		2.2.1 Short-Term Actions (Prior To RCS >210	°F)
#	Action	Deliverable	Description of Changes
17.	Original Action: Complete the Radiation Monitoring System (RMS) Flooding Recovery System Health Assessment report Revised Action: Assess the effects of the flood on the Radiation Monitoring System (RMS) and identify actions to restore the system.	Original Deliverable: Radiation Monitoring System (RMS) Flooding Recovery System Health Assessment report Revised Deliverable: Radiation Monitoring System (RMS) Flooding Recovery Start Up System Health Assessment report	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the startup system health report.
18.	Original Action: Complete the Reactor Protection System (RPS) Flooding Recovery System Health Assessment report Revised Action: Assess the effects of the flood on the Reactor Protection System (RPS) and identify actions to restore the system.	Original Deliverable: Reactor Protection System (RPS) Flooding Recovery System Health Assessment report Revised Deliverable: Reactor Protection System (RPS) Flooding Recovery Start Up System Health Assessment report	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the startup system health report.
19.	Original Action: Complete the Spent Fuel Pool System (SFP) Flooding Recovery System Health Assessment report Revised Action: Assess the effects of the flood on the Spent Fuel Pool System (SFP) and identify actions to restore the system.	Original Deliverable: Spent Fuel Pool System (SFP) Flooding Recovery System Health Assessment report Revised Deliverable: Spent Fuel Pool System (SFP) Flooding Recovery Start Up System Health Assessment report	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the startup system health report.

		2.2.1 Short-Term Actions (Prior To RCS >210	°F)
#	Action	Deliverable	Description of Changes
20	Original Action: Complete the Steam Generator System (SGS) Flooding Recovery System Health Assessment report Revised Action: Assess the effects of the flood on the Steam Generator System (SGS) and identify actions to restore the system.	Original Deliverable: Steam Generator System (SGS) Flooding Recovery System Health Assessment report Revised Deliverable: Steam Generator System (SGS) Flooding Recovery Start Up System Health Assessment report	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the startup system health report.
21	Original Action: Complete the Sampling System (SLS) Flooding Recovery System Health Assessment report Revised Action: Assess the effects of the flood on the Sampling System (SLS) and identify actions to restore the system.	Original Deliverable: Sampling System (SLS) Flooding Recovery System Health Assessment report Revised Deliverable: Sampling System (SLS) Flooding Recovery Start Up System Health Assessment report	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the startup system health report.
22	Original Action: Complete the Structures System (STR) Flooding Recovery System Health Assessment report Revised Action: Assess the effects of the flood on the Structures System (STR) and identify actions to restore the system.	Original Deliverable: Structures System (STR) Flooding Recovery System Health Assessment report Revised Deliverable: Structures System (STR) Flooding Recovery Start Up System Health Assessment report	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the startup system health report.

	2.2.1 Short-Term Actions (Prior To RCS >210°F)		
#	Action	Deliverable	Description of Changes
23	Original Action: Complete the Turbine Generator System (TGS) Flooding Recovery System Health Assessment report Revised Action: Assess the effects of the flood on the Turbine Generator System (TGS) and identify actions to restore the system.	Original Deliverable: Turbine Generator System (TGS) Flooding Recovery System Health Assessment report Revised Deliverable: Turbine Generator System (TGS) Flooding Recovery Start Up System Health Assessment report	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to spécify the startup system health report.
24	Original Action: Complete the Turbine Plant Cooling System (TPC) Flooding Recovery System Health Assessment report Revised Action: Assess the effects of the flood on the Turbine Plant Cooling System (TPC) and identify actions to restore the system.	Original Deliverable: Turbine Plant Cooling System (TPC) Flooding Recovery System Health Assessment report Revised Deliverable: Turbine Plant Cooling System (TPC) Flooding Recovery Start Up System Health Assessment report	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the startup system health report.
25	Original Action: Complete the Ventilating Air Conditioning System (VAC) Flooding Recovery System Health Assessment report Revised Action: Assess the effects of the flood on the Ventilating Air Conditioning System (VAC) and identify actions to restore the system.	Original Deliverable: Ventilating Air Conditioning System (VAC) Flooding Recovery System Health Assessment report Revised Deliverable: Ventilating Air Conditioning System (VAC) Flooding Recovery Start Up System Health Assessment report	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the startup system health report.

	2.2.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes	
26.	Original Action: Complete the Waste Disposal System (WDS) Flooding Recovery System Health Assessment report Revised Action: Assess the effects of the flood on the Waste Disposal System (WDS) and identify actions to restore the system.	Original Deliverable: Waste Disposal System (WDS) Flooding Recovery System Health Assessment report Revised Deliverable: Waste Disposal System (WDS) Flooding Recovery Start Up System Health Assessment report	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the startup system health report.	
27.	Original Action: Complete the Demineralized Water / Potable Water (DW/PW) Flooding Recovery System Health Assessment report Revised Action: Assess the effects of the flood on the Demineralized Water / Potable Water System (DW/PW) and identify actions to restore the system.	Original Deliverable: Demineralized Water / Potable Water System (DW/PW) Flooding Recovery System Health Assessment report Revised Deliverable: Demineralized Water / Potable Water System (DW/PW) Flooding Recovery Start Up System Health Assessment report	Revised the action statement to clarify the purpose of the initial System Health Assessments.	
28.	Original Action: Complete the Vents and Drains (VD) Flooding Recovery System Health Assessment report. This will include Sanitary and Storm Drains Revised Action: Assess the effects of the flood on the Vents and Drains System (VDS) and identify actions to restore the system. This will include Sanitary and Storm Drains.	Original Deliverable: Vents and Drains System(VD) Flooding Recovery System Health Assessment report Revised Deliverable: Vents and Drains System(VD) Flooding Recovery Start Up System Health Assessment report	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the startup system health report.	

	2.2.1 Short-Term Actions (Prior To RCS >210°F)		
#	Action	Deliverable	Description of Changes
29	Original Action: Complete the Auxiliary Steam Flooding Recovery System Health Assessment report. This will include the Auxiliary Boiler Revised Action: Assess the effects of the flood on the Auxiliary Steam System (AUS) and identify actions to restore the system. This will include the Auxiliary Boiler.	Original Deliverable: Auxiliary Steam System (AS) Flooding Recovery System Health Assessment report Revised Deliverable: Auxiliary Steam System (AS) Flooding Recovery Start Up System Health Assessment report	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the startup system health report.
30.	Original Action: Complete the Meteorological Monitoring Flooding Recovery System Health Assessment report Revised Action: Assess the effects of the flood on the Meteorological Monitoring System (MMS) and identify actions to restore the system.	Original Deliverable: Meteorological Monitoring System (MM) Flooding Recovery System Health Assessment report Revised Deliverable: Meteorological Monitoring System (MM) Flooding Recovery Start Up System Health Assessment report	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the startup system health report.
31.	Original Action: Complete the Plant Security Systems Flooding Recovery System Health Assessment report Revised Action: Assess the effects of the flood on the Plant Security Systems (SEC) and identify actions to restore the system.	Original Deliverable: Plant Security System (PS) Flooding Recovery System Health Assessment report Revised Deliverable: Plant Security System (PS) Flooding Recovery Start Up System Health Assessment report	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the startup system health report.

	2.2.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes	
32	Original Action: Complete the Communications Systems Flooding Recovery System Health Assessment report	Original Deliverable: Communications System (CM) Flooding Recovery System Health Assessment Report	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the startup system health report.	
	Revised Action: Assess the effects of the flood on the Communications Systems (COM) and identify actions to restore the system.	Revised Deliverable: Communications System (CM) Flooding Recovery Start Up System Health Assessment Report		

2.2.2 Short-Term Actions (Prior To Reactor Critical)			
# Action Deliverable Description of Cha		Description of Changes	
1.	N/A		No changes

2.2.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
1. N/A			No Changes

FOCUS AREA:	Plant Systems and Equipment
ACTION PLAN:	Wetted Motor Damage Assessment and Restoration
ACTION PLAN NUMBER:	2.3

ISSUE DEFINITION:

Flooding conditions may have wetted and degraded plant electric motors.

OBJECTIVE:

Restore all wetted electric motors to a functional status.

		2.3.1 Short-Term Actions (Prior To RCS >210	° F)
#	Action	Deliverable	Description of Changes
	Assess whether motors are to be tested for possible use, refurbished, or replaced. Motors that were wetted for a short timeframe will be "Tested for Possible Use." Motors that were wetted for an extended period of time will be "Refurbished" or "Replaced."	Original Deliverable: System health assessment report Revised Deliverable: System health assessment report for systems affected by flooding	Revised deliverable to include the System Health Assessment Report for systems affected by flooding instead of all systems.
2.	Original Action: Take oil sample from bearing housings. Revised Action: Take oil sample from bearing housings. CW-1A-M CW-1B-M CW-1C-M	Complete maintenance work documents	Revised action to include only the affected equipment tag numbers per results of action 2.3.1.1.

