

SALT
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cc: PIC Attendees/Coordination Meeting in Irvine(CN-038)

RF	M. Balmert, ONWI	S. Foels, SMS
	K. Beall, ONWI	D. Kingsley, ONWI
	H. Bermanis, Weston	D. Stucker, Weston
	P. Chan, ONWI	T. Verma, NRC/Columbus
	R. Cummings, Engrs. Int'l	
	R. Fisher, ONWI	

April 1, 1985

CONFERENCE NOTES CN-038

DATE: March 19, 20, 21, 1985
LOCATION: Fluor, Irvine
SUBJECT: Project Coordination Meeting
ATTENDEES:

DOE/HQ DOE/SRPO NRC ONWI Fluor Team

See Attachment 1 For Attendees at Various Sessions.

1.0 DISCUSSION

1.1 A series of working groups were held to discuss status of the salt repository conceptual design. Key areas discussed included:

- Status of Deliverables in Review Process
- Status of Deliverables in Process
- Review of Fluor Reporting Systems
- Discussion of Conflicts in Criteria Documents
- Discussion of Baseline Position on Retrievability
- Review of Fluor Structures, Systems and Components Definitions Document
- Review of Fluor Information Needs
- Review of SCP-Conceptual Design Report Outline

1.2 An agenda is included as ATTACHMENT 2.

1.3 Summaries of Fluor deliverable status are included as ATTACHMENT 3.

2.0 WORKING SESSION SUMMARIES

Summaries of selected working sessions are given below. Action items from all sessions are presented in Section 3.0.

2.1 Retrievability Working Group

Discussions involved identification and interpretation of issues and guidelines to be used for salt retrievability. Attachment 4 summarizes these discussions.

Conference Notes CN-038 (Continued)

April 1, 1985
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2.2 Conflicts in Criteria Documents

Conflicts currently exist in criteria documents, primarily between the Generic Requirements and the Functional Design Criteria.

2.2.1 Fluor will proceed with conceptual design assuming consolidation at the repository using "dry" disassembly techniques. The consequences of this are:

- ° If dry disassembly is not a proven technology by the time of License Application then the licensing process could be affected.
- ° If the MRS assumes responsibility for spent fuel consolidation then repository design will be simplified, but will require revision during License Application Design.

DOE HQ will be giving further guidance on disassembly issue in June/July '85 time frame.

2.2.2 Repository design should consider three month surge storage for waste receipts at the repository.

2.2.3 Repository design should use 750 mrem/year as annual exposure dose guideline under normal operations. This seems consistent with ALARA. 10CFR20 guideline will be employed for emergency conditions.

2.2.4 SRPO's position is that salt repositories should be considered gassy.

2.2.5 The FDC should be modified to include a constraint on breaking of fuel cladding if it seems realistic to do so.

2.2.6 Fluor needs to assume position on gassy mine regulations (30CFR57.21 or 30CFR58.21) by 4/15/85 to prevent slippage of Waste Package/Repository Impact work.

2.2.7 Repository design should use 5 mrem as design goal for radiation dose to public. This seems reasonable considering current experience/requirements from nuclear power facilities. The 25 mrem mentioned in the GR addresses the total fuel cycle. It seems reasonable to assume 5 mrem of this 25 mrem total will be allotted to repository.

Conference Notes CN-038 (Continued)

April 1, 1985

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- 2.2.8 The FDC should reflect waste receipt rates that are consistent with 50-400 MTU/year guidance in other documents.
- 2.2.9 The FDC will be revised to include requirement to receive 300 canisters of West Valley waste in 1998.
- 2.2.10 TRU will not be received at the repository - per GR, FDC will be revised.
- 2.2.11 There will be a waste package report prepared by ONWI to support the ESF.
- 2.2.12 DOE will buy land based on what is in EA's. Basic premise is 3X3 mile plot.
- 2.2.13 Design should use 5 year minimum out of reactor age for SF. FDC will be modified.
- 2.2.14 Fluor will prepare final comments on FDC and submit to DOE by 4/5/85.

2.3 Structures, Systems and Components Definitions (SSC)

- 2.3.1. The BWIP project will be preparing an overall repository program position on SSC for review.
- 2.3.2 The Fluor deliverable on SSC should be closed out and used as a basis for further work. If necessary it will be modified later to reflect overall program position.

3.0 ACTION ITEMS

3.1 General Status Session

- 3.1.1 Fluor to send five additional copies of BFGD Volume 1 to DOE by 3/29/85.
- 3.1.2 Fluor to resubmit a list of data needs in chronological order to DOE by 4/5/85.
- 3.1.3 DOE to send Fluor a copy of the ONWI planning outlines for surface characterization by 3/29/85.
- 3.1.4 Fluor to submit copies of key decision analysis (K-T) to DOE for review by 3/29/85.

Conference Notes CN-038 (Continued)

April 1, 1985

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3.2 Review of Fluor Reporting Systems

- 3.2.1 Fluor to submit Baseline Manhour Summary by SOW to DOE by 3/27/85.
- 3.2.2 Fluor to submit proposed staffing plan build up to DOE by 3/27/85.
- 3.2.3 Fluor to submit the explanation of why FY85 costs exceed funding allowance to DOE along with suggested solutions by 3/27/85.
- 3.2.4 Fluor to submit WPAS milestones for FY86 and FY87 to DOE by 3/27/85.
- 3.2.5 Fluor submit WPAS funding estimates for FY86 through FY91 by 3/27/85.
- 3.2.6 Fluor to convert baseline to new CWBS and submit to DOE by 4/5/85.

3.3 Retrievability Working Group

Fluor to prepare consolidated position on retrievability for use in BFGD and submit to DOE by 4/5/85.

3.4 SCP-CDR Review

Fluor to review SCP-CD scope and submit comments to DOE by 3/27/85.

3.5 Fluor Information Needs

- 3.5.1 Fluor will submit position paper on recommendations to DOE for use of 30CFR58.21 gassy mine regulations by 3/27/85.
- 3.5.2 Fluor will prepare formal comments on Functional Design Criteria and submit to DOE by 4/5/85.


T. O. Mallonee
Project Manager


TOM:AKC:lp
Attachment

SALT REPOSITORY
COORDINATION MEETING

MARCH 19, 1985

<u>NAME</u>	<u>ORGANIZATION</u>	<u>NAME</u>	<u>ORGANIZATION</u>
1. JIM CLARK	FLUOR/PROJECT	31.	
2. VIRGIL LOWERY	DOE / HQs	32.	
3. DEAN STUCKER	WESTON	33.	RON TOME' SAIC-REMOTE ENG.
4. ROBERT CUMMINGS	ENGRS INT'L.	34.	RON MAY SAIC
5. TILAK (TEEK) VERMA	NRC	35.	HARRY KORTUCKI FLUOR-MECHANICAL
6. DICK SWELL	FLUOR/PROJECT	36.	RANDY ESSEX WCC
7. BOB ROGERS	FLUOR/PROJECT	37.	Rick Nelson WCC-geotech
8. K.A. MAC DONALD	FLUOR/PROJECT.	38.	Mike Gross SAIC-geotech
9. JERRY FREDERSON	FLUOR/PROJECT	39.	
10. PAUL MCKIE	M-K/Mining	40.	ROBERT ACKARCT. M-K
11. JIM TAIPALE	M-K MINING	41.	JEFF ARBITAL SAIC-Engr Barriers
12. MIKE KLEIN	Fluor Cost/Sched	42.	Phil Richter Fluor-Struct
13. ERIC J. MOTZ	DOE-CHICAGO	43.	HENRI KOZA FLUOR-STRUCTURE
14. KEN BEALL	ONWI-ENGR.	44.	TOM MALLONEE FLUOR-PROJECT
15. SAM BASHAM	BATTELLE-ORNL	45.	W.R. GRIFFIN FLUOR-LICENSING
16. RICHARD KINGSLEY	BATTELLE ORNL	46.	A. SACKER FLUOR-MANAGEMENT
17. MIKE BALMERT	BATTELLE ONWI	47.	
18. KEITH ROBINETTE	DOE-CH-SRPO	48.	
19. TIM REA	DOE-CH-SRPO	49.	
20. STEVE FOELS	SMS-SRPO	50.	
21. Philip Van Loan	DOE-CH SRPO		
22. DAVE DASHEVSKY	DOE-CH		
23. JACK FITCH	FLUOR PROJ		
24. Gene Underwood	FLUOR QA		
25. DUDLEY JOSSELYN	ESD, IE		
26. Ron Whiton	M-K		
27. Manuel de la Puente	FLUOR/RAM		
28. Norman Greenberg	Fluor-Piping		
29. Vernon Pierce	Fluor-Nuclear Tech		
30. Al Smith	Fluor Nuc Tech + Process		
31. MARK FORTSCH	FLUOR-NUCTECH		
32. DAVE LESTER	SAIC-ENG. BARRIERS		
33. HANK BERMANIS	WESTON		

