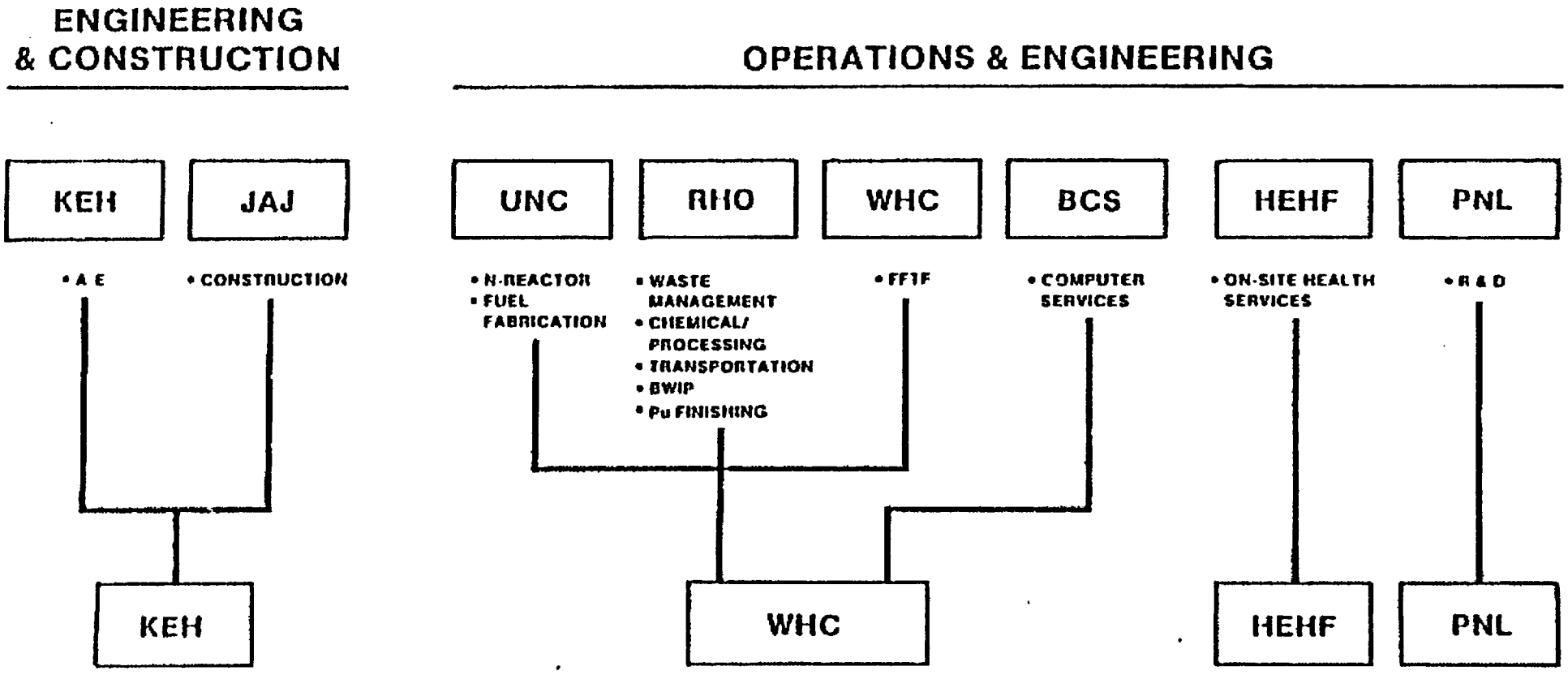


OFFICE OF THE ASSISTANT MANAGER FOR COMMERCIAL NUCLEAR WASTE (AMC)

BWIP
MAJOR CONTRACTORS



HANFORD CONTRACTORS



MAJOR TECHNICAL ACTIVITIES

- Characterization of basalt site
  - Preparation of Site Characterization Plan
  - Construction of Exploratory Shaft Facility
  - Conduct appropriate test
- Waste package technology development and design
- Repository design

OTHER ACTIVITIES

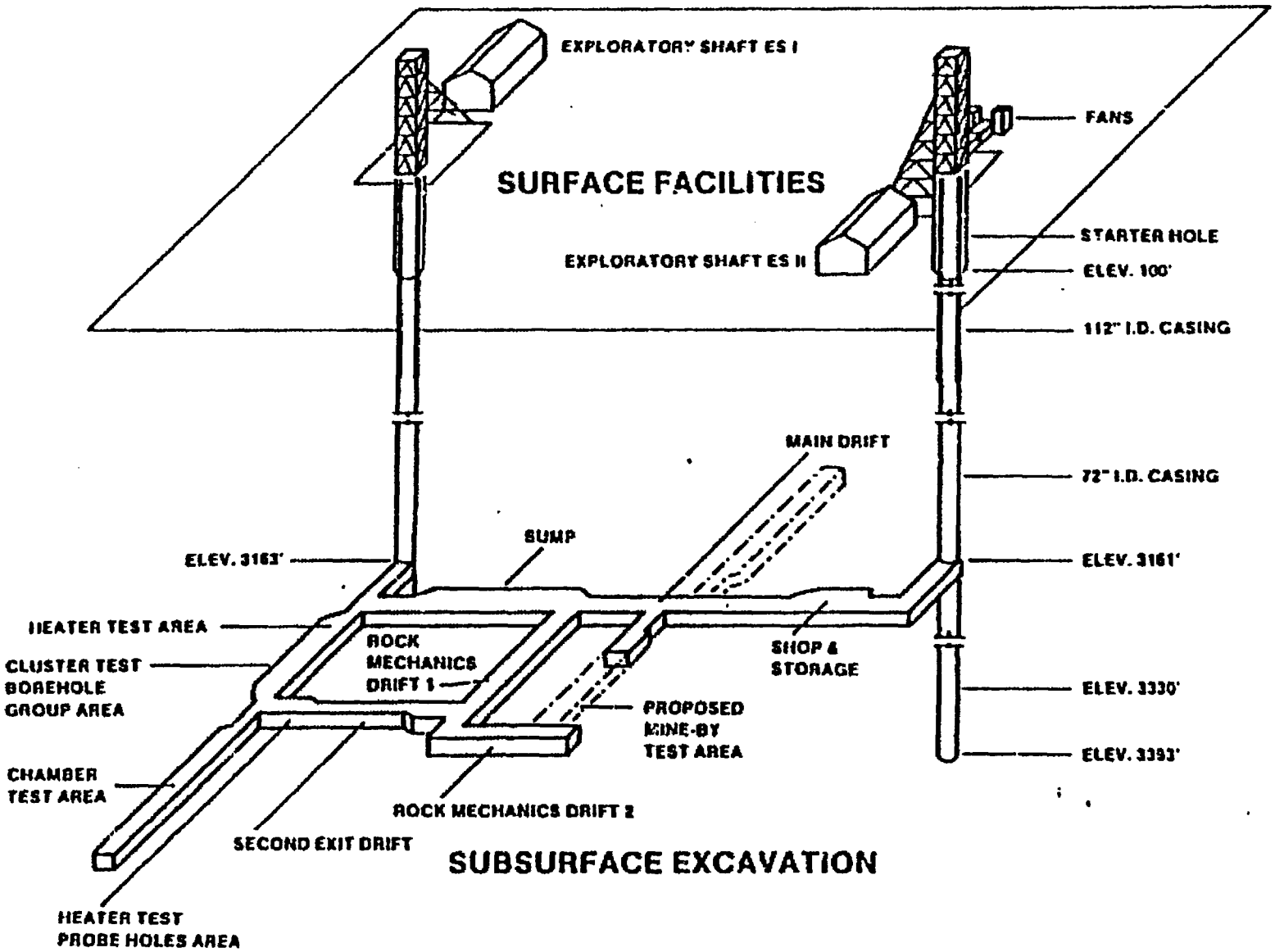
- QA program
- Project management systems
- Site relationships
- HQ/RL guidance
- Outreach and public relations

EXPLORATORY SHAFT SCHEDULE

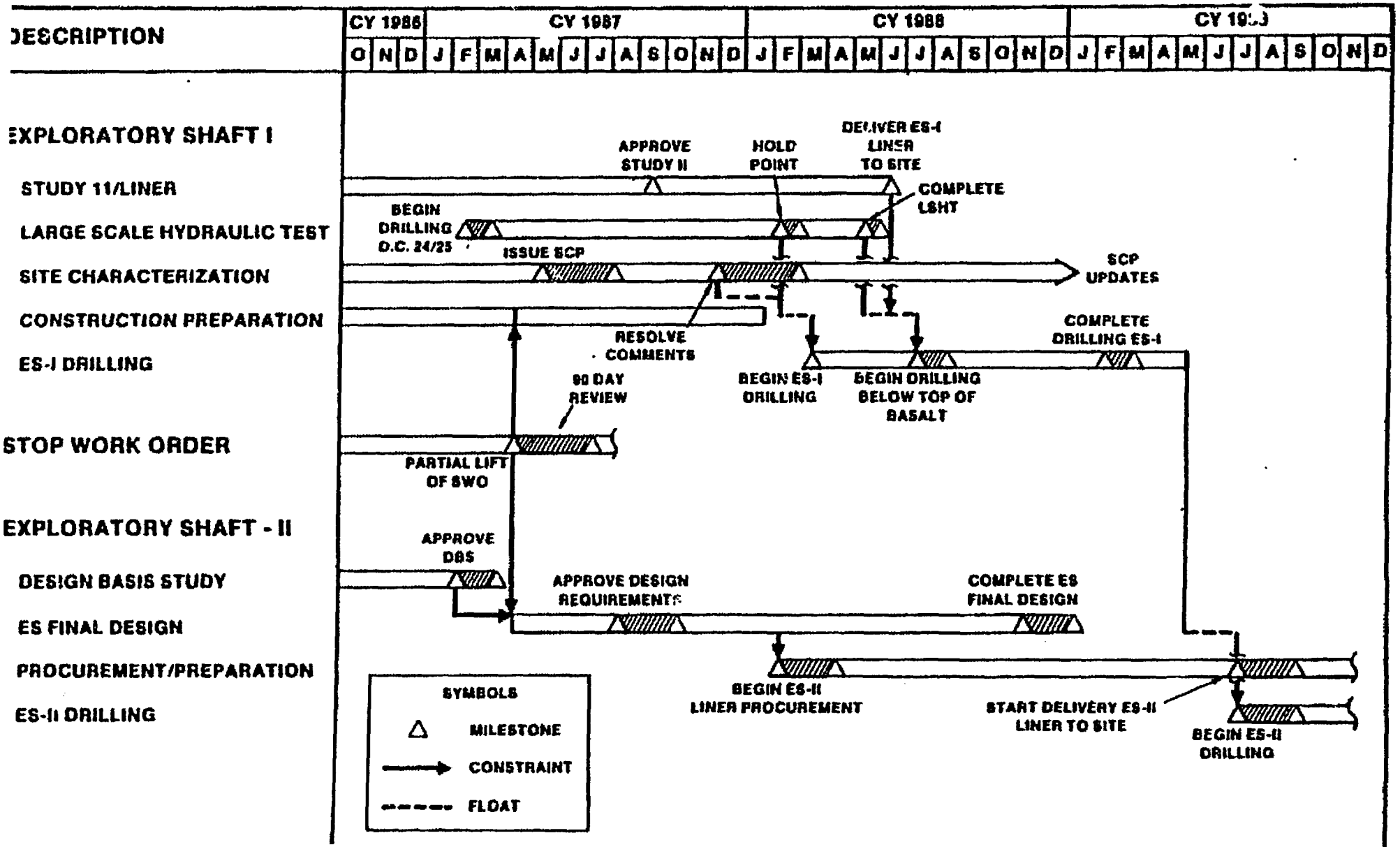
R. A. HOLTEN

U.S. DEPARTMENT OF ENERGY

FACILITY ISOMETRIC



EXPLORATORY SHAFT SCHEDULE



SITE CHARACTERIZATION PLAN STATUS REPORT

J. E. MECCA

U.S. DEPARTMENT OF ENERGY

DISCUSSION

- Control
- Documentation
- Schedule
- Summary

SITE CHARACTERIZATION PLAN CONTROL

- Annotated outline
- DP-2.8 documentation preparation procedure
- Management plan
- HQ/RL guidance
- Weekly reports and meetings

CONTROL OF LICENSING DOCUMENTS
(D.P.-2.8)

- Purpose - to establish the requirements and responsibilities for the review, approval, and issuance of licensing documents
- Defines requirements for review, consistency, references, verification, and changes
- Defines responsibilities for the division director, licensing chief, technical branches, and others as appropriate
- Provides the procedures to be followed and functions to be fulfilled to carry out the above requirements and execute the responsibilities
- For a document as big and as complicated as the SCP, the road map to execute the above is usually expressed in memos, guidance, and management plans

SITE CHARACTERIZATION PLAN MANAGEMENT PLAN

- Plan description
- Appendices address
  - All relevant procedures (RHO)
  - Issue resolution strategies directives
  - Description/guidance for assurance review
  - Responsibilities and personnel listings
  - Headquarters management plan
  - Chronology of guidance
  - Coordinating group charter and minutes
  - Organization charts and flow diagrams

GUIDANCE

1985

- 5 guidance packages and memos
- All HQ to RL to RHO
- Content - deals mainly with graded Q-list, administrative records, and SCP annotated outline

1986

- 56 guidance packages and memos
- 21 RL to RHO
- 35 HQ to RL to RHO
- Content - deals with all facets of the SCP and specific pieces thereto, such as the CDR's (repository design and waste package) and issue resolution strategies (performance allocation)
- Since July 24 alone, 22 HQ guidance packages have had to be dealt with

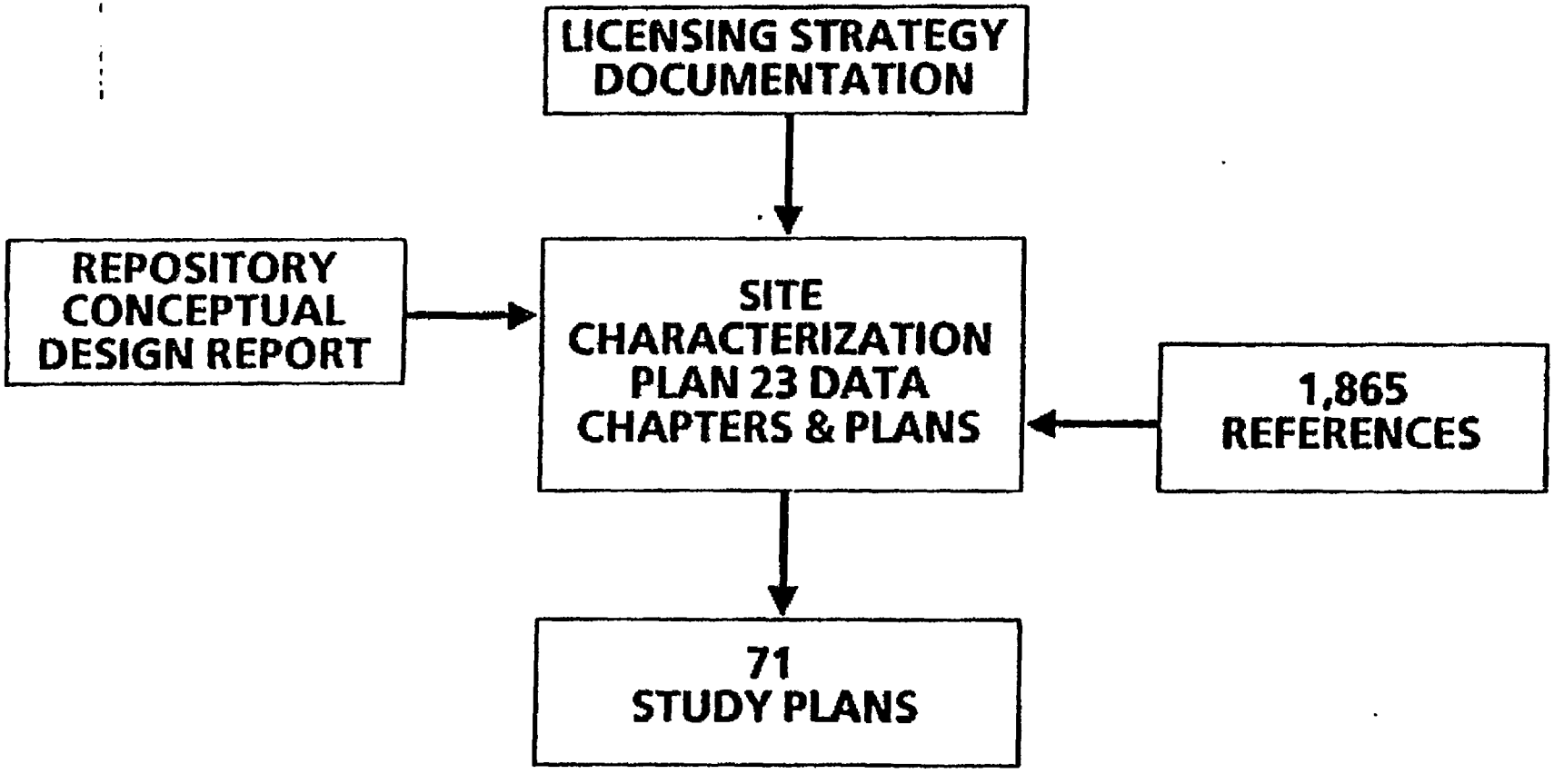
WEEKLY STATUS REPORTS

- Resolution of issues
- Production
- Reviews
- Administrative
  - Agreements/guidance
  - Schedule shifts
  - Problem synopsis
- Attachments
  - Schedule update
  - Restructured review plan
  - Comment/resolution meeting minutes

SITE CHARACTERIZATION PLAN DOCUMENTATION

- Statistics
- Status
  - Current progress
  - Schedule for near-term draft 3 product
  - Allocation schedule
  - Impact of performance allocation
  - Study plans

SITE CHARACTERIZATION PLAN DOCUMENTATION STATISTICS AND STATUS



STATUS PROGRESS

- All chapters/sections through first reviews (control draft 0 issued)
- Chapters/sections reaching DOE-HQ review stage (chapters 1, 2, 4, 5, sections 8.6, 8.7)
- Drafts are in a condition such that they could be made available to outside parties upon resolution of draft 2 commentary

SCHEDULE

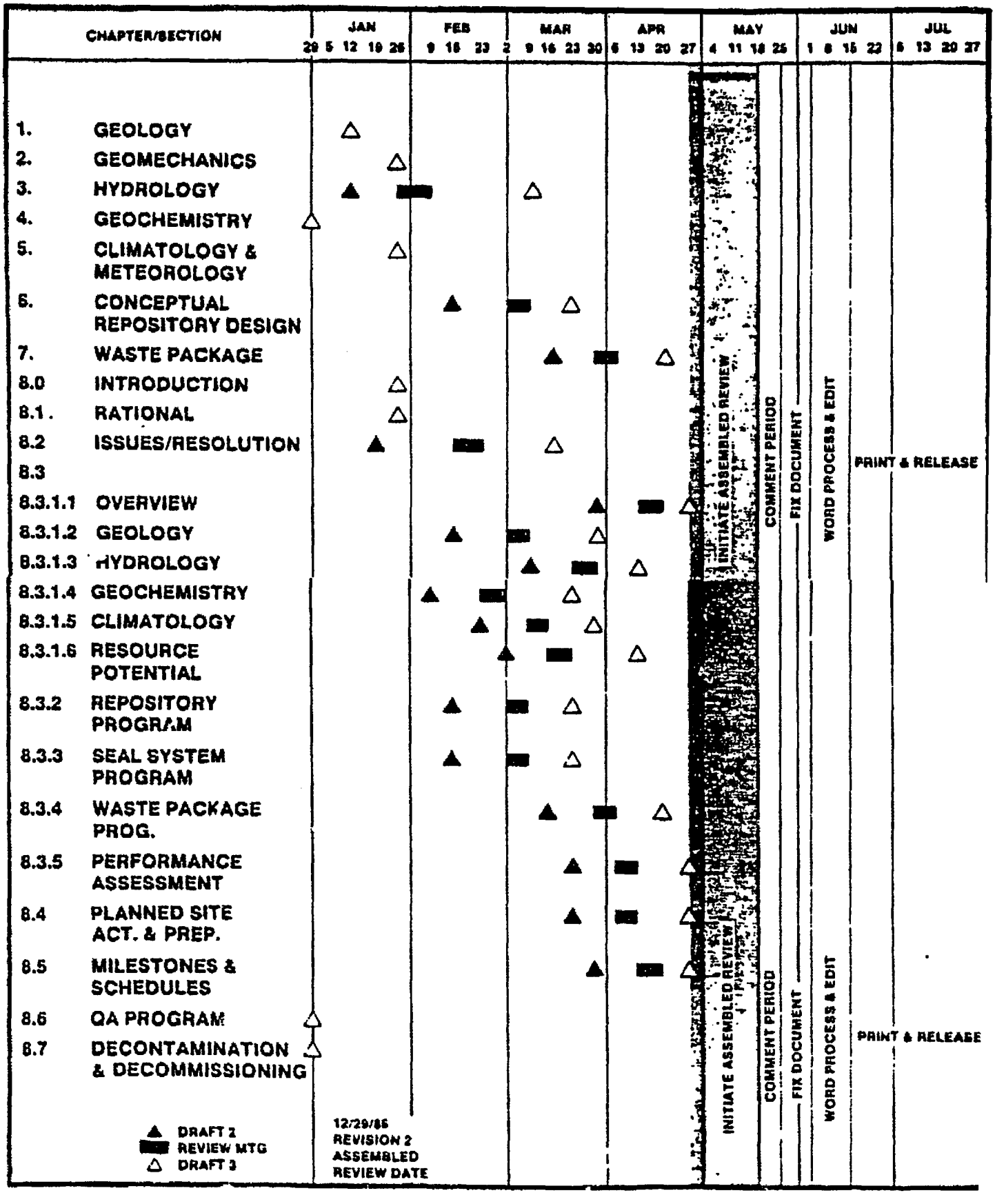
	Chapter/section	Length (in pages)	Anticipated completion date
8.6	Quality Assurance	100	12/15/86
8.7	Decontamination and decommissioning	20	12/15/86
4	Geochemistry	300	12/31/86
1	Geology	750	01/15/87
5	Climatology and meteorology	400	01/31/86*
2	Geoengineering	400	01/31/87*

*Assumes a moderate level of comment incorporation is required.

