



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

MAY 03 1985

MEMORANDUM FOR: Robert E. Browning, Director  
Division of Waste Management

FROM: Tilak R. Verma, Senior On-Site  
Licensing Representative  
Salt Repository Project (SRP)

SUBJECT: SRP SITE REPORT FOR THE WEEKS OF  
APRIL 15, APRIL 22, AND APRIL 29, 1985

WM Record File

106

WM Project 16  
Docket No.  
PDR ☒  
LPDR ☒

Distribution: LINENAN JOHNSON  
REB MJB JOB LBA DRM CFR  
HSHI MARK JTG GEARRANT  
(Return to WM, 623-SS) B. L. HORN L3

1. I have received a copy of "Draft Test Plan for In-Situ Testing in an Exploratory Shaft in Salt." The Test Plan is prepared by an ONWI Sub-Contractor - Golder Associates.

I have been reading the plan and have discussed selected parts of it with several members of the DWM staff. The plan is still generic in nature and relies rather heavily on related salt testing experience. It provides the rationale for the test program and then discusses information needs in light of regulatory requirements. Individual in-situ tests are briefly discussed. A detailed description of these tests is provided in Appendix C. A brief and generic description of QA requirements is also provided.

Individual members of the salt team are invited to discuss the plan with me.

2. Attended a series of meetings at the HQ during the week of April 22, 1985. Ways of effective interaction between the ORs and Division staff were discussed. There will be weekly phone calls (9:00 a.m. Tuesday) between the OR (Verma) and PM (Johnson). These phone calls will be used to exchange information on activities at the site and HQ.
3. I have received, reviewed and discussed the audit list for the M-K QA audit with Bilhorn and Kennedy. A copy of the audit list is enclosed for your information.
4. A SRP workshop on Brine Migration was held at the University of California, Berkeley, on April 17-19, 1985. I have asked SRPO for a report on this workshop and requested that a briefing for the NRC staff be held in Silver Spring. SRPO has agreed for such a briefing. I shall coordinate this briefing with R. Johnson and W. Kelly.

WM DOCKET CONTROL  
CENTER

\*85 MAY -7 AIO:44

Tilak R. Verma  
Tilak R. Verma  
Senior On-Site Licensing  
Representative  
SRP

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PDR WASTE  
WM-16 PDR

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R. Browning  
Page 2

cc: M. Bell  
J. Bunting  
H. Miller  
M. Knapp  
J. Greeves  
J. Linehan  
R. Johnson  
J. Giarratana  
S. Bilhorn  
R. Cook  
P. Prestholt

6963B

bcc: JKClark  
JRFitch, Fluor Columbus  
GOFredrickson  
KAMacDonald  
JVParish  
RDSnell  
DESahlin  
TJReese, DOE  
PIC  
RF



**FLUOR ENGINEERS, INC.**  
**ADVANCED TECHNOLOGY DIVISION**

3333 MICHELSON DRIVE  
IRVINE, CALIFORNIA  
TELEPHONE: (714) 553-5000  
TELEX: 18-2294

REPLY TO:  
P.O. BOX C-11944  
SANTA ANA, CA 92711-1944

April 29, 1985

Reference: Nuclear Waste Repository in Salt  
Contract DE-AC02-83WM46656  
Fluor Contract 839704

Letter No: FIMB-163C

Morrison-Knudsen Company, Inc.  
Four Morrison-Knudsen Plaza  
P.O. Box 7808  
Boise, Idaho 83729

Attention: Mr. P. W. McKie  
Project Manager

Gentlemen:

Fluor Quality Assurance Audit of Morrison-Knudsen's  
Salt Project Task Force-Audit No. SP02-85  
Design and Document Control Activities

An audit of the Morrison-Knudsen Salt Project Task Force regarding Design and Document Control Activities is scheduled for May 7 and 8, 1985. The scope of the audit will include an evaluation of the Design and Document Control Activities as outlined in the QA Manual and Project Procedure Manual sections related to these subjects. Audit will be performed using a checklist prepared from requirements in the latest revisions of these Morrison-Knudsen documents.

