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INTEC	Technical Procedure	For Additional Info: http://EDMS	Effective Date: 06/25/14
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Manual: INTEC FSV3

USE TYPE 1Change Number: 342256

*The current revision can be verified on EDMS.

1. INTRODUCTION

1.1 Purpose

Inspect the Fort St. Vrain (FSV) Independent Spent Fuel Storage Installation (ISFSI) Modular Vault Dry Store (MVDS) Building periodically to ensure a structurally sound, properly maintained facility.

1.2 Scope and Applicability

This procedure specifies the actions necessary to inspect the enclosure, structural steelwork, exposed steel embedments and attachments, building concrete (including below grade concrete that is exposed during excavation), access ways, ladders, platforms, handrails, doors, and the building electrical equipment.

Periodic visual inspections will be performed at five-year intervals.

In the case of an “Off-Normal” event involving the FSV ISFSI structure as described in the *Safety Analysis Report for the Fort St. Vrain Independent Spent Fuel Storage Installation*, a visual inspection of the FSV ISFSI structure will be performed.

Visual inspection will be performed following a tornado or seismic event at the FSV ISFSI site.

2. PRECAUTIONS AND LIMITATIONS

- 2.1 Personnel must follow the applicable hazard mitigations detailed in Appendix A, “Procedure Hazard Analysis.”
- 2.2 Periodic visual inspections must be performed at five year intervals (Safety Evaluation Report (SER) 3.2.8).
- 2.3 In the case of an “Off-Normal” event involving the FSV ISFSI structure, a visual inspection of the FSV ISFSI structure must be performed.
- 2.4 In the case of a tornado or seismic event at the FSV ISFSI site, a visual inspection of the FSV ISFSI structure must be performed.
- 2.5 Any deficiency, hazard, or abnormal condition noted during the performance of this inspection procedure must be documented in Section 4, and reported verbally to the FSV ISFSI Manager.

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- 2.6 Repair and/or additional inspection of concrete and metal conditions exceeding second-tier criteria will be performed within the guidance of ACI 349.3R-02 or later editions (Technical Specification (TS) 5.5.5.b).
- 2.7 Any degradation of the structural concrete or steel requiring maintenance will be repaired prior to the next inspection, or immediately if necessary (SER 3.2.8).
- 2.8 The inspection for visually examining degradation of concrete at elevated heights must be able to identify ACI 349.3R-02 first-tier cracks at a distance of more than 200 feet (SER 3.2.8).
- 2.9 Concrete inspections must be performed by a qualified concrete inspector (TS 5.5.5.c).
- 2.10 Concrete inspections must include below grade concrete if exposed during excavation. (SAR 9.8)
- 2.11 Below-grade concrete must be inspected whenever it is exposed, not at a specific interval. This is different than the other periodic inspection requirements. Other steps in the procedure do not necessarily have to be worked in the event of exposed concrete requiring inspection.

3. PREREQUISITES

3.1 Planning and Coordination

- 3.1.1 FSV ISFSI Manager: Verify revision number of this procedure to ensure it is the current issue.

Signature

Date

- 3.1.2 FSV ISFSI Manager: Ensure engineering support personnel are available to perform an inspection of the FSV ISFSI Concrete and Steel as per the methodology and recommendations of EDF-8556, “FSV ISFSI Concrete and Steel Inspection”.

- 3.1.3 FSO: Hold a pre-job briefing per MCP-3003, “Performing Pre-Job Briefings and Documenting Feedback”.

3.2 Special Tools, Equipment, Parts, and Supplies

- 3.2.1 FSV ISFSI Manager: Ensure the telescopic equipment as determined by the appropriate engineering support personnel is available.