	2.3.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes	
3.	Original Action: Evaluate if water has gotten in contact with bearings. Revised Action: Evaluate if water has gotten in contact with bearings. CW-1A-M CW-1B-M CW-1C-M	Predictive Maintenance Group to evaluate sampled oil test results for water contamination	Revised action to include only the affected equipment tag numbers per results of action 2.3.1.1.	
4.	Original Action: Refurbish motor if water contamination is present in oil. Replace motor in whole is an additional option. Revised Action: None	Original Deliverable: Completed maintenance work documents. Purchase order will be needed for Vendor support. Vendor to provide motor refurbishment report. A new motor can be used if available Revised Deliverable: None	This action is being moved to Short-Term Action (Prior to Critical) 2.3.2.1. Work has been completed but PMT requires running of the Circ Water pumps. Operating procedures do not require these pumps to be in operation prior to plant heatup.	
5.	Original Action: Perform visual and boroscope inspection of motor internals (to include termination box) looking for silt, pools of water, corrosion, etc. Revised Action: Perform visual and boroscope inspection of motor internals (to include termination box) looking for silt, pools of water, corrosion, etc. CW-1A-M CW-1B-M	Completed maintenance work documents. Visual inspection looking for internal contamination and degradation	Revised action to include only the affected equipment tag numbers per results of action 2.3.1.1.	

	2.3.1 Short-Term Actions (Prior To RCS >210°F)		
#	Action	Deliverable	Description of Changes
	CW-1C-M		
6.	Original Action: Evaluate visual inspection results for possible actions (removal of moisture, cleaning, refurbishment of motor) Revised Action: Evaluate visual inspection results for possible actions (removal of moisture, cleaning, refurbishment of motor)	Condition reports and/or Work Request will be generated for actions needed based on visual inspection results	Revised action to include only the affected equipment tag numbers per results of action 2.3.1.1.
	CW-1A-M CW-1B-M CW-1C-M		
7.	Original Action: If bearings are in good condition and motor is visibly in good condition, Static Test Motor (resistive balance, megger, PI). Revised Action: None	Original Deliverable: Completed maintenance work documents. The testing can be done from the termination box at the motor or from the MCC if the feeder cables to the motor have been found acceptable (Reference Underground Cable Assessment Plan) Revised Deliverable: None	This action is being moved to Short-Term Action (Prior to Critical) 2.3.2.2. Work has been completed but PMT requires running of the Circ Water pumps. Operating procedures do not require these pumps to be in operation prior to plant heatup.
8.	Original Action: If Static Test results are SAT, motor can be started. Maintenance oversight of initial run. Vibration data to be taken during initial run Revised Action: None	Original Deliverable: Completed maintenance work documents Revised Deliverable: None	This action is being moved to Short-Term Action (Prior to Critical) 2.3.2.3. Work requires running of the Circ Water pumps. Operating procedures do not require these pumps to be in operation prior to plant heatup.

	2.3.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes	
9.	Original Action: Remove motor and prepare for shipment to vendor.	Original Deliverable: Completed maintenance work documents.	Motor and pump assembly to be replaced instead.	
10	Original Action; Refurbish motor	Original Deliverable: Completed maintenance work documents. Purchase order will be needed for Vendor support. Vendor to provide motor refurbishment report. A new motor can be used if available	Motor and pump assembly to be replaced instead.	
11.	Original Action: Install refurbished motor	Completed maintenance work documents	Motor and pump assembly to be replaced instead.	
12.	Original Action: Post Maintenance Testing of motor	Completed maintenance work documents	Motor and pump assembly to be replaced instead.	
13.	Original Action: Ensure spare motor is available or order new motor Revised Action: Ensure spare motor and pump assembly is available DW-69-M (PO166406) DW-70-M (PO166406)	Original Deliverable: Complete maintenance work documents Revised Deliverable: Purchase Order	Revised Action to define the motor pump assembly will be replaced as a whole unit. Additionally added affected motor tag numbers and associated purchase order. Revised Deliverable to the purchase order that obtained the needed motor and pump assemblies.	

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	2.3.1 Short-Term Actions (Prior To RCS >210°F)		
#	Action	Deliverable	Description of Changes
14	Original Action: Remove degraded motor	Completed maintenance work documents	Revised action to include only the affected equipment tag numbers per results of action 2.3.1.1.
	Revised Action: Remove degraded motor pump assembly		
	DW-69-M DW-70-M		
15	Original Action: Install new motor Revised Action: Install new motor pump assemblyDW-69-M DW-70-M	Completed maintenance work documents	Revised action to include only the affected equipment tag numbers per results of action 2.3.1.1.
16	Original Action: Post Maintenance Testing of motor	Completed maintenance work documents	Revised action to include only the affected equipment tag numbers per results of action 2.3.1.1.
	Revised Action: Post Maintenance Testing of motor pump assembly.DW- 69-M DW-70-M	E	

	2.3.2 Short-Term Actions (Prior To Reactor Critical)		
#	Action	Deliverable	Description of Changes
1.	Original Action: Refurbish motor if water contamination is present in oil. Replace motor in whole is an additional option. Revised Action: Refurbish motor if water contamination is present in oil. [CW-1A-M (PO167480), CW-1C-M (PO166728)]	Original Deliverable: Completed maintenance work documents. Purchase order will be needed for vendor support. Vendor to provide motor refurbishment report. A new motor can be used if available. Revised Deliverable: Completed maintenance work documents.	Moved from 2.3.1.4 Revised Action to include only the affected equipment tag numbers per results of 2.3.1.1. Deleted the option to replace the motor in whole. Revised Deliverable to delete the option of utilizing a new motor.
2.	Original Action: If bearings are in good condition and motor is visibly in good condition, Static Test Motor (resistive balance, megger, PI). Revised Action: If bearings are in good condition and motor is visibly in good condition, Static Test Motor (resistive balance, megger, PI). CW-1A-M CW-1B-M CW-1C-M	Completed maintenance work documents. The testing can be done from the termination box at the motor or from the MCC if the feeder cables to the motor have been found acceptable (Reference Underground Cable Assessment Plan)	Moved from 2.3.1.7 Revised action to include only the affected equipment tag numbers per results of action 2.3.1.1.

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	2.3.2 Short-Term Actions (Prior To Reactor Critical)			
#	Action	Deliverable	Description of Changes	
3.	Original Action: If Static Test results are SAT, motor can be started. Maintenance oversight of initial run. Vibration data to be taken during initial run Revised Action: If Static Test results are SAT, motor can be started. Maintenance oversight of initial run. Vibration data to be taken during initial run CW-1A-M	Completed maintenance work documents	Moved from 2.3.1.8 Revised action to include only the affected equipment tag numbers per results of action 2.3.1.1.	
	CW-1B-M CW-1C-M			
4.	If Action 2.3.2.3 is SAT, change lower bearing oil.	Completed maintenance work documents	New action	
	CW-1B-M			

	2.3.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes	
	Original Action: If system design allows, the degraded motor repaired or replaced as a Long-Term action (i.e. one of three circulating water motors was found degraded)	Original Deliverable: Completed maintenance work documents Revised Deliverable: None	Closed based on the fact that all affected motors that require refurbishment or replacement have been added as specific action steps.	

FCS Flooding Recovery Action Plan 3.1 Engineering Program Reviews

FOCUS AREA:	Long Term Equipment Reliability
ACTION PLAN:	Engineering Program Reviews
ACTION PLAN NUMBER:	3.1

ISSUE DEFINITION:

Review all Engineering Programs and determine if flood recovery plans are needed for each program.

OBJECTIVE:

Ensure all site restoration issues associated with Engineering Programs are included in Site Restoration Plan.

	3.1.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes	
1.	Document review of all Engineering Programs	Spreadsheet documenting program reviews	Removed spreadsheet from document, it will be provided in the closure package.	
2.	Document justification of no flood recovery plan for each program that screened out as not needing one	Written justification for each program not requiring a flood recovery plan	New action	

	3.1.2 Short-Term Actions (Prior To Reactor Critical)		
#	Action	Deliverable	Description of Changes
1.	N/A		No Change

FCS Flooding Recovery Action Plan 3.1 Engineering Program Reviews

	3.1.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes	
1.	For each program that screened as flood recovery required in step 3.1.1.1 determine what program changes are needed and implement the required changes or justify why changes are not required.	Required program changes will be documented and resolved in a condition report.	New action	

FCS Flooding Recovery Action Plan 3.2 Underground Cable Assessment

FOCUS AREA:	Long Term Equipment Reliability
ACTION PLAN:	Underground Cable Assessment
ACTION PLAN NUMBER:	3.2

ISSUE DEFINITION:

Flooded cable manholes and vaults have subjected cables to conditions which may have impacted cable function and/or reliability.