Audit team members will be as follows:

W. E. Underwood	Audit Team Leader	Fluor Irvine
J. R. Fitch	Auditor	Fluor Columbus
T. J. Reese	Auditor	DOE Columbus
L. A. Parys	Observer	DOE Columbus
B. Waters	Observer	DOE Columbus
T. Verma	Observer	NRC Representative in Columbus

Please provide adequate facilities for conducting preaudit and post audit meetings, and for the audit team to caucus and review documents.

Please notify cognizant management and other appropriate personnel of the proposed audit, and request their attendance at a preaudit meeting scheduled for 8:30 AM, May 7, 1985. Audit schedule times are as shown on attached audit plan.

Mr. P. W. McKie  
Morrison-Knudsen Company, Inc.  
Boise, Idaho


April 29, 1985  
2

If you require additional information regarding the audit and/or proposed schedule please contact Gene Underwood.

Very truly yours,



T. O. Mallonee  
Project Manager

  
TOM:WEU:lp

cc: D. R. Bledsoe  
R. Whiton

QUALITY ASSURANCE AUDIT PLAN

Audit Number SP02-85 Audited Organization Morrison-Knudsen

Project Name Salt Location Boise, Idaho

Audit Dates May 7 & 8, 1985

Audit Team:

Audit Team Leader W. E. Underwood

Auditor J. R. Fitch Fluor Columbus

Auditor T. J. Reese DOE Columbus

Observers - L. Parys, DOE/Columbus; T. Verma, NRC/Columbus;  
B. Waters, DOE/Columbus

Audit Scope/Purpose: \_\_\_\_\_

Evaluation of Morrison-Knudsen Design and Document Control Activities to  
ensure compliance with reference document requirements.

Reference Documents M-K OAM sections 3.0, 4.0, 5.0, 6.0 and QAP 3.3, M-K PPM  
Section 6.0

Audited Organization(s) Notified By letter #FIMB-163C dated April 29, 1985

Audit Plan Approved by W. E. Underwood  
name

4/29/85  
date

Proposed Audit Schedule: (Time/Location)

Preaudit Conference: 8:30 AM May 7, 1985

Audit Schedule: 9:00 AM - 4:30 PM 5/7/85, 8:30 AM - 3:00 PM 5/8/85

Post Audit Conference: 4:00 PM 5/8/85

QUALITY ELEMENT CHECKLIST

CONTROLLING DOCUMENT (TITLE, NUMBER, REVISION)			AUDITED ACTIVITY	AUDIT TITLE
M-K - Quality Assurance Manual M-K - Project Procedure Manual			Morrison-Knudsen Salt Project Task Force Boise	Design and Document Control Activities
CHK LT NO.	PROCEDURE PARA. NO.	ELEMENT CHARACTERISTIC	OBJECTIVE EVIDENCE REVIEWED/PERSONNEL CONTACTED	AUDIT RESULTS
1	OAM Sect 3.0 Para 3.2.2	States in part that the Mine Design Engineering Manager is responsible for assuring that applicable design inputs, such as design criteria, performance requirements, regulatory requirements, codes and standards are identified, documented and their selection reviewed and approved. Changes from approved status shall also be identified, approved, documented plus reason for change.		
2	OAM Sect. 3.0 Para 3.2.3(b)	States in part that the Mine Design Engineering Manager shall identify and document the appropriate quality standards to be included in the design and that these standards shall be reviewed and approved by Quality Assurance.		
3	OAM Sect 3.0 Para 3.2.3i	States in part that computer programs shall be controlled to assure that changes are documented and approved by authorized personnel and that when changes to previously verified computer programs are made, verification is required for changes.		