3/20/85

DESIGN CRITERIA DOCUMENTS

<u>NAME</u>	<u>ORGANIZATION</u>	<u>NAME</u>	<u>ORGANIZATION</u>
1. J. Clark	Fluor/Project		
2. Jack Fitch	" "		
3. Gene Underwood	" QA		
4. Manuel de la Puente	Fluor / RAM		
5. Harry Kortnicki	Fluor/Mechanical		
6. ROBERT CUNNINGHAM	ENGRS. INTL./NRC		
7. Kenneth Mac Donald	Fluor/Boise		
8. Bill Griffin	Fluor Licensing		
9. JEFF ARBITAL	SAIC - ENGR BARRIER		
10. Ken Beall	BATTELLE - ONWI		
11. RICHARD KINGSLEY	BATTELLE - ONWI		
12. BOB ROGERS	FLUOR/PROJECT		
13. TOM MALLONEE	FLUOR/PROJECTS		
14. TEEK VERMA	NRC/COLUMBUS		
15. VIRGIL Lowery	DOE/HQs		
16. SAM BATHAM	BATTELLE - ONWI		
17. RALPH FISHER	BATTELLE - ONWI		
18. MIKE BALMENT	BATTELLE - ONWI		
19. Al Smith	Fluor NucTech + Process		
20. K. Robinette	DOE/SRPO		
21. D. Stucker	WESTON		
22. H. Bermanis (sp)	WESTON		
23. D. Josselyn	ESP		
24.			
25.			
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28.			
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30.			

RETRIEVABILITY WORKING GROUP - 3/20/85

<u>NAME</u>	<u>ORGANIZATION</u>	<u>NAME</u>	<u>ORGANIZATION</u>
1. J. Clark	Fluor/Project	31.	
2. Ken Beall	BATTELLE ONWI		
3. RICHARD KINGSLEY	BATTELLE ONWI		
4. ROBERT CUMMINGS	ENG'RS INT'L. FOR NRC (observer)		
5. TILAK R. VERMA	NRC/Columbus (observer)		
6. MIKE BALBERT	BATTELLE ONWI		
7. Vernon Pierce	Fluor - Nuclear Tech		
8. Al Smith	Fluor - Nuc Tech + Process		
9. Paul McKie	M-K, Mining		
10. RON MAY	SAIC		
11. RON TOME'	SAIC		
12. JIM TAIPALE	M-K/MINING		
13. HANK BERMANIS	WESTON		
14. Dean Stucker	WESTON		
15. JACK FITCH	FLUOR		
16. SAM BASHAM	BATTELLE-ONWI		
17. Keith Robnetta	DOE-CH-SRPO		
18. Ron Whiton	M-K/Mining		
19. Bill Griffin	Fluor Licensing		
20. Dudley Jostelyn	FSD / I E		
21. K.A. MAC DONALD	FLUOR/BOISE		
22. VIRGIL Lowery	DOE/HQs		
23. R. Snell	Fluor/Project		
24. T. Mallonee	Fluor/Project		
25.			
26.			
27.			
28.			
29.			
30.			

CURRENT INFORMATION NEEDS

<u>NAME</u>	<u>ORGANIZATION</u>
Jerry Fredrickson	Fluor - Project
Ben Whiton	M-K, Mining
JIM TAIPALE	M-K / MINING
Dean Stricker	WESTON
ROBERT CUMMINGS	ENGR'S. INTL. FOR NRC (OBSERVER)
RALPH FISHER	BATTELLE - ONWI
MIKE BALMENT	BATTELLE ONWI
KEITH Robinette	DOE-CH - SRPO
HARRY KORTNICKI	FLUOR - MECHANICAL
JACK FITCH	FLUOR - PROJ
JIM CLARK	" "
Bill Griffin	FLUOR LICENSING
SAM BASHAM	ONWI
TOM MALLONEE	FLUOR - PROJECT
RICHARD KINGSLEY	ONWI
VIRGIL Lowery	DOE/HQS
Dudley Torrey	ESD - I E
Rick Nelson	WCC - Geotech
RON TOME'	SAIC - REMOTE
BARRY DIAL	SAIL - THERMOMECHANICAL MODELING
LANDY ESSEX	WCC - GEOTECH
K.A. MAC DONALD	FLUOR MGMT & BOISE
Al Smith	Fluor Nuc Tech
Ping Chen	ONWI
TILAK VERMA	NRC/Columbus

SCP - 3/21/85

Attendee List

<u>Name</u>	<u>Organization</u>	<u>Phone</u>
Bob Rogers	Fluor/Project	FTS 853-5893
Virgil Lowery	POE / Hqs	301-252-9313
DICK SNELL	Fluor/Project	(714) 553-5015
ROBERT ACKRETT	M-IC	(208) 386-5299
TILAK VERMA	NRC / Columbus	976-5916
SAM BASHAM	BATTELLE - ONWI	976-5765
RICHARD KINGSLEY	BATTELLE - ONWI	976-6402
Gene Underwood	Fluor - QA	714-553-5527
JACK FITCH	Fluor Proj.	FTS 9765916
TOM MALLONEE	FLUOR PROJ	FTS 8535561
J. Clark	Fluor/Project.	714-553-5429
W. Guffin	Fluor / Licensing	

STRUCTURES, SYSTEMS & COMPONENTS / WRAPUP

3/21/85

<u>NAME</u>	<u>ORGANIZATION</u>	<u>NAME</u>	<u>ORGANIZATION</u>
1. J. Clark	Fluor / Project	33. Sammy McCraw	BPM.D
2. K. Robinette	DOE-CH-SRPO	34. RON TOME'	SAIC
3. R. Kingsley	ONWI	35. RON MAY	SAIC
4. SAM BASHAM	BATTELLE-ONWI	36. Jeff Arbital	SAIC
5. DICK SWEET	FLUOR / PROJECT	37. Randy Essex	WCC
6. Bill Griffin	Fluor - Licensing	38. GARRY DIAL	SAIC
7. Phil Richter	FLUOR - CIVIL / STRUCT.	39. HARRY KORTNICKI	MECHANICAL
8. Gene Underwood	FLUOR GFA		
9. Jerry Fredrelesin	Fluor Project		
10. K. Bill Mac Donald	Fluor Project		
11. MIKE FACMENT	BATTELLE ONWI		
12. ROBERT CUMMINGS	ENGR'S INTR. FOR NRC (OBSERVER)		
13. Dean Stucker	WESTON		
14. Hank Bermanis	"		
15. Tilak Verma	NRC		
16. VIRGIL Lowery	DOE / HGS		
17. TOM MALLONEE	- FLUOR - PROJECT		
18. Rick Nelson	WCC - geotech		
19. Robert Ackaret	M-K		
20. Phil Smith	Fluor Nuc Tech		
21. HENRI KOZA	FLUOR-CIVIL/STRUCT.		
22. Paul McKie	M-K, Mining		
23. JIM TAIPALE	M-K / MINING		
24. Ron Whiton	M-K / Mining		
25. G. Grewal	Fluor / HVAC		
26. JACK FITCH	Fluor - Proj.		
27. Norman Greenberg	Fluor - Piping		
28. Dudley Jostel	ESD - I		
29. Vernon Pierce	Fluor - Nuc Tech		
30. M de la Puente	Fluor / RHM		
31. TIM ROE	DOE-CH-SRPO		
32. STEVE ROELS	SMS-SRPO		