OBJECTIVE:

Assess impact of submergence on Safety Related and Important to Safety/Production Cables within the Maintenance Rule Scope to assure a reasonable expectation of continued operability/functionality.

	3.2.1 Short-Term Actions (Prior To RCS >210°F)		
#	Action	Deliverable	Description of Changes
	Test Maintenance Rule Medium Voltage Power Cables subjected to wetting/submergence	Original Deliverable: Test 4 Raw Water Pump Motor Cables (AC-10A-D), 3 Circ Water Pump Motor Cables (CW-1A-C) and the Electric Fire Pump Motor Cable (FP-1A) by Tan Delta and Partial Discharge testing Revised Deliverable: Completed Work Order(s) and Test Analysis Report	Deliverable was changed to "Completed Work Order(s) and Test Analysis Report"
2.	Test Maintenance Rule Low Voltage Power Cables subjected to wetting/submergence	Original Deliverable: Test Shielded or Unshielded Low Voltage by AC Megger. Revised Deliverable: Completed Work Order(s) and Test Analysis Report	Deliverable was changed to "Completed Work Order(s) and Test Analysis Report"

FCS Flooding Recovery Action Plan 3.2 Underground Cable Assessment

3.	Original Action: Test Maintenance Rule Low Voltage Control and Instrumentation Cables subjected to wetting / submergence Revised Action: Test representative sample of Maintenance Rule Low Voltage Control and Instrumentation Cables subjected to wetting/submergence	Original Deliverable: Test by Indenter or AC Megger. CHAR testing may also be useful; due to lesser observed impact of water treeing in control and instrument cables, sampling is recommended Revised Deliverable: Completed Work Order(s) and Test Analysis Report.	Action was revised to reflect the testing of a representative sample population which was recommended in the deliverable. Deliverable was changed to "Completed Work Order(s) and Test Analysis Report".
4.	Test or Replace 13.8kV Medium Voltage Cable for Plant Emergency Power Feed and Meteorological Tower Feeds.	Test Analysis Report and/or Completed Work Order(s)	New action

	3.2.2 Short-Term Actions (Prior To Reactor Critical)			
#	Action	Deliverable	Description of Changes	
	Original Action: Test or Replace 13.8KV Medium Voltage Cable for Emergency Power Feed and Met Tower Feed Revised Action: None	Original Deliverable: 13.8 KV cables are scheduled to be replaced as part of the 13.8KV Underground Distribution Recovery Plan from T&D. This will need to be coordinated with Start up Revised Deliverable: None	Close to action 3.2.1.4 due to USAR requirement of prior to RCS >210°F for emergency power feed.	
2.	Original: Inspect Manholes and Vaults for damage and integrity of water seals at penetrations Revised: Inspect Manholes and Vaults for structural integrity.	Inspection report	Action was changed to remove "integrity of water seals at penetrations" as this scope is included in action 4.2.2.11	

FCS Flooding Recovery Action Plan 3.2 Underground Cable Assessment

	3.2.2 Short-Term Actions (Prior To Reactor Critical)			
#	Action	Deliverable	Description of Changes	
3.	Original Action: Contingency Cable Replacement (If identified defective cable during testing) Revised Action: None	Original Deliverable: Completed work document Revised Deliverable: None	Close due to the completion of cable testing with no cable replacement required.	
4.	Original Action: Testing of contingency cables installed after replacement (if needed) Revised Action: None	Original Deliverable: Testing report Revised Deliverable: None	Close due to the completion of cable testing with no cable replacement required.	
5 .	Not used			
6.	Inspect Manhole interiors and remove mud/debris	Completed Work Order(s)	New action	

	3.2.3 Long-Term Actions		
#	Action	Deliverable	Description of Changes
1.	N/A		No changes

FCS Flooding Recovery Action Plan 3.3 Underground Piping and Tanks Assessment

FOCUS AREA:	Long Term Equipment Reliability
ACTION PLAN:	Underground Piping and Tanks Assessment
ACTION PLAN NUMBER:	3.3

ISSUE DEFINITION:

Flooding conditions and temporary mitigation measures may have degraded underground piping and tanks.

OBJECTIVE:

Restore all station underground piping and tanks to functional status.

	3.3.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes	
	Original Action: Inspect underground piping and tanks using GPR (Ground Penetrating Radar) Revised Action: Inspect underground Raw Water, EDG Fuel Oil and Fire Protection piping and tanks using GPR (Ground Penetrating Radar)	Original Deliverable: Ensure all underground piping and tanks are intact and no structurally significant voids are present near piping Revised Deliverable: Ensure Raw Water, EDG Fuel Oil and Fire Protection underground piping and tanks are intact and no structurally significant voids are present near piping	Revised action and deliverable to specify scope.	
2.	Assess results of GPR	Documentation of GPR results	No Change	
3.	Original Action: Resolve any deficiencies affecting operability or functionality (if needed) Revised Action: None	Original Deliverable: Operability/functionality determination Revised Deliverable: None	Closed. Action plán 4.1 resolves any operability issues.	

FCS Flooding Recovery Action Plan 3.3 Underground Piping and Tanks Assessment

3.3.2 Short-Term Actions (Prior To Reactor Critical)				
# Action	Deliverable	Description of Changes		
1. Update the Geotechnical / Structural Assessment Summary Report	Revision 1 to the Geotechnical/Structural summary Assessment Report.	New action		

	3.3.3 Long-Term Actions				
# Action Deliverable De			Description of Changes		
1.	GPR (Ground Penetrating Radar)	Final report	No change		
	report finalized for documentation				

FOCUS AREA:	Design and Licensing Basis
ACTION PLAN:	Plant and Facility Geotechnical and Structural Assessment
ACTION PLAN NUMBER:	4.1

ISSUE DEFINITION:

Flooding may have negatively affected the functionality of existing structures.

OBJECTIVE:

Engineer's geotechnical and structural assessment of the post-flood condition and functionality of buildings at FCS.

	4.1.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes	
	Planning and Logistics Activities:			
1.	Original Action: Establish assessment requirements	Original Deliverable: Assessment requirements defined	Close by consolidating into action 4.1.1.7 (Priority 1 proposal)	
	Revised Action: None	Revised Deliverable: None	an an C an	
2.	Original Action: Assemble OPPD & HDR program management team Revised Action: None	Original Deliverable: HDR project guide Revised Deliverable: None	Close by consolidating into action 4.1.1.3 (Assemble OPPD and HDR project management and assessment teams)	
3.	Original Action: Select and assemble analysis teams Revised Action: Assemble OPPD and HDR project management and assessment teams	HDR project guide	Revised action to more accurately reflect scope	

	4.1.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes	
4.	Badging staff for plant access	Appropriate staff badged	No changes	
5.	Develop draft level 2 schedule	Draft Level 2 schedule.	Close by consolidating into action 4.1.1.7 (Priority 1 proposal)	
6.	Develop final level 2 schedule	Final level 2 schedule.	Close by consolidating into action 4.1.1.7 (Priority 1 proposal)	
7.	Priority 1 proposal	Original Deliverable: Detailed scope and fee proposal for priority 1 structures.	Revised deliverable to more accurately reflect its content	
		Revised Deliverable: Detailed scope and schedule proposal for priority 1 structures.		
8.	Prepare draft report document plan and outline	Draft report document plan and outline.	No changes	
	Data Acquisition			
9.	Acquire historical geotechnical and structural data	Data acquired.	No changes	
10.	Create shareable database	Database shareable by OPPD and HDR staff.	No changes	
	Class 1 Priority 1 Structures Evaluation and	nd Analysis (See Attachment A)		
11.	Review data for each structure and identify data gaps	List of data gaps.	No changes	
12.	Review structure design features to assess potential for damage due to flooding	Specific methods, procedures, and schedules for each structure.	No changes	
13.	Original Action: Inspect structures	Original Deliverable: Field reports	Close by consolidation into action 4.1.1.16 (Create report of findings)	
	Revised Action: None	Revised Deliverable: None		
14.	Original Action: Assess post-inundation condition of structures	Original Deliverable: Post inundation condition report. Successor to Al 13	Close by consolidation into action 4.1.1.16 (Create report of findings)	