PREPARED BY: W.E. Underwood Date: 4-26-85

APPROVED BY: T.O. Mallowick Date: 4-26-85

QUALITY ELEMENT CHECKLIST  
CONTINUATION SHEET

CHK LT NO.	PROCEDURE PARA. NO.	ELEMENT CHARACTERISTIC	OBJECTIVE EVIDENCE REVIEWED/PERSONNEL CONTACTED	AUDIT RESULTS
4	QAM Sect 3.0 Para 3.2.3J	States in part that documentation of design analysis shall include: a)Definition of objective(s) of the analysis b)Definition of the design inputs and their source c)Identification of assumptions and indication of those that must be verified as the design proceeds d)Review and approval		
5	QAM Sect 3.0 Para 3.2.4 (b)	States in part that design verification shall be performed by an individual or group other than those who performed the original design.		
6	QAM Sect 3.0 Para 3.2.7e	States in part that controls shall be established to assure that documentation and records which provide evidence that design and verification processes were performed in accordance with requirements of this manual are stored and maintained in a manner which would preclude loss or damage by any means.		
7	QAM Sect 4.0 Para 4.2.1 a(1) & a(3)	States in part that Procurement documents issued at all tiers of procurement shall include: a)Statement of scope of work to be performed b)Requirements for the supplier to incorporate quality program requirements in subtier procurement documents.		

QUALITY ELEMENT CHECKLIST  
CONTINUATION SHEET

CHK LT NO.	PROCEDURE PARA. NO.	ELEMENT CHARACTERISTIC	OBJECTIVE EVIDENCE REVIEWED/PERSONNEL CONTACTED	AUDIT RESULTS
8	QAM	States in part that procurement		
	Sect 4.0	documents shall be reviewed by		
	Para 4.2.2e	QA personnel. This review to be		
		performed and documented to assure		
		that Quality requirements are		
		correctly stated - etc.		
9	QAM	States that activities that affect		
	Sect 5.0	quality shall be described by and		
	Para 5.2.1	accomplished through implementation		
		of documented procedures,		
		instructions or drawings.		
10	QAM	States in part that all documents,		
	Sect 5.0	procedures, and instructions that		
	Para 5.2.3	delineate requirements for		
	Sect 6.0	implementing or prescribing quality		
	Para 6.2.1	activities shall be reviewed,		
		approved and signed by the Quality		
		Assurance Manager.		
11	QAM	States in part that documents		
	Sect 6.0	prescribing or implementing quality		
	Para 6.2.2	affecting activities shall be		
		controlled to assure that correct		
		and applicable documents are		
		available at the location where they		
		are to be used and shall provide as		
		a minimum:		
		a) identification of document		
		b) identification of personnel		
		positions or organization		
		responsible for preparation, review		
		approval and issuance.		



**QUALITY ELEMENT CHECKLIST**

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CONTINUATION SHEET

CHK LT NO.	PROCEDURE PARA. NO.	ELEMENT CHARACTERISTIC	OBJECTIVE EVIDENCE REVIEWED/PERSONNEL CONTACTED	AUDIT RESULTS
11 (Continued)		c)review for adequacy, completeness and correctness prior to approval and issuance.		
12	QAP 3.3	States in part that the engineering		
	Para 4.2.2	manager assign the Design/Document Review (DDR) form number and		
		determines the need for internal or external design/document review		
		and checks the appropriate block in the review meeting schedule		
		section of the DDR form.		
13	QAP 3.3	States in part that the Engineering		
	Para 4.2.4	manager shall, for each review to be conducted, designate one individual		
		as the review board chairman who shall be responsible for coordination		
		of design/document review efforts.		
14	QAP 3.3	States in part that comments which,		
	Para 4.2.18	in judgement of the originating engineer, are nonrelevant or out-of-scope of the design may be		
		dispositioned "reject" with written justification provided for the rejection. Where disagreement between		
		reviewer and originator exists concerning validity of comment		
		resolution is performed by the engineering manager.		