SUMMARY OF BWIP SCP SCHEDULE HISTORY

Time projection was made	Projected concurrence date	Remarks
Spring 1986	1/19/87	• Optimistic schedule • No allowance made for holidays • Thrust of effort modified by major guidance provided in the May 7-8 meeting with NRC
Summer 1986	2/09/87	• Extensive commentary on initial drafts required additional time for comment incorporation • Implementation of additional guidance required substantial text revisions
Winter 1986	6/15/87	• Comment resolution meeting on section 8.2 demonstrated need for additional work on IRS and performance allocation • Work on 8.3.x sections suspended pending completion of IRS • Restructuring of review cycle necessary to accommodate chapter reviews in Washington, D.C. • Waste package strategy revisions require major rewrite of chapter 7 and section 8.3.4

PROPOSED SCHEDULE REVISION 3



SUMMARY

- SCP control is designed to
  - Provide the SCP with the proper information and references that fulfill the regulatory requirements
  - Provide timely feedback for the solution of problems
  - Provide a technically defensible and quality product with the described administrative record
- SCP schedule
  - Evolution, changes, guidance, and other reasons have moved the date for the assembled SCP from January 1, 1987 to April 27, 1987
  - Concurrence (camera-ready) copy available by June 15, 1987
  - Printed public release copy available by July 17, 1987

SUMMARY (CONT.)

- Scope of central activities
  - Finalize to the satisfaction of all parties the issue resolution strategies by incorporation of defensible goals, targets, confidence limits, and performance allocations
  - Define and justify the hydrology strategy -- including presentation to the NRC technical staff
  - Assure incorporation of waste package strategy into the SCP consistent with the revised schedule
  - Finalize the design basis study recommendations and reflect in the SCP as appropriate

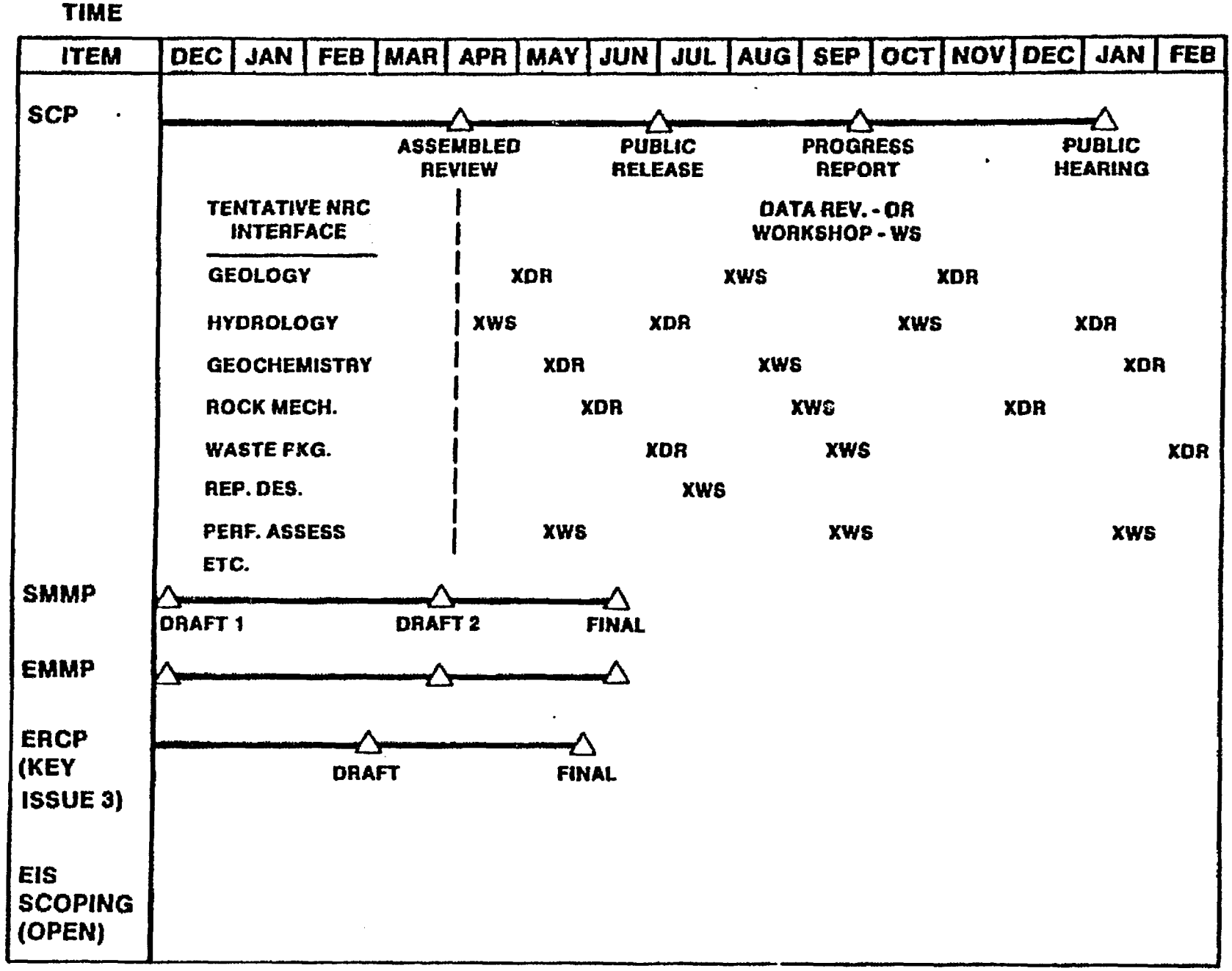
BASALT WASTE ISOLATION PROJECT PHILOSOPHY ON IMPLEMENTING THE SITE CHARACTERIZATION PLAN

- SCP required per the Nuclear Waste Policy Act
- Issue of the SCP to states, tribes, the NRC, and others for information as soon as possible
- Issue of the SCP to states, tribes, the NRC, and others for review and comment
- Discussion of the SCP and comments to be received through technical reviews and written comments by public interactions such as hearings, and possible NRC workshops
- Comments received may be incorporated by changed pages, by a comment/resolution appendix, or other method

BASALT WASTE ISOLATION PROJECT PHILOSOPHY ON IMPLEMENTING THE SITE CHARACTERIZATION PLAN (CONT.)

- Detailed site characterization activities will include
  - Exploratory Shaft construction and testing
  - Repository licensing application design
  - Waste package waste/rock/water interaction hot cell testing
  - Continued geology/hydrology field and laboratory testing
  - Continued investigation of thermomechanical rock properties and seismic monitoring
  - Others

TENTATIVE LICENSING SCHEDULE



SITE CHARACTERIZATION PLAN

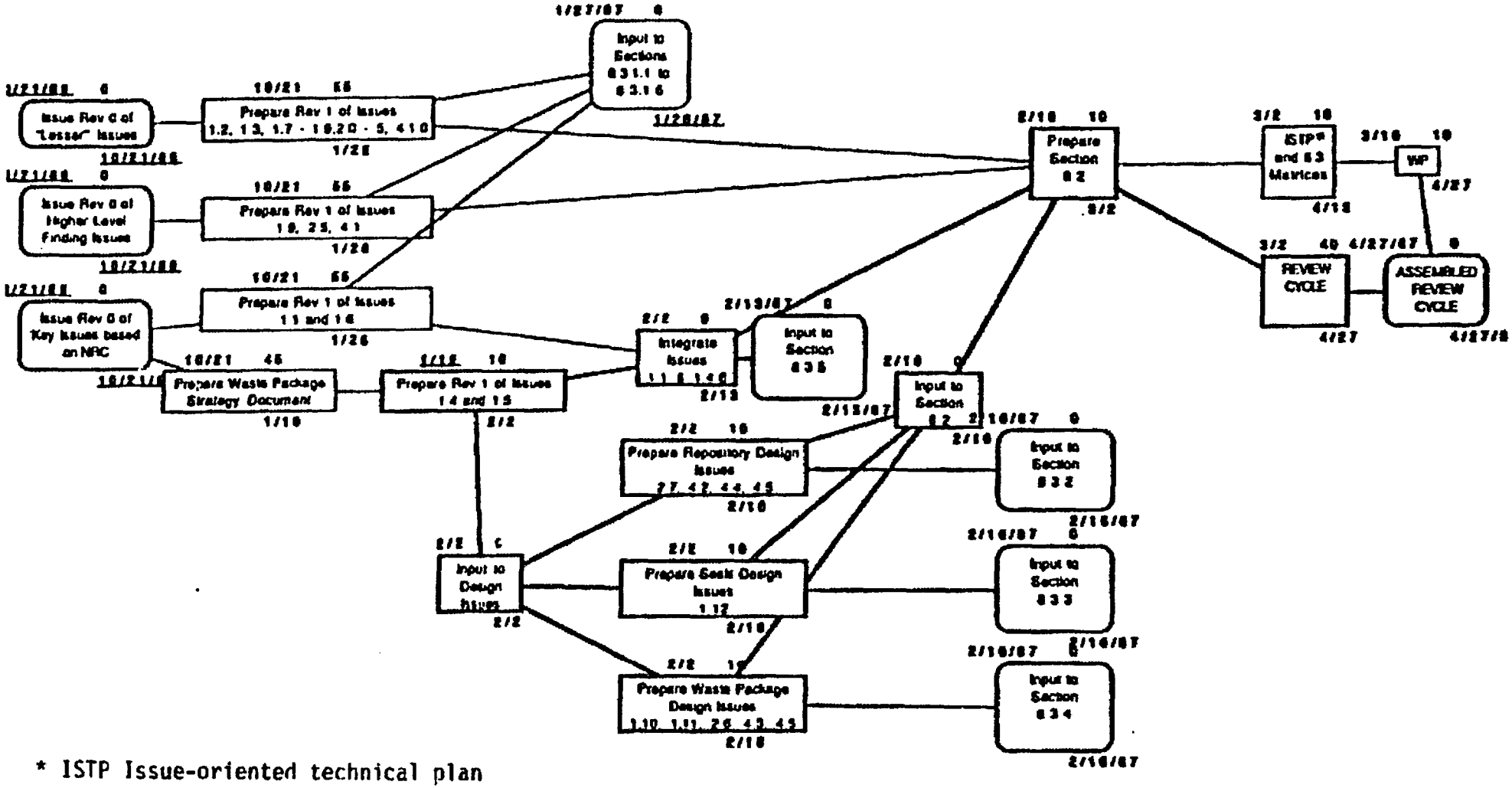
STATUS OF ISSUE RESOLUTION PROCESS

J. E. MECCA

U.S. DEPARTMENT OF ENERGY

SCHEDULE FOR
PREPARATION OF REV.1 OF ISSUES RESOLUTION
AND PROVISION OF INPUT TO
THE SITE CHARACTERIZATION PLAN

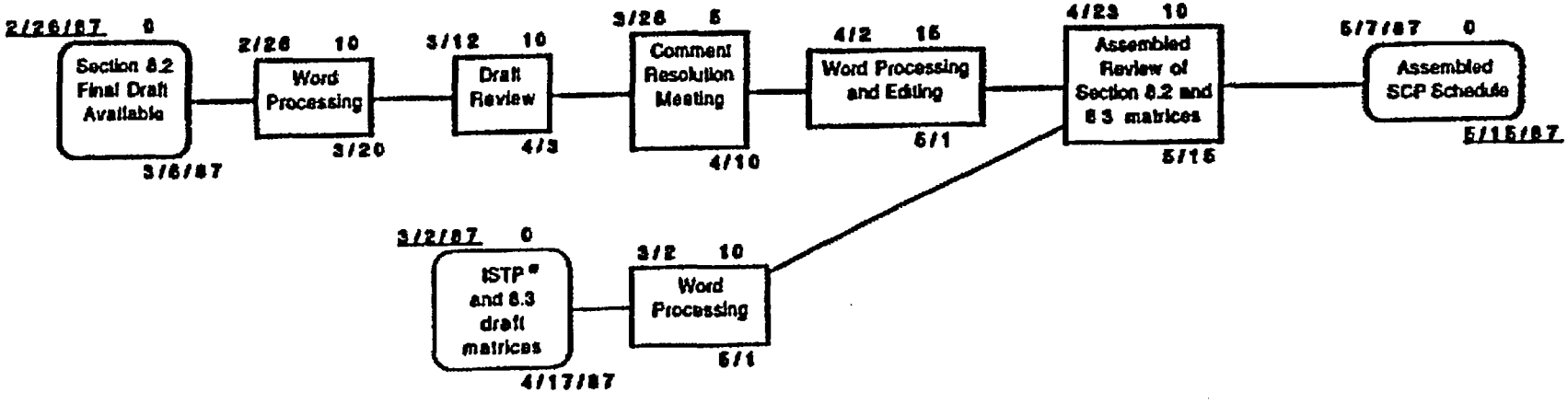
Prepared 12/30/86



* ISTP Issue-oriented technical plan

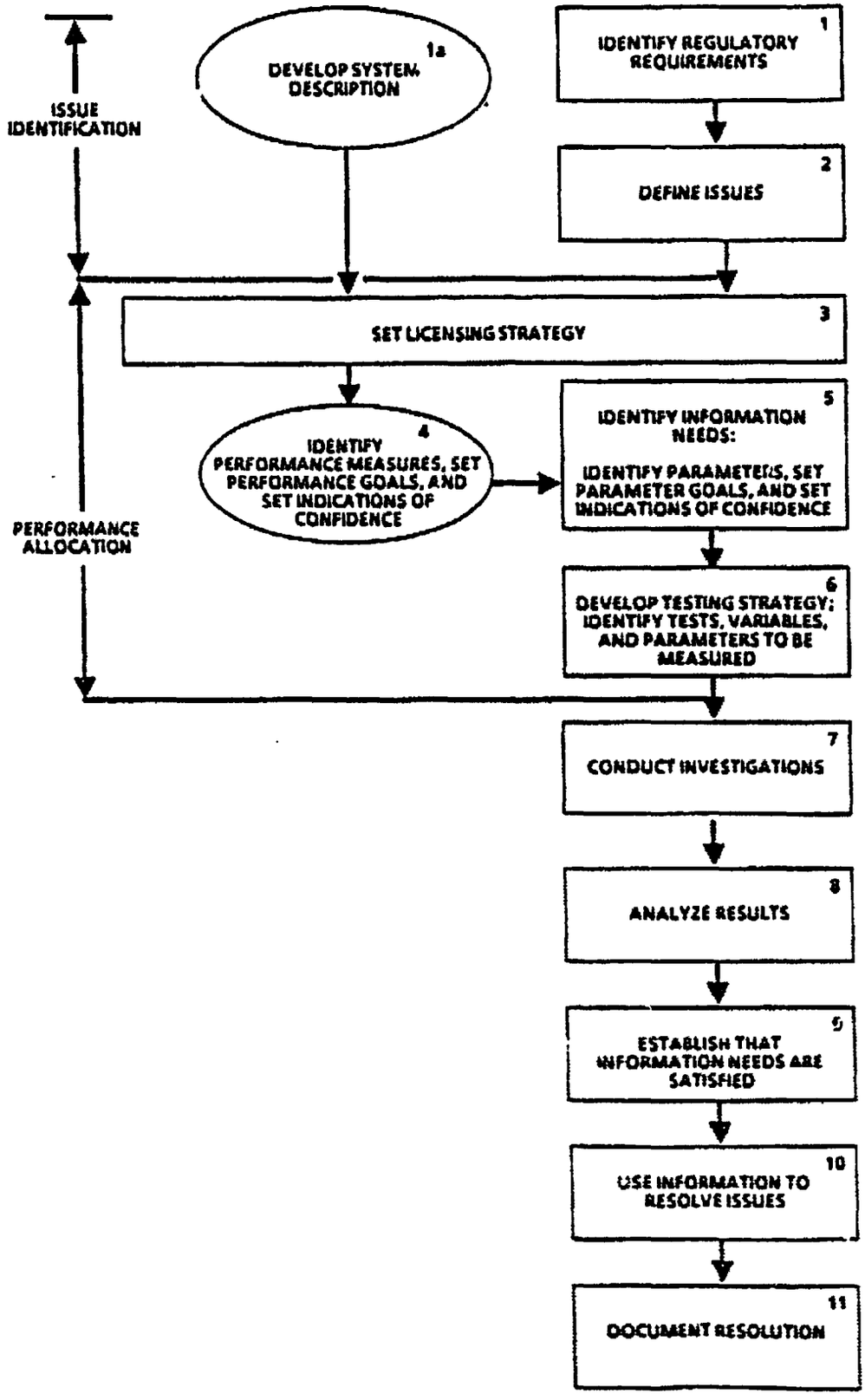
REVIEW SCHEDULE
FOR
SECTION 8.2,
ISTP & 8.3 MATRICES

Prepared 12/18/86



*ISTP Issue-oriented technical plan

ISSUE RESOLUTION STRATEGIES



BASALT WASTE ISOLATION PROJECT ISSUE RESOLUTION STRATEGIES PRODUCTION STATUS AS OF 12/31/86

Issue Number	Issue strategy short title	Estimated % Complete
1.1	Cumulative release to the accessible environment	90%
1.2	Individual protection	30%
1.3	Groundwater protection	10%
1.4	Container life	*
1.5	Radionuclide release rate limits	*
1.6	Prewaste emplacement groundwater travel time	80%
1.7	Performance confirmation	10%
1.8	U.S. Nuclear Regulatory Commission favorable and adverse conditions	*
1.9.0	U.S.Department of Energy postclosure site comparisons	30%
1.9.1	Postclosure geohydrology	30%
1.9.2	Postclosure geochemistry	80%
1.9.3	Postclosure rock characteristics	90%
1.9.4	Postclosure climatology	40%
1.9.5	Postclosure erosion	30%
1.9.6	Postclosure dissolution	10%
1.9.7	Postclosure tectonics	85%
1.9.8	Postclosure human interference	20%
2.1	Radiological safety of the public	10%
2.2	Radiological safety of the workers	*
2.4	Waste retrieval	*
2.5.0	U.S. Department of Energy preclosure radiological comparisons	*
2.5.1	Population density and distribution	*
2.5	Site ownership and control	*
2.5.3	Meteorology	*
2.5.4	Offsite installations and operations	*
4.1.0	U S. Department of Energy preclosure site and engineering comparisons	75%
4.1.1	Ease and cost of construction	*
4.1.2	Surface characteristics	10%
4.1.3	Preclosure rock characteristics	*
4.1.4	Preclosure hydrology	*
4.1.5	Preclosure tectonics	*

*Exempted till 2.1 and 4.1.2 formats are agreed upon.

SITE CHARACTERIZATION PLAN

INVESTIGATIONS AND STUDY PLANS

T. A. CURRAN

ROCKWELL HANFORD OPERATIONS

SECTION 8.3 TEST PLANNING

*8.3.1 Site

*8.3.2 Repository

*8.3.3 Seals

*8.3.4 Waste Package

8.3.5 Performance Assessment

*SCP sections that include investigations/studies

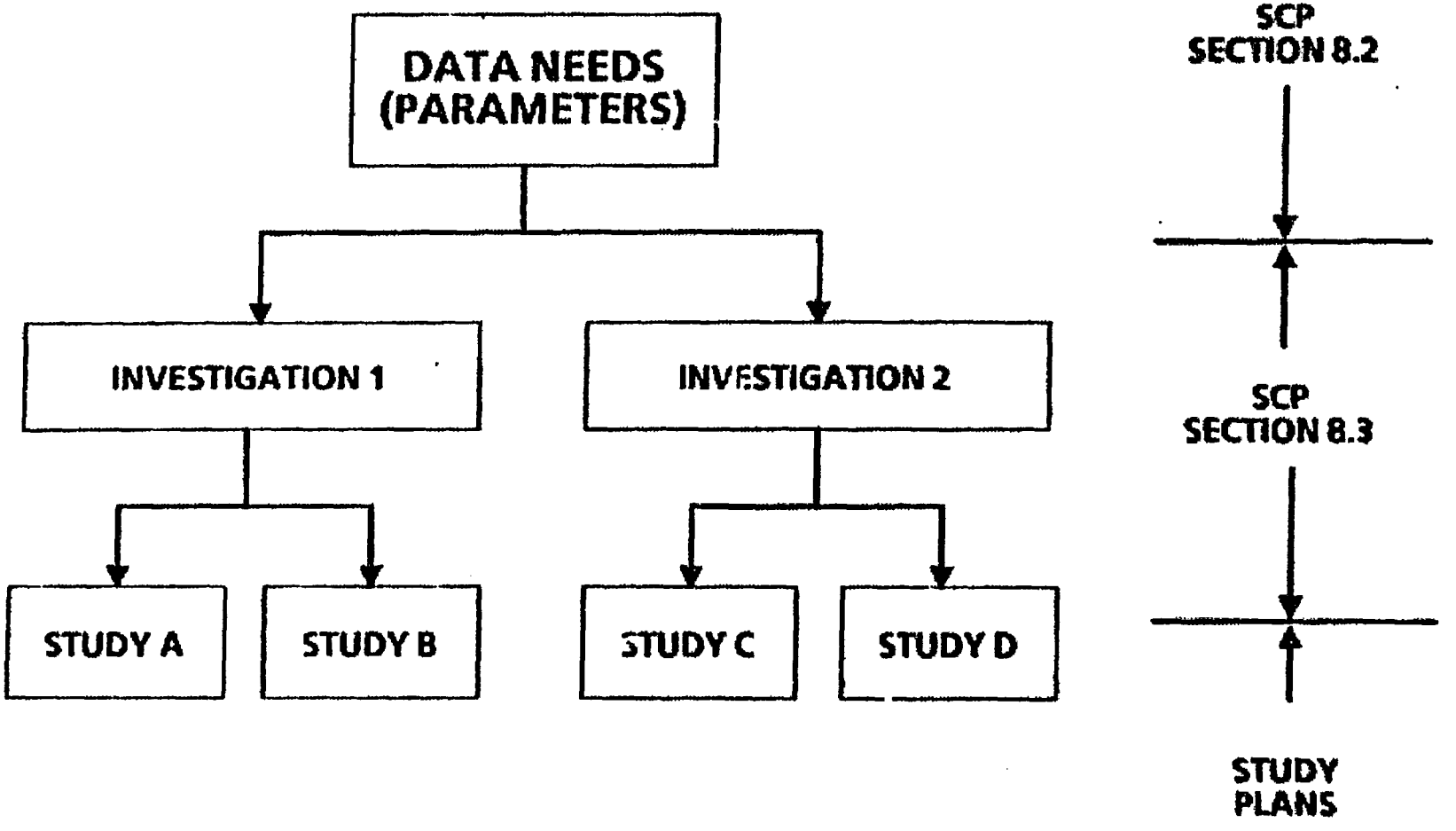
SCP TEST PROGRAM HIERARCHY

Hierarchial Terms	Level of Detail	Planning Document
Program (generic)		
Program (specific)	Higher level	Site Characterization Plan
Investigation		
Study		Study plans
Test analysis	Lower level	Test procedure
Procedure		

EXAMPLE OF SITE CHARACTERIZATION ELEMENTS

Site program (generic)	Program
Geology program (specific)	Program
Stratigraphic and structural model development	Investigation
Structural geology	Study
Outcrop mapping of Rattlesnake Hills	Test
Geologic mapping technical procedure	Procedure

DERIVATION OF INVESTIGATIONS/STUDIES



SECTION 8.3.1 SITE

8.3.1.2 GEOLOGY

Stratigraphic and Structural Model Development

- Stratigraphy
- Structural geology
- Intraflow structures
- Cooling joint characteristics

Mineralogic and Petrologic Characterization

- Mineralogic and petrologic characterization

Tectonic Events and Processes

- Deformation
- Earthquake seismology
- Tectonic model development

SECTION 8.3.1 SITE (cont.)

