



Department of Energy
 Office of Civilian Radioactive Waste Management
 Yucca Mountain Site Characterization Office
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NOV 06 1996

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**ISSUANCE OF SURVEILLANCE RECORD YM-SR-97-01 RESULTING FROM OQA
 SURVEILLANCE OF CRWMS M&O YMP LAS VEGAS, NEVADA**

Enclosed is the record of Surveillance YM-SR-97-01 conducted by Office of Quality Assurance at the Civilian Radioactive Waste Management System Management and Operating Contractor Yucca Mountain Site Characterization Project facilities in Las Vegas, Nevada, October 4-17, 1996.

The purpose of the surveillance was to verify flowdown and traceability of 10 CFR Part 60 requirements.

This surveillance is considered completed and closed as of the date of this letter. A response to this surveillance record and any documented recommendations is not required.

If you have any questions, please contact either James Blaylock at (702) 794-1420 or Daniel J. Tunney at (702) 794-1353.

Richard E. Spence

Richard E. Spence
 Office of Quality Assurance

OQA:JB-0222

Enclosure:
 Surveillance Record YM-SR-97-01

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OFFICE OF
 RADIOACTIVE WASTE MANAGEMENT
 U.S. DEPARTMENT OF ENERGY
 WASHINGTON, D.C.

QUALITY ASSURANCE SURVEILLANCE RECORD

SURVEILLANCE DATA

¹ ORGANIZATION/LOCATION: Civilian Radioactive Waste Management System and Management and Operating Contractor (CRWMS M&O) Yucca Mountain Site Characterization Project (YMP), Las Vegas, Nevada	² SUBJECT: Flowdown and traceability of Code of Federal Regulations (CFR) 10 CFR Part 60 requirements through the Exploratory Studies Facility Design Requirements (ESFDR) to analysis documents (design analyses, Quality Assurance (QA) classification analyses, and Determination of Importance Evaluations (DIEs)), specifications, and drawings	³ DATE: October 4-17, 1996
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⁴SURVEILLANCE OBJECTIVE: To verify flowdown and traceability of 10 CFR Part 60 requirements

⁵ SURVEILLANCE SCOPE: Verification of flowdown and traceability, and compliance with design control and related procedures.	⁶ SURVEILLANCE TEAM: Team Leader: <u>Daniel J. Tunney</u> Additional Team Members: <u>Pat Auer</u>
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⁷ PREPARED BY: <u>Daniel J. Tunney</u> Daniel J. Tunney Surveillance Team Leader <u>9/26/96</u> Date	⁸ CONCURRENCE: <u>N/A</u> QA Division Director Date
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SURVEILLANCE RESULTS

⁹BASIS OF EVALUATION/DESCRIPTION OF OBSERVATIONS:
 INTRODUCTION
 Surveillance YMP-SR-97-01 was conducted at the CRWMS M&O facilities in Las Vegas, Nevada, during the period of October 4-17, 1996. The purpose of the surveillance was to verify the flowdown and traceability of 10 CFR Part 60.
 (continued on page 2)

¹⁰SURVEILLANCE CONCLUSIONS:
 See page 5.

¹¹ COMPLETED BY: <u>Daniel J. Tunney</u> Surveillance Team Leader <u>10/28/96</u> Date	¹² APPROVED BY: <u>[Signature]</u> QA Division Director <u>11/4/96</u> Date
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Block 9 (continued) BASIS FOR EVALUATION/DESCRIPTION OF OBSERVATIONS:**FLOWDOWN AND TRACEABILITY WITHIN THE ESFDR**

requirements through the ESFDR to analysis documents (design analyses, QA classification analyses, and DIES), specifications, and drawings.

The overall structure of the ESFDR was reviewed and discussed with the Manager, Requirements and Integration/Configuration Management. Appendix F of the ESFDR discusses the applicability of 10 CFR Part 60 requirements based on the U. S. Nuclear Regulatory Commission's (NRC) Staff Technical Position on Regulatory Considerations in the Design and Construction of the Exploratory Shaft Facility (NUREG-1439). Requirements identified as being applicable were translated into Section 3 of the ESFDR.

Section 3 allocates requirements to each Configuration Item (CI). For example, "Section 3.7.3 Ground Support Systems (BABEE0000)" states, "The complete set of Ground Support Systems CI requirements is obtained by combining the requirements from Sections 3.2.1.2 [Requirements Applicable to All ESF CIs, 3.7.1.2] [Applicable Requirements for Each CI Within the Subsurface Excavations CI], and 3.7.3.1 [Ground Support Systems Description]."