ATTACHMENT 2

March 18, 1985

SALT PROJECT COORDINATION MEETING
March 19,20,21, 1985
Fluor, Irvine

AGENDA

<u>Date</u>	<u>Time</u>	<u>Location</u>	<u>Session</u>	<u>Fluor Team Attendees</u>
3/19	7:30	ATD-PR	Introduction & Kick-Off	A11
	8:00	F2-1-104	Review of Fluor Reporting Systems	Cost/Schedule
	8:00	ATD-PR	Status of Fluor Deliverables in Review Process	
			°Procedure Manual	Project
			°Management Plan	Project
			°Basis for Conceptual Design	Project
	8:30		°Nuc. Material/Safeguards	NT
			°Abnormal & Misc. Waste	NT
	9:00		°SSC Definitions	Structural
	9:15		°Surface Feature Test Plan	WCC
	9:30		<u>BREAK</u>	
	10:00		°Waste Package Plan/Status	SAIC
	10:15		°QA Practices/ESF QA Impacts	M-K
			°Applicability of Gassy Mine Regs	M-K
			°Shaft Siting Decision	M-K
			°ESF Impact Report	M-K
			°Subsurface Arrangement Constraints and Selection Criteria	M-K
	11:00		°Simulation	Mech
	11:15		°SCP Plan/Status	Project
	11:30		<u>LUNCH</u>	

Salt Project Coordination Meeting (Continued)

<u>Date</u>	<u>Time</u>	<u>Location</u>	<u>Session</u>	<u>Fluor Team Attendees</u>
3/19	1:00	F2-1-104	Review of Fluor Reporting Systems (Continued)	Cost/Schedule
	1:00	F2-1-103	Structures, Systems & Components - Comment Resolution	Project Structure Licensing
	12:30	ATD-PR	Status of Fluor Deliverables in Process	
			°Waste Receiving	NT
			°Shielding Requirements	NT
			°Contamination Control	NT
	12:45		°Operating Concepts	ESD
			°Waste Process/Mine Emplacement	ESD
	1:15		°Waste Package Decontamination	SAIC
			°Waste Package/Repository Impact	SAIC
			°Sealing System Plan/Status	SAIC
			°Waste Package Retrievability	SAIC
			°Rock Mechanics Models	SAIC
	2:00		°Empirical Pillar Designs	WCC
	2:15		<u>BREAK</u>	
	2:45		°Waste Hoist Technology	M-K
			°Aquifer Treatment	M-K
			°Underground Excavation Study	M-K
			°Utility Entrance in Boreholes	M-K
			°Shaft Construction Method Report	M-K
			°Roof Support Systems	M-K
	3:30		° Site Arrangement Selection	Piping
3/20	8:00	F1-1-103	Status of Repository Design Criteria	Project Licensing NT
	8:00	F2-1-104	Review of Fluor Reporting Systems (Continued)	Cost/Schedule

Salt Project Coordination Meeting (Continued)

<u>Date</u>	<u>Time</u>	<u>Location</u>	<u>Session</u>	<u>Fluor Team Attendees</u>
3/20	8:00 9:30	F2-1-103	Retrievability Working Group °Issue Identification °Issue Resolution °Position for CD Activities	Project WCC NT M-K SAIC ESD
	12:00		<u>LUNCH</u>	
3/20	1:00	F1-1-103	Planning/Status °Roof Support Problems °Shaft Construction Method °Subsurface Model	M-K M-K M-K
	1:00	F2-1-103	Retrievability Working Group (Continued)	
	1:00	F2-1-104	Discussion of CWBS and Baseline/ Proposed FY85 Plan	Cost/Schedule
3/21	8:00	F2-1-103	Review of Structures, Systems & Components °Coordination w/HQ °Q-List Preparation	Project Structural Licensing NT HVAC RAM SAIC WCC M-K ESD
	8:00	F2-1-104	CWBS/Baseline Review (Continued)	Cost/Schedule
	10:00	F1-1-103	Current Info Needs	Project Licensing M-K WCC SAIC ESD
	1:00	ATD-PR	WRAP-UP °Summary °Action Items	ALL

3/19/85

ATTACHMENT 3

PROJECT PROCEDURE MANUAL

SCOPE

The Project Procedure Manual establishes the procedures to be used for execution of work by the Fluor Team. It contains descriptions of the project team organization and procedures in sufficient detail to facilitate the communications, project management, engineering design and administrative functions to a timely and successful completion.

STATUS

Comments on both the Fluor and M-K Procedure Manuals have been received. The Fluor manual has been approved subject to incorporation of final DOE comments. The final M-K manual is currently under review by Fluor.

SCHEDULE

Revision 2 of the Fluor PPM will be prepared to incorporate final DOE comments and all Project Job Bulletins issued since issue of Revision 1. Fluor Revision 2 is scheduled for publication on June 7, 1985. Comments to the M-K manual will be prepared considering Fluor Revision 2. M-K will then incorporate these to bring their manual to a level consistent with Fluor Revision 2 by August 2, 1985.

3/19/85

MANAGEMENT PLAN

SCOPE

The Management Plan describes the conceptual design work and how the work will be managed and conducted. Included are descriptions of the project approach, organization, management processes, key decisions to be made, outlines of technical studies and estimates of manpower and drawings required to complete the repository conceptual design.

STATUS

Comments on the Management Plan have been received from DOE.

SCHEDULE

DOE comments will be incorporated and the Management Plan will be issued for final approval by May 3, 1985.

3/19/85

LIST OF REGULATIONS PERTAINING
TO SAFEGUARDS AND SECURITY

SOW PARAGRAPH NO. 4.8.4.1.1 AND 4.8.4.2.1

OBJECTIVE/SCOPE

Identify the regulations and requirements for safeguards and security that apply to repository design.

STATUS

A report listing applicable safeguards regulations was transmitted to SRPO May 14, 1984. The DOE/ONWI comments were extensive. A nearly complete rewrite followed in order to respond positively to the comments. Since Safeguards and Security cannot be effectively separated unless safeguards are limited to material control and accountability the rewrite combined Safeguards and Security, SOW items 4.8.1.1 and 4.8.2.1 instead of preparing two separate reports.

It has been concluded that DOE orders pertaining to safeguards and security are the primary documentation for 10CFR60 facility safeguards and security.

SCHEDULE

Final DOE Comments are being incorporated. Issue for approval planned for 3/22/85.

3/19/85

BASIS FOR CONCEPTUAL DESIGN

SCOPE

The Bases for Conceptual Design (BFCO) will establish design requirements, identify design information and describe approaches to resolution of design issues to be used for the conceptual design of the Salt Repository.

STATUS

An interim issue of the BFCO has been prepared and issued to DOE on 2/22/85. The interim issue establishes the overall structure and approach to the BFCO and includes interim and preliminary information.

SCHEDULE

Interim Issue	2/22/85
Site Specific Issue (SCP)	1/1/86
License Application Issue	3/1/87

3/19/85

ABNORMAL AND MISCELLANEOUS WASTES

Deliverable Sequence No. 4.1-15

SOW Task 4.1.6.1.1

PURPOSE

Identify, characterize and quantify radioactive wastes other than spent LWR fuel, vitrified spent fuel reprocessing waste, remote handled TRU waste, and contact handled TRU waste that could be received at the repository and/or will require 10CFR60 facility disposal.

STATUS

The work to date on this task was carried out during FY1984. The task is not site dependent and was identified as an activity that could be completed before the site for the salt repository is selected.