8.3.1.3 HYDROLOGY

Surface Water Investigation

- Surface water system
- Site flooding

Groundwater Investigation

- Regional groundwater
- Site groundwater

SECTION 8.3.1 SITE (cont.)

8.3.1.4 GEOCHEMISTRY

Hydrochemistry

- Groundwater flow system hydrochemistry
- Groundwater redox

Radionuclide Retardation

- Radionuclide reactivity

8.3.1.5 CLIMATOLOGY

Paleoclimate

- Paleoclimate

Future Climate

- Future climate

SECTION 8.3.1 SITE (cont.)

8.3.1.6 RESOURCE POTENTIAL

Mineral, hydrocarbon, and geothermal resource potential

- Mineral, hydrocarbon, and geothermal resource potential

Water Resource Potential

- Water resource potential

SECTION 8.3.2 REPOSITORY

8.3.2.2 VERIFICATION OF MEASUREMENT OF HOST ROCK ENVIRONMENT

Geomechanical Characteristics of the Host Rock

- In situ stress determination
- Thermal/thermomechanical properties determinations
- Mechanical properties determinations
- Evaluation of opening performance stability

SECTION 8.3.2 REPOSITORY (cont.)

8.3.2.3 COUPLED INTERACTION TESTS

Two-Fold Interactions in Repository Program

- **Hydromechanical interactions**

Three- and Four- Fold Interactions in Repository Program

- **Thermomechanical-chemical interactions**
- **Thermohydromechanical interactions**
- **Thermohydromechanical-chemical interactions**

SECTION 8.3.2 REPOSITORY (cont.)

8.3.2.5 REPOSITORY MODELING

Constitutive Modeling

- Constitutive model development
- Constitutive model validation

SECTION 8.3.3 SEALS

8.3.3.3 SEALS SUBSYSTEM COMPONENT AND INTERACTIONS TESTING

Laboratory Testing For Seals Materials Properties and Interactions

- Optimization of reference seals materials
- Effects of elevated temperatures on physical properties of reference seals materials
- Long-term stability of reference seals materials
- Exploratory Shaft grout development
- Characterization of reference seals materials
- Interface properties of reference seals materials

8.3.3.3 SEALS SUBSYSTEM COMPONENT AND INTERACTIONS TESTING (cont.)

Field Testing For Seals Materials Properties and Demonstration of Emplacement Methods

- **Demonstration of subsurface borehole seals installation**
- **Demonstration of drift seals installation**

8.3.3.3 SEALS SUBSYSTEM COMPONENT AND INTERACTIONS TESTING (cont.)

In Situ Testing for Verification of Seals Properties and Emplacement Methods

- Demonstration of subsurface borehole seals performance
- Demonstration of surface borehole seals installation and performance
- Demonstration of drift seals performance
- Demonstration of shaft seals installation and performance
- Characterization of the damaged rock zone sealing
- Characterization of emplaced shaft liner grout

SECTION 8.3.4 WASTE PACKAGE

8.3.4.2 WASTE PACKAGE ENVIRONMENT

Postemplacement Environment Characterization

- Waste package environment: Basalt/ groundwater interactions
- Waste package environment: Geochemical environment analysis

Natural Analogs and Metallic Artifacts

- Waste package natural analogs
- Waste package metallic artifacts

SECTION 8.3.4 WASTE PACKAGE (cont.)

8.3.4.3 WASTE PACKAGE COMPONENTS AND INTERACTION TESTING

Waste Forms

- Waste form test materials
- Waste form/filler materials interactions
- Waste acceptance specifications

8.3.4.3 WASTE PACKAGE COMPONENTS AND INTERACTION TESTING (cont.)

Container Materials Testing

- Container materials testing: General corrosion
- Container materials testing: Pitting corrosion
- Container materials testing: Crevice corrosion
- Container materials testing: Environmentally assisted cracking
- Container materials testing: Mechanical and physical properties

8.3.4.3 WASTE PACKAGE COMPONENTS AND INTERACTION TESTING (cont.)

Packing Materials Testing

- Packing materials testing: Chemical stability
- Packing materials testing: Physical properties and processes

Waste Package Radionuclide Behavior

- Radionuclide solubility/sorption and specification behavior
- Waste/barrier/rock interactions: Spent fuel release testing
- Waste/barrier/rock interactions: Borosilicate glass release
- Waste/barrier/rock interactions: Other waste forms testing

SECTION 8.3.4 WASTE PACKAGE (cont.)

8.3.4.4 WASTE PACKAGE DESIGN DEVELOPMENT

Container Development

- Pressure vessel container development
- Monolith container development
- Container handling and safety testing

Packing Development

- Packing fabrication
- Packing nondestructive examination
- Packing, handling, and emplacement

8.3.4.4 WASTE PACKAGE DESIGN DEVELOPMENT (cont.)

Qualification Testing

- Container corrosion qualification test
- Packing saturation qualification test
- Container settlement test
- Waste package in situ test

Study Plan Summary

Total study plans identified	71
To be completed before or with the SCP	53
To be completed after the SCP	18

GEOSCIENCES ACTIVITIES UPDATE

K. M. THOMPSON

U.S. DEPARTMENT OF ENERGY

GENERAL GEOSCIENCES ACTIVITIES

- SCP data chapters prepared (information copies)
- Issue resolution strategies prepared
- SCP planning chapters prepared
- Study Plans prepared
- Restart activities conducted

GENERAL STOP WORK ORDER

- General stop work order issued May 1986
- Work in all but 6 exempted categories stopped
  - Monitoring
  - BWIP management or QA systems upgrade
  - Safety or maintenance programs supporting activities
  - Administrative activities
  - SCP activities
  - Other essential activities

GEOLOGY

- Document preparation and presentations
  - Geostatistical estimation of elevations within Cohassett Flow, RRL, being prepared
  - Interpretation of magnetotelluric data, Rattlesnake Mountain, Pasco Basin, being prepared
  - Seismic velocity structure in RRL from seismic refraction and vertical seismic profiling being prepared
  - Gravity and ground magnetics in the CASZ being prepared
  - Poster session on Iceland analog studies presented at Annual Geological Society of America Meeting
  - Magnetic properties paper presented at American Geophysical Union Meeting
- Seismic monitoring
  - Field calibration of BWIP seismic network completed
  - Seismic monitoring data collection continued
  - Meeting with UW held to discuss annual regional seismic surveillance report

HYDROLOGY

- Hydrology
  - Hydrology characterization strategy developed
  - Boreholes DC-24, -25 expedited special case report being prepared
  - Data base development continued
  - NRC data review held
  - Groundwater monitoring continued
- Hydrochemistry
  - Water sampling and chemical analyses in boreholes DC-23, DC-18 completed (through Wanapum Basalt)
  - NRC data review supported
  - Document preparation and presentations
    - Reactive tracer strategy document issued
    - Groundwater methane report completed
    - 3 papers presented at American Chemical Society Meeting in Anaheim
    - Borehole tracer paper presented at Annual Geological Society of America Meeting

GEOENGINEERING

- Review meeting with National Academy of Sciences/ National Research Council held
- Calibration work on thermal property testing apparatus performed

CLIMATOLOGY

- Quality Assurance plans and procedures for local climate modeling and fossil pollen (palynology) studies developed

GEOCHEMISTRY

- Redox testing continued
- Radiolysis testing continued

SITE CHARACTERIZATION PLAN
DATA CHAPTERS

- Chapter 1 Geology--S. M. Price
- Chapter 2 Geoengineering--K. Kim
- Chapter 3 Hydrology--S.M. Baker
- Chapter 4 Geochemistry--M.J. Furman
- Chapter 5 Climatology and Meteorology--K. R. Simpson

SITE CHARACTERIZATION PLAN DATA CHAPTERS

CHAPTER 1 GEOLOGY

S. M. PRICE

ROCKWELL HANFORD OPERATIONS

OBJECTIVES

- Develop stratigraphic and structural models for site
  - Support quantification of groundwater flow system
  - Provide basis for repository design
- Identify distribution of mineralogy and chemical composition
  - Support radionuclide migration models
  - Stratigraphic correlation
- Assess changes that may alter site performance
  - Geologic processes
  - Man-induced changes (resource potential)

CHAPTER 1 GEOLOGY

GEOLOGY INVESTIGATIONS AND STUDY PLANS

Stratigraphic and Structural Model Development

- Stratigraphy
- Structural geology
- Intraflow structures
- Cooling joint characteristics

Mineralogic and Petrologic Characteriazaiton

- Mineralogic and petrologic characterization

Tectonic Events and Processes

- Deformation
- Earthquake seismology
- Tectonic model development

Mineral, Hydrocarbon, and Geothermal Resource Potential

- Mineral, hydrocarbon, and geothermal resource potential
- Site groundwater

SITE CHARACTERIZATION PLAN DATA CHAPTERS

CHAPTER 2 GEOENGINEERING

K. KIM

ROCKWELL HANFORD OPERATIONS

OBJECTIVES

- Provide a compilation of geoengineering data available to date
- Present conceptual rock mass models by current data
- Define data uncertainties to identify further information needs

CHAPTER 2 GEOENGINEERING

2.0 Introduction

2.1 Mechanical properties of intact basalt

2.2 Mechanical properties of joint

2.3 Mechanical properties of rock mass

2.4 Thermal properties of intact basalt

2.5 Thermal properties of rock mass

2.6 Existing stress regime

2.7 Special geoengineering properties

2.8 Excavation characteristics

2.9 Summary

GEOENGINEERING INVESTIGATIONS AND STUDY PLANS

- Constitutive model development
- In situ stress characterization
- Mechanical properties
- Thermal/thermomechanical properties
- Opening performance observation
- Coupled effect

SITE CHARACTERIZATION PLAN DATA CHAPTERS

CHAPTER 3 HYDROLOGY

S. M. BAKER

ROCKWELL HANFORD OPERATIONS

OBJECTIVES

- Develop groundwater flow models of site and region
  - Determine spatial distributions of hydraulic and hydrochemical properties
  - Determine future natural and man-induced stresses on flow system
  - Develop analytical methods
  - Develop conceptual models
  - Assess flow system dynamics, groundwater travel times, radionuclide transport
  - Provide input to exploratory shaft, repository, waste package, and seal designs
- Evaluate surface hydrology of site and region
  - Quantify flash flood potential
  - Assess surface and groundwater fluid exchange
  - Provide input to conceptual models and surface facility designs

CHAPTER 3 HYDROLOGY

HYDROLOGY INVESTIGATIONS AND STUDY PLANS

Surface Water Investigation

- Surface water system
- Site flooding

Groundwater Investigation

- Regional groundwater
- Site groundwater

Groundwater Hydrochemistry Investigation

- Groundwater flow system hydrochemistry

SITE CHARACTERIZATION PLAN DATA CHAPTERS

CHAPTER 4 GEOCHEMISTRY

M. J. FURMAN

U.S. DEPARTMENT OF ENERGY

OBJECTIVE

Provide a compilation of presently understood geochemical information of the natural system

CHAPTER 4 GEOCHEMISTRY

GEOCHEMISTRY STUDY PLANS

- Mineralogic and petrologic characterization
- Groundwater flow system hydrochemistry
- Groundwater redox
- Radionuclide reactivity

SITE CHARACTERIZATION PLAN DATA CHAPTERS

CHAPTER 5 CLIMATOLOGY AND METEOROLOGY

K. R. SIMPSON

ROCKWELL HANFORD OPERATIONS

OBJECTIVES

- Identify and evaluate climatic change scenarios that may affect repository performance and groundwater recharge
- Satisfy requirements of the DOE in 10 CFR 960, the NRC in 10 CFR 60, and the EPA in 40 CFR 191