The following portions of the ESFDR facilitate traceability of 10 CFR Part 60 requirements to ESFDR requirements and Configuration Items:

- parenthetical references to the source of the requirements in Section 3
- identification of the requirements allocated for each configuration item in Section 3
- Table 6-1, "Requirements Cross-Reference List"

A suggestion regarding the use of ESFDR Table 4-1, "Conformance Verification Matrix," is provided for consideration. See Recommendation 1 in Block 10 of this report for details.

FLOWDOWN AND TRACEABILITY FROM THE ESFDR TO ANALYSIS DOCUMENTS

The design documents applicable to the South Portal ground support systems were selected for verification. A listing of 10 CFR Part 60 derived requirements applicable to this item is shown in Appendix A of this report. Applicable requirements flow down into the analysis documents; however, traceability was readily apparent only for those documents developed after the current revision of the ESFDR. See Recommendation 2 in Block 10 of this report for details. The impacts of changes to the ESFDR have been evaluated or are scheduled to be evaluated. See Recommendation 3 of this report for a suggested method to provide overall coordination of impact evaluations.

FLOWDOWN AND TRACEABILITY FROM THE ANALYSIS DOCUMENTS TO THE SPECIFICATIONS AND DRAWINGS

See Appendix A of this report for a listing of the drawings and specifications that implement the requirements established by the analysis documents. It was observed that one specification developed prior to issue of the current ESFDR should be updated. See Recommendation 4 in Block 10 of this report for details. Traceability of analysis documents was evident by references on Specification and Drawing Inputs Lists. Additional actions to improve the traceability of design inputs are described in Recommendation 5 in Block 10 of this report.

OBJECTIVE EVIDENCE REVIEWED

REGULATORY DOCUMENTS:

- 10 CFR Part 60, January 1, 1996, "Disposal of High Level Radioactive Wastes in Geologic Repositories"
- NUREG-1439, July 1991, "Staff Technical Position on Regulatory Considerations in the Design and Construction of the Exploratory Shaft Facility"

CRWMS M&O PROCEDURES:

- Quality Administrative Procedure (QAP)-2-3, Revision 7, "Classification of Permanent Items"
- QAP-3-0, Revision 4, "Design Control Process"
- QAP-3-8, Revision 6, "Specifications"
- QAP-3-9, Revision 6, "Design Analysis"
- QAP-3-10, Revision 6, "Engineering Drawings"
- Nevada Line Procedure (NLP)-2-0, Revision 2, "Determination of Importance Evaluations"
- NLP-3-24, Revision 2, "Processing of Inputs List Changes"
- NLP-3-26, Revision 0, "Impact Reviews of Revisions of Documents and Field Laboratory Data that Affect the Mined Geologic Disposal Systems (MGDS) Development Organization"

DESIGN REQUIREMENT DOCUMENT:

- YMP/CM-0019, Revision 02, Yucca Mountain Site Characterization Project (YMP) "Exploratory Studies Facility Design Requirements"

ANALYSES AND DIES:

- BABEE0000-01717-0200-00013, Revision 00, "ESF South Portal Box-Cut/Highwall Stability Analysis"
- BABEE0000-01717-2200-00001, Revision 04, "QA Classification of Ground Support Systems"
- BABEE0000-01717-0200-00006, Revision 00, "Test, Inspection and Material Dedication Analysis: Shotcrete, Rockbolts and Accessories"

- BAB000000-01717-2200-00005, Revision 05, "Determination of Importance Evaluation for Subsurface Exploratory Studies Facility"
- BAB000000-01717-2200-00106, Revision 01, "Determination of Importance Evaluation for Surface Exploratory Studies Facility"
- BAB000000-01717-2200-00112, Revision 01, "Determination of Importance Evaluation for Geologic Mapping"
- BAB000000-01717-2200-00153, Revision 00, "Determination of Importance Evaluation for South Portal Boxcut"

DRAWINGS, SPECIFICATIONS AND JOB PACKAGES (JPs):