A total of five utilities were contacted. These utilities have reactors that represent all active NSSS vendors; Westinghouse, General Electric Company, Babcock and Wilcox, and Combustion Engineering. The contacts were documented in trip reports TR-005, TR-006, TR-007, TR-008 and TR-009. In addition, the DOE Generic Waste Management Environmental Impact Statement was reviewed. That set of documentation was based on data reported in DOE/ET-0028 "Technology for Commercial Radioactive Waste Management May 1979, which has been used to develop waste information included in our Abnormal and Miscellaneous Waste Report dated September 1984. ✓

The report was submitted to SRPO on October 11, 1984. ONWI comments were received late in 1984, and were the subject of considerable discussion in the January 1985 Coordination meeting. During these discussions it was mutually agreed between Fluor and ONWI that task 4.1.6.1.1 should be discontinued since the DOE Headquarters support contractor is working on the issue and will develop the information for all repositories. It was further agreed that the work accomplished to date by Fluor should be documented in a close out version of Deliverable Sequence No. 4.1-15. ONWI was to formally recommend the agreed upon action to SRPO.

A close out document is presently undergoing final editing and will be transmitted to SRPO along with responses to the ONWI comments by March 25, 1985.

DELIVERABLE: STRUCTURES, SYSTEMS, AND COMPONENTS:

3/19/85

CLASSIFICATION SYSTEM DEFINITIONS

P.I. 4.1.2.5 - 2, Revision 1, January 30, 1985

OBJECTIVE/SCOPE OF DELIVERABLE:

The document provides the basic definitions and rationale for a classification system for structures, systems, and components of the repository. The work satisfies the first part of the requirements of SOW 4.1.2.5 whereby the contractor is to develop safety and waste isolation classifications and definitions. Later activities under this SOW will include development of methodology for application of the definitions for the purposes of classifying repository items. As part of a comprehensive classification system, all repository items are to be categorized with respect to radiological safety (both pre- and post-closure), level of operability, and standard industrial practice. Three fundamental Repository Protection Categories (RPC) are defined. RPC I covers those items which are important to the maintenance of radiological safety. Performance Level Subcategories within RPC I additionally cover those items specified in regulations as "important to safety," other items important to radiological safety, and items specified in regulations as "important to waste isolation." RPC II covers items that are required to maintain a level of repository operability. For RPC I and RPC II, Functional Subcategories are also defined. These subcategories address such functional issues as continuity of operation and confinement of material. RPC III covers items which are not in the other two categories. Such items are required to comply with established codes and standards. The document also contains an appendix which provides a brief discussion of the rationale and background for the defined classifications and subcategories.

STATUS OF COMMENT RESOLUTION:

Revisions A and B of the subject document entailed internal development and reviews by selected Fluor task force members in early 1984. Revision C, May 1984, was squad checked by the Fluor task force in June 1984. The resulting Revision 0, August 1984, was issued as P.I. 4.1.2.5 - 2 and forwarded to SRPO (FIDC-189C, 8-10-84). Review comments were then received from SRPO (DCFI-173C, 11-6-84). A Fluor/SRPO/ONWI meeting was held in Columbus on November 28, 1984 to resolve these comments and clarify pertinent issues. The meeting resulted in modifications to the 11-6 comments and also provided additional comments as recorded in BCFI-080C, 12-3-84. A Draft of Revision 1 incorporating all the SRPO/ONWI comments was transmitted to SRPO (FIDC-298C, 1-2-85). The Project Coordination Meeting - Working Group Session held in Irvine on January 9 involved more discussions, comments and also led to a request for cancellation of SRPO review of the previously transmitted Draft (CN-030 in FIDC-307C, 1-17-85). Further examination of pertinent regulations and documents resulted in some changes to the Draft. The modified report was then squad checked by the Fluor task force in mid-January. Resolution of comments produced a Rev. 1, January 1985, which was transmitted to SRPO (FIDC-328C, 1-30-85). Fluor is now awaiting SRPO/ONWI comments on Rev.1.

ANTICIPATED DELIVERY DATES TO DOE:

Unknown at this time pending resolution of any additional comments by SRPO/ONWI on Revision 1. Upon mutual agreement between Fluor/SRPO/ONWI on the document, the definitions should be made applicable to the overall SRP program involving all contractors. The document could also be used in a generic manner for repositories in other media. Additionally, it may be appropriate for the subject document to undergo peer panel review and informal review by the NRC.

STATUS UPDATE - MARCH, 1985

S.O.W. 4.2.1.1 Surface Feature Characterization

Surface Feature Characterization Test Plan - Report Deliverable 4.2-1

OBJECTIVES/SCOPE

This SOW paragraph involves the characterization of site surface geotechnical, geological, hydrological, geochemical, and topographic conditions which must be known for surface structure/facilities conceptual design. The first major activity of these studies was to prepare a test plan to describe Fluor A/E site surface feature characterization information needs. Because a site had not been selected by the scheduled publication date of this deliverable (4.2-1), the test plan was prepared in a non-site-specific form applicable, in general, to any of the three salt site areas. The test plan will be revised to reflect site-specific expected design needs after a single site has been identified.

STATUS

The non-site-specific test plan was submitted to DOE in June, 1984. Review/coordination meetings with SRP regarding surface characterization plans were held in May, 1984; July, 1984, and recently in January, 1985. A letter discussing the role of the GPM in surface feature characterization (BCFI-101C) was received in February, 1985. SRP review comments were received in December, 1984 and can be summarized as: (1) SRP/ONWI, not the GPM's, are responsible for actual field data collection and interpretation; (2) schedule revisions should be considered; and (3) the test plan should be updated to incorporate current SCP strategy. All of these comments can be resolved as discussed in January, 1985 meeting after receiving draft information on Site Characterization strategy/plan outlines from SRP/ONWI, currently scheduled within next few weeks. Because the plan would have relatively few modifications as a result of the above comments, it is suggested that a full revision not be done until after a single site has been selected at which time both the above revisions and site-specific revisions can be made. In the meantime, a letter response to the above comments will be issued as an addendum to the draft report.

DELIVERY DATES

Letter Addendum Updating June, 1984
Non-site-specific Test Plan: 1 Month after receiving SRP/ONWI
SCP Planning Information

Site-specific revisions to Test Plan: 6 weeks after notification
of site selection.

3/19/85

COORDINATION MEETING SUMMARY

WASTE PACKAGE PLANNING/STATUS

SCOPE

Summarize the effort performed under SOW paragraph 4.10 (WBS 1.3.4.1) and present plans and manpower estimates for further work to complete the described SOW and support the salt repository conceptual design. The elements of this SOW area include the following waste package related studies: conceptual design support, thermal analysis, static and dynamic loads, characterization and specifications, retrievability, decontamination recommendations and interface/integration.

This summary was presented in the draft report, PI-4.10-1, "Waste Package Planning and Status Report". The report was delivered to DOE and ONWI on September 21, 1984 (FIDC-219C).

Presented in the report was the SOW task descriptions, work accomplished to date, plans for future work (in FY85 and FY86) and comments pertaining to the overall task approach and scope.

STATUS OF PI-4.10-1

Comments on this report were received from DOE on December 19, 1984 (FCFI-087T). Fluor reviewed the comments and prepared to address these at the coordination meeting in Irvine on January 7, 1985. On this date, a working session was held and the comments on the document were discussed. The comments were resolved to DOE's satisfaction at that meeting.

ANTICIPATED ISSUING OF FINAL REPORT

No work has yet been done to incorporate the resolved comments and issues into PI-4.10-1. This activity is planned for this fiscal year, the date was set at May 15, 1985. The delay was due primarily to start-up of an additional waste package task, "Waste Package/Repository Impact Study". This additional task is not described in the original SOW, however, a detailed study outline has been prepared. The study outline is to be incorporated into PI-4.10-1, and the delay in PI-4.10-1 was in waiting for the completion of the study outline.