CHAPTER 5 CLIMATOLOGY AND METEOROLOGY

CLIMATOLOGY INVESTIGATIONS AND STUDY PLANS

Paleoclimate investigation

- **Paleoclimate**

Future climate investigation

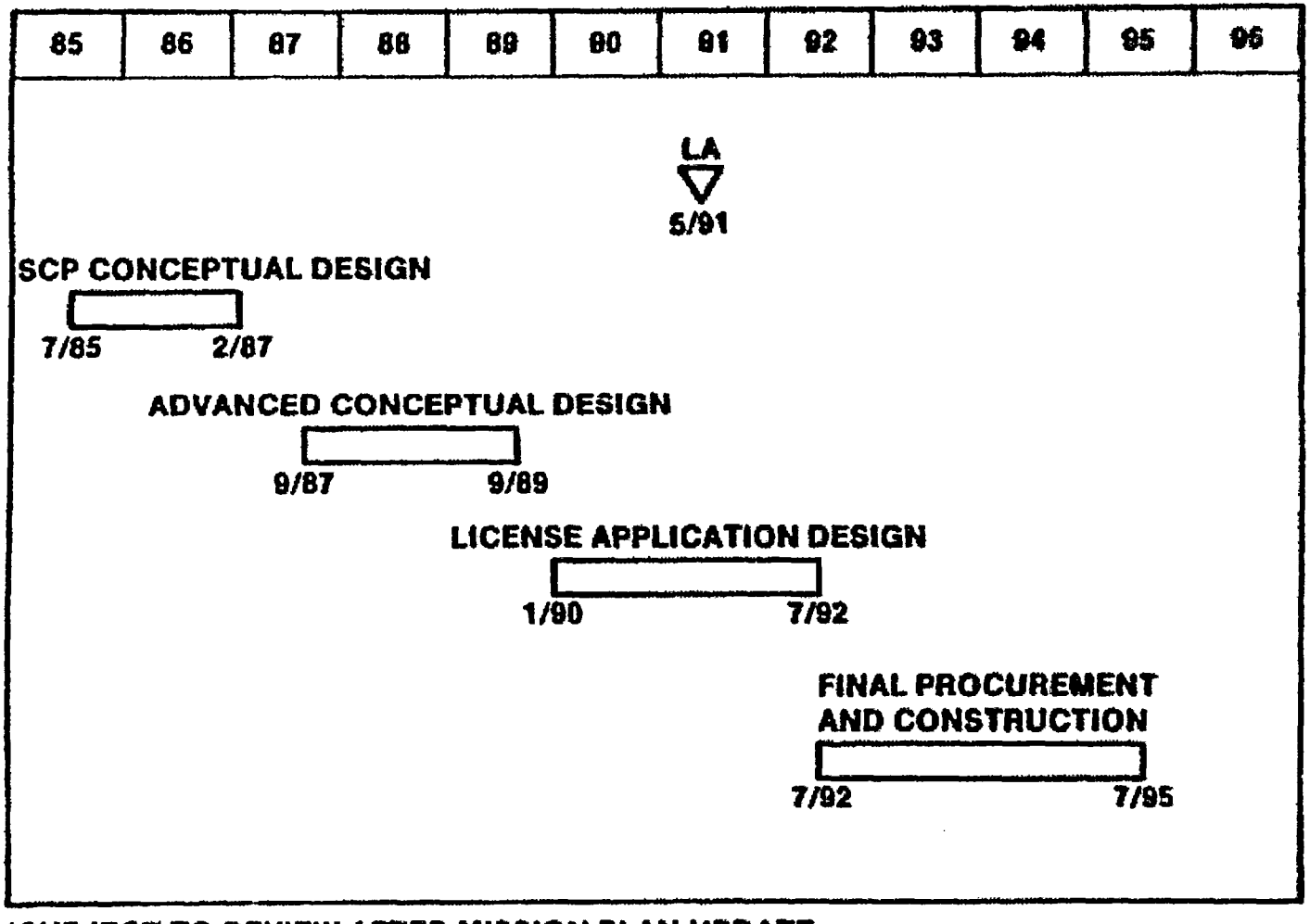
- **Future climate**

REPOSITORY CONCEPTUAL DESIGN REPORT

B. L. NICOLL

U.S. DEPARTMENT OF ENERGY

REPOSITORY DESIGN SCHEDULE*

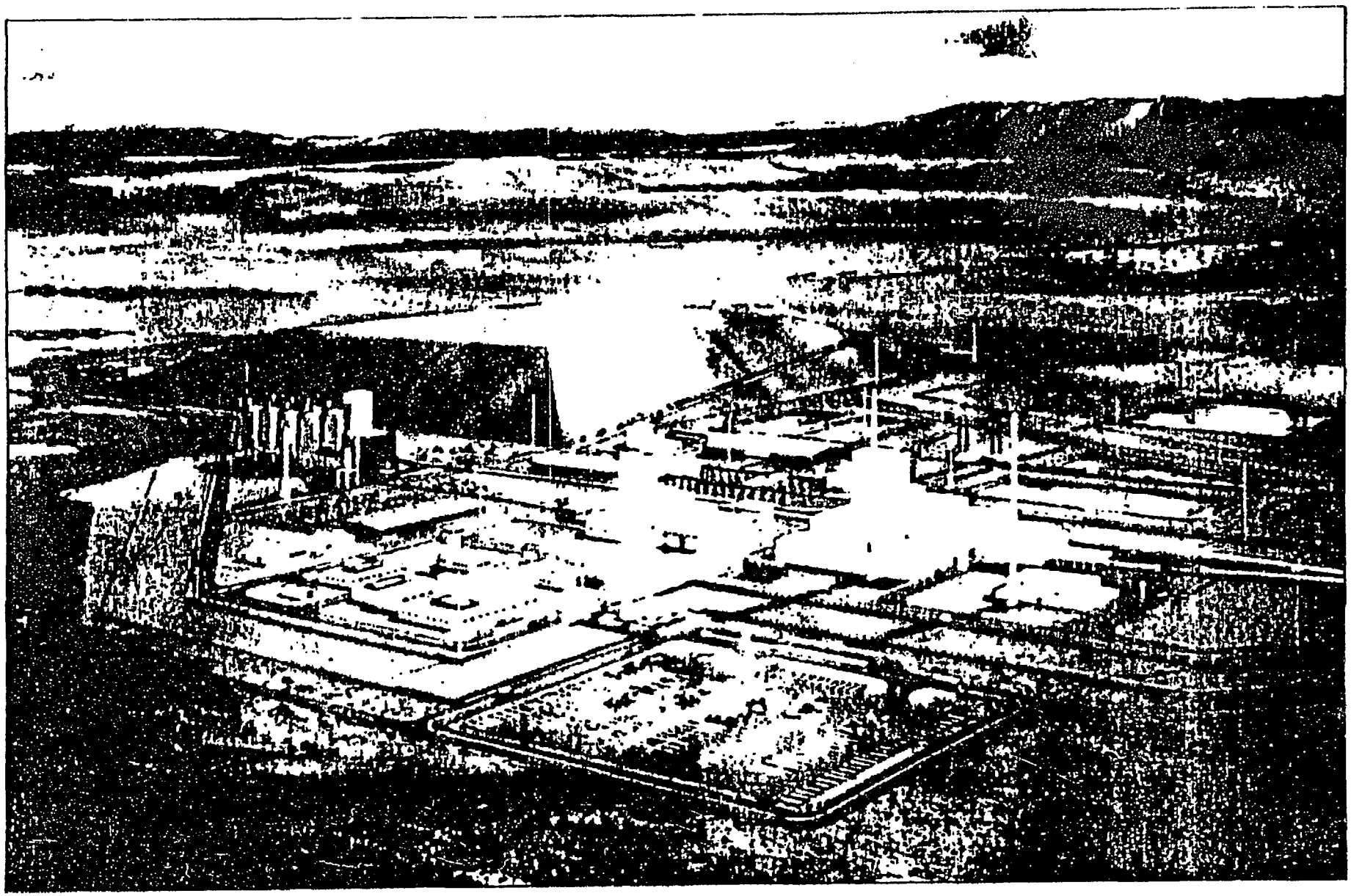


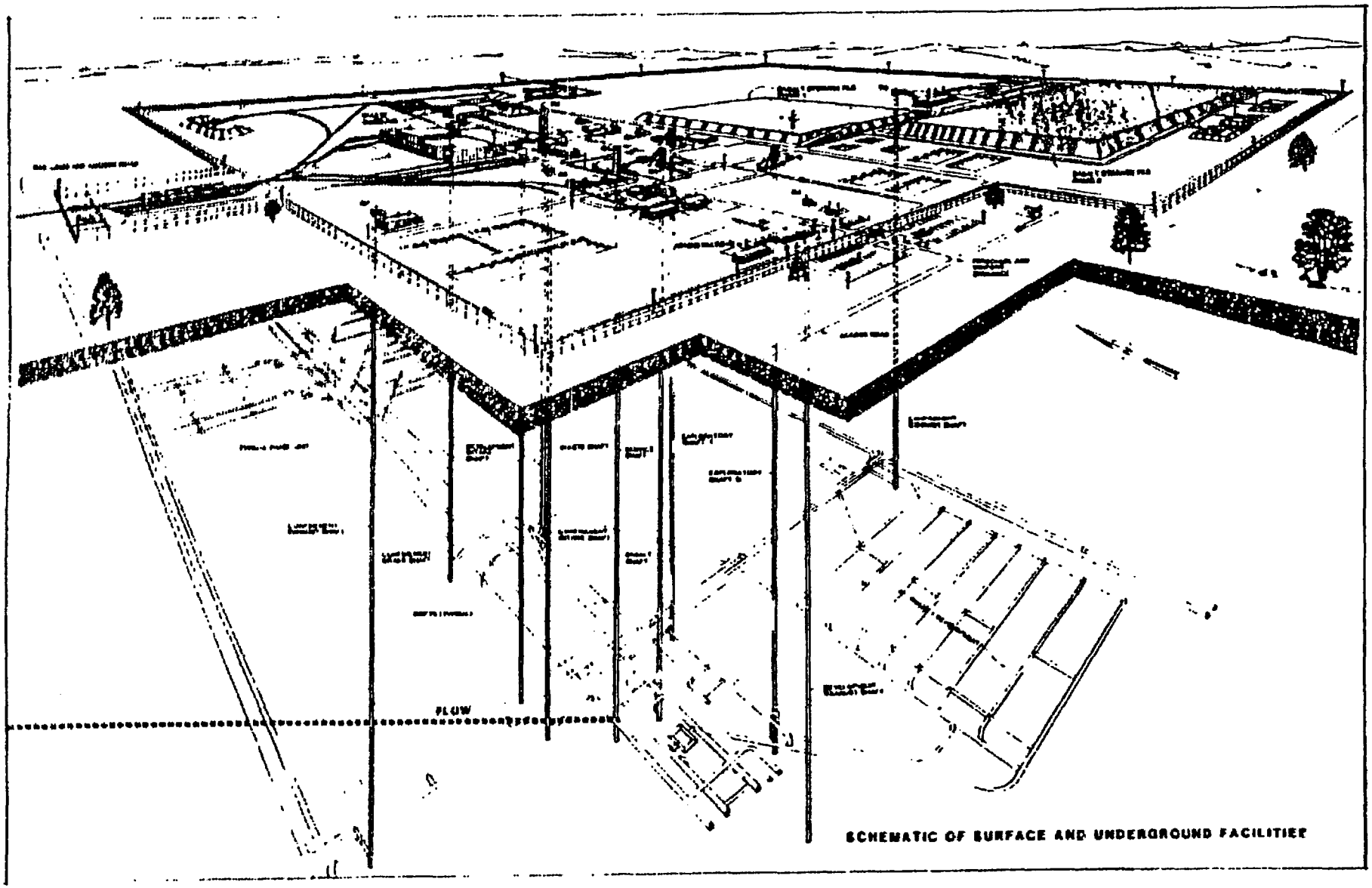
*SUBJECT TO REVIEW AFTER MISSION PLAN UPDATE

ACCOMPLISHMENTS TO DATE

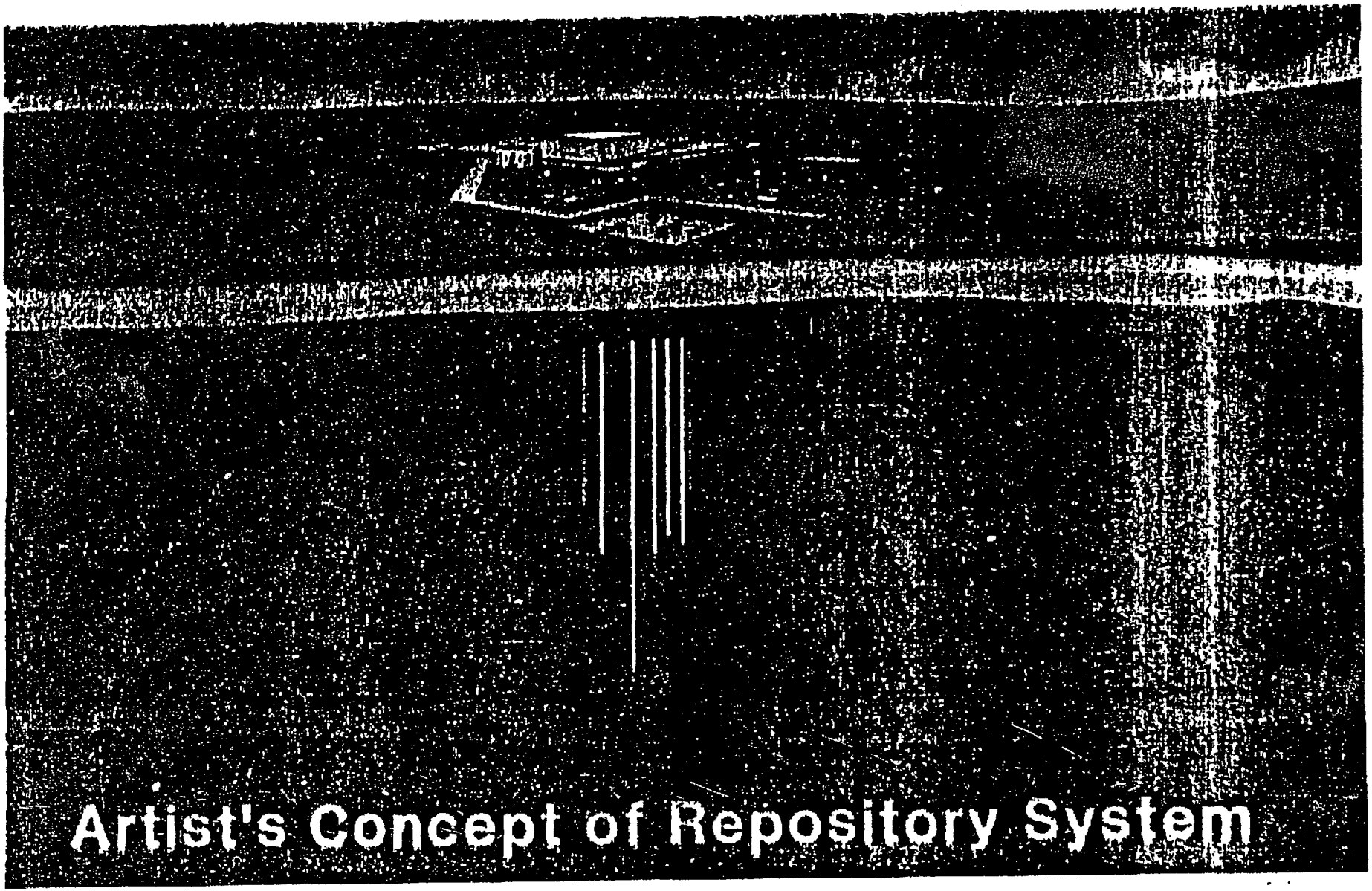
Repository design

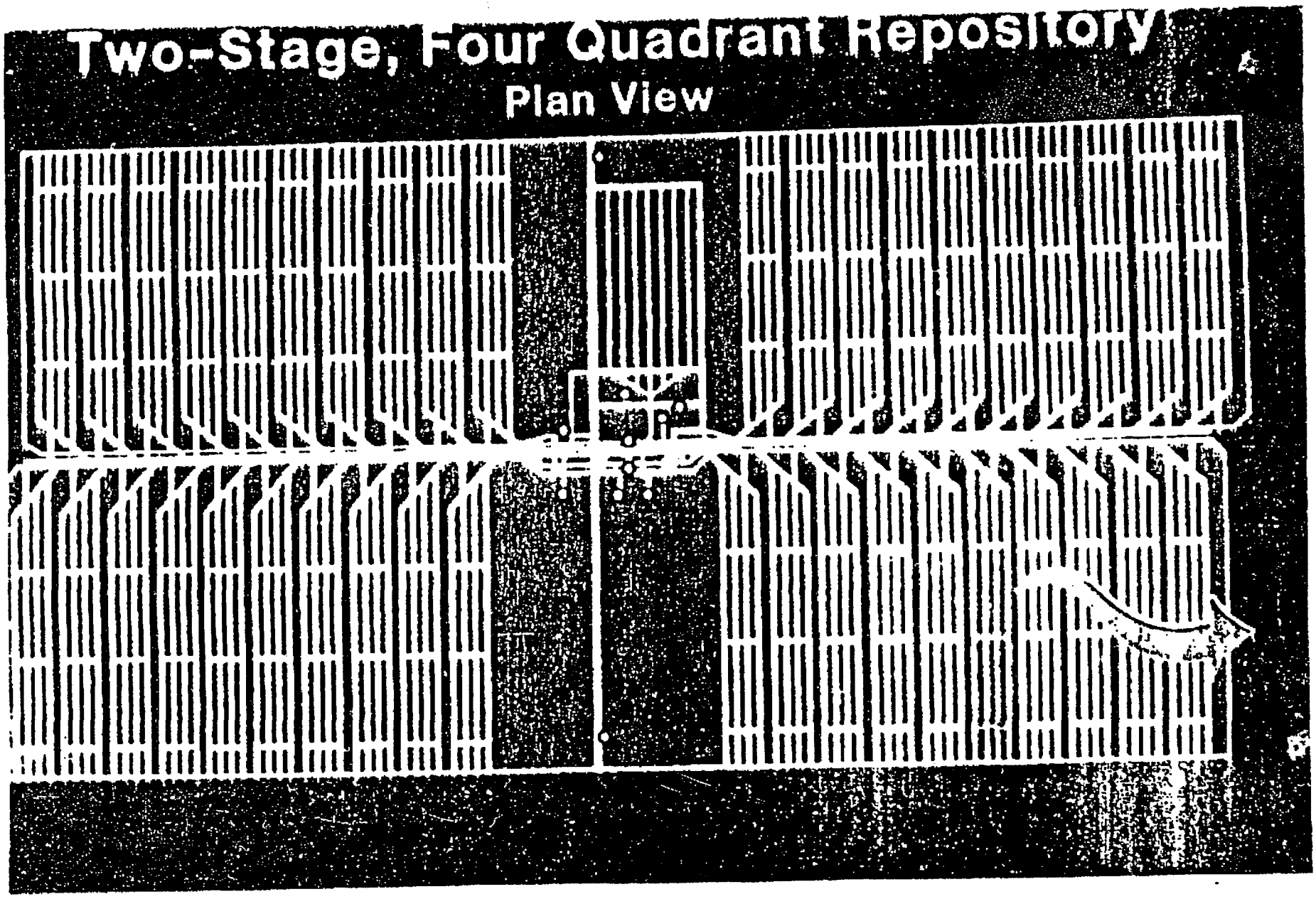
- Conceptual system design description
  - 47,000 MTHM
  - Long horizontal boreholes
  - Spent fuel
- Engineering studies
  - Study 5, shaft optimization (July 1984)
  - Study 6, tunnel optimization (May 1984)
  - Study 7, waste emplacement optimization (June 1984)
  - Study 8, in situ instrumentation (June 1984)
  - Study 9, underground repository layout (January 1985)
- SCP conceptual design
  - 70,000 MTHM
  - 3,400 MTHM/yr
  - Short horizontal boreholes
  - Spent fuel
  - West Valley and defense high-level waste





SCHEMATIC OF SURFACE AND UNDERGROUND FACILITIES


Artist's Concept of Repository System


Two-Stage, Four Quadrant Repository
Plan View

SITE CHARACTERIZATION PLAN QUALITY ASSURANCE

R. P. SAGET

U.S. DEPARTMENT OF ENERGY

SECTION 8.6 QUALITY ASSURANCE PROGRAM

- Describes the Quality Assurance Program to be applied to the Basalt Waste Isolation Project site characterization activities
  - Summarizes the Basalt Waste Isolation Project Quality Assurance Plan
  - Summarizes Federally mandated requirements applicable to the Basalt Waste Isolation Project
  - Describes the organization of the Project
  - Describes the application of Quality Assurance
  - Lists plans and procedures that implement requirements

SECTION 8.6.1 QUALITY ASSURANCE PLAN SUMMARY

- Describes the Basalt Waste Isolation Project Quality Assurance Plan
- Describes the Basalt Waste Isolation Project philosophy of Quality Assurance
- Summarizes Quality Assurance Program implementation responsibilities
- Describes the assessment of the Quality Assurance Program

BASALT WASTE ISOLATION PROJECT QUALITY ASSURANCE PROGRAM RESPONSIBILITY MATRIX

Quality assurance criteria	Responsibilities				
	DOE-RL	IC	A-E	CM	SUPP
1.0 Organization	P, R	S, R	S	S	S
2.0 Quality assurance program	P, A, R	S, R	S	S	S
3.0 Design control	P, A, R	S, A, R	S	S	S
4.0 Procurement document control	P, A, R	S, A, R	S	S	S
5.0 Instructions, procedures, and drawings	P, A, R	S, A, R	S	S	S
6.0 Document control	P, A, R	S, A, R	S	S	S
7.0 Control of purchased items and services	P, R	S, A, R	S	S, A, R	S
8.0 Identification and control of items	P, A, R	S, A, R		S	S
9.0 Control of processes	P, R	S, A, R	S	S	S
10.0 Inspection	P, R	S, A, R		S	S
11.0 Test control	P, R	S, A, R	S	S	S
12.0 Control of measuring and testing equipment	P, R	S, R		S	S
13.0 Handling, storage, and shipping	P, R	S, R		S	S
14.0 Inspection, test, and operating status	P, R	S, R		S	S
15.0 Control of nonconforming items	P, A, R	S, A, R	S, A, R	S	S
16.0 Corrective action	P, A, R	S, A, R	S, A, R	S	S
17.0 Quality assurance records	P, R	S, R	S	S	S
18.0 Audits	P, R	S, R	S	S	S

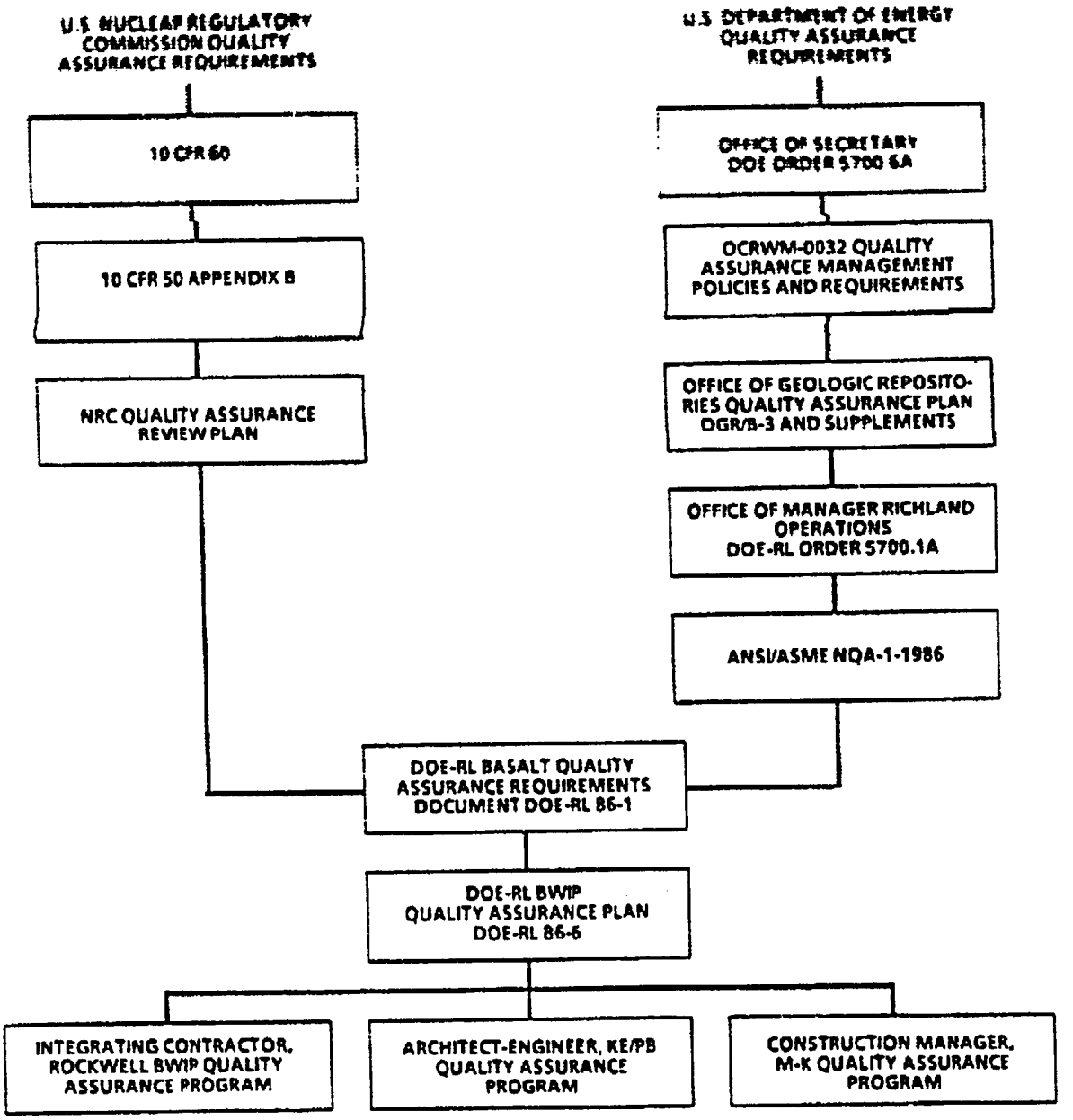
NOTE: Responsible organizations:
DOE-RL – U.S. Department of Energy-Richland Operations Office, Office of Commercial Nuclear Waste
BWIP Participant Contractors
IC – Integrating contractor
CM – Construction manager
A-E – Architect-engineer
SUPP – Support contractor/lab/supplier

Responsibility:
P – Primary
S – Support
A – Approve
R – Review/audit

SECTION 8.6.2 REQUIREMENTS FOR QUALITY ASSURANCE

- Provides the hierarchy of Quality Assurance requirements documents
- Describes the interaction of those documents
- Summarizes the Quality Assurance requirements for the Basalt Waste Isolation Project and their implementation

QUALITY ASSURANCE DOCUMENTS HIERARCHY



ANSI/ASME - AMERICAN NATIONAL STANDARDS INSTITUTE-AMERICAN SOCIETY OF MECHANICAL ENGINEERS

BWIP - BASALT WASTE ISOLATION PROJECT

DOE - U.S. DEPARTMENT OF ENERGY

DOE-RL - U.S. DEPARTMENT OF ENERGY-RICHLAND OPERATIONS OFFICE

NRC - U.S. NUCLEAR REGULATORY COMMISSION

OCRWM - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

BWIP PARTICIPANT CONTRACTORS

ROCKWELL - ROCKWELL HANFORD OPERATIONS INTEGRATING CONTRACTOR

K-PB - KAISER ENGINEERS, INC.-PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC., ARCHITECT ENGINEER

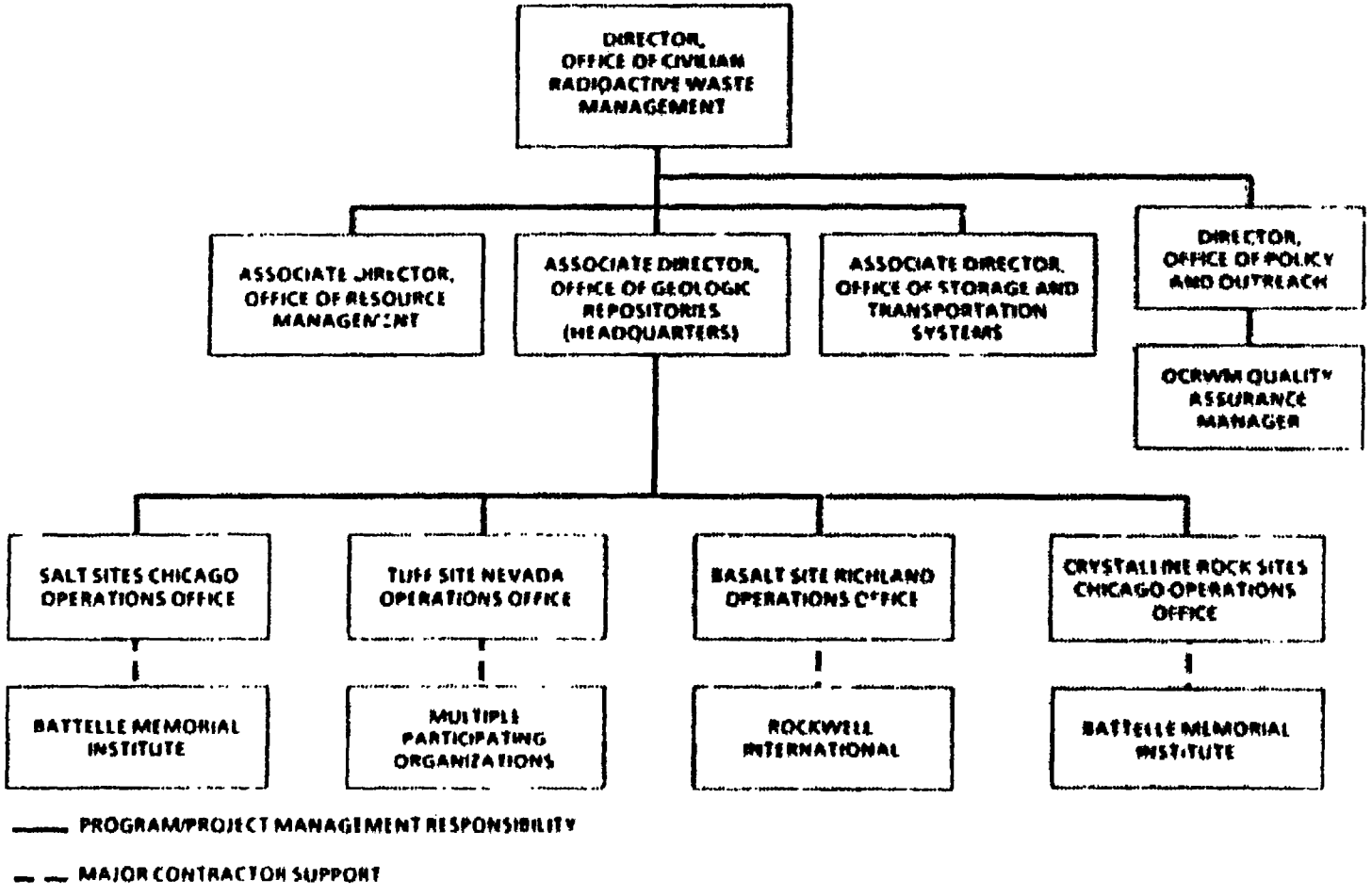
M-K - MORRISON-KNUDSEN COMPANY, INC., CONSTRUCTION MANAGER

SECTION 8.6.3 ORGANIZATION OF THE PROJECT WITH RESPECT TO QUALITY ASSURANCE

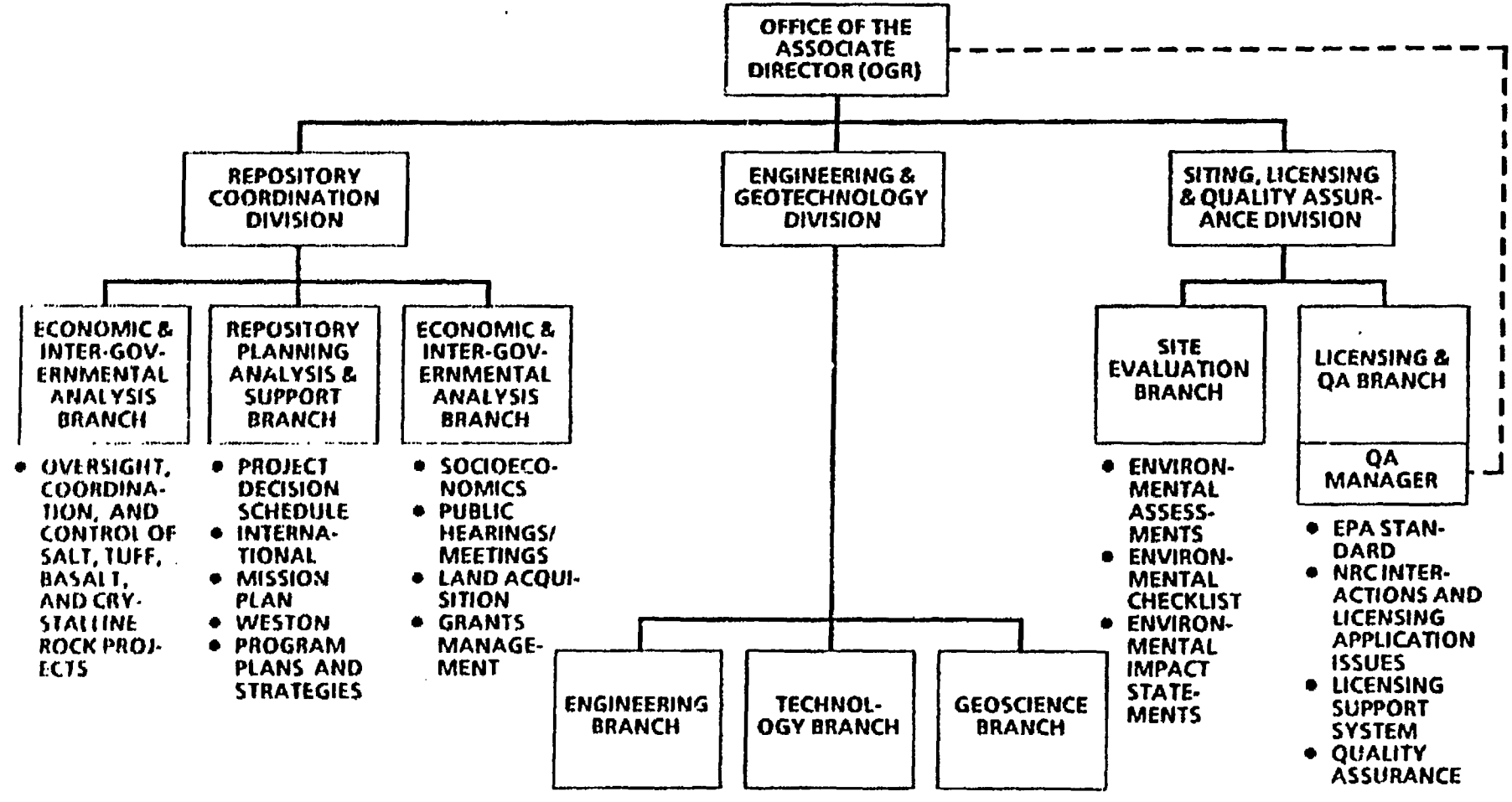
Describes the organization of

- Office of Civilian Radioactive Waste Management
- Office of Geologic Repositories
- U.S. Department of Energy - Richland Operations Office
- Basalt Waste Isolation Project Participant Contractors