**QUALITY ELEMENT CHECKLIST**

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CONTINUATION SHEET

CHK LT NO.	PROCEDURE PARA. NO.	ELEMENT CHARACTERISTIC	OBJECTIVE EVIDENCE REVIEWED/PERSONNEL CONTACTED	AUDIT RESULTS
15	QAP 3.3	States in part that alternate calculations provided by the design/ document review board shall be recorded on the Calculation Verification Record (CVR) and be attached to the applicable Review Comment Record (RCR) page and be listed as an attachment on the applicable RCR page by CVR number.		
	Para 4.3.4			
16	PPM	States in part that analytical and computer design codes to be used during the Salt Project conceptual and Title design must go through Software Validation and Verification consisting of a minimum of		
	Para 6.3.4	a) Reviewing theory, methodology and equations utilized in program for correctness and applicability. Plus conformance to applicable codes and standards		
	(a) and (c)	b) Running sample problems and comparing results with known standard and acceptable engineering solutions etc.		
		All software validation and verification shall be documented and controlled.		
17	PPM	States in part that calculations shall have properly defined input data, shall indicate that the originator has selected and correctly utilized		
	Para 6.4.1			

QUALITY ELEMENT CHECKLIST

CONTINUATION SHEET

CHK LT NO.	PROCEDURE PARA. NO.	ELEMENT CHARACTERISTIC	OBJECTIVE EVIDENCE REVIEWED/PERSONNEL CONTACTED	AUDIT RESULTS
17	(continued)	the appropriate procedure or methodology for obtaining stated results. Calculations shall also comply with the following requirements:		
		a) Shall be titled as to scope and objectives		
		b) Applicable codes and standards shall be identified by title, date of issue and revisions or addenda number.		
		c) Formula and procedures shall be identified by source or logically derived.		
		d) Intermediate and final results shall be underlined or similarly identified.		
18	PPM	States in part that heading of all calculations shall identify name of originator and that reviewer of calculations shall initial and date the calculations to indicate concurrence with results obtained and methods used -		
	Para 6.4.3			
19	PPM	States that Drawing Titles should be per sample Drawing Title Block as noted on attachment 6-3 of PPM		
	Para 6.5.2			
20	PPM	States in part that when the requirement for a drawing no longer exists		
	Para 6.5.5			

**QUALITY ELEMENT CHECKLIST**

CONTINUATION SHEET

CHK LT NO.	PROCEDURE PARA. NO.	ELEMENT CHARACTERISTIC	OBJECTIVE EVIDENCE REVIEWED/PERSONNEL CONTACTED	AUDIT RESULTS
20	(continued)	the word Voided is printed in heavy block letters across face of drawing. drawing must be reissued with next revision number with description in revision block for reason of drawings being voided. All prints of voided drawings shall be recalled and destroyed except for master original.		
21	PPM			
	Para 6.8.1J	States in part that all revisions to Engineering Study Reports shall include the revision number and date, and shall identify all revised material by some means and that a revision log shall be maintained by the Project secretary -		
22	PPM			
	Para 6.8.3	States in part that for Evaluation of Alternatives that the objective of the evaluation shall be clearly stated, describing the why for the evaluation performance and what decisions are to be resolved by this effort.		
23	PPM	States in part that documents that contain information or design philosophy that another discipline must be aware of, and/or agree to shall be submitted to that group for review and comment (or squad check)		
	Para 6.11.2			

**QUALITY ELEMENT CHECKLIST**

CONTINUATION SHEET

CHK LT NO.	PROCEDURE PARA. NO.	ELEMENT CHARACTERISTIC	OBJECTIVE EVIDENCE REVIEWED/PERSONNEL CONTACTED	AUDIT RESULTS
24	PPM	States in part that all documents issued external to the originating discipline shall be made by the Document Control Coordinator.		
	Para 6.11.3			
	(c)			
25	PPM	States that the Quality Assurance Manager shall monitor and participate in verification activities to assure that documents were prepared, reviewed, and approved in accordance with approved procedures and contain or reference the necessary quality requirements.		
	Para 6.12.3			
	e			
26	PPM	States that Documentation and records which provide evidence that verification or review of design activities were correctly performed and controlled shall be prepared by the document originator and such documentation stored and maintained in Project Library as Project Records.		
	Para 6.12.3			
	N			
27	PPM	States that distribution logs for all controlled documents shall be maintained by the project secretary and shall record who issued to and date issue made -		
	Para 6.17.2			
	(b)			
28	PPM	States in part that a revision log shall be maintained by Document Control for all controlled documents and shall provide identification of revision number, date, and revision description.		
	Para 6.17.3			