	4.1.1 Short-Term Actions (Prior To RCS >210°F)		
#	Action	Deliverable	Description of Changes
	Revised Action: None	Revised Deliverable: None	
15.	Original Action: Prepare remediation alternatives (if appropriate)	Original Deliverable: Remediation alternatives report. Successor to Al 14.	Close by consolidation into action 4.1.1.16 (Create report of findings)
	Revised Action: None	Revised Deliverable: None	
16.	Create report of findings	Original Deliverable: Summary report Revised Deliverable: HDR Geotechnical- Structural Assessment Summary Report Revision 0	Clarified deliverable
17.	Review findings and recommendations with OPPD and document results	Meetings and documentation	No changes
	Non-Class 1 Priority 1 Structures Evaluati	on and Analysis (See Attachment A)	
18.	Review data for each structure and identify data gaps	List of data gaps	No changes
19.	Review structure design features to assess potential for damage due to flooding	Specific methods, procedures and schedules for each structure	No changes
20.	Original Action: Inspect structures	Original Deliverable: Field reports	Close by consolidation into action 4.1.1.23 (Create report of findings)
	Revised Action: None	Revised Deliverable: None	
21.	Original Action: Assess post-inundation condition of structures	Original Deliverable: Post inundation condition report	Close by consolidation into action 4.1.1.23 (Create report of findings)
	Revised Action: None		

	4.1.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes	
22.	Original Action: Prepare remediation alternatives (if appropriate) Revised Action: None	Remediation alternatives report	Close by consolidation into action 4.1.1.23 (Create report of findings)	
23	Create report of findings	Original Deliverable: Summary report Revised Deliverable: HDR Geotechnical- Structural Assessment Summary Report Revision A	Clarified deliverable	
24	Review findings and recommendations with OPPD and document results	Meetings and documentation	No changes	
25	Post-Flood River Channel Evaluation	Report detailing ultimate heat sink access throughout evaluated operating levels documented in FCS Technical Specification.	No changes	
26	Develop follow-on geotechnical `inspection and testing plan based on summary report results.	Geotechnical inspection and testing work plan documents necessary to develop FCS Work Requests.	New action	
27	Perform follow-on field inspection and testing.	Complete on-site testing and inspection activities.	New action	
28	Resolve remaining non-class 1 open issues as necessary based on follow on testing report.	Document follow-on inspection and testing plan results	New action	
29	Update Geotechnical-Structural Assessment Summary Report based on results of follow-on inspection and	HDR Geotechnical-Structural Assessment Summary Report Revision 1	New action	

	4.1.1 Short-Term Actions (Prior To RCS >210°F)		
#	Action	Deliverable	Description of Changes
	testing		
30	Verify no geotechnical or structural impact to Turbine Building and Auxiliary Building/Containment) as a result of the 2011 flood	Complete OPPD owner acceptance review of HDR Geotechnical/Structural Assessment Report Revision 1.	New action
31	Original Action: EC-55000 to allow follow on geotechnical testing that will involve core drilling in the Auxiliary Building floor slab.	Original Deliverable: Completed EC package to allow field testing in Class 1 structures to define the boundary of loose soil area identified under the Turbine Building	Revised wording of action and deliverable to include "if needed" since there is a possibility that core drilling in the Auxiliary Building floor slab will not be needed.
	Revised Action: EC-55000 to allow follow on geotechnical testing that will involve core drilling in the Auxiliary Building floor slab if needed.	Revised Deliverable: Completed EC package to allow field testing in Class 1 structures to define the boundary of loose soil area identified under the Turbine Building if needed	
32	Original Action: Remediation of the Turbine Building and Class 1 Structure void. Revised Action: Remediation of the Turbine Building and Class 1 Structure void if required	Original Deliverable: Completed remediation of the Turbine Building and Class 1 structure void (if required). Revised Deliverable: No change	Revised action to acknowledge that the Geotechnical/Structural Assessment Report may show that this work is not required.

	4.1.2 Short-Term Actions (Prior To Reactor Critical)		
#	Action	Deliverable	Description of Changes
1.	Update the Geotechnical/Structural Assessment Summary Report	Revision 2 to the Geotechnical/Structural Assessment Report.	New action

	4.1.2 Short-Term Actions (Prior To Reactor Critical)		
#	Action	Deliverable	Description of Changes
2.	Verify no geotechnical or structural impact to site structures (except TB and Class 1) and equipment as a result of the 2011 flood.	Complete OPPD owner acceptance review of Geotechnical/Structural Assessment Report.	New action

	4.1.3 Long-Term Actions		
#	Action	Deliverable	Description of Changes
	Non-Class 1 Priority 2 Structures Evaluati	on and Analysis (See Attachment A)	
1.	Review data for each structure and identify data gaps	List of data gaps	No changes
2.	Review structure design features to assess potential for damage due to flooding	Specific methods, procedures and schedules for each structure	No changes
3.	Original Action: Inspect structures Revised Action: None	Original Deliverable: Field reports Revised Deliverable: None	Close by consolidation into action 4.1.3.6 (Create report of findings)
4.	Original Action: Assess post-inundation condition of structures	Original Deliverable: Post inundation condition report	Close by consolidation into action 4.1.3.6 (Create report of findings)
5.	Original Action: Prepare remediation alternatives (if appropriate) Revised Action: None	Original Deliverable: Remediation alternatives report Revised Deliverable: None	Close by consolidation into action 4.1.3.6 (Create report of findings)
6.	Create report of findings	Original Deliverable: Summary report Revised deliverable: Draft Summary Report, Revision 2	Deliverable was changed to clarify which revision of the report is intended.

		4.1.3 Long-Term Actions	
#	Action	Deliverable	Description of Changes
7.	Review findings and recommendations with OPPD and document results	Meetings and documentation	No changes
	Reports and Submittals:		
8.	Assemble final summary report	Original Deliverable: Final summary report reflecting OPPD owner review comments Revised Deliverable: Final summary report Revision 3 reflecting OPPD owner review comments	Deliverable was changed to clarify which revision of the report is intended.
۶.	Establish long-term monitoring activities	Long-term monitoring plan	No changes
10	Remediation of the loose soils area under the Turbine Building and Class 1 structures if required.	Completed remediation of loose soil areas under the Turbine Building and Class 1 structures as required.	New action

Attachment A Plant & Facility Geotechnical and Structural Assessment

Priority 1 - Structures That Must Be Assessed Prior to Plant Restart

Class 1 Structures

- Intake Structure
- Auxiliary Building
- Containment

Non-Class 1 Structures Inside Protected Area

- Rad Waste Building
- Technical Support Center

- Security Building
- Turbine Building
- Security BBREs
- South Switchyard
 - Transformers (T1, T1A1, T1A2, T1A3, and T1A4)
 - 161 kV Structures
 - 345 kV Structures
- Condensate Storage Tank
- Underground Utilities
 - Raw Water Piping
 - Fire Protection System Piping
 - Underground Cable Duct to Intake Structure

Non-Class 1 Structures Outside Protected Area

- ISFSI (Dry Fuel Storage)
- OSGS (Old Steam Generator Storage Building)
- Switchyard
 - 161 kV Building
 - 345 kV Building (west)
 - 345 kV Building (east)
 - Transformers
 - 161kV Structures
 - 345 kV Structures
- Met Tower
- Condensate Storage Tank
- Demineralized Water Storage Tank and Pump House
- Underground Cable Duct From the Switchyard to Plant

Priority 2 – Structures That Do Not Directly Support Plant Operation

Non-Class 1 Structures Inside Protected Area

- New Warehouse
- Chemistry/Radiation Protection Building
- - Maintenance Shop
- Maintenance Fabrication Shop

Non-Class 1 Structures Outside Protected Area

- Maintenance Storage Building
- Old Warehouse
- Training Center
- Administrative Building
- Hazardous Material Storage Building
- Maintenance Garage
- Tertiary Building
- Spare Transformer Pads
- Shooting Range
- Parking Lots
- Outdoor Concrete Slabs and Driveways
- Sewage Lagoons

FOCUS AREA:	Design and Licensing Basis
ACTION PLAN:	External Flooding Barrier Configuration
ACTION PLAN NUMBER:	4.2

ISSUE DEFINITION:

Flood barriers may have been affected during the 2011 flooding event or outage activities that would prevent the barriers from performing their intended function. This issue will also address the final configuration of any flood mitigation devices installed to address the 2011 flooding event.

OBJECTIVE:

Verify that the current configuration of external flood barriers is adequate to protect critical assets required to implement protective actions as described in AOP-1, Acts of Nature.