March 19, 1985 Presentation

QA Practices Report

SOW 4.4.2.3

DRBledsoe/daB
March 14, 1985

Study Objectives

- o Examine the concept of applying NQA Practices to repository shaft design and construction
- o Address how NQA will be applied to shaft design and construction
- o Report on the required level of detail in construction documentation in contrast to that used in traditional mine design and construction

Status

- o First draft submitted August, 1984
- o DOE comments on first draft received November, 1984
- o Resolution of DOE comments obtained at meeting with DOE/ONWI January, 1985
- o DOE Comments incorporated February, 1985
- o Submittal of final report to Fluor for submittal to DOE March 12, 1985
- o Forecasted date of submittal to DOE March 29, 1985



March 19, 1985 Presentation

ESF QA Impacts Evaluation Study

SOW 4.4.2.1 (Part II)

DRBledsoe/daB
March 14, 1985

Study Objectives

- o Evaluate the impact on the repository shafts of the suitability of the QA Practices used for the ES and in-situ test facilities design and construction for incorporation in licensing the repository.
- o Provide recommendations for mitigations of impacts of ESF QA Practices on the repository

Status

- o First draft submitted November, 1984
- o DOE comments on first draft received February, 1985
- o Resolution of DOE comments obtained at meeting with DOE/ONWI February, 1985
- o DOE comments incorporated March, 1985
- o Submittal of final report to Fluor for submittal to DOE March 12, 1985
- o Forecasted date of submittal to DOE March 29, 1985

3/19/85

APPLICABILITY OF GASSY MINE REGULATIONS

(S.O.W. 4.4.2.3)

SCOPE

To define an acceptable design approach and conservative engineering practices, ANSI/ASME NQA-1 standards must be addressed. Accomplishment would include confirming which design codes, standards and regulations are most applicable. This is the work that was performed on federal regulations and national codes. State regulations could not be addressed because a site had not been selected at the time of the study. It was also determined that 30 CFR 57.21 should be the principle guide for underground design. However, it should be reinforced with certain sections from 30 CFR 75 and 30 CFR 77.

STATUS/SCHEDULE

At this time the task report has been reviewed by DOE who supplied a number of comments. Those were resolved in a meeting with DOE and incorporated into the report. It is planned to submit the final report to DOE on March 29, 1985.



MARCH 19, 1985 PRESENTATION

SHAFT SITING DECISION
SOW 4.4.2.4

J.M. Taipale/mp
March 14, 1985

STUDY OBJECTIVES

- o Identify significant factors requisite to the siting of repository shafts
- o Describe each factor and its technical merit
- o Rank the factors

STATUS OF WORK EFFORT

- o First draft submitted September 1984
- o ONWI comments on draft received December 28, 1984
- o Meeting to resolve ONWI comments on January 9, 1985
- o Fluor's comments on meeting were received by M-K on February 19, 1985
- o Meeting held in Boise on February 19, 1985 to review significant shaft siting factors and develop ranking. J. Hopper, ESD, conducted the session using a paired comparison method

SCHEDULE OF KEY SUBMITTALS

- o J. Hopper to deliver report summarizing results of February meeting on March 22, 1985
- o Revised shaft siting report scheduled for submittal in May 1985



MARCH 19, 1985 PRESENTATION

ESF IMPACT STUDY
SOW 4.4.2.1

R.W. Whiton
R.W. Whiton/mp
March 14, 1985

STATED STUDY OBJECTIVES WERE:

- o Provide recommendations for:
 - Uses for exploratory shafts in the repository
 - Specific locations for the ES's
- o Define the impacts of the ESF on the repository
- o Provide recommendations for mitigations of impacts of the ESF on the repository design, development and operation

STATUS OF WORK EFFORT

- o First draft submitted December 14, 1985 (Cases 1 and 2)
- o Additions and revisions submitted March 8, 1985 (Cases 3 and 4)
- o DOE comments on first submittal received March 5, 1985
- o Response to DOE comments prepared and under internal review

SCHEDULE FOR KEY INTERIM REVIEWS AND SUBMITTALS TO DOE

- o Meeting to resolve comments on both submittals scheduled by DOE for May 7, 1985
- o Submittal of final report scheduled by DOE for May 31, 1985



March 19, 1985 Presentation

Subsurface Arrangement Constraints and Selection Criteria

SOW 4.5.1.2.1

SJPurchase/daB
March 14, 1985

Stated Study Objectives Were:

- o Define subsurface arrangement selection constraints and criteria

Status of Work Effort:

- o Submitted for Comments to DOE - December 27, 1984
- o Comments Received from DOE - March 11, 1985
- o Future design work scheduled during conceptual design phased

Schedule for Submittal:

- o Submittal of Comments by DOE - August, 1985

3/19/85

REPOSITORY SIMULATION MODEL
STATUS REPORT

I. PURPOSE

PROVIDE A COMPUTER BASED SIMULATION MODEL TO
ANALYZE ALL NUCLEAR WASTE HANDLING AND PROCESSING
OPERATIONS WITHIN THE REPOSITORY

II. NUCLEAR WASTE HANDLING/PROCESSING OPERATIONS AND OBJECTIVES

Cask Receiving/Inspection/Shipment - Number of Cask Inspection,
Washdown and Decontamination Facilities

Cask Unloading/Preparation - Number of Cask Receiving Lines
(Truck/Rail, SFA/HLW)

SFA/HLW Unloading & Storage - Definition of Cask Unloading Eqpt
- Surge Storage Locations and Reqmts

SFA Disassembly & Canistering - Number of Cells (PWR & BWR)
- Number of Machines/Cell
- Number of Canister Welding Machines

Overpacking - Inspection/Decontamination of Canisters & Overpacks
- Welding of Overpacks
- Inspection/Leak Testing of Overpacks

Special Functional Cell - RCSF Boxes
- Canisters with Failed Welds
- Overpacks with Failed Welds
- SFA's That Cannot Be Totally Disassembled

Inter-Cell Carrier Systems - Number
- Cells Served by Each Carrier
- Isolation

Waste Shaft Hoist - Utilization
- Reponse to Event/Accident

Subsurface Transporter - Number
- Speed
- Travel Path

Waste Emplacement - Integration with Transporter?

III. STATUS

LOGIC DEFINITION (FLUOR) - 90% COMPLETE
SIMSCRIPT CODING (ONWI) - 65% COMPLETE

VERIFICATION - APR TO JUL 85

MODEL OPERATIONAL - JUL 85

SITE CHARACTERIZATION PLAN

The Scope of the Characterization Plan (SCP) task is to perform preplanning to establish information/data needs and develop an activity plan logic diagram with a descriptive narrative. Further, to prepare detailed data needs forms, review and compile existing data, begin preparation of assigned chapter and section written material and drawings, and perform overall coordination, review and submittal of assigned chapters and sections.

STATUS

A design data requirements matrix has been prepared and is in the second and final revision; over 100 data needs forms have been prepared and submitted to SRP, and Fluor is currently awaiting comments from SRP for incorporation, as well as continuing to update and generate new data needs. These updates are due to be submitted to SRP on 4-19-85. The logic diagram is being updated to incorporate the revised and base-lined SCP Annotated Outline. The logic diagram is due to be submitted to SRP by 5-15-85.

3/19/85

WASTE RECEIVING REPORT-INITIAL ISSUE

SOW PARAGRAPH NO. 4.3.2.11

DELIVERABLE SEQUENCE NO. 4.3-7

PURPOSE

The initial waste receiving report issue characterizes the repository waste forms to be received, the annual receiving rates, and the transportation/shipping cask interface. Future report issues will incorporate results of project studies, other DOE sponsored related activities, and developing repository functional requirements.

STATUS

The initial report is scheduled for issue to DOE/ONWI for review and comment the week ending 4/5/85. Issues that impact the waste receiving task are:

- ° Clear cut identification of the waste forms to be received at the first reporting.
- ° Evolution of the Stage I/Stage II repository operation concept.
- ° Shipping cask design for 10 year decayed waste and the mix of railroad/truck shipping mode.