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

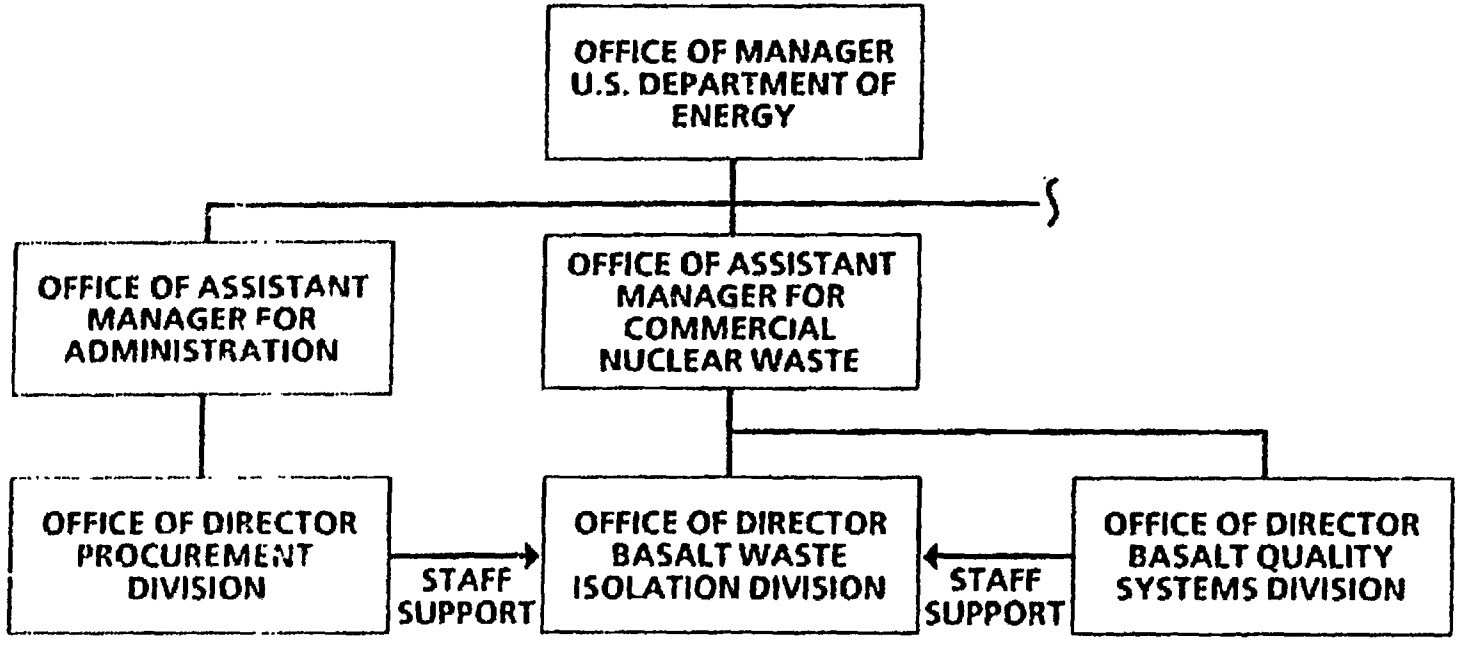


Office of Geologic Repositories Organization Chart



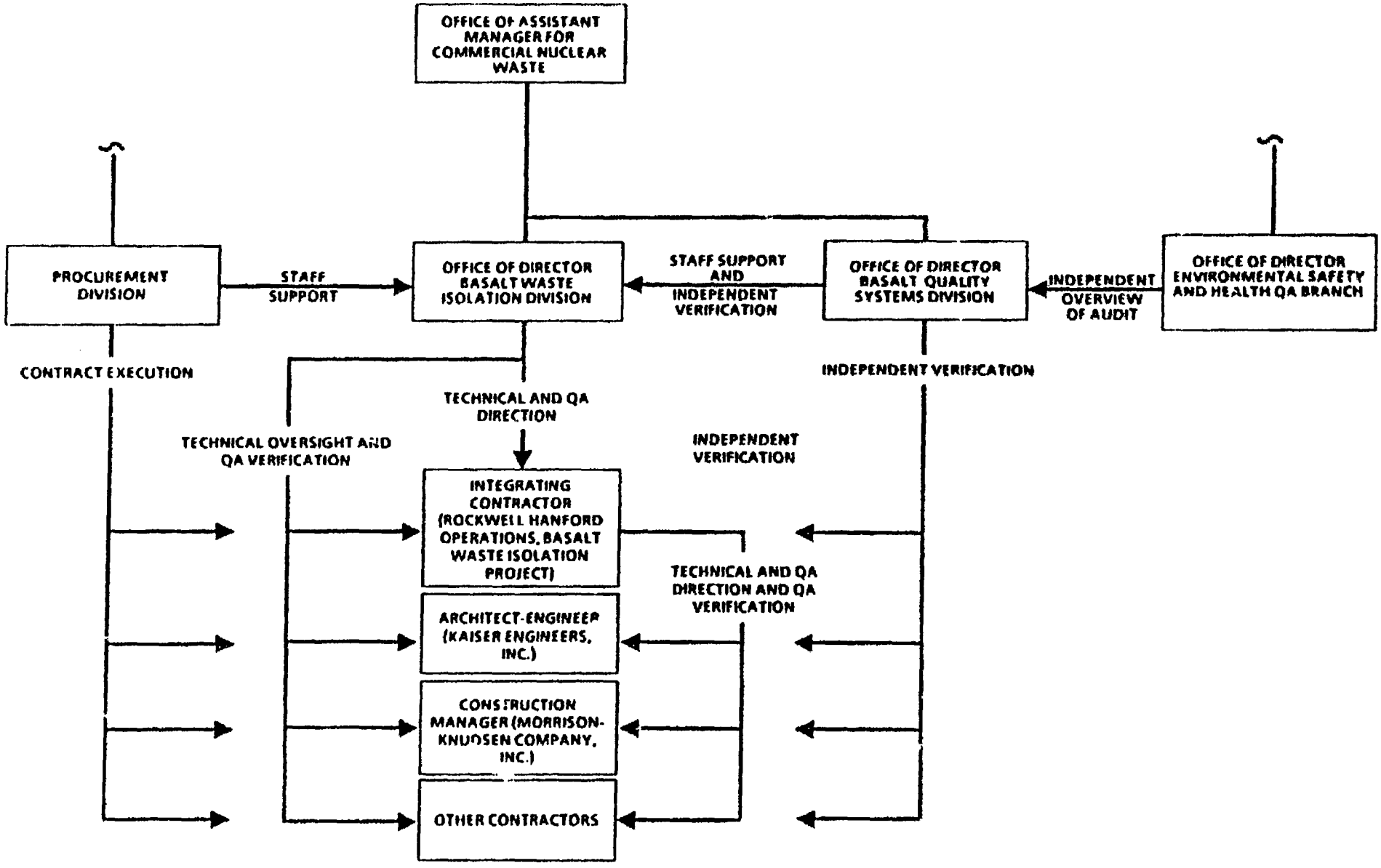
EPA - U.S. ENVIRONMENTAL PROTECTION AGENCY
NRC - U.S. NUCLEAR REGULATORY COMMISSION
OGR - OFFICE OF GEOLOGIC REPOSITORIES
QA - QUALITY ASSURANCE
— - OPERATIONAL REPORTING
- - - ADMINISTRATIVE REPORTING

U.S. DEPARTMENT OF ENERGY-RICHLAND OPERATIONS OFFICE BASALT WASTE ISOLATION PROJECT ORGANIZATION CHART



—— TECHNICAL ADMINISTRATIVE DIRECTION

BASALT WASTE ISOLATION PROJECT ORGANIZATION



SECTION 8.6.4 APPLICATION OF QUALITY ASSURANCE

Describes the Quality Assurance Programs during

- Site exploration
- Site characterization
  - Determination of "Q" list
  - Determination of Quality Assurance levels

GRADED QUALITY ASSURANCE

DEFINITIONS

- Important to safety
  - Those engineered structures, systems, and components essential to the prevention or mitigation of an accident that could result in a radiation dose to the whole body, or any organ, of 0.5 rem or greater at or beyond the nearest boundary of the unrestricted area at any time until the completion of permanent closure

- Important to waste isolation
  - Those natural and engineered structures, systems, or components that must function in a predetermined manner to inhibit the transport of radioactive material so that amounts and concentrations of this material entering the accessible environment will be kept within the prescribed limits

- Q-List
  - A list of geologic repository structures, systems, components, and activities that have been determined to be important to safety and/or waste isolation and are thereby subject to the highest quality level (Quality Level I) of the formal Quality Assurance Program

QUALITY LEVEL CATEGORIZATION CRITERIA

Quality Level I

- Items or activities important to safety
- Items or activities important to waste isolation

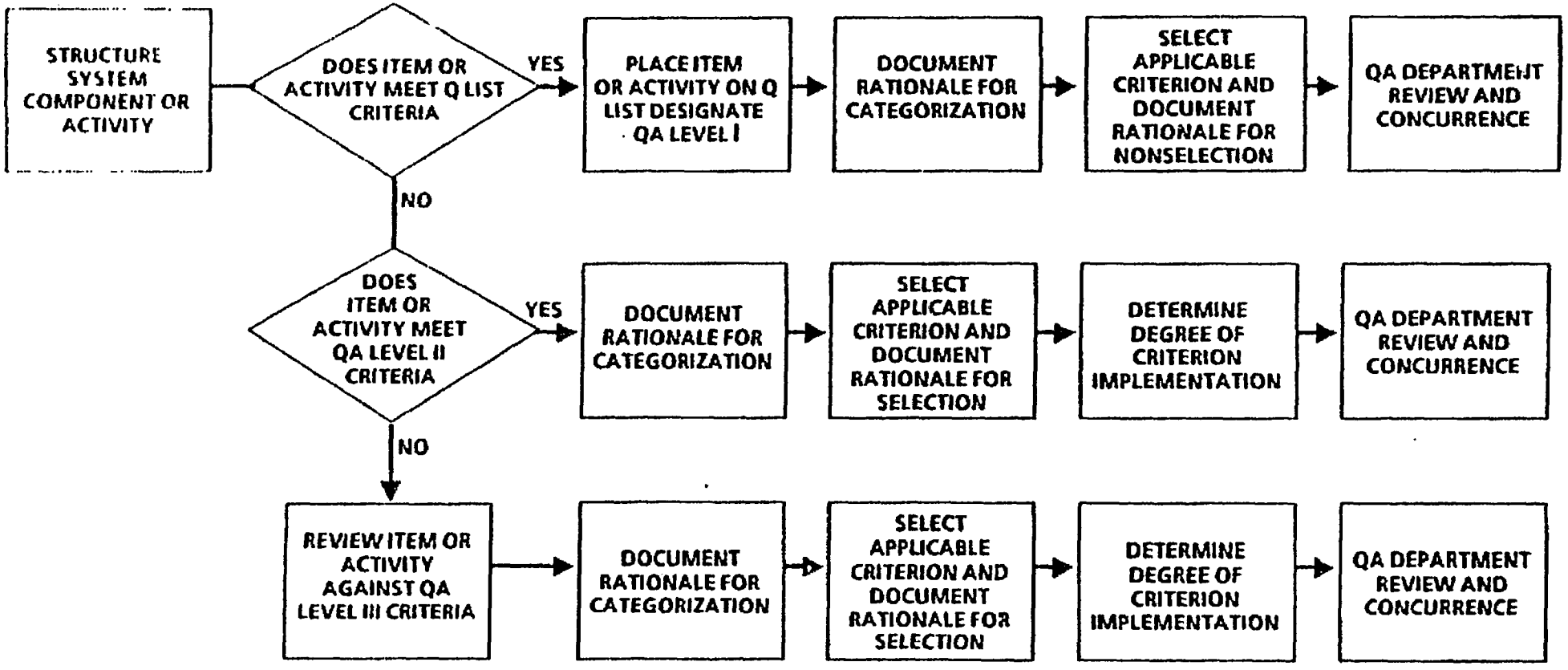
Quality Level II

- Items or activities whose cost or schedule impacts $< 10{,}000{,}000$
- Items or activities important to worker or personnel radiological safety

Quality Level III

- Items or activities whose cost or schedule impacts $\geq 10{,}000{,}000$

Quality Level Categorization Methodology



87-2104-17

APPLICABLE QUALITY ASSURANCE REQUIREMENTS

Quality Assurance Level I

- Basalt Quality Assurance Requirements Document
- DOE-RL Quality Assurance Plan

Quality Assurance Level II

- DOE-RL Quality Assurance Plan
- NQA-1-1986 basic requirements
- Select NQA-1-1986 supplements

Quality Assurance Level III

- DOE-RL Quality Assurance Plan
- NQA-1-1986 basic requirements
- Standard industry practice

SECTION 8.6.5 QUALITY ASSURANCE ADMINISTRATIVE PROCEDURES

Lists the Quality Assurance administrative procedures that define and direct controls and control systems making up the Basalt Waste Isolation Project Quality Assurance Program

SECTION 8.6.6 QUALITY ASSURANCE PLANS AND PROCEDURES FOR SPECIFIC PROGRAM AREAS

Lists the Quality Assurance Plans and necessary procedures to implement the control systems described in section 8.6.5

Attachment 5

YIN TECHNICAL PRESENTATION

BWIP QUARTERLY STATUS MEETING

Richland, WA

January 14-15, 1987

YAKIMA INDIAN NATION
NUCLEAR WASTE PROGRAM

RUSSELL JIM: PROGRAM MANAGER

SLIDE 1

YIN SCOPE OF WORK

* GEOCHEMISTRY
* HYDROGEOLOGY
* ROCK MECHANICS
* EXPLORATORY SHAFT TEST FACILITY
* ENGINEERED BARRIER SYSTEM
* STRUCTURAL STABILITY AND CONSTRUCTIBILITY ANALYSES
* SEISMO-TECTONICS
* ENVIRONMENTAL MONITORING
* QUALITY ASSURANCE PLAN

SLIDE 2

GEOCHEMISTRY

GROUNDWATER GEOCHEMISTRY

* SAMPLING AND ANALYTICAL TECHNIQUES
* SORPTION
* SOLUBILITY
* REDOX
* COMPUTER MODELING
* SECONDARY MINERAL PHASES
* GEOCHEMICAL SEALING POTENTIAL
* TRANSPORT MECHANISMS

WASTE PACKAGE/GROUNDWATER INTERACTIONS

* WASTE FORM LEACHING MECHANISMS
* CANISTER DEGRADATION

SLIDE 3

HYDROGEOLOGY

* PHYSICAL HYDROGEOLOGY
    1) REGIONAL FLOW SYSTEM
    2) SITE SPECIFIC PARAMETER IDENTIFICATION
* CHEMICAL HYDROGEOLOGY
    1) FLOW INTERPRETATIONS
    2) TRANSPORT PARAMETERS
* BASELINE ANALYSIS
    1) DATA BASE REVIEW
    2) PREDICTIVE MODELS
    3) CONSTRAINTS ON TEST PROGRAM SCHEDULE
* GROUNDWATER TRAVEL TIME

SLIDE 4

ROCK MECHANICS

* ROCK MECHANICS DATA BASE

    1) LABORATORY TESTS

    2) FIELD TESTS

        A) BLOCK TESTS
        B) IN SITU TESTS
        C) NSTF
        etc.

* BWIP FRACTURE MECHANICS PROGRAM

SLIDE 5

EXPLORATORY SHAFT TEST FACILITY

* CONSTRUCTABILITY (STABILITY OF UNDERGROUND OPENINGS, DAMAGED ZONE)

* ADEQUACY OF PLANNED TESTS

* IMPACTS OF ES CONSTRUCTION ON REPOSITORY INTEGRITY/PERFORMANCE

SLIDE 6

STRUCTURAL STABILITY AND CONSTRUCTIBILITY ANALYSES

* ROCK CHARACTERISTICS DATA BASE
  MECHANICAL/THERMAL/HYDROLOGIC/CHEMICAL/NUCLEAR
* ROCK BEHAVIOR AND CONSTITUTIVE MODELING
* FAILURE CRITERIA OF ROCKS
* STRUCTURAL MODELS/COMPUTER CODES
* STRESS ANALYSIS
* DETERMINATION OF THE DISTURBED ZONE

SLIDE 7

ENGINEERED BARRIER SYSTEM
CONCEPTUAL DESIGN/PERFORMANCE ASSESSMENT

* REPOSITORY
    1) FUNCTIONAL DESIGN CRITERIA AND LIMITATIONS
    2) DESIGN CONSIDERATIONS
    3) CONCEPTUAL MODELS/COMPUTER CODES
    4) SUBSURFACE LAYOUT
* WASTE PACKAGES
    1) WASTE FORM
    2) CANISTERS
    3) PACKING AND BACKFILL MATERIALS
    4) PERFORMANCE ASSESSMENT

SLIDE 8

SEISMOTECTONIC INVESTIGATION

* REVIEW TECTONIC MODELS

    1) REGIONAL (PACIFIC NORTHWEST)
    2) LOCAL (YAKIMA FOLD BELT)

* ASSESS GEODETIC AND GEOPHYSICAL DATA/METHODS

* ASSESS POTENTIAL SEISMIC HAZARDS

    1) HISTORICAL
    2) RECENT
        - DEEP EVENTS
        - SHALLOW EVENTS (EARTHQUAKE SWARMS)
    3) FUTURE
        - MINING-INDUCED
        - SUBDUCTION-RELATED

SLIDE 9

BASELINE ENVIRONMENTAL MONITORING

* MONITORING NETWORK INTEGRATION AND ASSESSMENT
* EVALUATION OF DATA BASE PER BASELINE CONDITIONS
* ADDITIONAL MONITORING REQUIREMENTS