	4.2.1 Short-Term Actions (Prior To RCS >210°F)		
#	Action	Deliverable	Description of Changes
1.	Review / observe all external flood barrier configurations and verify that they have not been altered during flood response or outage activities	Report documenting the results of the review	No Change
2.	Issue SO-G-124, Flood Barrier Impairment program	Original Deliverable: EC number tracking issuance of SO-G-124; training required prior to issue of this procedure. Revised Deliverable: Copy of issued SO-G- 124.	Deliverable changed to delete training discussion. This is an inherent part of the procedure revision process.
3.	Document external flood barrier impairments as applicable in accordance with SO-G-124	Complete impairment forms in the control room.	No changes

		4.2.1 Short-Term Actions (Prior To RCS >210	° F)
#	Action	Deliverable	Description of Changes
4.	Original Action: Perform walkdown of all flood mitigation devices (i.e., berms, sandbags, HESCO barriers) to determine if each device is to be removed or is to remain Revised Action: None	Original Deliverable: List of flood mitigation devices and configuration disposition; Engineering Changes to be initiated as necessary to address final desired configuration Revised Deliverable: None	Close by consolidation into action 4.3.1.4 (Initiate actions to remove non-permanent configuration changes)
5.	Original Action: Initiate actions to remove flood mitigation devices which have been determined to not be permanent fixtures. Revised Action: None	Original Deliverable: Work Requests or Work orders to drive removal of temporary equipment and fixtures. Revised Deliverable: None	Close by consolidation into action 4.3.1.4 (Initiate actions to remove non-permanent configuration changes)
6.	Identify flood barriers which will not have adequate qualification basis before leaving Cold Shutdown.	Burns & McDonnell report.	No changes

	4.2.2 Short-Term Actions (Prior To Reactor Critical)		
#	Action	Deliverable	Description of Changes
1.	Identify degraded flood barriers	Original Deliverable: Condition Reports and work requests for each degraded flood barrier Revised Deliverable: Condition Reports and work requests for degraded flood barriers	Minor wording change to remove the word "each". Does not change intent.
2.	Repair flood barriers as required	All flood barriers restored as required	No changes
3.	Establish Program Owner for Flood Barrier impairment process	Process Owner	No changes

	4.2.2 Short-Term Actions (Prior To Reactor Critical)		
#	Action	Deliverable	Description of Changes
4.	Prepare SO-G-124, documentation for all flood barriers which do not have adequate qualification	Completed FC-1411 Flood Barrier Impairment forms for each barrier which is not qualified.	No changes
5.	Review restoration plans for each impaired flood barrier per SO-G-124 form FC-1411	FC-1411 forms reviewed and restoration plans confirmed.	No changes
6.	Review impaired flood barriers as identified in accordance with SO-G- 124 form FC-1411	FC-1411 forms reviewed and barrier conditions verified	No Changes
7.	Original Action: Removal of all flood mitigation devices which have been determined to not be permanent fixtures Revised Action: None	Original Deliverable: Temporary flood control fixtures have been removed Revised Deliverable: None	Close by consolidation into action 4.3.2.2 (Perform CR 2011-8566 walk-down to verify restoration of non-permanent configuration changes).
8.	Prepare engineering changes as required to address degraded or unqualified flood penetrations	Engineering Change Packages	New action
9.	Identify design solution to MH-31 degraded conduit seals (CR 2011- 6999)	Engineering Change Package to address degraded conduit seals.	New action
10	Repair MH-31 conduits	Completed work orders documenting repairs performed.	New action

	4.2.3 Long-Term Actions		
#	Action	Deliverable	Description of Changes
1.	Provide technical justification for qualification of all external flood barriers	Original Deliverable: Completion of CR 2010-2387 action items Revised Deliverable: Flood barrier program basis established.	Changed deliverable to specify the actual documentation required
2.	Develop Engineering Change paperwork to support final configuration of flood mitigation barriers	EC issued for flood control measures that have been determined to be permanent	No changes

FCS Flooding Recovery Action Plan 4.3 Station Design Configuration Control

FOCUS AREA:	Design and Licensing Basis
ACTION PLAN:	Station Design Configuration Control
ACTION PLAN NUMBER:	4.3

ISSUE DEFINITION:

Various configuration changes have occurred as part of flood mitigation. Tracking of configuration changes will continue throughout the flooding event to ensure that configuration control is maintained. Decisions will need to be made following the flooding regarding the final configuration required. In some instances, (e.g. earthen berm in the switchyard), it may be beneficial to leave the flood mitigation devices in place as permanent fixtures.

OBJECTIVE:

Establish final plant configuration following the 2011 Flooding event.

	4.3.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes	
	Finalize identification of all configuration changes for restoration	Listing of Configuration Changes that were made during flooding event	No Change	
2.	Finalize identification of configuration changes to be made permanent	Engineering changes initiated for permanent changes/evaluation of acceptability.	No Change	
3.	Establish Priority/Schedule for restoration	All configuration changes identified in schedule, required plant conditions for restoration identified.	No changes	
4.	Initiate actions to remove non- permanent configuration changes	Work documents/condition reports have been initiated for removal of non- permanent changes.	No changes	

FCS Flooding Recovery Action Plan 4.3 Station Design Configuration Control

	4.3.2 Short-Term Actions (Prior To Reactor Critical)				
#	Action	Deliverable	Description of Changes		
1.	Completion of all ECs/restoration required for plant start-up	Restoration of identified configuration changes for start-up is complete	No changes		
2.	Perform CR 2011-8566 walk-down to verify restoration of non-permanent configuration changes.	Completion and documentation of walk- down results in CR 2011-8566	New action		

	4.3.3 Long-Term Actions				
#	Action	Deliverable	Description of Changes		
1.	Complete remaining ECs/restoration for station configuration control (not required for start-up)	Remaining configuration changes for restoration complete.	No changes		

FCS Flooding Recovery Action Plan 5.1 Return Alert Notification Sirens To Functional Status

FOCUS AREA:	Emergency Planning
ACTION PLAN:	Return Alert Notification Sirens To Functional Status
ACTION PLAN NUMBER:	5.1

ISSUE DEFINITION:

Flooding conditions and power cut offs have made sirens 1, 69, 75, 76, 135, 143, 257, 259, and 260 non-functional.

OBJECTIVE:

Restore flood affected sirens to functional status.

5.1.1 Short-Term Actions (Prior To RCS >210°F)				
#	Action	Deliverable	Description of Changes	
1. N/A			No changes	

	5.1.2 Short-Term Actions (Prior To Reactor Critical)			
#	Action	Deliverable	Description of Changes	
1.	Original Action: Procure 10 Solar charging kits of the nine affected sirens	Original Deliverable: Ten solar charging kits have been shipped and are to be delivered to the North Omaha warehouse. Siren 69 will be the first to be installed. Solar	Close. FEMA has provided guidance that solar chargers are an enhancement, not required, and do not require a design report change.	
	Revised Action: None	kits have been received and inspected. Revised Deliverable: None		

FCS Flooding Recovery Action Plan 5.1 Return Alert Notification Sirens To Functional Status

	5.1.2 Short-Term Actions (Prior To Reactor Critical)			
#	Action	Deliverable	Description of Changes	
2.	Original Action: Perform fly over of flood affected siren to determine status and potential condition of the equipment Revised Action: None	Original Deliverable: Photos will be taken to assess potential damage and be available for review. Revised Deliverable: None	Action not required, all sirens were accessible for inspection.	
3.	Based on siren inspection procure replacement siren heads, poles, electronic, and power supplies	Original Deliverable: Report of equipment replaced. Revised Deliverable: Restore sirens to functional.	Clarified deliverable to include evidence of siren restoration	
4.	Original Action: If siren damage and or infrastructure is such that timely repair of sirens is not possible, work with FEMA, state and local governments for potential exemptions or long term plan	Original Deliverable: Written approval by FEMA or a FEMA approved plan for restoration based on infrastructure or resident restoration	Action not required; all sirens were accessible for repair and have been restored under 5.1.2.3 (Based on siren inspection procure replacement siren heads, poles, electronic, and power supplies).	
	Revised Action: None	Revised Deliverable: None		
5.	Original Action: Replace batteries in the affected sirens Revised Action: None	Original Deliverable: Report of equipment replaced Revised Deliverable: None	Close to duplicate action 5.1.2.3 (Based on siren inspection procure replacement siren heads, poles, electronic, and power supplies).	
6.	Original Action: Install solar charging kits on the affected sirens Revised Action: None	Original Deliverable: Report of equipment installed Revised Deliverable: None	Closed - FEMA has provided guidance that solar chargers are an enhancement, not required, and do not require a design report change.	