3/19/85

SHIELDING REQUIREMENTS
DISPOSAL PACKAGE PRELIMINARY SHIELDING AND DOSE INFORMATION

SOW PARAGRAPH NO. 4.3.2.1

OBJECTIVE/SCOPE

This work will produce preliminary estimates of shielding and radiation dose levels for an upper-limit repository consolidated spent fuel disposal package. Radiation dose data will be developed for two cases:

- ° A steel shield as used for disposal package site underground transport.
- ° Salt surface dose for a vertical or horizontal emplaced disposal package.

STATUS

This study represents the initial work which will eventually result in the Shielding Requirements Report. As such it will be an internal report providing preliminary data to support work tasks such as the Bases for Conceptual Design, Waste Process and Mine Emplacement study and the Waste Package/Repository Impact study. The study is scheduled for internal distribution during April 1985.

In addition, the report will provide information for a related activity proposed from the 1/7-10/85 Repository Working Group Coordination meeting. Working session attendees proposed an activity to establish a standard basis for calculating waste package radiation source terms, shielding, and dose.

REVIEWS AND SUBMITTAL

Since this is an internal report and not a project deliverable, no formal DOE/ONWI reviews have been scheduled. Shielding and dose data for disposal package configurations of interest will be provided as part of the up coming Waste Package Impact Study status review currently scheduled for April 5, 1985 in Columbus.

3/19/85

STATUS OF REPOSITORY OPERATING CONCEPTS

1. Objective

Develop an overall repository operating concept that will be used as a basis for the repository conceptual design. An operating concept defines the operating parameters of a facility such as: Manpower/staffing needs, equipment requirements, operating schedules (i.e., shifts/day/week). Support services will also be included.

2. Technical Approach

2.1 Basic information for this task will be the results from other studies (Waste Process Mine Emplacement, Mechanical Process Definition, Underground Special Studies, Etc.).

2.2 Industrial Engineering evaluations based upon the information developed in Section 2.1 above will be made regarding the following topics:

- ° Production (Productivity, efficiency, production line capacities, throughput requirements, production contingency requirements, lag storage.
- ° Operating schedules (shifts/day, shifts/weeks, weeks/year).
- ° Maintenance requirements (Scheduled/Unscheduled).
- ° Economic evaluations (Cost trade-offs).

3. Status

A preliminary report has been prepared and will be issued in March, 1985. This will be updated to include site specific issues and the final report will be issued as part of the conceptual design report.

3/19/85

CONTAMINATION CONTROL

SOW Task 4.3.2.3

PURPOSE

Establish and document the contamination control philosophy that applies to both facility design and the facility operating plan.

STATUS

The basic contamination control philosophy has been drafted and in principal it is as follows:

- ° The receiving and handling facility will have cells performing operations under conditions that will routinely generate loose radioactive material. These cells will be classed as "dirty" hot cells. Specifically this will apply to intact spent fuel receiving areas, fuel element disassembly areas and radioactive waste treatment areas.
- ° To the extent possible the receiving and handling facilities receiving canisterized waste, overpacked canisterized waste, storage of overpacked waste, waste emplacement shaft and all underground operations will be operated as "clean" hot cells and operations areas. "Clean" as it applies to the contamination control philosophy requires that the areas be free of loose radioactive material, i.e. no radioactive material on the exterior surfaces of canisters, waste emplacement packages, drums, boxes, etc.

The facility design must provide the features required to execute this philosophy and the operating procedures must provide the commitment for maintaining the prescribed conditions.

The quantity of loose radioactive material in "dirty" hot cells will be kept within prescribed limits via routine housekeeping operations. The presence of loose radioactive material in "clean" areas will require decontamination and immediate removal of the loose radioactive material.

The Contamination Control Study Report is in preparation with internal squad check to be made during the week of 29 March. Internal review comments resolution and final report preparation will be completed to allow submission of the report to SRPO by April 26, 1985.

3/19/85

STATUS OF INTERIM WASTE PROCESS AND MINE EMPLACEMENT STUDY

OBJECTIVE

Evaluate and recommend operational functions for receiving, inspecting, transporting, packaging, and emplacing each waste type in the repository.

TECHNICAL APPROACH

- A concept generic function model was prepared for the repository operations from waste receiving through emplacement. This function model describes WHAT has to be done NOT HOW.
- Trade-off studies are currently underway to evaluate and select the preferred approach for each set of common or related steps in the generic function model. A structured decision analysis approach based on a modified Kepner-Tregoe (KT) technique is being used for evaluations to provide a logical audit trail through the selection process. A Fluor multi-discipline team (nuclear technology, mechanical, remote, mining, RAM, and industrial engineering plus other disciplines as required) are involved in the decision analysis effort.
- The KT approach involves development of a problem statement followed by selection, identification and categorization of selection criteria into constraints (musts) and desired characteristics (wants). Wants are then ranked and alternatives developed. Evaluation of alternatives and selection of the preferred alternative, including assessment of adverse consequences and risk, concludes the analysis.

STATUS AND SCHEDULES

- | | |
|-------------------------------------------------------------------------------|--------------|
| 1. Generic Function Model Completed | August, 1984 |
| 2. Current Functional Evaluations to be Completed | May 15, 1985 |
| 3. Interim Report to Support SCP and Basis for
Conceptual Design Completed | July 5, 1985 |

3/19/85

COORDINATION MEETING SUMMARY

WASTE PACKAGE DECONTAMINATION

SCOPE

This study was performed under SOW paragraph 4.10.2.5, "Decontamination Recommendations". This SOW area specifies the study of existing methods for decontamination that may be applicable to waste packages at the repository and the recommendation of a candidate method(s). Many repository parameters were considered when determining the most applicable decontamination method. However, the SOW stated one parameter in particular, that the method(s) be compatible with package long-term containment requirements.

This task has been completed and is presented in the draft report, PI-4.10.2.5-1 SAIC, "Decontamination Techniques Applicable to Waste Packages". This report was submitted to DOE and ONWI on January 21, 1985 (FIDC-319C). This was not a contract deliverable, but was submitted for information prior to the discussion at the planning and status meeting held in Columbus on January 30, 1985. At this meeting, the report was discussed and unsolicited comments from ONWI were received.

During the same time frame, the report was undergoing a squad check review by the Salt Design Staff at Fluor.

STATUS OF PI-4.10.2.5-1 SAIC

Comments on the report were discussed at the status and planning meeting in Columbus and all were resolved at that time. Comments from both ONWI and the Salt Repository Staff are being incorporated into the report.

The final PI-4.10.2.5-1 SAIC will recommend two decontamination techniques for waste packages. Both techniques are feasible and each have unique advantages and disadvantages. Specification of a single optimum technique can not be done until definitive repository design data are available (i.e. details of the radwaste treatment system, degree of contamination expected on the waste package exterior surface).

ANTICIPATED ISSUING OF REPORT

The comments are being incorporated into the report and final issuing is expected to be March 22, 1985. This date is consistent with the current Fluor 90-day milestone chart.

3/19/85

COORDINATION MEETING SUMMARY

WASTE PACKAGE/REPOSITORY IMPACT STUDY

OBJECTIVES/SCOPE

The objectives of this 9 task study which will span approximately eight months are:

- ° Evaluate alternative repository and disposal package design concepts to determine a recommended envelope for disposal package design parameters which best satisfies repository design requirements.
- ° Develop a subsurface layout which incorporates both waste package and repository considerations.

STATUS OF WORK EFFORT

The study data base (task 1) has been completed. Work is under-way on task 2 (heat load) and task 3 (weight). The maximum allowable heat load for a waste package before repository temperature limits are exceeded will be the results of task 2. From these results, the associated waste package weight for a given heat load will be determined in task 3. Subsequent study tasks will use these results, specifically the waste hoist and transporter tasks. Detailed task descriptions are available in the study outline submitted to ONWI on February 25, 1985 (FIDC-349C).

SCHEDULE FOR INTERIM REVIEWS

The first interim review occurred on February 14, 1985 with ONWI and DOE to discuss the status of task 1 (study data base). Other interim review meetings are scheduled with ONWI and DOE on March 28 and May 15, 1985 to discuss general status of on-going tasks.