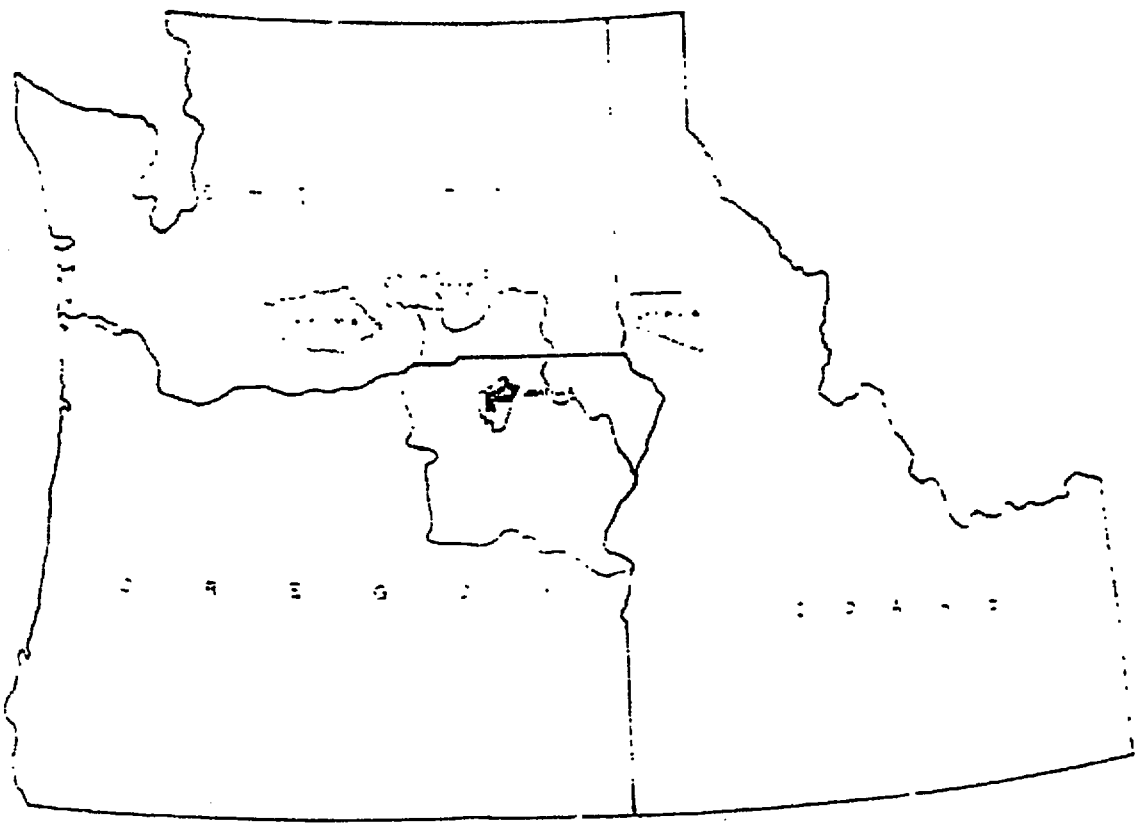
SLIDE 10

REQUIREMENTS OF YIN TECHNICAL PROGRAM FOR COMPREHENSIVE REVIEW OF BWIP ACTIVITIES

* TEST PLANS AND PROCEDURES
* DATA GATHERED IN LAB OR IN-SITU
* INTERFACING MEETINGS WITH DOE AND CONTRACTORS

Attachment 6

BASALT WASTE ISOLATION PROJECT
STATUS REPORT



Presented By The
CONFEDERATED TRIBES OF THE
UMATILLA INDIAN RESERVATION
NUCLEAR WASTE STUDY PROGRAM

January 15, 1987

UMATILLA NUCLEAR WASTE STUDY PROGRAM
GOALS

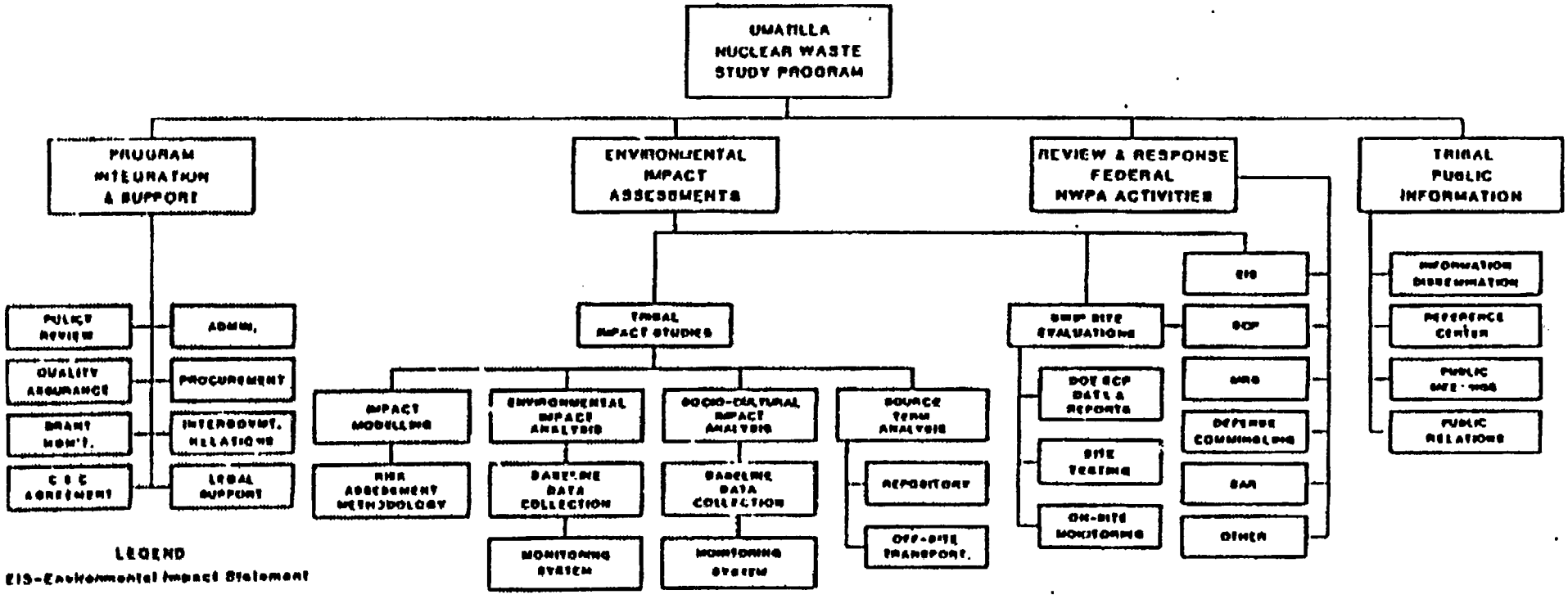
ENSURE TREATY RIGHTS, SOVEREIGNTY, ENVIRONMENTAL RESOURCES, CULTURAL HERITAGE, PUBLIC SAFETY AND WELFARE ARE RECOGNIZED AND PROTECTED

PROVIDE FOR EFFECTIVE AND ACTIVE PARTICIPATION IN FEDERAL PLANNING AND DECISION-MAKING PROCESSES

CONDUCT STUDIES, PLANS, TO DETERMINE THE EFFECTS OF A REPOSITORY ON TRIBAL INTERESTS AND ALSO REVIEW AND ASSESSMENT OF FEDERAL ACTIVITIES

INFORM TRIBAL PUBLIC ON ACTIVITIES, STATUS, PLANS OF FEDERAL AND TRIBAL GOVERNMENT THAT REFLECT INTERESTS AND CONCERNS OF THE TRIBE

WORK BREAKDOWN STRUCTURE
UMATILLA NUCLEAR WASTE STUDY PROGRAM
SITE CHARACTERIZATION PHASE



CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION

NUCLEAR WASTE STUDY PROGRAM

FY 1986 PROJECTS

U-1	PROGRAM MANAGEMENT
U-2	ACTIVITIES LEADING TO A C & C AGREEMENT
U-3	REVIEW AND COMMENT
U-4	MONITORING, ANALYSIS AND STUDIES
U-5	TRIBAL PUBLIC INFORMATION
U-6	COORDINATION OF INTERGOVERNMENTAL ACTIVITIES

UMATILLA NUCLEAR WASTE STUDY PROGRAM

MAJOR ACCOMPLISHMENTS

FY 86

U-1 PROGRAM MANAGEMENT AND ADMINISTRATION

- COMPREHENSIVE PROGRAM PLAN COMPLETE
- PROGRAM OVERVIEW SEMINAR
- 6.5 FULL TIME EMPLOYEES HIRED
- MANAGEMENT AND TECHNICAL EDUCATION SEMINAR
- EMERGENCY RESPONSE TRAINING
- ACQUIRED TWO COMPUTERS
- ACQUIRED OFFICE FACILITY

BUDGET	$281,650
ACTUAL	$322,897
(UNDER)/OVER	$ 41,247

UMATILLA NUCLEAR WASTE STUDY PROGRAM

MAJOR ACCOMPLISHMENTS

FY 86

PROJECT U-2 ACTIVITIES LEADING TO A C & C AGREEMENT

- BEGAN NEGOTIATIONS IN AUGUST
- RECESS IN OCTOBER
- EVALUATION BOOKLET DEVELOPED ON C & C NEGOTIATIONS
- INTENSIVE NEGOTIATION TRAINING
- C & C NEGOTIATIONS RESUMED
- C & C SUBCOMMITTEE MEMBERS NAMED
- AGREEMENT TO UTILIZE COURT REPORTER

BUDGET	$130,173
ACTUAL	$ 68,002
(UNDER)/OVER	$(62,171)

UMATILLA NUCLEAR WASTE STUDY PROGRAM

MAJOR ACCOMPLISHMENTS

FY 86

PROJECT U-3 REVIEW AND COMMENT

- TRANSPORTATION PLANS
- PROJECT DECISION SCHEDULE
- ENVIRONMENTAL ASSESSMENT
- FINANCIAL AND-GRANT GUIDELINES
- DEFENSE WASTE ENVIRONMENTAL IMPACT STATEMEN
- OTHER FEDERAL RELEASES

BUDGET	$ 60,364
ACTUAL	$ 33,350
(UNDER)/OVER	$(27,014)

UMATILLA NUCLEAR WASTE STUDY PROGRAM

MAJOR ACCOMPLISHMENTS

FY 86

PROJECT U-4 MONITORING, ANALYSIS AND STUDIES

- BWIP GEOTECHNICAL STATUS REPORT
- TRIBAL RESOLUTION FOR ON-SITE MONITORING
- REPORT ON SOCIOECONOMIC PLAN
- ON-SITE TRIBAL REPRESENTATIVE
- ENVIRONMENTAL PLANS
- SOCIOECONOMIC & CULTURAL PLANS
- RISK ASSESSMENT PLAN

BUDGET	$420,005
ACTUAL	$350,843
(UNDER)/OVER	$(69,162)

UMATILLA NUCLEAR WASTE STUDY PROGRAM

MAJOR ACCOMPLISHMENTS

FY 86

PROJECT U-5 TRIBAL PUBLIC INFORMATION

- HANFORD TOURS
- PUBLIC INFORMATION MEETINGS
- NEWSLETTER
- NUCLEAR WASTE SEMINAR
- CATALOGUED AND INDEXED MATERIALS
- HANFORD HISTORICAL DOCUMENTS
- HANFORD HEALTH EFFECTS

BUDGET	$ 84,620
ACTUAL	$ 73,791
(UNDER)/OVER	$(10,829)

UMATILLA NUCLEAR WASTE STUDY PROGRAM

MAJOR ACCOMPLISHMENTS

FY 86

PROJECT U-6 COORDINATION OF INTERGOVERNMENTAL ACTIVITIE

- ATTENDED MEETINGS (national, regional, and local)
- FIRST RESPONDERS
- EMERGENCY RESPONSE

BUDGET	$ 48,404
ACTUAL	$ 42,601
(UNDER)/OVER	$ (5,803)

UMATILLA NUCLEAR WASTE STUDY PROGRAM

PROPOSED PROJECTS

FY 87

U-1	PROGRAM MANAGEMENT AND ADMINISTRATION
U-2	INTERGOVERNMENTAL LIAISON AND REVIEW
U-3	TRIBAL PUBLIC INFORMATION
U-4	ENVIRONMENTAL/HEALTH & SAFETY ASSESSMENT
U-5	SOCIOECONOMIC AND CULTURAL ASSESSMENT
U-6	BWIP SITE ANALYSIS AND MONITORING
U-7	TRANSPORTATION ANALYSIS

Attachment 7

The Washington State Institute for Public Policy
Program for Legislative Support

PROGRAM GUIDANCE

WSIPP Board of Directors composed of legislators
Legislative members of the Nuclear Waste Board
Senate Energy and Utilities Committee
House Energy and Utilities Committee
All other legislators and staff

WRITTEN INFORMATION

Information Repor - provide background information for long-term
Briefs and Issues - provide detail on issues of immediate concern
Newletter - update legislators on current activites bimonthly
Newsclips - weekly compilation of regional papers
Calendar of Upcoming Events
Responses to specific legislative inquires

LEGISLATIVE SESSION

Committee briefings
Meet with individual legislators and staff
Respond to inquires of legislators and staff
Assist committee staff with research
Maintain status of appropriate legislation

BRIEFINGS

Yearly, around the state in legislator's home districts
Fall 1985 - general review and update of NWPA program
Fall 1986 - in cooperation with the NWB on Referendum 40

CONFERENCES

December 3, 1986 - Nuclear Waste: Perspectives, Risks and Alternatives

PEER REVIEW NETWORK

Group of experts in the academic community
Provide support in review of documents prepared by NWB and WSIPP
Provide support to WSIPP in review of documents and activies of DOE

NATIONAL CONFERENCE OF STATE LEGISLATORS

Coordinate efforts to work with other state legislators
April 1986 co-hosted meeting and tour of Hanford
Planning meeting with NCSL to involve corridor states

TOURS OF HANFORD

April 1986 - general and technical
Sept 1987 - specific technical tours for legislators and executive sta

CONGRESS

Meet with Congressional staff
Track federal legislation

NUCLEAR WASTE BOARD

Attend meetings
Participate in committees
Coordinate activites

CONTRACTS

Small, short-term contracts based on legislative inquires and concerns
Ranking methodology for draft and final environmental assessments
Potential economic loss

INFORMATION MATERIAL REQUEST FORM

Listed below are information materials available from the Washington State Institute for Public Policy, Nuclear Waste Repository Project. These reports are prepared primarily for the use of Legislators and staff. Requests for individual copies by interested persons will be honored based on availability. Please check which materials you wish and return the form to the address below.

Information Reports

____ Spent Nuclear Fuel From Foreign Reactors (86-3)

____ Transportation of High Level Radioactive Waste (86-2)

____ Defense Radioactive Waste - Some Questions and Answers (86-1)

____ Monitored Retrievable Storage (MRS) and Its Impact on a Proposed Repository at Hanford (85-6)

____ Basic Facts About Groundwater and the Concern at the Proposed Hanford Repository (85-5)

____ Nuclear Power Reactors - An Overview (85-4)

____ Radiation and Its Health Effects (85-3)

____ Spent Nuclear Fuel Storage and the Nuclear Waste Policy Act of 1982 (85-2)

____ Radioactive Waste Disposal - History and Current Status

Nuclear Waste Issues

____ How Can We Tell If a Hanford Repository Will Be Safe? (April 1986)

____ Suspending the Second Repository Is Not Justified (September 1986)

____ Where the Repository Siting Process Went Wrong (October 1986)

Nuclear Waste Brief

____ A Guide to the Nuclear Waste Policy Act of 1982 (October 1986)

Please send materials to:

Name _____

Address _____

_____

Phone _____

For additional information please write or call:

Washington State Institute for Public Policy
Nuclear Waste Repository Project
The Evergreen State College
Seminar Building, Mail Stop TA-00
Olympia, Washington 98505
(206) 866-6000, extension 6454

Attachment 8

Risks to the Affected Parties' Repository Program
(Identified by Affected Parties at the
SWIP Quarterly Update Meeting
January 15, 1987)

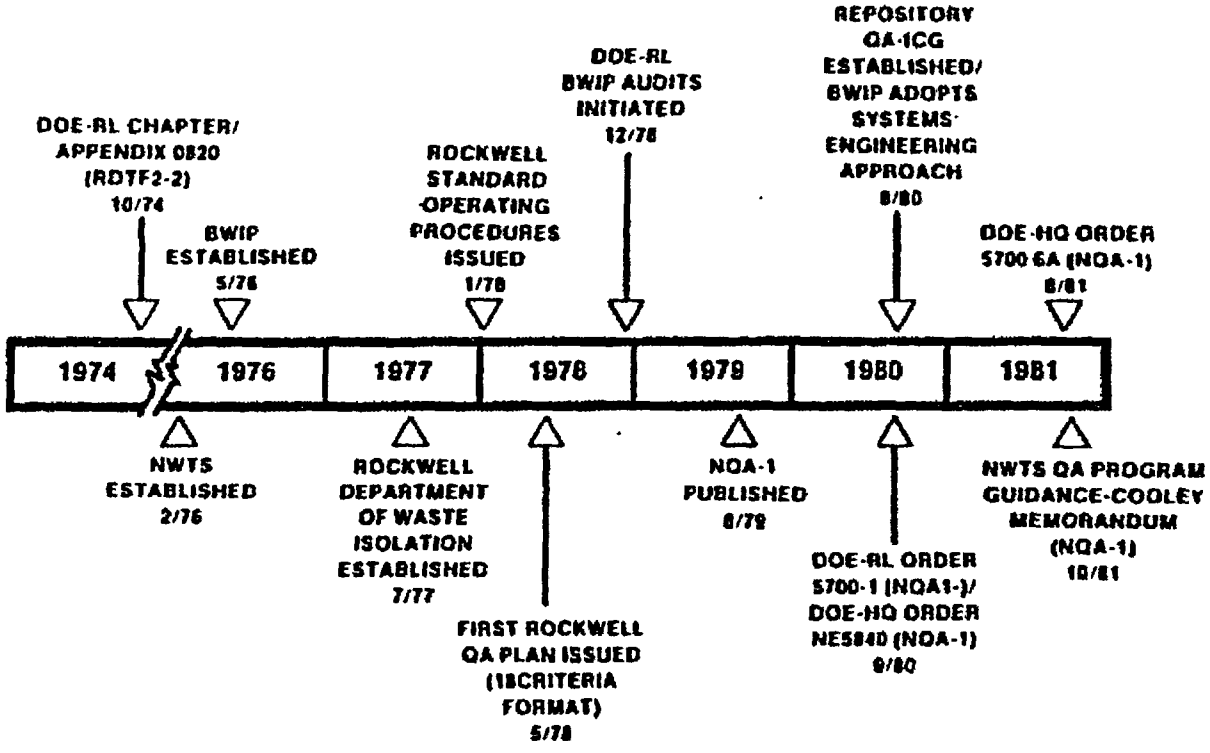
1. One-time project
2. Do it right the first time
3. History of political decisions
4. History of previous lack of management attention to quality assurance (QA)
5. History of previous lack of credibility
6. Qualification of existing data
7. Quality assurance on execution of the procedural requirements of the NWPA
8. "half-life of awareness" (complacency that QA procedures and program is working over very long periods of time)
9. Risk with using newly developed coupled models (how will complex models be validated and controls be imposed?)
10. Availability of resources to properly implement the QA program
11. Steps to inculcate the QA awareness and understanding in all levels of project staff
12. Too great a dependency on QA staff function to catch problems
13. Proceeding too far into execution of work before properly reviewing plans and strategies that establish this work
14. Procedure development and validation for state-of-the-art testing

BWIP QA PROGRAM OVERVIEW

R. P. SAGET, DIRECTOR

QUALITY SYSTEMS DIVISION
U.S. DEPARTMENT OF ENERGY
RICHLAND, WASHINGTON

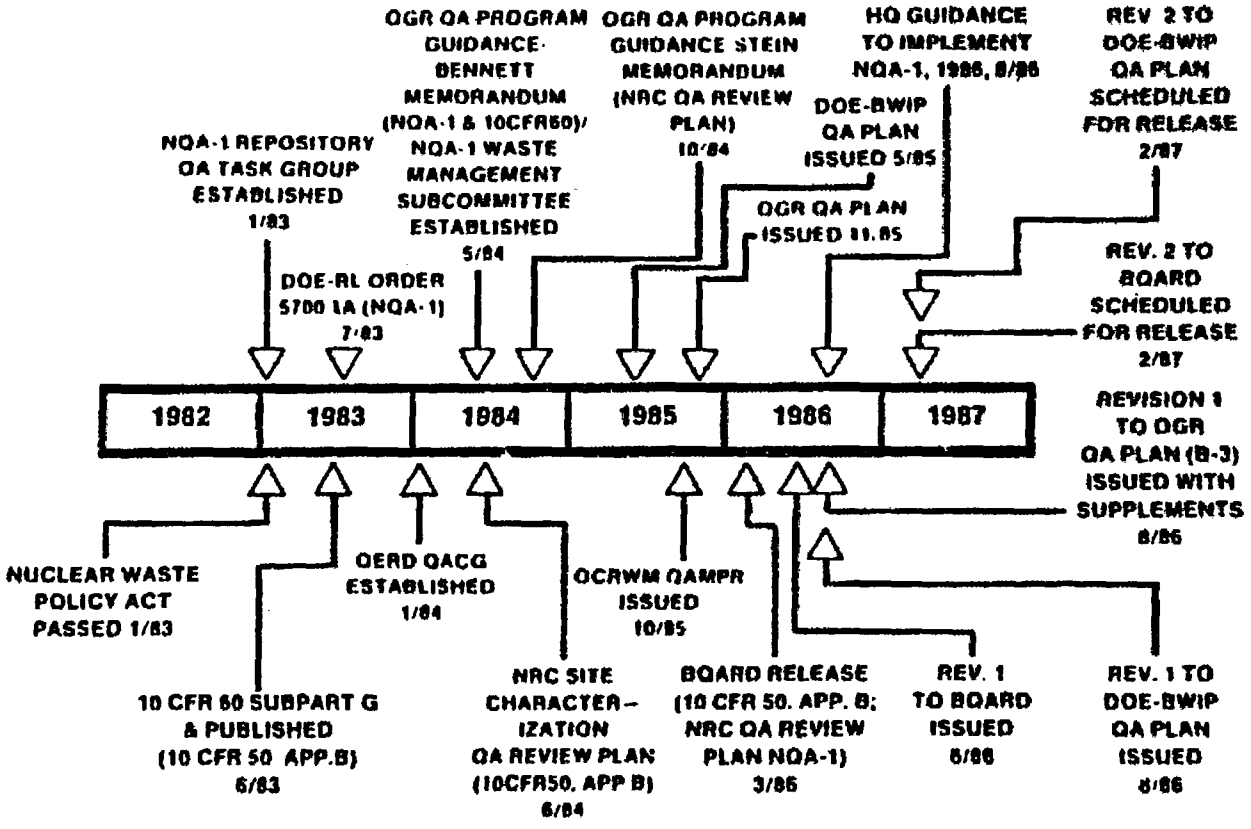
CHRONOLOGY OF BWIP QA PROGRAM DEVELOPMENT



ACRONYMS:

DOE-RL: DEPARTMENT OF ENERGY RICHLAND OPERATIONS OFFICE
RDT: REACTOR DEVELOPMENT TECHNOLOGY
NWTS: NUCLEAR WASTE TERMINAL STORAGE PROGRAM
BWIP: BASALT WASTE ISOLATION PROJECT
NQA NUCLEAR QUALITY ASSURANCE
QA-ICE: QUALITY ASSURANCE INTERFACE COORDINATION GROUP
NE NUCLEAR ENERGY
OGRD: OFFICE OF GEOLOGIC REPOSITORY DEPLOYMENT
QACG: QUALITY ASSURANCE COORDINATION GROUP
NRC: NUCLEAR REGULATORY COMMISSION
OGR: OFFICE OF GEOLOGIC REPOSITORIES
OCRWM: OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
QAMPR: QUALITY ASSURANCE MANAGEMENT POLICIES AND REQUIREMENTS
BQARD: BASALT QUALITY ASSURANCE REQUIREMENTS DOCUMENT