FCS Flooding Recovery Action Plan 5.1 Return Alert Notification Sirens To Functional Status

	5.1.2 Short-Term Actions (Prior To Reactor Critical)			
#	Action	Deliverable	Description of Changes	
7.	Original Action: Conduct Siren Inspections using the Communications developed check list. Revised Action: None	Original Deliverable: Inspection report Revised Deliverable: None	Closed by consolidation into action 5.1.2.3 (Based on siren inspection procure replacement siren heads, poles, electronic, and power supplies).	
8.	Conduct a full siren test after sirens have been restore to functional status	Emergency Planning Test (EPT-3), Alert Notification Complete Cycle Test.	No changes	

	5.1.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes	
1.	Conduct Emergency Planning Test (EPT-37), Emergency Sign Verification	Completed EPT-37 test.	No changes	
2.	Original Action: Establish priorities with Communications, T&D, Mid-America Power, and counties for restoring AC power to sirens Revised Action: None	Original Deliverable: AC power restored to all sirens Revised Deliverable: None	Action not needed, all sirens restored in action 5.1.2.3 (Based on siren inspection procure replacement siren heads, poles, electronic, and power supplies) and tested in 5.1.2.8 (Conduct a full siren test after sirens have been restore to functional status).	

FCS Flooding Recovery Action Plan 5.2 Return Alert Notification Sirens To Functional Status

FOCUS AREA:	Emergency Planning
ACTION PLAN:	Field Monitoring and Post Accident Environmental Monitoring
ACTION PLAN NUMBER:	5.2

ISSUE DEFINITION:

Performing fielding monitoring and environmental sampling in flood affected sectors or through roads closed by flooding.

OBJECTIVE:

Be able to assess and determine if Protective Action Recommendations are adequate for affected sectors.

	5.2.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes	
1.	Develop a field monitoring and environmental sampling plan	Develop a sampling plan and have it peer reviewed by ERO protective measure personnel	No changes	
2.	Distribute Plan	Plan was reviewed by peers and is stationed at Protective Measure Emergency Response stations	No changes	

	5.2.2 Short-Term Actions (Prior To Reactor Critical)				
#	Action	Deliverable	Description of Changes		
1.	Conduct a Protective Measure table top with the states of Nebraska and lowa	Report of tabletop exercise. During the drill, the field team monitoring plan was used to walk through and sample in flood affected areas; based on critiques, the plan will be revised as appropriate.	No changes		

FCS Flooding Recovery Action Plan 5.2 Return Alert Notification Sirens To Functional Status

5.2.2 Short-Term Actions (Prior To Reactor Critical)			
#	Action	Deliverable	Description of Changes
2.	Discuss the use of fly-over sampling of flood affects area of the EPZ with the Directors of Radiological Health at the State of Nebraska and Iowa	Documented discussion of fly-over sampling of flood affected area of the EPZ with the Directors of Radiological Health at the State of Nebraska and Iowa	No changes

5.3.3 Long-Term Actions			
# Action	Deliverable	Description of Changes	
1. Revise sampling plan.	Revised sampling plan.	No changes	

FOCUS AREA:	Emergency Planning	
ACTION PLAN:	Assessment of Offsite Emergency Response Following a Natural Disaster	
ACTION PLAN NUMBER:	5.3	

ISSUE DEFINITION:

Assess the capabilities of the offsite emergency response to respond to a radiological emergency.

OBJECTIVE:

FEMA to issue a letter of Reasonable Assurance to the NRC to allow Fort Calhoun to go critical.

5.3.1 Short-Term Actions (Prior To RCS >210°F)			
# Action		Deliverable	Description of Changes
1. N/	/A		No changes

	5.3.2 Short-Term Actions (Prior To Reactor Critical)			
#	Action	Deliverable	Description of Changes	
1.	Perform ERDS testing	Original Deliverable: Perform normal testing per EPT-21. Last test was completed 7/29/2011 satisfactory. Test results will support EPDM-20, Assessment of Offsite Emergency Response Following a Natural Disaster documentation. EPT is a quarterly test and was completed satisfactory on 7/29/11. Revised Deliverable: Perform normal testing per EPT-21.	Removed status information	

	5.3.2 Short-Term Actions (Prior To Reactor Critical)			
#	Action	Deliverable	Description of Changes	
2.	Perform normal communications testing	Original Deliverable: Perform normal testing per EPT-5 and EPT-6. Last was completed 7/28/2011 (EPT-5 & EPT-6) satisfactory. Test results will support EPDM-20 documentation EPT-5 & 6 are monthly tests were completed last on 7/28/11.	Removed status information	
		Revised Deliverable: Perform normal festing per EPT-5 and EPT-6.		
3.	Original Action: Restore area radiation monitors Revised Action: None	Original Deliverable: Verify that the area radiation monitors have been repaired, calibrated, and are functional. Results will support EPDM-20 documentation. Write work orders and contingencies if not functional. As of 8/29/11, all area monitors are operational and calibrated. Revised Deliverable: None	No action required, radiation monitors were not affected by flooding.	
4.	Original Action: Ensure effluent radiation monitors are functional Revised Action: None	Original Deliverable: Verify that the effluent radiation monitors have been repaired, calibrated, and are functional. Results will support EPDM-20 documentation. Write work orders and contingencies if not functional. As of 8/29/11, all effluent (process) monitors are operational and calibrated. Revised Deliverable: None	No action required, radiation monitors were not affected by flooding.	

	5.3.2 Short-Term Actions (Prior To Reactor Critical)			
#	Action	Deliverable	rable Description of Changes	
S.	Original Action: Restore equipment used for emergency classification Revised Action: None	Original Deliverable: Verify that equipment used for classification is repaired, calibrated, and are functional. Results will support EPDM-20 documentation. Write work orders and contingencies if not functional Meteorological Tower is not currently functional. This is being tracked separately in plan step 5.4.2.1. Revised Deliverable: None	No equipment used for emergency classification was affected by the flood except for the meteorological tower. Restoration of the meteorological tower is tracked in action 5.4.2.1 (MET tower restoration).	
6.	Perform normal facility inventories and assessments	Complete testing per EPT-24, EPT-25, EPT-26, EPT-30, EPT-54, and EPT-55.	No changes	
7.	Conduct Meeting with FEMA, NRC, local Emergency Manager, and State Emergency Managers	Perform initial review of EPDM-20 check list with the organizations.	No changes	
8.	Submit exemption to postpone 2011 annual exercise	Original Deliverable: Complete; letter has been sent to NRC. Obtained concurrent with state and local representative at the 7/26/2011 meeting. Letters wishing to postpone were sent from the state of Iowa and Nebraska to FEMA Region IV on 7/29/2011 Revised Deliverable: Obtain exemption approval to postpone 2011 annual exercise.	Revised deliverable to document that approval to postpone 2011 exercise has been obtained.	
9.	Conduct pager test per EPT-34, Perform Augmentation or Notification Drills	Complete pager test per EPT-34.	No changes	

	5.3.2 Short-Term Actions (Prior To Reactor Critical)			
#	Action	Deliverable	Description of Changes	
10.	Original Action: Emergency Response Facilities Revised Action: None	Original Deliverable: Findings summary for off-site and on-site facilities using EPDM-20 as a guide Revised Deliverable: None	Closed by consolidation to new action 5.3.2.19 (Obtain Statement of Reasonable Assurance from FEMA). Actions 5.3.2.10 to 5.3.2.17 are areas of interest from the FEMA Disaster Initiated Review checklist for developing the Statement of Reasonable Assurance.	
11.	Original Action: Communications Revised Action: None	Original Deliverable: Findings summary for off-site and on-site communications using EPDM-20 as a guide Revised Deliverable: None	Closed by consolidation to new action 5.3.2.19 (Obtain Statement of Reasonable Assurance from FEMA). Actions 5.3.2.10 to 5.3.2.17 are areas of interest from the FEMA Disaster Initiated Review checklist for developing the Statement of Reasonable Assurance.	
12.	Original Action: Emergency Response Organizations Revised Action: None	Original Deliverable: Findings summary for off-site and on-site emergency response organizations using EPDM-20 as a guide Revised Deliverable: None	Closed by consolidation to new action 5.3.2.19 (Obtain Statement of Reasonable Assurance from FEMA). Actions 5.3.2.10 to 5.3.2.17 are areas of interest from the FEMA Disaster Initiated Review checklist for developing the Statement of Reasonable Assurance.	
13.	Original Action: Public Alert and Notification Revised Action: None	Original Deliverable: Findings summary for the public alerting systems using EPDM-20 as a guide Revised Deliverable: None	Closed by consolidation to new action 5.3.2.19 (Obtain Statement of Reasonable Assurance from FEMA). Actions 5.3.2.10 to 5.3.2.17 are areas of interest from the FEMA Disaster Initiated Review checklist for developing the Statement of Reasonable Assurance.	