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3.3 Approvals and Notifications

3.3.1 FSV ISFSI Manager: Verify prerequisites completed.

FSV ISFSI Manager: _____

Signature Date

3.3.1.1 Log the inspection procedure in the FSV Daily Operations Log and release it to commence work.

3.4 Training

3.4.1 Ensure the training requirements of Appendix A are met.

4. INSTRUCTIONS

NOTE 1: *Unless designated in front of step, appropriate engineering support personnel perform steps.*

NOTE 2: *Sections 4.1 – 4.5 may be performed in any order or concurrently.*

NOTE 3: *Steps that are NOT required may be marked “N/A.”*

4.1 Inspecting the Enclosure Cladding

Init/Date

_____ 4.1.1 Using telescopic equipment, visually inspect the enclosure and cladding above the 34 ft 0 in. level for deformation, cracked or loose cladding sheets.

NOTE: *The inspection criteria are as follows: No obvious deficiencies that appear significant enough to impact the facility operation or safety.*

_____ 4.1.2 Record inspection results below:

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_____ 4.1.3 IF deficiencies are detected
THEN consult with appropriate engineering support personnel to determine and track corrective actions.

4.2 Inspecting the Structural Steelwork

Init/Date

| _____ 4.2.1 Using telescopic equipment, visually inspect the structural steelwork, including exposed steel embedments, and attachments, above the 34 ft 0 in. level for deformation or corrosion of the structure, loose bolts and/or loss of bolts or fittings

NOTE: *The inspection criteria are as follows: No obvious deficiencies that appear significant enough to impact the facility operation or safety.*

_____ 4.2.2 Record inspection results below.

_____ 4.2.3 IF deficiencies are detected
THEN consult with appropriate engineering support personnel to determine and track corrective actions.

4.3 Inspecting the Building Concrete (Safety Analysis Report (SAR) 5.1.5.2)

Init/Date

| _____ 4.3.1 Visually inspect the building concrete surface condition, including below grade concrete if exposed during excavation, to determine if the condition in general is good, satisfactory, or poor.

4.3.2 Determine if the surface condition is less than satisfactory, based on inspections for the following:

- A. Cracks (location and frequency, type and size)
- B. Scaling (area and depth)
- C. Spalls/popouts (number, size, and depth)

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- D. Corrosion
- E. Stains
- F. Exposed steel
- G. Patching or other repairs.

NOTE: *The inspection criteria are as follows: No obvious deficiencies that appear significant enough to impact the facility operation or safety.*

_____ 4.3.3 Record inspection results below.

_____ 4.3.4 IF deficiencies are detected
THEN consult with appropriate engineering support personnel to determine and track corrective actions.

4.4 Inspecting Access Ways, Ladders, Platforms, Handrails, and Doors

Init/Date

_____ 4.4.1 Visually inspect the cask load/unload port (CLUP) and container handling machine (CHM) storage position platform and ladder for deformation and loss of bolts/fittings.

NOTE: *The inspection criteria are as follows: No deformation of ladder rungs or loss of bolts.*

4.4.2 Record inspection results below.

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_____ 4.4.3 IF deficiencies are detected
THEN consult with appropriate engineering support personnel to determine and track corrective actions.

_____ 4.4.4 Visually inspect the crane access platform and ladder for deformation and loss of bolts/fittings.

NOTE: *The inspection criteria are as follows: No deformation of ladder rungs or loss of bolts/fittings.*

_____ 4.4.5 Record inspection results below:

_____ 4.4.6 IF deficiencies are detected
THEN consult with appropriate engineering support personnel to determine and track corrective actions.

_____ 4.4.7 Visually inspect the staircase for deformation and loss of bolts/fittings.

NOTE: *The inspection criteria are as follows: No deformation of steps or loss of bolts/fittings.*

_____ 4.4.8 Record inspection results below.

_____ 4.4.9 IF deficiencies are detected
THEN consult with appropriate engineering support personnel to determine and track corrective actions.

_____ 4.4.10 Visually inspect the emergency escape hatch door and ladder for obstructions, deformation and loss of bolts/fittings.

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NOTE: *The inspection criteria are as follows: No obstruction at the charge face level, no bolts/fittings missing, or deformation of ladder rungs.*

_____ 4.4.11 Record inspection results below.

_____ 4.4.12 IF deficiencies are detected
THEN consult with appropriate engineering support personnel to determine and track corrective actions.