- BABEE0000-01717-2100-40242, Revision 00, "South Portal Boxcut Ground Support Plan and Views" (also reviewed associated Drawing Inputs List dated July 11, 1996)
- BAB000000-01717-2100-20210, Revision 00, "South Portal Pad and Boxcut Site and Grading Plan" (also reviewed associated Drawing Inputs List dated July 1, 1996)
- BAB000000-01717-6300-01400, Revision 02 (as modified by Change Document Numbers E95-0063 and E96-0035), "Construction Quality Control/Quality Assurance" (also reviewed associated Specification Inputs List dated September 8, 1994)
- BAB000000-01717-6300-01500, Revision 01, "Temporary Surface Construction Facilities"
- BAB000000-01717-6300-01501, Revision 04 (as modified by Change Document Number E96-0060), "Subsurface General Construction"
- BAB000000-01717-6300-01600, Revision 02 (as modified by Change Document Numbers BCP-02-95-0108 and E96-0081), "Material and Equipment"
- BAB000000-01717-6300-01800, Revision 00 (as modified by Change Document Number E96-0085), "Maintenance and Operation of Surface Facilities"
- BABEE0000-01717-6300-02165, Revision 00 (as modified by Change Document Numbers E96-0077 and E96-0089), "Rockbolts, Accessories and Associated Ground Support Material" (also reviewed associated Specification Inputs List dated March 26, 1996)
- BAB000000-01717-6300-02225, Revision 03, "Water Use for Construction and Operations" (also reviewed associated Specification Inputs List dated July 17, 1996)
- BABEE0000-01717-6300-03362, Revision 00, "Dry Process Shotcrete" (also reviewed associated Specification Inputs List dated August 6, 1996)
- BABEE0000-01717-6300-03363, Revision 00, "Wet Process Shotcrete" (also reviewed associated Specification Inputs List dated August 6, 1996)
- YMP/JP 92-20A, August 1995, "Geologic Mapping of the Ramps, Main Test Level (MTL) Drifts and Alcoves"

OTHER DOCUMENTS REVIEWED:

- CRWMS M&O Interoffice Correspondence from P. S. Hastings to DIE file 505.09, LV.SED.DWG.04/96-042, dated April 23, 1996, "Review of ESFDR Revision 2"
- MGDS Schedule of Impact Reviews dated October 8, 1996, Item Number 039, scheduled for completion on December 30, 1996

PERSONNEL CONTACTED

The following CRWMS M&O personnel were contacted during the surveillance:

R. B. Berlien, QA
S. Bonabian, MGDS Development
J. J. Clark, MGDS Development
E. T. Ferguson, Engineering Services
D. M. Franks, QA
D. Gwyn, MGDS Safety Assurance
P. S. Hastings, Manager, MGDS Safety Assurance
K. M. Jerome, Technical Information Center
H. R. Montalvo, MGDS Development
M. S. Rindskopf, Manager, Requirements and Integration/Configuration Management
G. M. Teraoka, Technical Requirements
C. B. Thom, Technical Requirements
R. F. Wemheuer, MGDS Safety Assurance
F. N. Zinkevich, QA

BLOCK 10 SURVEILLANCE CONCLUSIONS: (continued from page 1)

EFFECTIVENESS OF AREAS EVALUATED

In evaluating the effectiveness of areas, consideration was given to the observation of activities in progress, objective evidence examined, and interviews with personnel.

The flowdown and traceability of 10 CFR Part 60 requirements through the ESFDR to the Configuration Items was found to be effective. The flowdown of ESFDR requirements (10 CFR Part 60-based) through the analysis documents to the specifications and drawings for South Portal Ground Support Systems was found to be effective.

Because some design documents did not reflect current references to the ESFDR or analysis documents (see Recommendations 2 and 5), the traceability of ESFDR requirements downward, as it applies to the South Portal ground support system, was deemed indeterminate. The design documents cited as examples where references were not current, apply throughout the ESF. Therefore, in general, traceability of ESFDR requirements downward was considered indeterminate.

The surveillance team thanks the individuals contacted for their cooperation during the surveillance.

RECOMMENDATIONS

1. Section 4 of the ESFDR requires documentation of compliance with Section 3 to be accomplished with a compliance and allocation matrix (Table 4-1) that provides correlation between specification requirements and the results of the inspection performed. The need for a procedure for developing as-built drawings and specifications

has been identified by the M&O. It is recommended that verification of the elements in Section 4 of the ESFDR be considered in the as-built process.