	5.3.2 Short-Term Actions (Prior To Reactor Critical)			
#	Action	Deliverable Description of Changes		
14	Original Action: Special Needs and Transportation Revised Action: None	Original Deliverable: Findings summary for special needs transportation using EPDM-20 as a guide Revised Deliverable: None	Closed by consolidation to new action 5.3.2.19 (Obtain Statement of Reasonable Assurance from FEMA). Actions 5.3.2.10 to 5.3.2.17 are areas of interest from the FEMA Disaster Initiated Review checklist for developing the Statement of Reasonable Assurance.	
15	Original Action: Evacuation Routes Revised Action: None	Original Deliverable: Findings summary for evacuation routes using EPDM-20 as a guide Revised Deliverable: None	Closed by consolidation to new action 5.3.2.19 (Obtain Statement of Reasonable Assurance from FEMA). Actions 5.3.2.10 to 5.3.2.17 are areas of interest from the FEMA Disaster Initiated Review checklist for developing the Statement of Reasonable Assurance.	
16	Original Action: Accident Assessment Revised Action: None	Original Deliverable: Findings summary for off-site and on-site accident assessment capabilities using EPDM-20 as a guide Revised Deliverable: None	Closed by consolidation to new action 5.3.2.19 (Obtain Statement of Reasonable Assurance from FEMA). Actions 5.3.2.10 to 5.3.2.17 are areas of interest from the FEMA Disaster Initiated Review checklist for developing the Statement of Reasonable Assurance.	
17	Original Action: Support Services Revised Action: None	Original Deliverable: Findings summary for off-site support services including fire, rescue and B.5.b. response using EPDM-20 as a guide Revised Deliverable: None	Closed by consolidation to new action 5.3.2.19 (Obtain Statement of Reasonable Assurance from FEMA). Actions 5.3.2.10 to 5.3.2.17 are areas of interest from the FEMA Disaster Initiated Review checklist for developing the Statement of Reasonable Assurance.	

	5.3.2 Short-Term Actions (Prior To Reactor Critical)				
#	Action	Deliverable	Description of Changes		
18.	Original Action: Develop a report with the supporting documentation that can be used to assist the states in writing a letter of certification to FEMA Region IV	Original Deliverable: Report with supporting documentation. Revised Deliverable: None	Closed by consolidation to new action 5.3.2.19 (Obtain Statement of Reasonable Assurance from FEMA).		
	Revised Action: None				
19.	Obtain statement of reasonable assurance from FEMA	Letter from FEMA to NRC documenting Statement of Reasonable Assurance	New action		

	5.3.3 Long-Term Actions				
#	Action	Deliverable	Description of Changes		
1.	Offsite Monitoring Locations	Original Deliverable: Procedure and EAGLE software changes implement as needed.	Change to clarify the action needed.		
		Revised Deliverable: Inspect all offsite monitoring locations to ensure accessibility.			

FCS Flooding Recovery Action Plan 5.4 Onsite Facility and Equipment Restoration

FOCUS AREA:	Emergency Planning	
ACTION PLAN:	Onsite Facility and Equipment Restoration	
ACTION PLAN NUMBER:	5.4	

ISSUE DEFINITION:

Assess the capabilities of the onsite emergency response facilities and equipment for a radiological emergency.

OBJECTIVE:

Restore onsite facilities and equipment. Dates are based on expected river elevations when water is no longer on-site.

	5.4.1 Short-Term Actions (Prior To RCS >210°F)							
#	Action	Deliverable	Description of Changes					
1.	N/A		No changes					

	5.4.2 Short-Term Actions (Prior To Reactor Critical)							
#	Action	Deliverable	Description of Changes					
1.	MET tower restoration	Met tower instrumentation functional/operable	No changes					
2.	MET tower building restoration	Repair and/or replace the meteorological tower building and air conditioning system	No changes					
3.	Secondary Evacuation Route restoration	Re-establish a site secondary evacuation route	No changes					
4.	Critique Flooding event	Conduct and document flooding event critique, including major procedures used to address and mitigate flooding	No changes					

FCS Flooding Recovery Action Plan 5.4 Onsite Facility and Equipment Restoration

	5.4.3 Long-Term Actions							
#	Action	Deliverable	Description of Changes					
1.	Clean TSC (including areas under the false floor, and toilets)	Cleaning completed	No changes					
2.	Evaluate the wiring and components under the TSC false floor.	Original Deliverable: A schedule to replace and or repair as needed. Revised Deliverable: Inspection report.	Revised deliverable to provide the inspection report as closure evidence that the evaluation has been completed.					
3.	Repair cracks between floors and walls of the TSC and Auxiliary Building as necessary	Repairs complete	No changes					
4.	Return TSC Toilets and Potable water to service	Services restored	No changes					

FRP APPENDIX B – REMOVED FLOODING RECOVERY ACTION PLANS

FOCUS AREA:	Site Restoration
ACTION PLAN:	Bus 1B4A Restoration and Extent of Condition Actions
ACTION PLAN NUMBER:	1.3

ISSUE DEFINITION:

A fire that occurred on June 7, 2011, rendered bus 1B4A inoperable. In addition, cables in the cable tray immediately above 1B4A were damaged by heat. Fire by-products and Halon discharge into the switchgear room has left many pieces of equipment coated with debris and they must be properly cleaned or otherwise dispositioned.

OBJECTIVE:

Restore bus 1B4A to an operable status within design basis. Correct any identified extent of condition associated with the fire Root Cause Analysis. Restore all affected cables to operable condition within design basis. Assure the equipment and the switchgear room, itself, is returned to an acceptably clean condition.

	1.3.1 Short-Term Actions (Prior To RCS >210°F)					
#	Action	Lead Group	Owner	Deliverable		
1.	Rebuild the 1B4A load center	NLI	Core	Completely refurbished load center that has been modified to accept Square D circuit breakers (replace the aluminum bus with a copper, bolted bus)		
2.	Provide documentation for the dedication of the rebuilt load center in accordance with Contract 163495	NLI	Core	The vendor, NLI, is rebuilding the load center under their QA program. Before the plant accepts the load center from NLI, appropriate dedication documentation must be provided		

	1.3.1 Short-Term Actions (Prior To RCS >210°F)						
#	Action	Lead Group	Owner	Deliverable			
3.	Complete EC 53257 and obtain PRC approval to authorize the use of the rebuild load center, 1B4A	DEN	Sterba	A completed and PRC approved Engineering Change			
4.	Test all cables that terminate in 1B4A load center	Construction	Woockman	A listing of cables that must be repaired or replaced for load center 1B4A - Completed			
5.	Repair or replace defective cables terminating in 1B4A load center	Construction	Woockman	All cables that service the 1B4A load center are capable of meeting their operational and design basis requirements			
4.	Perform testing on the insulation of the cables that were potentially impacted by the fire located in the cable tray above 1B4A load center using EPRI technology.	Construction	Findlay	Report from EPRI that provides conclusions to the health of the insulation of the subject cables			

			1.3.1 Short-Te	rm Actions (Prior To RCS >210°F)
#	Action	Lead Group	Owner	Deliverable
7.	Complete Engineering Change (53517) that details the repair to the cable jackets for cables located in the cable tray above the 1B4A load center.	DEN	Sterba	An Engineering Change that directs actions required to repair cable jackets and cable tray sections to assure the cables meet design requirements
8.	Repair or replace the cables located in the cable tray above load center 1B4A that have had jacket damage	Construction	Findlay	Return damaged cables to meet Fort Calhoun design basis criteria. Additionally, return the cable tray to a condition that meets the FCS design basis
9.	Witness Factory Acceptance Testing (FAT) of the new Square D circuit breakers that will be used in the 1B4A load center to replace the existing AK-25 breakers and the two Square D input and bus tie breakers	Construction	Rosloniec	Verification that the Square D replacement breakers will meet the requirements for the rebuilt load center

	1.3.1 Short-Term Actions (Prior To RCS >210°F)					
#	Action	Lead Group	Owner	Deliverable		
10	Calibration of the internal relays and protection equipment for bus 1B4A	Metering	Core	Calibrated equipment internal to the 1B4A bus will be calibrated to the requirements of the individual calibration procedures and ready to provide required protection and control of plant equipment		
11	Install new 4160 to 480 volt transformer T1B4A	Maintenance	Woockman	A new transformer will be installed that will be available to power the 1B4A bus when required		
12	Calibrate new Square D circuit breakers	Maintenance	Barna	New breakers will be calibrated to Fort Calhoun calibration procedures and available to install in the load center		
13	Determine the method and extent of cleaning required in the switchgear room to return the equipment to pre- fire conditions and acceptable for power operation.	System Engineering	Kalra	Technical requirements for cleaning equipment located in the switchgear room as well as writing maintenance work requests to accomplish the work		
14	Clean equipment in the switchgear room that has been coated with by- products from the fire	Maintenance	Barna	Return of the equipment located in the switchgear room to pre-fire conditions as required by the technical requirements supplied by System Engineering		