_____ 4.4.13 Visually inspect the personnel access doors for smooth operation and alignment.

NOTE: *The inspection criteria are as follows: Doors close smoothly and fit the door frame.*

_____ 4.4.14 Record inspection results below.

_____ 4.4.15 IF deficiencies are detected
THEN consult with appropriate engineering support personnel to determine and track corrective actions.

_____ 4.4.16 Wearing leather gloves, visually inspect the transfer cask reception bay rollup door for smooth operation.

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NOTE: *The inspection criteria are as follows: Door operates smoothly with no misalignment during the opening or closing operation.*

4.4.17 Record inspection results below.

4.4.18 IF deficiencies are detected
THEN consult with appropriate engineering support personnel to determine and track corrective actions.

4.5 Inspection of the Electrical Equipment

Init/Date

_____ 4.5.1 Visually inspect the building lighting and fixtures for the following:

- A. Inadequate support of fixture
- B. Cracked or broken luminaries of fixture
- C. Evidence of overheating
- D. Exposed wiring.

NOTE: *The inspection criteria are as follows: No cracks or broken fixtures and no broken supports.*

_____ 4.5.2 Record inspection results below.

_____ 4.5.3 IF deficiencies are detected
THEN consult with appropriate engineering support personnel to determine and track corrective actions.

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- 4.6.1.3 Using input from the appropriate engineering support personnel, verify that the necessary deficiency recording documents and work performance documents to track and correct any deficiencies have been generated.

Facility Safety Officer: _____
 Signature Date

- 4.6.2 FSV ISFSI Manager: Do the following:

- 4.6.2.1 Verify inspection procedure completed.
- 4.6.2.2 Verify any degradation of the structural concrete or steel requiring maintenance is repaired prior to the next inspection, or immediately if necessary (Safety Evaluation Report (SER) 3.2.8).

FSV ISFSI Manager: _____
 Signature Date

5. RECORDS

Completed copy of this procedure

NOTE: [MCP-557, "Records Management,"](#) the [INL Records Schedule Matrix](#), and associated [record types list\(s\)](#) provide current information on the storage, turnover, and retention requirements for these records.

6. REFERENCES

ACI 349.3R-02 or later editions

FSV ISFSI Technical Specifications

EDF-8556, "FSV ISFSI Concrete and Steel Inspection"

GEC Dwg. No. 362 A 0004, G.A. Building and Civil Works

GEC Dwg. No. 362 A 0014, Civil "A" Information

GEC Dwg. No. 362 A 0052, Civil "B" Information

GEC Dwg. No. 362 A 0055, Platform and Hand Rail Requirements. CLUP and Storage position

GEC Dwg. No. 362 A 0071, Civil Construction Tolerances

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GEC Dwg. No. 362 F 0152, Fort St. Vrain Maintenance, Inspection and Monitoring Requirements

GEC Dwg. No. 362 A 0231, Detail of Crane Access Platform at 42'8" LvL

GEC Dwg. No. 362 A 0241, Details of External Staircase

GEC Dwg. No. 362 A 0300, Civil "C" Information

GEC Dwg. No. 362 A 0382, Proposed Floor Door with Ladder Modification

Safety Analysis Report for the Fort St. Vrain Independent Spent Fuel Storage Installation