2. Revision 2 of the ESFDR extensively revised the content, created and deleted requirements, and reformatted the numbering of requirements. Thus analyses and DIES developed prior to issuance Revision 2 of the ESFDR include references which do not provide traceability to the current ESFDR. Examples are as follows:
 - BABEE0000-01717-2200-00001, Revision 04, "QA Classification of Ground Support Systems"
 - BABEE0000-01717-0200-00006, Revision 00, "Test, Inspection and Material Dedication Analysis: Shotcrete, Rockbolts and Accessories"
 - BAB000000-01717-2200-00005, Revision 05, "Determination of Importance Evaluation for Subsurface Exploratory Studies Facility"

It is recommended that analysis documents generated prior to Revision 2 of the ESFDR be updated to show the current references.

3. As its title implies, the scope of Procedure NLP-3-26, Revision 0, "Impact Reviews of Revisions of Documents and Field/Laboratory Data that Affect the MGDS Development Organization," is limited to the MGDS Development Organization. To provide for a coordination among M&O organizations participating in the design process, it is recommended that the scope of this procedure be expanded to include other groups involved in the design process such as systems engineering. Expansion of the scope of this procedure would allow the impact of changes to requirements documents (e.g., ESFDR) on input documents (e.g., DIES and classification analyses) developed by the systems engineering organization to be evaluated prior to or concurrent with specifications and drawings.
4. Section 3.01J of Specification BAB000000-01717-6300-01501, Rev. 00, "Subsurface General Construction," states in part, "In order to meet the maintainable life of 100 years for incorporation into a potential repository, Constructor shall develop and submit..." ESFDR Section 3.2.1.2.2B states, "The ESF permanent items shall be designed for 150-year maintainable service life." It is recommended that the specification be updated to indicate 150 years.
5. Inputs developed after approval of specifications and drawings are not documented on the Specification Inputs Lists and Drawing Inputs Lists (until the next revision is processed). For example, references to obsolete ESFDR requirements are included on Specification Inputs List BAB000000-01717-6300-01400, Revision 2, "Construction Quality Control/Quality Assurance."

Some specifications were developed prior to there being a requirement to create Specification Inputs Lists. Examples of specifications without Specification Inputs Lists are as follows:

- BAB000000-01717-6300-01500, Revision 01, "Temporary Surface Construction Facilities"
- BAB000000-01717-6300-01600, Revision 02, "Material and Equipment"
- BAB000000-01717-6300-01800, Revision 00, "Maintenance and Operation of Surface Facilities"

To enhance traceability of design inputs, it is recommended that Inputs Lists be updated as inputs change and Inputs Lists be developed for old revisions of specifications.

SOUTH PORTAL GROUND SUPPORT SYSTEMS ESFDR REQUIREMENTS BASED ON 10 CFR PART 60

ESFDR REQUIREMENT [10 CFR PART 60 REFERENCE]	APPLI-CABLE	*DESIGN ANALYSIS, QA CLASSIFICATION, DIE	*DRAWING/SPECIFICATION	COMMENTS
3.2.1.2.1.2A [10CFR60.131(b)(1)]	yes	- ESF South Portal Box-Cut/Highwall Stability Analysis	- South Portal Boxcut Ground Support Plan and Views - Rockbolts, Accessories, and Associated Ground Support Materials - Dry Process Shotcrete - Wet Process Shotcrete	none
3.2.1.2.2B [10CFR60.3(a), 10CFR60.3(b), 10CFR60.111.(b)(1), 10CFR60.133(c), 10CFR60.133(e)(1)]	yes	- ESF South Portal Box-Cut/Highwall Stability Analysis - QA Classification Analysis of Ground Support Systems - Test Inspection and Material Dedication Analysis: Shotcrete, Rockbolts and Accessories	- South Portal Boxcut Ground Support Plan and Views - Rockbolts, Accessories, and Associated Ground Support Materials	South Portal does not incorporate shotcrete as a permanent item.