At the time of submittal of the first draft study report (June 20, 1985) a review meeting will be held with ONWI and DOE to discuss it. Finally, a working group meeting will be held with ONWI and DOE on August 14, 1985 to discuss and resolve comments on the final draft of the study report.

DATES FOR SUBMITTAL

The following are study report submittal dates:

First draft study report	June 20, 1985
Final draft study report	July 15, 1985
Final study report	September 15, 1985

3/19/85

SOW 4.6 - SEALING SYSTEM PLANNING AND STATUS REPORT

SCOPE

The objective of SOW 4.6, Repository Sealing System, is to develop a conceptual design for the repository sealing system. The scope of work for this activity includes a review of the current (schematic) design level, a review of seal materials technology and recommendations for seal system materials, the development of technology and equipment for seal placement, the development of technology and equipment for backfill emplacement (including considerations of retrievability), the development of a testing and monitoring plan, and the analysis of engineering design placement systems and sealing system components). The focus of this scope of work is on seals for decommissioning, and not the operational or aquifer seals.

STATUS

At the present time, the project is in the initial conceptual design phase. The scope of working during the initial design phase is to initiate conceptual design activities on the sealing system, to interface with the DOE and its contractors on the Exploratory Shaft Facility (ESF), and to prepare a status report and plan for completion of the conceptual design.

The review of the current design level has been completed and documented in PI-4.6.1.1-1SAIC and PI-4.6.1.2.1-1SAIC. The review identified construction issues, geotechnical issues, and design calculations as the focus of the initial conceptual design activities. Construction issues are being evaluated for the seal placement and backfill emplacement tasks. Geotechnical issues for shaft seal location have been evaluated and documented in a draft report. Design calculations for shaft plugs have been performed and are being documented. Finally, identification of tests and objectives for the testing and monitoring plan is proceeding.

SCHEDULE

The initial conceptual design activities were reviewed by SRP on February 28, 1985. An outline of the status report and planning document is available for review. Evaluation of construction issues will not be completed until May 6, 1985, so delivery of the status report and plan will be delayed until July 5, 1985.

STATUS REPORT

Coordination Meeting - March 1985

S.O.W. 4.1.6.6 Waste Package Retrievability

OBJECTIVE/SCOPE

The primary objective of the Waste Package Retrievability Task is to develop engineering requirements for retrievability, identify impacts of retrievability on the repository conceptual design, and to make recommendations regarding the retrievability issues.

The retrievability task consists of three parts:

- Part I consists of developing reference technical requirements for retrievability in terms of general criteria specified in DOE/ONWI documentation, developing a preliminary baseline retrieval process and identifying the impacts of retrievability on the repository conceptual design.
- Part II consists of identifying the basic retrievability issues, developing an issue position for repository conceptual design activities and developing a baseline waste retrieval process for initial conceptual design effort.
- Part III consists of updating the retrievability requirements, retrievability issues and waste package retrieval process as required and developing recommendations for means of achieving retrievability during repository title I design.

STATUS OF WORK

Part I of this S.O.W. was completed and a preliminary report (SI-4.1.6.6.-1) was released internally on 26 November 1984.

Part II has been initiated and initially consists of identifying the retrievability issues. The retrievability working group session to be conducted during the current (March 1985) coordination meetings at Irvine, will deal directly with identifying and resolving these retrievability issues. The baseline waste package retrieval process will be developed in conjunction with data inputs from M-K, ESD and Fluor. The part II report is currently scheduled to be released to DOE on 14 June 1985.

The final retrievability report (part III) is currently scheduled for release to DOE in August 1986.

3/19/85

SOW 4.5.2.1.2a: REPOSITORY HOST ROCK BEHAVIOR
(ROCK MECHANICS MODELS)

SCOPE

The objective of SOW 4.5.2.1.2a, repository host rock behavior, is to select design tools and models for rock mechanics analyses. More specifically, the scope of this activity is to (1) evaluate thermal and mechanical computational techniques that are applicable to subsurface design problems for a salt repository, and (2) recommend design tools for this project.

STATUS AND SCHEDULE

A preliminary survey of computer codes and numerical methods for thermal and mechanical analyses was completed in July, 1984. This preliminary survey, which included tentative recommendations for design tools, has been documented in SI-4.5.2.1.2-1SAIC. Final selection of design tools requires a more quantitative evaluation of the codes and methods. A KT workshop was therefore held on March 12, 1985, to quantitatively evaluate the computational techniques. The results of this workshop will be documented in a final report, which is due to SRP on April 26, 1985. The outline for the final report was reviewed by SRP on January 30, 1985. This activity, and the delivery of the report, are on schedule.

COORDINATION MEETING, MARCH, 1985

SOW 4.5.2.1.2b Repository Host Rock Behavior

Empirical Pillar Design Methods-Report Deliverable 4.5-10

Objectives/Scope

SOW 4.5.2.1.2, Repository Host Rock Behavior, addresses the need to assess the rock mass response to heat conducted from emplaced waste packages. The primary task is to assess the current status of numerical modeling studies and their applicability to repository design. This task, part (a), is being performed by SAIC. The SOW also requires that a complementary study be conducted to review the applicability of Empirical Pillar Design Methods in conceptual design. WCC is performing the complementary study, considered part (b) of this SOW. The two studies will be issued as separate report deliverables.

Status of Work

An initial review of the technical literature has been made. Since that review, additional documents and sources of information have been identified, and are yet to be incorporated into work-to-date. Empirical design methods have been summarized for various types of pillars. These methods are based primarily on experiences with coal and oil shale mining applications. Little published information exists for pillar design methods in salt. An annotated Table of Contents has been prepared for the report. In addition to a review of available design methods, the report will address the various types of pillars to be designed; applicability of the various methods; possible modifications to address temperature effects; example calculations using methods deemed most applicable; conclusions; and recommendations regarding data requirements, needs for additional study and potential sources of additional relevant information.

A meeting was held in Columbus on January 30, 1985 to review current work products and items to be addressed in the report deliverable. It was agreed that the scope and budget of this SOW precluded activities such as visits to operating mines and discussions with mine operators. However, it was recognized that this is a necessary "next-step".

Work on this SOW has been delayed due to focusing of efforts on SCP-related activities. Work on this SOW will resume this month. A tentative schedule of submissions is as follows:

Submit Draft for Fluor Team Review	May 1, 1985
Submit Draft Report to DOE	June 14, 1985
Submit Final Report to DOE	August 15, 1985

cc: JKClark
RANelson

3/19/85

WASTE HOIST TECHNOLOGY

(S.O.W. 4.4.2.8)

SCOPE/STATUS

The Waste Hoist Technology Task directed Fluor/M-K to review current hoist designs and practices, and recommend a hoisting system for lowering the disposal package into the repository, and for hoisting a retrieved package to the surface. The study work has been completed and the first draft of the report is now under M-K inhouse review. The work was started in early 1984 and was approximately 75% complete when the work was suspended in July, 1984 so that M-K energies could be concentrated on the ES Impact work.

The work included inspection of hoisting plants, meetings with hoise operators and manufacturers, definition of hoisting systems for unshielded and shielded packages, and report preparation.

SCHEDULE

An interim review of task scope and work plans was held with DOE in February, 1985. It is now planned to submit the report to DOE for review and comment on May 1, 1985, with the final report being submitted to DOE on July 5, 1985.

3/19/85

AQUIFER TREATMENT

(S.O.W. 4.4.2.6)

SCOPE/STATUS

Current technologies for penetrating aquifers with a shaft are to be evaluated under this task. The study is to specifically address Pre-grouting, Formation, Freezing and Aquifer Depressurization. Three reports on study results for the three technologies have been completed and are under M-K inhouse review. A draft of the balance of the total Aquifer Treatment Report was completed and is in Word Processing.

A summary of the geohydrology for Deaf Smith, Davis and Richton Sites was prepared. A consultant on ground freezing was brought to Boise to review freezing technology, various scenarios for grouting, freezing, and depressurization were defined and evaluated, and recommendations for aquifer treatment at each site prepared.