Safety Evaluation Report for the FSV ISFSI License Renewal

7. APPENDIXES

Appendix A, Procedure Hazard Analysis

Appendix, B, Procedure Basis

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Appendix A

Procedure Hazard Analysis

Highly Hazardous Activity? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		HPSC No.: TPR-5589			
Disciplines (SMEs) involved in hazard analysis: (Checking the box indicates discipline is/was involved in the hazard analysis for the procedure.)					
	Discipline		Discipline		Discipline
<input checked="" type="checkbox"/>	Industrial Safety	<input type="checkbox"/>	RCT/RAD Eng.	<input type="checkbox"/>	Engineering
<input type="checkbox"/>	Industrial Hygiene	<input type="checkbox"/>	Env. Protection	<input checked="" type="checkbox"/>	Operations
<input type="checkbox"/>	Fire Protection	<input checked="" type="checkbox"/>	Quality Assurance	<input type="checkbox"/>	Other:
Required Job Training/Required Personal Protective Equipment					
Training			PPE		
Qualified Concrete Inspector			Substantial footwear		
Ladder safety (for ladder use)			Leather gloves		
Fall protection (for at-risk workers)					

Sequence Of Basic Job Steps	Potential Hazards	Hazard Control/PPE
1. General to all procedure	1a. Uneven surfaces	1a. Personnel must wear substantial footwear.
	1b. Slip/trip/fall	1b. Personnel must wear substantial footwear.
	1c. Pinch points	1c. Personnel must wear leather gloves.

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Appendix B

Procedure Basis

Procedure Review Table							
Review Discipline	Rev.	DFC Intent ^b Change	DFC Nonintent ^c Change	Review Discipline	Rev.	DFC Intent ^b Change	DFC Nonintent ^c Change
Operations Management	X ^a	X	X	Industrial Safety	X	X	X
Qualified Operator	X	X	X	Engineering			
Radiological Engineering				Industrial Hygiene			
Environmental				Other:			
Quality	X ^a	X	*				

a. X = review required.
 b. Reviews for intent DFCs require the same discipline reviews required for a revision.
 c. Reviews for nonintent DFCs can be performed with only Operations management and a qualified operator’s review and then implemented for immediate use. However, the remaining discipline reviews, as indicated by an asterisk (*), must be obtained within two (2) weeks. See MCP-2985, “Chapter XVI – Operations Procedures,” for definitions of intent and nonintent changes.

Step	Basis	Source	Citation
Entire procedure	Documents will be established and implemented to describe the planning and execution of inspections.	GEC Alsthom Engineering Systems LTD Technical Specifications 362F0152–MVDS Fort St. Vrain Maintenance, Inspection & Testing Requirements EDF-8556	
2.1	Personnel must follow the applicable hazard mitigations detailed in Appendix A.	Procedure hazard analysis	
2.2	Satisfy NRC commitment to inspect accessible structural concrete and steel every 5 years	Safety Evaluation Report	3.2.8

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Step	Basis	Source	Citation
2.3	In the case of an “Off-Normal” event involving the FSV ISFSI structure, a visual inspection of the FSV ISFSI structure must be performed.	Management best practice	
2.4	In the case of a tornado or seismic event at the FSV ISFSI site, a visual inspection of the FSV ISFSI structure must be performed.	Management best practice	
2.5	Any deficiency, hazard, or abnormal condition noted during the performance of this inspection procedure must be documented in Section 4, and reported verbally to the FSV ISFSI Manager.	Management best practice	
2.6	Implement ACI 349.3R-02 or later editions	FSV Technical Specifications	5.5.5.b.
2.7, 4.6.2.2	Satisfy NRC commitment that degradation of the structural concrete or steel requiring maintenance will be repaired prior to the next inspection, or immediately if necessary.	Safety Evaluation Report	3.2.8
2.8	Satisfy NRC commitment that first-tier cracks can be identified from a distance of more than 200 feet.	Safety Evaluation Report	3.2.8
2.9	Satisfy requirement that concrete inspections be performed by a qualified concrete inspector	FSV Technical Specifications	5.5.5.c.
3.4.1	Ensure training requirements of Appendix A have been met.	Procedure hazard analysis	
4.2	This step implements a SAR requirement for building steel inspection, evaluation, and repairs.	SAR	9.8
4.3	This step implements a SAR requirement for building concrete inspection, evaluation, and repairs.	SAR	5.1.6.2 9.8
4.4.16	Personnel must wear leather gloves to visually inspect the reception bay doors for smooth operation.	Procedure hazard analysis	