SOUTH PORTAL GROUND SUPPORT SYSTEMS ESFDR REQUIREMENTS BASED ON 10 CFR PART 60

ESFDR REQUIREMENT [10 CFR PART 60 REFERENCE]	APPLI-CABLE	*DESIGN ANALYSIS, QA CLASSIFICATION, DIE	*DRAWING/ SPECIFICATION	COMMENTS
3.2.1.2.3A [10CFR60.15(c)(1)]	yes	<ul style="list-style-type: none"> - DIE for Ground Support for the South Portal Boxcut - DIE for Subsurface ESF - DIE for Surface ESF 	<ul style="list-style-type: none"> - South Portal Pad and Box Cut - Site and Grading Plan - South Portal Boxcut Ground Support Plan and Views - Material and Equipment - Maintenance and Operation of Surface Facilities - Water Use for Construction and Operations - Rockbolts, Accessories, and Associated Ground Support Materials - Dry Process Shotcrete - Wet Process Shotcrete 	none
3.2.1.2.3B [10CFR60.15(c)(1)]	yes	<ul style="list-style-type: none"> - DIE for Ground Support for the South Portal Boxcut - DIE for Subsurface ESF - DIE for Surface ESF 	<ul style="list-style-type: none"> - South Portal Pad and Box Cut - Site and Grading Plan - South Portal Boxcut Ground Support Plan and Views - Rockbolts, Accessories, and Associated Ground Support Materials - Dry Process Shotcrete - Wet Process Shotcrete 	none

SOUTH PORTAL GROUND SUPPORT SYSTEMS ESFDR REQUIREMENTS BASED ON 10 CFR PART 60

ESFDR REQUIREMENT [10 CFR PART 60 REFERENCE]	APPLI-CABLE	*DESIGN ANALYSIS, QA CLASSIFICATION, DIE	*DRAWING/ SPECIFICATION	COMMENTS
3.2.1.2.3C [10CFR60.15(c)(1)]	no	Not applicable	Not applicable	Controls for combustible materials underground during construction are included in the DIE for Subsurface and the Subsurface General Construction specification. This specification does not apply to this scope of work.
3.2.1.2.3D [10CFR60.15(c)(1)]	yes	<ul style="list-style-type: none"> - DIE for Ground Support for the South Portal Boxcut - DIE for Surface ESF 	<ul style="list-style-type: none"> - Maintenance and Operation of Surface Facilities - Water Use for Construction and Operations 	Controls for water use are also included in the DIE for Subsurface and the Subsurface General Construction specification. This specification does not apply to this scope of work.
3.2.1.2.3E [10CFR60.15(c)(1)]	yes	<ul style="list-style-type: none"> - DIE for Ground Support for the South Portal Boxcut - DIE for Surface ESF 	- Material and Equipment	Controls for clean up of spills are also included in the DIE for Subsurface ESF and the Subsurface General Construction Specification. This Specification does not apply to this scope of work.

SOUTH PORTAL GROUND SUPPORT SYSTEMS ESFDR REQUIREMENTS BASED ON 10 CFR PART 60

ESFDR REQUIREMENT [10 CFR PART 60 REFERENCE]	APPLI-CABLE	*DESIGN ANALYSIS, QA CLASSIFICATION, DIE	*DRAWING/ SPECIFICATION	COMMENTS
3.2.1.2.3F [10CFR60.15(c)(1)]	no	<ul style="list-style-type: none"> - DIE for Ground Support for the South Portal Boxcut - DIE for Subsurface ESF - DIE for Surface ESF 	Not applicable	No specific Controls addressed in DIES.
3.2.1.2.3G [10CFR60.15(c)(1)]	yes	<ul style="list-style-type: none"> - ESF South Portal Box-Cut/Highwall Stability Analysis - DIE for Ground Support for the South Portal Boxcut 	- South Portal Pad and Box Cut - Site and Grading Plan	none
3.2.1.2.3H [10CFR60.15(c)(1)]	yes	- ESF South Portal Box-Cut/Highwall Stability Analysis	- South Portal Pad and Box Cut - Site and Grading Plan	none
3.2.1.2.3I [10CFR60.15(c)(1)]	yes	<ul style="list-style-type: none"> - DIE for Ground Support for the South Portal Boxcut - DIE for Surface ESF 	- South Portal Pad and Box Cut - Site and Grading Plan	none
3.7.1.2A [10CFR60.130]	no	Not applicable	Not applicable	Site characterization results not available for South Portal.