SCHEDULE

An interim review on task scope and objectives was held with DOE in February, 1985. April 19, 1985 has been targeted for submitting a report draft to DOE for review and comment. Final report submission is to be June 14, 1985.



March 19, 1985 Presentation

Excavation Process Systems Study

SOW 4.5.2.2

JMTaipale/daB
March 14, 1985

Stated Study Objectives

- o Resolve Two (2) Issues
 - Continuous vs. Discontinuous Cyclic Excavation Systems
 - Commercially Available Technology vs. Novel Concepts
- o Prepare Documentation Report Which Will Support Conceptual Design Decisions

Status of Work Effort

- o Report Planning - Complete as of July, 1984
- o Report Research - Complete as of July, 1984
- o Inactive Period (Work Temporarily Discontinued) - July, 1984 to March, 1985
- o Report Preparation - Resume Work on March, 1985

Schedule for Key Interim Reviews and Submittals to DOE

- o Report Submittal to DOE June 28, 1985

3/19/85

UTILITY ENTRANCE IN BOREHOLE

(S.O.W. 4.4.2.9)

SCOPE/STATUS

The task objective is to prepare a recommendation to DOE on using shafts exclusively for utility entrance into the repository or alternatively routing some utilities through boreholes. The SOW also directed that methods for bringing diesel fuel into the repository be investigated and a recommendation prepared. The first draft of this report is complete and is now under M-K inhouse review.

During the course of the study repository utility requirements were defined and locations evaluated. Feeder types were reviewed and sized, applicable codes and regulations were reviewed, shaft accident data accumulated and analyzed, and diesel fuel consumption estimated. Recommendations were prepared.

SCHEDULE

An interim review of task scope and work plans was held with DOE in February, 1985. Completion dates for this task are: Submit to DOE for review and comment - April 19, 1985; submit final report to DOE - June 14, 1985.

3/19/85

SHAFT EXCAVATION TECHNOLOGY

(S.O.W. 4.4.2.5)

SCOPE

The SOW directed Fluor/M-K in this task to study various methods of shaft construction, and recommend a method for use at each planned shaft site. The methods to be studied should include: Pilot hole followed with enlarging by boring machine or drill-blast, blind hole drilling, conventional sinking, or a combination of methods. A phased construction sequence should also be considered.

STATUS/SCHEDULE

Work on this task has not begun. The delay was due to higher priority work on the ES Impact Report and lack of site selection. The planned work schedule is:

Start	May 1, 1985
Report draft to DOE	November 1, 1985
Final Report to DOE	January 1, 1986



March 19, 1985 Presentation

Roof Support Systems

SOW 4.5.2.1.3

WAGale/daB
March 14, 1985

Stated Objectives Are:

- o Identify and define local roof support problems which must be considered in a rock support system design
 - Include existing failure mode criteria in rock salt from repository site
 - Include precautions to be taken if local room instability occurs

Status of Work Effort:

- o Some literature review has been performed (58 hours to date)

Schedule for Key Interim Reviews and Submittals to DOE:

- o Work scheduled to begin in February - site-specific data is being collected
- o Submittal of final report scheduled for September 1, 1985

3/19/85

STATUS OF THE SITE ARRANGEMENT SELECTION

OBJECTIVE

Evaluate and select a site-specific surface facility arrangement which satisfies requirements based on such factors as construction cost, material cost, safety, maintenance, environmental, etc. in addition to pre-determined site arrangement selection criteria.

TECHNICAL APPROACH

Pertinent regulations, codes, and standards have been reviewed in order to determine if they include any requirements or design guidelines that are applicable to the subject of surface facility layout. Upon completion of this activity, preparation of the "Preliminary Site Arrangement Selection Criteria" report was initiated. This document, in its final form will include the requirements identified in the aforementioned regulations, codes, etc. and will be the basis for selection of a recommended surface facility arrangement from several alternative layouts.

The "Preliminary Site Arrangement Selection Criteria" document is currently being subjected to an internal squad check and will be issued to D.O.E. for review and comment after resolution and incorporation of internal comments. Final approval by D.O.E. is scheduled for February 21, 1986. At that time the report will be in its final form and include site-specific requirements. The approved document will provide the criteria to be used in the trade-off studies for selection of the recommended site arrangement to be documented in the "Site Arrangement Recommendation Report."

SCHEDULE

1. Preliminary "Site Arrangement Selection Criteria" completed May 17, 1985.
2. Final "Site Arrangement Selection Criteria" issued for D.O.E. approval Jan. 24, 1986.
3. "Site Arrangement Recommendation Report" completed Aug. 1, 1986.

ATTACHMENT 4

SALT PROJECT COORDINATION MEETING

RETRIEVABILITY WORKING GROUP (3/20/85)

RESOLUTIONS OF DISCUSSION ITEMS

1. Confirmation that all types of wastes are to be emplaced and must be retrievable (not just HLW and spent fuel).

Interpretation:

All emplaced waste must be retrievable.

2. Must individual, randomly located packages be routinely retrievable?

Interpretation:

1. The repository design will preserve the option to retrieve any or all waste packages.
2. A feasible design concept for the baseline retrievability method will be developed as part of the repository conceptual design.
3. It will not be necessary to routinely retrieve randomly located waste packages (i.e., retrieval is considered an "upset condition") from the repository area.

3. Must individual, randomly located, performance confirmation packages be routinely retrieved?

Interpretation:

1. Routine retrieval of waste packages from the repository for performance confirmation purposes will not be planned.
2. Individual performance confirmation waste packages will be retrieved on a planned basis from the performance confirmation test area(s).
3. The repository conceptual design should recognize and document the existence of a performance confirmation area in the sub-surface.

SALT PROJECT COORDINATION MEETING
RETRIEVABILITY WORKING GROUP (3/20/85)
RESOLUTIONS OF ITEMS (CONTINUED)

4. Will all retrieval operations be treated as non-routine so that simultaneous waste emplacement is not required?

Interpretation:

Repository design will not provide special features permitting simultaneous retrieval and emplacement operations, other than necessary to support the performance confirmation program.

5. Will special packages be developed to permit retrieval of wastes (other than LHW and spent fuel) for an extended period i.e., about 90 years?

Interpretation:

1. Special waste (TRU, abnormal) must be retrieved if emplaced.
2. Some "other" packaging technique will need to be developed to protect this waste during the retrieval period (approx. 90 years) for example:
 - Special overpack
 - Subsurface vault or container
 - Larger room which is kept open
6. In order to minimize initial capital cost is it adequate to provide only those retrievability features which cannot be added later, if needed?

Interpretation:

1. Repository design will include those facilities necessary to retrieve, inspect test, handle, etc. performance confirmation waste packages.
2. Repository design will include only those features for "large scale retrieval" operations which cannot be added later (i.e., after the need for "large scale retrieval" is identified).
7. Will we be required to demonstrate capability to retrieve? If so, when must this demonstration be completed?

Interpretation:

1. If retrieval capability is not current technology, then this technology must be demonstrated.

SALT PROJECT COORDINATION MEETING
RETRIEVABILITY WORKING GROUP (3/20/85)
RESOLUTIONS OF ITEMS (CONTINUED)

7. Will we be required to demonstrate capability to retrieve? If so, when must this demonstration be completed? (Continued)

Interpretation: (Continued)

2. If retrievability is a site suitability (i.e. CFR 960) issue, it must be demonstrated by 1990.
 3. If retrievability is a proof of technology issue, it should be demonstrated prior to CA, and must be demonstrated prior to completion of NRC licensing (1993).
8. What design assumptions must be made in regard to the time allowed for retrieval?

Interpretation:

1. Current guidelines establish the time to retrieve as being equal to the repository construction time plus the emplacement time until retrieval is specified.
2. Further evaluations of the retrieval scenario is necessary in order to determine the ability to meet the allowed for time frame. Information of this type will be available mid to late 1986.

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