	1.3.1 Short-Term Actions (Prior To RCS >210°F)					
#	Action	Lead Group	Owner	Deliverable		
15	Provide any required Engineering Change for the non-segregated bus between 1B4A and 1B3A-4A	DEN	Sterba	If required, due to necessary repairs to the non-segregated bus, appropriate engineering paperwork that authorizes the new or refurbished bus installation. Note: at this time, it is not yet known if there will be any engineering change required		
16.	Repair 184A to 183A-4A non- segregated bus section	NLI	Woockman	The bus between 1B4A and 1B3A-4A is replaced either with new bus or repaired bus that was removed		
17	Perform testing of all circuits associated with 1B4A load center	Construction	Ellis	Completed testing that demonstrates the external cables and internal wiring of the 1B4A load center have been properly re-terminated		
18	Perform testing of all circuits associated with cabling not associated with the 1B4A load center (i.e. cables located in the cable tray above the load center)	Construction	Findlay	Completed testing that demonstrates that all cables located in the tray above the 1B4A load center have been properly re-terminated		

			1.3.1 Short-Te	erm Actions (Prior To RCS >210°F)
#	Action	Lead Group	Owner	Deliverable
19	Submit, track, and seek approval of procedures that are changed as the result of EC 53257 and are required to be issued before the System Acceptance Process.	System Engineering	Kalra	Approved procedures that are required for System Acceptance of Engineering Change 53257 are complete
20	Prepare Acceptance forms	Construction	Woockman	System Acceptance for Operability forms are completed and ready for Operations, Engineering, and Maintenance to accept the work that was performed on 1B4A load center
21	Declare bus 184A Operable	Operations	Smith	Operations Department has declared the bus operable and it has been placed in service. No outstanding holds for operation exist
22	Temporary Modification restoration	Maintenance	Barna	All temporary modifications that have been installed after the fire event have been restored to normal conditions and the operational requirements and design basis are met with normal equipment control and power feeds
23	Extent of Condition repair requirements. At this time, the extent of condition is not fully known. Provide repair requirements for extent of condition.	System Engineering	Clayton	The requirements for any repairs/refurbishments/ adjustments that dictated by the Root Cause Analysis extent of condition.

	1.3.1 Short-Term Actions (Prior To RCS >210°F)						
#	Action	Lead Group	Owner	Deliverable			
24	Implement the requirements supplied by System Engineering regarding the extent of condition. At this time it is known that the minimum required for the extent of condition will be to clean the bus stabs for the main and bus tie breakers for five load centers (1B4A not required due to new bus) Additional actions may be required	Maintenance	Barna	Repair or adjustment of items required by the extent of condition. As a minimum, the bus stabs will be cleaned to remove built up lubricant. Additional items may be specified by System Engineering. Closed to specific Actions 1.3.1.25, 1.3.1.26 & 1.3.1.27			

	1.3.1 Short-Term Actions (Prior To RCS >210°F)						
#	Action	Lead Group	Owner	Deliverable			
25	Track to completion work orders: 419854, 421870, 421871, 421873, 421880, 421875, 421876, 421878, 421879, and 421874 which are written to de-energize each of the five unaffected load centers and thoroughly clean (removing any hardened grease from the bus stabs for the supply and bus tie breakers). Ensure within work document that a step is added for independent verification of bus stab cleanliness by System Engineer.	System Engineering	Digiacinto	Ensure the bus stabs and load centers are appropriately clean and will support their design function (Note: does not apply to 1B4A as the load center and bus work is new.)			

			1.3.1 Short-Te	erm Actions (Prior To RCS >210°F)
#	Action	Lead Group	Owner	Deliverable
26	Re-align NLI breaker cradles so finger to bus stab engagement is in the silver plated contact surface, obtain acceptable as left DLRO readings under WOs listed in Al 25 above.	System Engineering	Digiacinto	Ensures that the current carrying fingers that connect the breaker cradle to the bus work are properly engaged on the silver-plated portion of the bus.
27	Implement EC 53347 providing ease of access to the load center bus side cubicles.	Construction	Brady	This Engineering Change will allow the "back panels" to be more easily removed to allow access to the bus work in the load centers.

	1.3.2 Short-Term Actions (Prior To Reactor Critical)				
#	Action	Lead Group	Owner	Deliverable	
1. N	N/A				

	1.3.3 Long-Term Actions						
#	Action	Lead Group	Owner	Deliverable			
1.	N/A						

FOCUS AREA:	Long Term Equipment Reliability	
ACTION PLAN:	I&C Power Supply Service Life Assessment	
ACTION PLAN NUMBER:	3.4	

ISSUE DEFINITION:

A few power supplies in the FCS Reactor Protection System (RPS) have failed. Some failures are due to age related failure mechanisms, including some equipment that was installed beyond the vendor or other established recommended service life. This same issue applies to Safety Related (CQE) - includes FID 1 & 2-power supplies in other systems.

OBJECTIVE:

Ensure safety-related (CQE) power supplies do not fail while in service by implementation of an effective equipment reliability strategy. Replace CQE power supplies that are beyond their established service life. Develop a strong technical basis for all CQE power supplies that support the equipment reliability strategies for these power supplies.

	3.4.1 Short-Term Actions (Prior To RCS >210°F)					
#	Action	Lead Group	Owner	Deliverable		
1.	Replace Non-RPS CQE power supplies that will be beyond their recommended service life	Engineering Programs	Ravi Tella	Non-RPS CQE power supplies replaced that will beyond their recommended service life. Work Order report – showing the applicable WO in finished or complete status		

	3.4.2 Short-Term Actions (Prior To Reactor Critical)				
#	Action	Lead Group	Owner	Deliverable	
1.	Establish High Impact Team with a Charter	Engineering Programs	Ravi Tella	Team established and briefed on the task, objectives and Charter - Completed	
2	Identify all CQE power supplies; priority will be on RPS CQE power supplies and then non-RPS CQE power supplies	Engineering Programs	Ravi Tella	Excel list of all power supplies, including identification of those power supplies that do not have a unique component identification number in Asset Suite - Completed	
3.	Determine the installation date for FCS CQE power supplies; these dates will be used to define those CQE power supplies that are beyond their service life	Engineering Programs	Ravi Tella	Excel list with CQE power supplies and their installation dates	
4.	Conduct an industry and FCS specific analysis of historical performance for CQE power supplies; determine the effectiveness of the current ER Strategies at the FCS component level	Engineering Programs	Ravi Tella	Word or Excel document with a summary of historical performance by manufacturer and model and FCS component identification number for CQE power supplies	

	3.4.2 Short-Term Actions (Prior To Reactor Critical)					
#	Action	Lead Group	Owner	Deliverable		
5.	Conduct an analysis of the current FCS ER Strategy for power supplies; contact vendors, review industry documentation, benchmark other plants	Engineering Programs	Ravi Tella	Revised ER Strategy document for CQE power supplies		

	3.4.2 Short-Term Actions (Prior To Reactor Critical)					
#	Action	Lead Group	Owner	Deliverable		
6.	Determine the recommended service life for CQE power supplies based on analyses performed earlier in this action plan	Engineering Programs	Ravi Tella	Excel list with manufacturer and model number and recommended service lives for each CQE power supply		
	These service lives will be based on: (1) manufacturer and model, (2) qualified life testing, (3) vendor recommendations and communication with vendors, (4) remnant life based on stress testing of removed power supplies, (5) industry and FCS specific					
	historical performance and (6) actual duty cycle and service condition where these power supplies are installed					

	3.4.2 Short-Term Actions (Prior To Reactor Critical)					
#	Action	Lead Group	Owner	Deliverable		
7.	Conduct a failure modes and effects analysis on each power supply to ensure the impact of failures is understood	Engineering Programs	Ravi Tella	Excel or Word document with Failure modes and effects analysis of each power supply defining the system and plant impact of a failure of that power supply		
8.	Document the time based replacement strategy and basis for CQE and RPS power supplies This strategy and basis will provide the tasks to be performed and the basis for the scope and frequency of those tasks. This action is being completed before start up to ensure each power supply has been analyzed and a	Engineering Programs	Ravi Tella	Word and Excel documents defining the time based replacement strategy and basis		
	recommended service life defined					

	3.4.2 Short-Term Actions (Prior To Reactor Critical)				
#	Action	Lead Group	Owner	Deliverable	
9 .	Define those power supplies that are beyond their service life. This will include power supplies that will be beyond their service life before the next planned refueling outage	Engineering Programs	Ravi Tella	Excel list of power supplies beyond their service life, including those that will be beyond their service life before the next refueling outage; Operability Determination (NOD-QP-31) documenting the basis for power supplies that will not be replaced	
10	Replace RPS CQE power supplies beyond their service life	Engineering Programs	Ravi Tella	Work Order report – showing the applicable WO in finished or complete status	
11	Replace Non-RPS CQE power supplies that will be beyond their recommended service life	Engineering Programs	Ravi Tella	Work Order report – showing the applicable WO in finished or complete status.	