SOUTH PORTAL GROUND SUPPORT SYSTEMS ESFDR REQUIREMENTS BASED ON 10 CFR PART 60

ESFDR REQUIREMENT [10 CFR PART 60 REFERENCE]	APPLI-CABLE	*DESIGN ANALYSIS, QA CLASSIFICATION, DIE	*DRAWING/ SPECIFICATION	COMMENTS
3.7.1.2B [10CFR60.72(a), 10CFR60.72(b)]	yes	<ul style="list-style-type: none"> - ESF South Portal Box-Cut/Highwall Stability Analysis - DIE for Ground Support for the South Portal Boxcut - DIE for Subsurface ESF 	<ul style="list-style-type: none"> - Rockbolts, Accessories, and Associated Ground Support Materials - Dry Process Shotcrete - Wet Process Shotcrete - Construction Quality Control/QA 	none
3.7.1.2C [10CFR60.15(c)(1)]	no	Not applicable	Not applicable	Controls for removal of underground water are included in the DIE for Subsurface and the Subsurface General Construction specification. This specification does not apply to this scope of work.
3.7.1.2D [10CFR60.15(c)(1)]	no	Not applicable	Not applicable	Requirement is addressed in DIE for Geologic Mapping and Job Package for Geologic Mapping of the Ramps, MTL Drifts, and Alcoves. Photogrammetry, mapping, or other testing is outside the scope of this work.

SOUTH PORTAL GROUND SUPPORT SYSTEMS ESFDR REQUIREMENTS BASED ON 10 CFR PART 60

ESFDR REQUIREMENT [10 CFR PART 60 REFERENCE]	APPLI-CABLE	*DESIGN ANALYSIS, QA CLASSIFICATION, DIE	*DRAWING/ SPECIFICATION	COMMENTS
3.7.3.1B [10CFR60.15(c)(1)]	yes	<ul style="list-style-type: none"> - ESF South Portal Box-Cut/Highwall Stability Analysis - DIE for Ground Support for the South Portal Boxcut - DIE for Subsurface ESF 	<ul style="list-style-type: none"> - Rockbolts, Accessories, and Associated Ground Support Materials 	none
3.7.3.1E [10CFR60.131(b)(3)(ii)]	yes	<ul style="list-style-type: none"> - ESF South Portal Box-Cut/Highwall Stability Analysis 	<ul style="list-style-type: none"> - South Portal Boxcut Ground Support Plan and Views - Rockbolts, Accessories, and Associated Ground Support Materials - Dry Process Shotcrete - Wet Process Shotcrete 	none
3.7.3.1F [10CFR60.131(b)(6), 10CFR60.133(e)(2)]	yes	<ul style="list-style-type: none"> - ESF South Portal Box-Cut/Highwall Stability Analysis 	<ul style="list-style-type: none"> - South Portal Boxcut Ground Support Plan and Views - Rockbolts, Accessories, and Associated Ground Support Materials 	none
3.7.3.1G [10CFR60.133(e)(2)]	yes	<ul style="list-style-type: none"> - ESF South Portal Box-Cut/Highwall Stability Analysis 	<ul style="list-style-type: none"> - South Portal Boxcut Ground Support Plan and Views - Rockbolts, Accessories, and Associated Ground Support Materials 	none

SOUTH PORTAL GROUND SUPPORT SYSTEMS ESFDR REQUIREMENTS BASED ON 10 CFR PART 60

ESFDR REQUIREMENT [10 CFR PART 60 REFERENCE]	APPLI-CABLE	*DESIGN ANALYSIS, QA CLASSIFICATION, DIE	*DRAWING/ SPECIFICATION	COMMENTS
3.7.3.1I [10CFR60.130]	yes	- ESF South Portal Box-Cut/Highwall Stability Analysis	<ul style="list-style-type: none"> - South Portal Boxcut Ground Support Plan and Views - Rockbolts, Accessories, and Associated Ground Support Materials - Dry Process Shotcrete - Wet Process Shotcrete 	none
3.7.3.1J [10CFR60.141(a), 10CFR60.141(b), 10CFR60.141(d)]	yes	- ESF South Portal Box-Cut/Highwall Stability Analysis	<ul style="list-style-type: none"> - South Portal Boxcut Ground Support Plan and Views - Rockbolts, Accessories, and Associated Ground Support Materials - Dry Process Shotcrete - Wet Process Shotcrete 	none
3.7.3.1K [10CFR60.133(b)]	yes	- ESF South Portal Box-Cut/Highwall Stability Analysis	<ul style="list-style-type: none"> - South Portal Boxcut Ground Support Plan and Views - Rockbolts, Accessories, and Associated Ground Support Materials - Dry Process Shotcrete - Wet Process Shotcrete 	none
3.7.3.1I [10CFR60.133(i)]	no	Not applicable	Not applicable	Site characterization heater tests are not performed at the South Portal.

*See "Objective Evidence Reviewed" in Block 9 of QA Surveillance Record YMP-SR-97-01 for Document Identifiers and revisions of above documents.