CHRONOLOGY OF BWIP QA PROGRAM DEVELOPMENT



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NQA. NUCLEAR QUALITY ASSURANCE
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QAMPR: QUALITY ASSURANCE MANAGEMENT POLICIES AND REQUIREMENTS
BQARD: BASALT QUALITY ASSURANCE REQUIREMENTS DOCUMENT

SOURCE OF QUALITY ASSURANCE PROGRAM CRITERIA

- 10 CFR 60, SUBPART G
- 10 CFR 50, APPENDIX B
- U.S. NUCLEAR REGULATORY COMMISSION REVIEW PLAN FOR SITE CHARACTERIZATION
- ANSI/ASME NQA-1

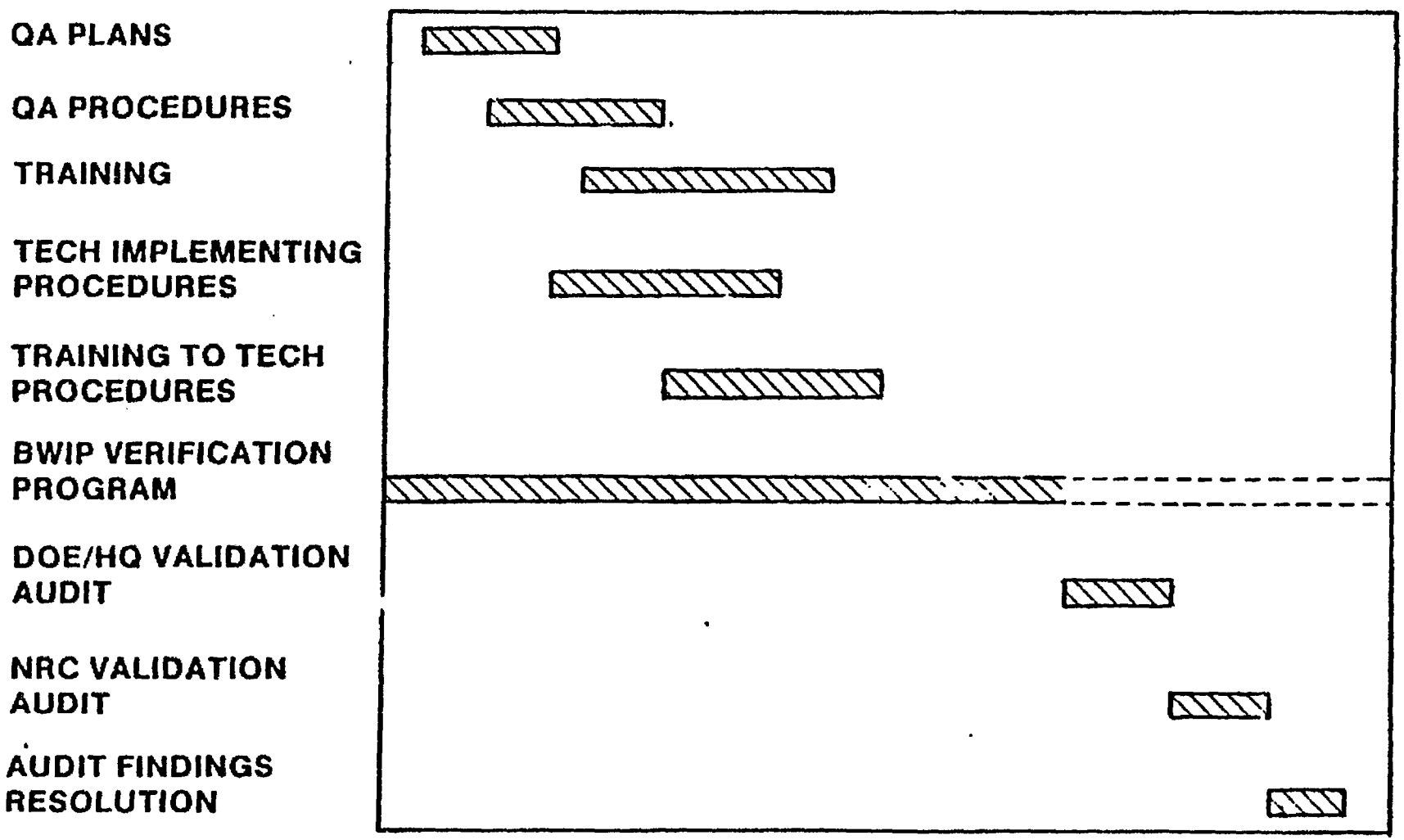
APPLICABLE DEPARTMENT OF ENERGY QUALITY ASSURANCE PLANS AND REQUIREMENTS DOCUMENTS

- DOE ORDER 5700.6A, "QUALITY ASSURANCE"
- DOE/RL ORDER 5700.1A, "QUALITY ASSURANCE"
- OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT "QUALITY MANAGEMENT POLICIES AND REQUIREMENTS"
- OFFICE OF GEOLOGIC REPOSITORIES "QUALITY ASSURANCE PLAN FOR SITING AND SITE CHARACTERIZATION," OGR/B-3 AND SUPPLEMENTS
- BASALT QUALITY ASSURANCE REQUIREMENTS DOCUMENT (BQARD)

BQARD

- COMBINES BASE REQUIREMENTS FOR QUALITY LEVEL 1 ITEMS INTO A SINGLE DOCUMENT
- INSURES CONSISTENT IMPLEMENTATION OF REQUIREMENTS AMONG PROJECT PARTICIPANTS
- PROVIDES BASIS FOR "FULLY QUALIFIED" QA PROGRAM
- USES 18 CRITERIA FORMAT

PROGRAM LOGIC



BWIP QA PLANS STATUS REPORT

AS OF QUARTER ENDING 12/31/86

MAJOR PARTICIPANT	DOCUMENT IDENTIFICATION	REV. NO.	STATUS*	APPROVAL DATE	REMARKS
RHO	RHO-QA-MA-3	2	5	8/4/86	REV. 3 TO DOE/RL FOR APPROVAL 12/86 - INCLUDES NQA-1-86 & OGR/B-3
KE/PB	BWIP PROCEDURES MANUAL	2	4	1/87	
M-K	BWIP QA MANUAL	1	4	1/87**	**DOE-RL PREPARING TO APPROVE WITH COMMENTS
PNL	QA MANUAL FOR LICENSING RELATED PROGRAMS (PNL-MA-60)	1	5	9/5/86	
WHC	QA MANUAL MG-197	*	5	8/6/86	
DOE-RL	BQARD	1	5	6/6/86	BOTH BEING REVISED TO ADDRESS NQA-1 1986 OGR-B3 & REORG
	DOE-RL QA PLAN	1	5	8/14/86	

*STATUS LEGEND:

1 - PLANNED
2 - UNDER PREPARATION
3 - FOR COMMENT RESOLUTION
4 - FOR PROJECT APPROVAL
5 - ISSUED FOR IMPLEMENTATION

* MANUAL HAS SEVERAL SECTIONS WITH INDIVIDUAL REVISION NUMBERS.

QA PROCEDURES DEVELOPMENT SUMMARY

AS OF QUARTER ENDING 12/31/86

PROCEDURES SATUS	MAJOR PARTICIPANTS						PROJECT TOTALS	REMARKS
	DOE-RL	RHO	KE/PB	M-K	PNL	WHC		
TOTAL REQUIRED	36	30	47	26	80	68	290	*TO BE ISSUED AS QAPP'S IN RHO-BW-MA-17
ISSUED FOR IMPLEMEN-TATION	35*	16	30	6	80	68	—	*BEING REVISED TO ADDRESS NQA-1-86, OGR-83 & REORG. CHANGES
APPROVED BY DOE-RL	35	16	42*	20**	NA***	NA***	—	*30 APPROVED NO COMMENTS 12 APPROVED WITH COMMENTS **8 APPROVED NO COMMENTS 12 APPROVED WITH COMMENTS *** APPROVED BY RHO
UNDER REVIEW OR COMMENT	0	11	3*	6*	—	—	—	*DISAPPROVED BY DOE
UNDER PREPARATION	0	1	2	2	—	—	1	
NOT YET STARTED	1	0	—	—	—	—	1	

DOE/RL BWI TRAINING PROGRAM

INITIAL PROCEDURE ORIENTATION	COMPLETE	07-05-86
PROJECT ORIENTATION	COMPLETE	09-15-86
ADVANCED AUDIT TRAINING	COMPLETE	08-27-86
AUDITS AND SURVEILLANCE FOR THE TECHNICAL PARTICIPANTS	COMPLETE	09-25-86
PERFORMANCE-BASED TRAINING SYSTEM	ADOPTED	08-23-86
- TRAINING MATRIX DEVELOPMENT	COMPLETE	09-05-86
- JOB FUNCTION IDENTIFICATION	COMPLETE	12-15-86
- EXAM PREPARATION COMPLETED & DISTRIBUTED TO PERSONNEL	COMPLETE	12-20-86
INSTRUCTOR TRAINING	COMPLETE	10-22-86
DETAILED TRAINING AND EXAMINATIONS FOR IDENTIFIED JOB FUNCTIONS	TARGETED	02-01-87

ROCKWELL BWIP TRAINING PROGRAM

• GENERAL EMPLOYEE ORIENTATION	COMPLETE
- HISTORY OF BWIP	9/13/86
- QA ORIENTATION	&
- BUSINESS MANAGEMENT	9/15-17/86
- PROGRAM MANAGEMENT	
• MANAGEMENT SYSTEMS PART I	COMPLETE
- DOCUMENT CONTROL	9/23-26/86
- CORRESPONDENCE CONTROL	&
- RECORD CONTROL	9/29/86
- ACTION TRACKING CONTROL	
- SAFETY CONTROL	
• MANAGEMENT SYSTEMS PART II	COMPLETE
- RESOURCES CONTROL	9/30/86
- PROCUREMENT CONTROL	&
- COST/SCHEDULE CONTROL	10/1-3,6/86
- SECURITY CONTROL	

BWIP FY 87 QA AUDIT STATUS REPORT

AS OF QUARTER ENDING 12/31/86

INITIATING ORGANIZATION	AUDITS FISCAL YEAR PL	AUDITS FISCAL YEAR CO	AUDITS QUARTER CO	AUDIT FINDINGS FISCAL YEAR IS	AUDIT FINDINGS FISCAL YEAR CL	AUDIT FINDINGS FISCAL YEAR OP	AUDIT FINDINGS QUARTER IS	AUDIT FINDINGS QUARTER CL	REMARKS
RHO	0	0	0	0	16	7	0	16	
KE/PB	0	0	0	0	2	0	0	2	
M-K	5	4	4	5	0	5	5	0	
PNL	0	0	0	0	0	0	0	0	
WHC	1	*	*	0	0	0	0	0	*AUDIT STARTED DURING QUARTERS. NOT YET COMPLETED
DOE-RL	7	0	0	0	0	43	0	0	

LEGEND:

PL = PLANNED
CO = COMPLETED

IS = ISSUED
CL = CLOSED

OP = STILL OPEN

BWIP FY 87 SURVEILLANCE STATUS REPORT

AS OF QUARTER ENDING 12/31/86

INITIATING ORGANIZATION	SURVEILLANCES FISCAL YEAR PL	CO	QUARTER CO	SURVEILLANCE REPORTS FISCALYEAR IS	CL	OP	QUARTER IS	CL	REMARKS
RHO	78	32	32	32	50	20	32	50	
KE/PB	78	50	50	50	50	2	50	50	
M-K	0	0	0	0	0	0	0	0	NO ACTIVITIES TO SURVEIL
PNL	14	14	14	14	14	6	14	14	
WHC	3	4	4	4	3	1	4	3	
DOE-RL	40	4	4	4	4	9	4	4	

LEGEND:

PL = PLANNED
CO = COMPLETED

IS = ISSUED
CL = CLOSED

OP = STILL OPEN

QA STAFFING STATUS REPORT

AS OF QUARTER ENDING 12/31/86

FUNCTIONAL ACTIVITY	MAJOR PARTICIPANTS												REMARKS
	DOE-RL		RHO		KE/PB		M-K		PNL		WHC		
	EX	REQ	EX	REQ	EX	REQ	EX	REQ	EX	REQ	EX	REQ	
ADMINISTRATION/ MANAGEMENT	1	1	11	11	1	1	2	1.5*	1	1	2	2	*QC SUPERVISOR 9/29/86
PROGRAM DEVELOPMENT	3	3	7	7	1	1	1	1.5	3	4.25	4	2	
PROGRAM VERIFICATION	2	2	26	26	0	0	2	2	5	6.5	1	3	
CONSULTANTS	19	19	0	0	0	0	0	0	2	4	0	0	
OTHERS	0	0	11	11	0	0	0	0	0	0	0	0	
TOTALS	25	25	60	55	2	2	5	5	11	15.75	7	7	

EX = EXISTING STAFF
REQ = STAFFING REQUESTED FOR THE FY

ROCKWELL STOP WORK ORDER
HISTORY

- BWI AUDIT/SURVEILLANCE PROGRAM
  - LACK OF ADEQUATE QA PROCEDURES
  - LACK OF TECHNICAL PROCEDURES
  - LACK OF TRAINING/TRAINING PROGRAM
- 3/14/86 BWI REQUEST TO THE CONTRACTOR TO EVALUATE WORK ACTIVITIES AGAINST MANAGEMENT CONTROL PREREQUISITES
- 4/11/86 CONTRACTOR RESPONSE
  - REVIEWED 450 WORK ACTIVITIES - RECOMMENDED 41 ACTIVITIES BE STOPPED
  - FAILED TO IDENTIFY BASIS FOR SWO RECOMMENDATION
  - LATER SUBMITTAL OF WORK EVALUATION SHEETS DID NOT SUPPORT 4/11/86 RECOMMENDATION
- 4/24/86 STOP WORK LETTER ON PEER REVIEW
- 5/1/86 DOE/RL STOP WORK LETTER TO CONTRACTOR
  - IDENTIFIED SIX CATEGORIES FOR EXCEPTIONS
- 5/14/86 CONTRACTOR RESPONSE
  - APPROXIMATELY 850 WORK ACTIVITIES REVIEWED
  - APPROXIMATELY 350 WORK ACTIVITIES RECOMMENDED FOR SWO
- FOLLOW-ON ACTIVITIES
  - ADDITIONAL ITEMS WERE STOPPED BASED ON FOLLOW-ON REVIEWS
  - ULTIMATELY 1,300 ACTIVITIES WERE REVIEWED AND APPROXIMATELY HALF WERE STOPPED. THE REMAINDER FELL INTO ONE OF THE SIX EXCEPTION

SWO PURPOSE

- TO REFOCUS PROJECT ATTENTION AND PRIORITIES TO INSURE APPROPRIATE MANAGEMENT AND TECHNICAL PREREQUISITES ARE PUT IN PLACE TO SUPPORT LICENSING
- PERMIT THE FOLLOWING ACTIVITIES TO CONTINUE
  - DATA GATHERING - FOR WHICH INTERRUPTION COULD RESULT IN LOSS OF SIGNIFICANT DATA
  - MANAGEMENT, OPERATING, AND QA SYSTEMS UPGRADES
  - SAFETY/MAINTENANCE ACTIVITIES
  - ADMINISTRATIVE ACTIVITIES
  - SITE CHARACTERIZATION PLAN (SCP) PREPARATION ACTIVITIES
  - ESSENTIAL ACTIVITIES/IMPRUDENT TO STOP

BWIP STOP WORK STATUS

- STOP WORK ORDER ISSUED MAY 1, 1986
- QUALITY AFFECTING ACTIVITIES STOPPED
- SOME ACTIVITIES CONTINUING - IMPRUDENT TO STOP
- BWI READINESS REVIEW BOARD ESTABLISHED
- PROJECT PARTICIPANTS REVISING PROCEDURES TO MEET BQARD AND SYSTEMS ENGINEERING REQUIREMENTS
- SURVEILLANCES BEING CONDUCTED ON CONTINUING ACTIVITIES
  - TRAINING
  - PROCEDURE WRITING
  - RECORDS
- RHO COMPLETED APPRAISALS OF DIRECT FUNDED CONTRACTORS - WHC, PNL, KE & M-K NOVEMBER 1986
- RHO INTERNAL APPRAISALS COMPLETED DECEMBER 1986

BWIP STOP WORK STATUS (CONT)

- EXPLORATORY SHAFT DESIGN BASIS STUDY RESTARTED 12/22/86
- EXPEDITED SPECIAL CASE REVIEW IN PROGRESS FOR RESTARTING DC 24/25 ACTIVITIES
- REVIEW PACKAGE FOR PARTIAL RELEASE OF THE GENERAL STOP WORK RECEIVED FROM ROCKWELL 1/5/85. REVIEW INITIATED
- DOE-RL AUDITS/ASSESSMENTS TO DETERMINE PROJECT READINESS TO RESTART STOPPED WORK, AND NEW WORK HAS BEGUN AND WILL CONTINUE OVER THE NEXT SEVERAL MONTHS

READINESS REVIEWS

- A SYSTEMATIC DOCUMENTED REVIEW OF THE READINESS FOR STARTUP AND/OR CONTINUED INTENDED USE OF A FACILITY, PROCESS OR ACTIVITY

  - "HOLD" POINTS PRIOR TO PROCEEDING TO NEXT PHASE

- READINESS REVIEWS CURRENTLY IDENTIFIED FOR THE FOLLOWING BWIP ACTIVITIES:

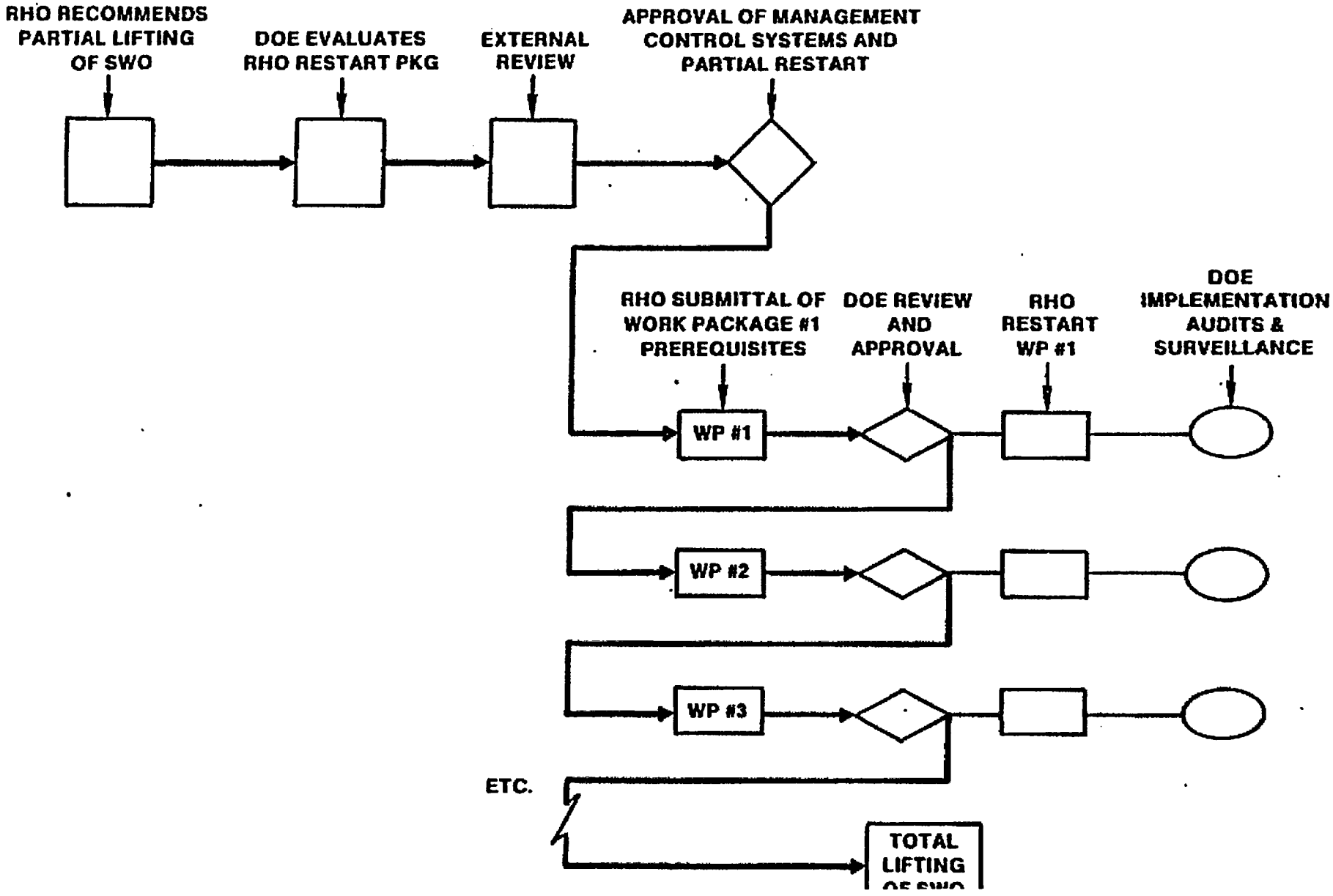
  - RESTART OF STOPPED WORK

  - START OF LARGE HYDROLOGIC STRESS (LHS) TEST

  - START OF EXPLORATORY SHAFT (ES) DRILLING

- PARTIAL READINESS REVIEW PROCESS UTILIZED FOR RESTART OF STOPPED WORK ACTIVITIES

SWO RESTART PROCESS



OTHER TARGETS OF OPPORTUNITY

- QUALITY CONCERNS HOTLINE
- QUALITY IMPROVEMENT PROGRAM
- CONTRACTOR TRANSITION ACTIVITIES
  - SUPPORT SERVICES CONTRACTOR
  - OPERATIONS CONTRACTOR
- CONTINUATION OF READINESS REVIEW ACTIVITIES

WHAT IS QUALITY

QUALITY IS FITNESS FOR THE INTENDED PURPOSE

TK19

BEAUTY AND QUALITY

A DUNG BASKET IS BEAUTIFUL AND
A GOLDEN SHIELD UGLY.....

IF THE ONE BE FITTED TO ITS PURPOSE WELL
AND THE OTHER ILL.

QUALITY IS FITNESS FOR THE
INTENDED PURPOSE

TK20

HISTORY OF QA

- PRIDE OF WORKMANSHIP
- PROFESSIONAL DEDICATION
- FEAR OF PENALTY

SIMPLE

TK21

QUALITY ASSURANCE ROOTS

- LONG HISTORY OF PROJECTS WITH DISASTROUS SURPRISES
  TYPE A: LEADING TO PROJECT CANCELLATION OR MAJOR RESCHEDULE
  TYPE B: EXPRESSED IN CATROSTROPHIC EVENTS

- ANALYSES OF CAUSES AND CHIEF CONTRIBUTING ERRORS ESTABLISHED UNVARYING LIST OF REPEAT OFFENDERS--INHERENT PROJECT RISKS

TK29

SOLUTION

- PREVENTIVE MEASURES DESIGNED FOR EACH OF THOSE INHERENT RISKS
- PREVENTIVE MEASURES ORGANIZED INTO FORMAL QUALITY ASSURANCE PROGRAM
- BWIP QA PROGRAM -- PREVENTIVE MEASURES TAILORED TO FIT SITE CHARACTERIZATION

BASIC GOALS

- TO PREVENT ANY OF THE INHERENT RISKS FROM MATERIALIZING
- IF A RISK MATERIALIZES, TO KEEP IT FROM HAVING ADVERSE CONSEQUENCES

PREVENTIVE MEASURES

- KNOW WHAT IS TO BE DONE — V
- KNOW WHY — E
- KNOW HOW — R
- DO IT RIGHT — I
- VERIFY THAT IT IS RIGHT — F
- KEEP THE RECORDS NECESSARY TO MAKE IT POSSIBLE TO RECONSTRUCT THE ENTIRE CHAIN — Y

TK26

BACK-UP MEASURES

- SCREENS AND CHECK-POINTS TO DETECT PROBLEMS BEFORE THEY CASCADE
- FIX PROBLEMS WHEN DETECTED
- ELIMINATE CAUSE (OR "DISARM" IT)
- FIND AND FIX ANY ADVERSE RESULTS THE PROBLEM MAY HAVE PRODUCED BEFORE IT WAS DETECTED

TK27

HISTORY OF QA (continued)

- INSPECTION
- ADDITIONAL TESTS AND CODES
  - FATIGUE TESTS: FROM AIRCRAFT FAILURES
  - FRACTURE TOUGHNESS: FROM BROKEN SHIPS
  - ASME CODES: FROM BOILER FAILURES
- MILITARY STANDARDS AND NASA

COMPLEX

TK22

HISTORY OF QA - NUCLEAR

- AEC 10 CFR 50 - APPENDIX A (1967)
- ASLB ISSUES - ZION NUCLEAR PLAN HEARINGS
- 10 CFR 50 - APPENDIX B (1969)
- ANSI/ASME - N45.2 (1970)
- ANSI/ASME - NQA-1 (1979)
  - NQA-1 (1986)

TK23

ANSI/ASME NQA-1
BRIEF OVERVIEW

T. K. SUBRAMANIAN

QUALITY SYSTEMS DIVISION
DEPARTMENT OF ENERGY
RICHLAND, WASHINGTON

NQA-1 REQUIREMENTS

1. ORGANIZATION
2. QUALITY ASSURANCE PROGRAM
3. DESIGN CONTROL
4. PROCUREMENT DOCUMENT CONTROL
5. INSTRUCTIONS, PROCEDURES AND DRAWINGS
6. DOCUMENT CONTROL
7. CONTROL OF PURCHASED ITEMS AND SERVICES
8. IDENTIFICAITON AND CONTROL OF ITEMS
9. CONTROL OF PROCESSES

TK30

NQA-1 REQUIREMENTS (continued)

10. INSPECTION
11. TEST CONTROL
12. CONTROL OF MEASURING AND TEST EQUIPMENT
13. HANDLING, STORAGE, AND SHIPPING
14. INSPECTION, TEST AND OPERATING STATUS
15. CONTROL OF NONCONFORMING ITEMS
16. CORRECTIVE ACTION
17. QUALITY ASSURANCE RECORDS
18. AUDITS

1. ORGANIZATION

THE ORGANIZATIONAL STRUCTURE, FUNCTIONAL RESPONSIBILITIES, LEVELS OF AUTHORITY, AND LINES OF COMMUNICATION FOR ACTIVITIES AFFECTING QUALITY SHALL BE DOCUMENTED.

... SUCH PERSONS OR ORGANIZATIONS SHALL REPORT TO A MANAGEMENT LEVEL, SUCH THAT REQUIRED AUTHORITY AND ORGANIZATIONAL FREEDOM ARE PROVIDED, INCLUDING SUFFICIENT INDEPENDENCE FROM COST AND SCHEDULE CONSIDERATIONS.

2. QUALITY ASSURANCE PROGRAM

A DOCUMENTED QUALITY ASSURANCE PROGRAM SHALL BE PLANNED, IMPLEMENTED, AND MAINTAINED IN ACCORDANCE WITH THIS STANDARD, OR PORTIONS THEREOF. THE PROGRAM SHALL PROVIDE CONTROL OVER ACTIVITIES AFFECTING QUALITY TO AN EXTENT CONSISTENT WITH THEIR IMPORTANCE.

THE PROGRAM SHALL PROVIDE FOR INDOCTRINATION AND TRAINING, AS NECESSARY, OF PERSONNEL PERFORMING ACTIVITIES AFFECTING QUALITY TO ASSURE THAT SUITABLE PROFICIENCY IS ACHIEVED AND MAINTAINED.

TK2

3. DESIGN CONTROL

THE DESIGN SHALL BE DEFINED, CONTROLLED AND VERIFIED. APPLICABLE DESIGN INPUTS SHALL BE APPROPRIATELY SPECIFIED ON A TIMELY BASIS AND CORRECTLY TRANSLATED INTO DESIGN DOCUMENTS. DESIGN ADEQUACY SHALL BE VERIFIED BY PERSONS OTHER THAN THOSE WHO DESIGNED THE ITEM. DESIGN CHANGES, SHALL BE GOVERNED BY CONTROL MEASURES COMMENSURATE WITH THOSE APPLIED TO THE ORIGINAL DESIGN.

4. PROCUREMENT DOCUMENT CONTROL

APPLICABLE DESIGN BASES AND OTHER REQUIREMENTS NECESSARY TO ASSURE ADEQUATE QUALITY SHALL BE INCLUDED OR REFERENCED IN DOCUMENTS FOR PROCUREMENT OF ITEMS AND SERVICES. TO THE EXTENT NECESSARY PROCUREMENT DOCUMENTS SHALL REQUIRE SUPPLIERS TO HAVE A QUALITY ASSURANCE PROGRAM CONSISTENT WITH THE APPLICABLE REQUIREMENTS OF THIS STANDARD.

5. INSTRUCTIONS, PROCEDURES, AND DRAWINGS

ACTIVITIES AFFECTING QUALITY SHALL BE PRESCRIBED BY AND PERFORMED IN ACCORDANCE WITH DOCUMENTED INSTRUCTIONS, PROCEDURES, OR DRAWINGS OF A TYPE APPROPRIATE TO THE CIRCUMSTANCES. THESE DOCUMENTS SHALL INCLUDE OR REFERENCE APPROPRIATE QUANTITATIVE OR QUALITATIVE ACCEPTANCE CRITERIA FOR DETERMINING THAT PRESCRIBED ACTIVITIES HAVE BEEN STATISFACTORILY ACCOMPLISHED.

TK5

6. DOCUMENT CONTROL

THE PREPARATION, ISSUE, AND CHANGE OF DOCUMENTS THAT SPECIFY QUALITY REQUIREMENTS OR PRESCRIBE ACTIVITIES AFFECTING QUALITY SHALL BE CONTROLLED TO ASSURE THAT CORRECT DOCUMENTS ARE BEING EMPLOYED. SUCH DOCUMENTS, INLCUDING CHANGES THERETO, SHALL BE REVIEWED FOR ADEQUACY AND APPROVED FOR RELEASE BY AUTHORIZED PERSONNEL.

TK6

7. CONTROL OF PURCHASED ITEMS AND SERVICES

THE PROCUREMENT OF ITEMS AND SERVICES SHALL BE CONTROLLED TO ASSURE CONFORMANCE WITH SPECIFIED REQUIREMENTS. SUCH CONTROL SHALL PROVIDE FOR THE FOLLOWING AS APPROPRIATE: SOURCE EVALUATION AND SELECTION, EVALUATION OF OBJECTIVE EVIDENCE OF QUALITY FURNISHED BY THE SUPPLIER, SOURCE INSPECTION, AUDIT, AND EXAMINATION OF ITEMS OR SERVICES UPON DELIVERY OR COMPLETION.

8. IDENTIFICATION AND CONTROL OF ITEMS

CONTROLS SHALL BE ESTABLISHED TO ASSURE THAT ONLY CORRECT AND ACCEPTED ITEMS ARE USED OR INSTALLED. IDENTIFICATION SHALL BE MAINTAINED ON THE ITEMS OR IN DOCUMENTS TRACEABLE TO THE ITEMS, OR IN A MANNER WHICH ASSURES THAT IDENTIFICATION IS ESTABLISHED AND MAINTAINED.

TK8

9. CONTROL OF PROCESSES

PROCESSES AFFECTING QUALITY ITEMS OR SERVICES SHALL BE CONTROLLED. SPECIAL PROCESSES THAT CONTROL OR VERIFY QUALITY, SUCH AS THOSE USED IN WELDING, HEAT TREATING, AND NONDESCTRUCTIVE EXAMINATION, SHALL BE PERFORMED BY QUALIFIED PERSONNEL USING QUALIFIED PROCEDURES IN ACCORDANCE WITH SPECIFIED REQUIREMENTS.

TK9

10. INSPECTION

INSPECTIONS REQUIRED TO VERIFY CONFORMANCE OF AN ITEM OR ACTIVITY TO SPECIFIED REQUIREMENTS SHALL BE PLANNED AND EXECUTED. CHARACTERISTICS TO BE INSPECTED AND INSPECTION METHODS TO BE EMPLOYED SHALL BE SPECIFIED. INSPECTION RESULTS SHALL BE DOCUMENTED. INSPECTION FOR ACCEPTANCE SHALL BE PERFORMED BY PERSONS OTHER THAN THOSE WHO PERFORMED OR DIRECTLY SUPERVISED THE WORK BEING INSPECTED.

11. TEST CONTROL

TESTS REQUIRED TO VERIFY CONFORMANCE OF AN ITEM TO SPECIFIED REQUIREMENTS AND TO DEMONSTRATE THAT ITEMS WILL PERFORM SATISFACTORILY IN SERVICE SHALL BE PLANNED AND EXECUTED. CHARACTERISTICS TO BE TESTED AND TEST METHODS TO BE EMPLOYED SHALL BE DOCUMENTED AND THEIR CONFORMANCE WITH ACCEPTANCE CRITERIA SHALL BE EVALUATED.

TESTS REQUIRED TO COLLECT DATA, SUCH AS FOR SITING OR DESIGN INPUT, SHALL BE PLANNED, EXECUTED, DOCUMENTED, AND EVALUATED.

TK11

12. CONTROL OF MEASURING AND TEST EQUIPMENT

TOOLS, GAGES, INSTRUMENTS, AND OTHER MEASURING AND TEST EQUIPMENT USED FOR ACTIVITIES AFFECTING QUALITY SHALL BE CONTROLLED AND AT SPECIFIED PERIODS CALIBRATED AND ADJUSTED TO MAINTAIN ACCURACY WITHIN NECESSARY LIMITS.

13. HANDLING, STORAGE, AND SHIPPING

HANDLING, STORAGE, CLEANING, PACKAGING, SHIPPING, AND PRESERVATION OF ITEMS SHALL BE CONTROLLED TO PREVENT DAMAGE OR LOSS AND TO MINIMIZE DETERIORATION.

14. INSPECTION, TEST & OPERATING STATUS

THE STATUS OF INSPECTION AND TEST ACTIVITIES SHALL BE IDENTIFIED EITHER ON THE ITEMS OR IN DOCUMENTS TRACEABLE TO THE ITEMS WHERE IT IS NECESSARY TO ASSURE THAT REQUIRED INSPECTIONS AND TESTS ARE PERFORMED AND TO ASSURE THAT ITEMS WHICH HAVE NOT PASSED THE REQUIRED INSPECTIONS AND TESTS ARE NOT INADVERTENTLY INSTALLED, USED, OR OPERATED. THE AUTHORITY FOR APPLICATION AND REMOVAL OF TAGS, MARKINGS, LABELS, AND STAMPS SHALL BE SPECIFIED.

TK14

15. CONTROL OF NONCONFORMING ITEMS

ITEMS THAT DO NOT CONFORM TO SPECIFIED REQUIREMENTS SHALL BE CONTROLLED TO PREVENT INADVERTENT INSTALLATION OR USE. CONTROLS SHALL PROVIDE FOR IDENTIFICATION, DOCUMENTATION, EVALUATION, SEGREGATION WHEN PRACTICAL, AND DISPOSITION OF NONCONFORMING ITEMS, AND FOR NOTIFICATION TO AFFECTED ORGANIZATIONS.

16. CORRECTIVE ACTION

CONDITIONS ADVERSE TO QUALITY SHALL BE IDENTIFIED PROMPTLY AND CORRECTED AS SOON AS PRACTICAL. IN THE CASE OF A SIGNIFICANT CONDITION ADVERSE TO QUALITY, THE CAUSE OF THE CONDITION SHALL BE DETERMINED AND CORRECTIVE ACTION FOR SIGNIFICANT CONDITIONS ADVERSE TO QUALITY SHALL BE DOCUMENTED AND REPORTED TO APPROPRIATE LEVELS OF MANAGEMENT; FOLLOW-UP ACTION SHALL BE TAKEN TO VERIFY IMPLEMENTATION OF THIS CORRECTIVE ACTION.

TK16

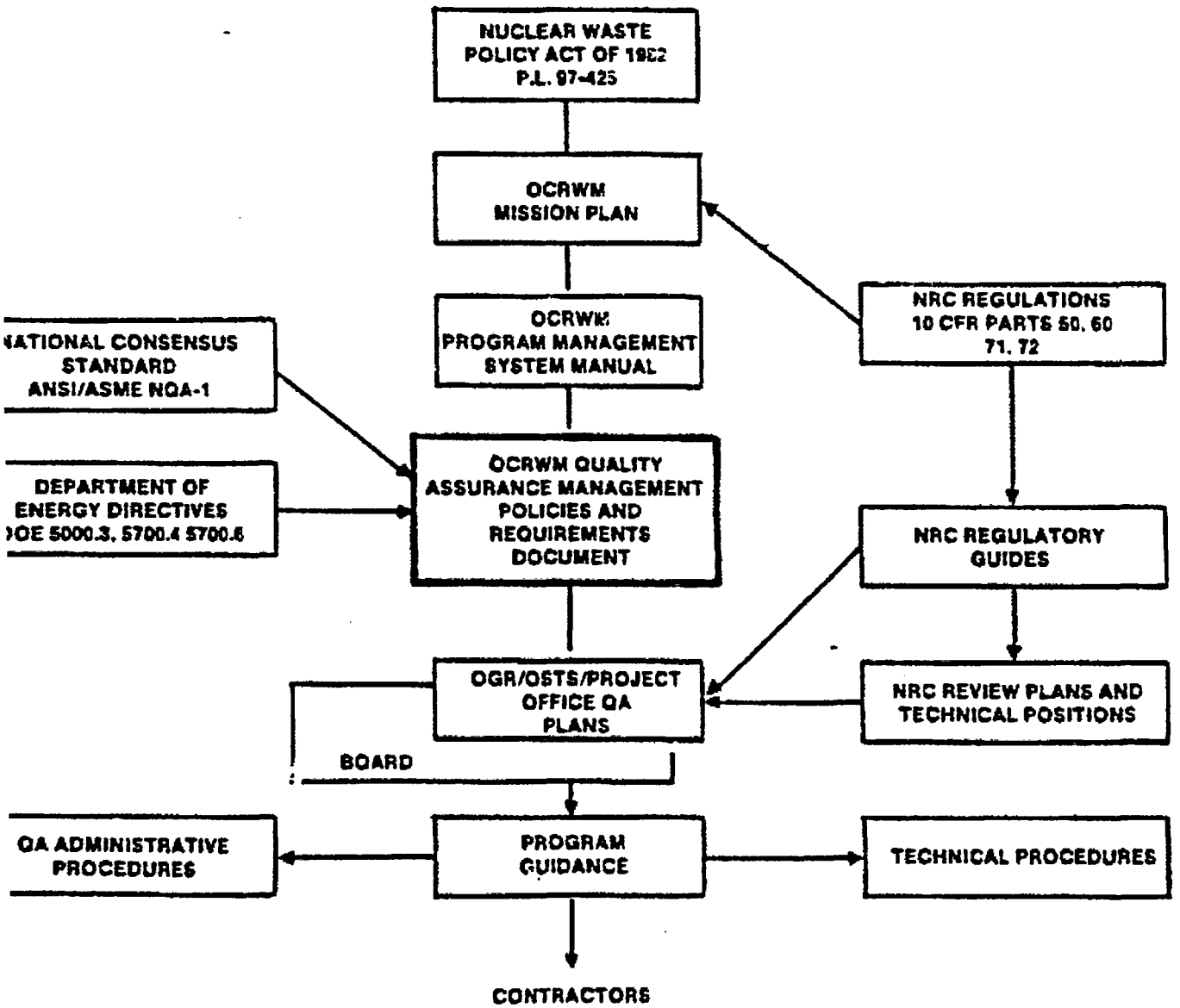
17. QUALITY ASSURANCE RECORDS

RECORDS THAT FURNISH DOCUMENTARY EVIDENCE OF QUALITY SHALL BE SPECIFIED, PREPARED, AND MAINTAINED. RECORDS SHALL BE LEGIBLE, IDENTIFIABLE, RETRIEVABLE. RECORDS SHALL BE PROTECTED AGAINST DAMAGE, DETERIORATION, OR LOSS. REQUIREMENTS AND RESPONSIBILITIES FOR RECORD TRANSMITTAL, DISTRIBUTION, RETENTION, MAINTENANCE, AND DISPOSITIONS SHALL BE ESTABLISHED AND DOCUMENTED.

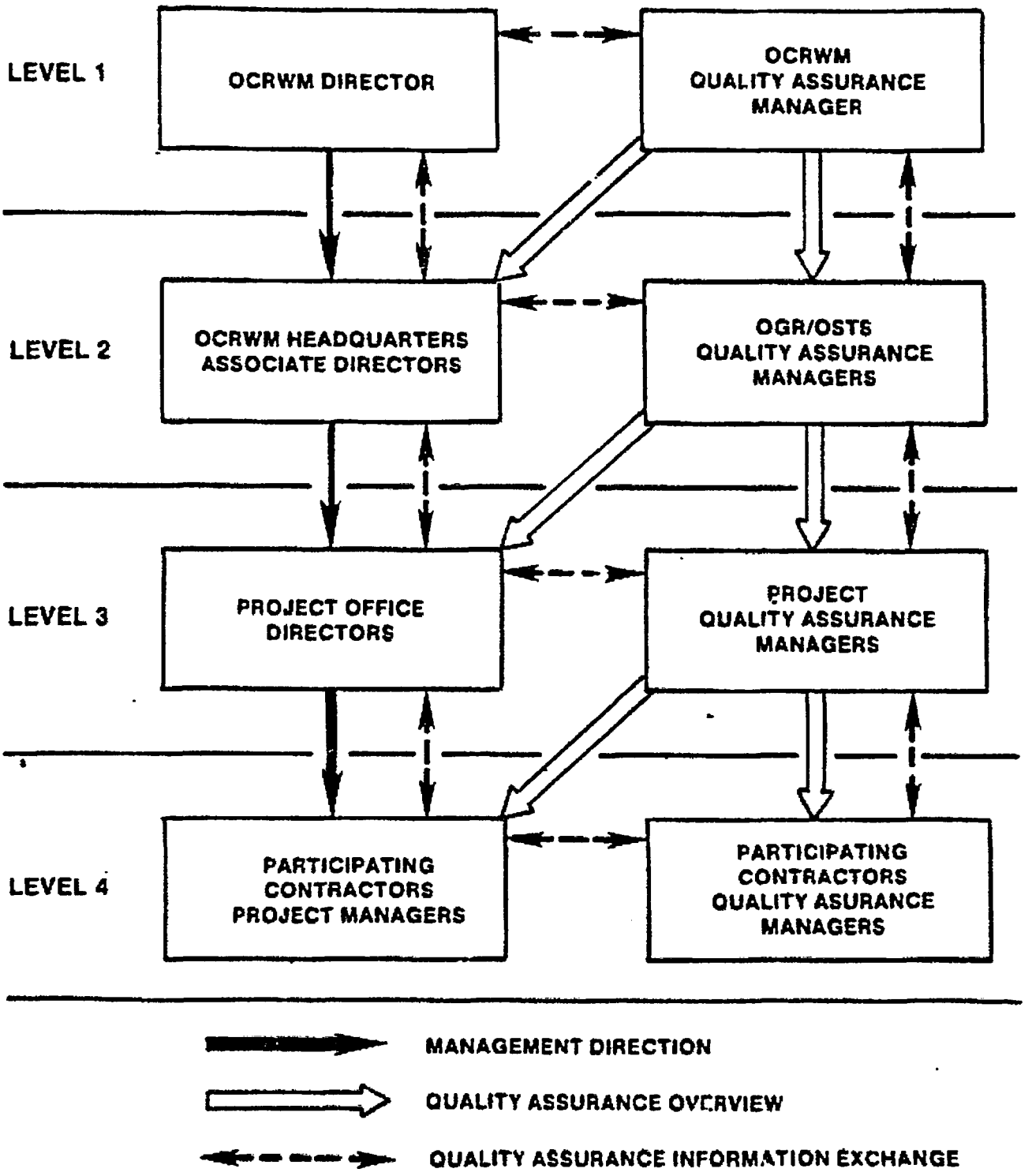
18. AUDITS

PLANNED AND SCHEDULED AUDITS SHALL BE PERFORMED TO VERIFY COMPLIANCE WITH ALL ASPECTS OF QUALITY ASSURANCE PROGRAM AND TO DETERMINE ITS EFFECTIVENESS. THESE AUDITS SHALL BE PERFORMED IN ACCORDANCE WITH WRITTEN PROCEDURES OR CHECKLISTS BY PERSONNEL WHO DO NOT HAVE DIRECT RESPONSIBILITY FOR PERFORMING THE ACTIVITIES BEING AUDITED. AUDIT RESULTS SHALL BE DOCUMENTED AND REPORTED TO AND REVIEWED BY RESPONSIBLE MANAGEMENT. FOLLOW-UP ACTION SHALL BE TAKEN WHERE INDICATED.

TK18



GOVERNING DOCUMENTS



QUALITY ASSURANCE MANAGEMENT DIRECTION OVERVIEW AND INFORMATION EXCHANGE


Why do I have to have all the documents before I get into a project?
The game plan is in my head!
QA should follow Ballet Plan NOT Football Strategy