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Omaha, NE 68102-2247

July 9, 2012  
LIC-12-0098

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

- References:
1. Docket No. 50-285
  2. Letter from OPPD (J. A. Reinhart) to NRC (Document Control Desk) dated August 10, 2011 (LIC-11-0090)
  3. Letter from OPPD (J. A. Reinhart) to NRC (Document Control Desk) dated August 10, 2011 (LIC-11-0092)
  4. Letter from NRC (E. E. Collins) to OPPD (D. J. Bannister) dated September 2, 2011 (NRC 11-0109)
  5. Letter from NRC (E. E. Collins) to OPPD (D. J. Bannister) dated December 13, 2011 (NRC 11-0142)
  6. Letter from NRC (E. E. Collins) to OPPD (D. J. Bannister) dated June 11, 2012

**SUBJECT: Fort Calhoun Station Integrated Performance Improvement Plan Rev. 3**

In Reference 5, the Nuclear Regulatory Commission (NRC) notified the Omaha Public Power District (OPPD) that a change in the regulatory oversight of Fort Calhoun Station (FCS) occurred on December 13, 2011. FCS transitioned from Inspection Manual Chapter (IMC 0305, "Operating Reactor Assessment Program," to IMC 0350, "Oversight of Reactor Facilities in a Shutdown Condition due to Significant Performance and/or Operational Concerns." FCS has been in cold shutdown since April 9, 2011.

In Reference 6, the NRC issued OPPD a Confirmatory Action Letter (CAL) that documented six commitments made by OPPD for actions that OPPD will complete prior to restart of FCS. The CAL also attached a restart checklist of actions that will be completed by the NRC prior to the restart of FCS.

Commitment 4 in the CAL documented OPPDs intention to submit its Integrated Performance Improvement Plan for the FCS including a schedule for completing the plan's actions necessary for plant restart. The Enclosure to this letter includes the FCS Integrated Performance Improvement Plan (IPIP). Appendix A of that IPIP is a link to the P6 Schedule for implementing the actions in the IPIP. This completes these two actions within Commitment 4 in the CAL. Commitment 4 also documents OPPDs intention to implement the IPIP. OPPD has already completed the majority of the discovery activities in the IPIP and remains dedicated to the effective and efficient implementation of the IPIP and safe restart and operation of FCS.

Commitment 3 in the CAL documented OPPDs intention to submit an updated Flood Recovery Plan (FRP) for FCS. Reference 2 included Revision 1 to the FCS FRP. Appendix B of the enclosed IPIP includes the most recent update of the FCS FRP (Revision 3). Appendix B1 includes the majority of the FRP actions and is included in the enclosure. Appendix B2 includes several additional actions that have been submitted under separate cover (LIC-12-0099) because they deal with security related matters. This letter and it's enclosure, along with LIC-12-0099 complete the actions of Commitment 3 in the CAL.

Appendix C of the enclosed IPIP includes the detailed implementation strategy for the OPPD activities necessary to support the NRC actions described in the Restart Checklist enclosed with the CAL. OPPD is committed to the safe recovery and restart of FCS. Once OPPD completes the remainder of actions in the Enclosed IPIP, OPPD will submit to the NRC the FCS Restart Readiness Report documenting the successful completion of the IPIP and verification that all CAL commitments have been completed and FCS is ready for safe restart.

Sincerely,



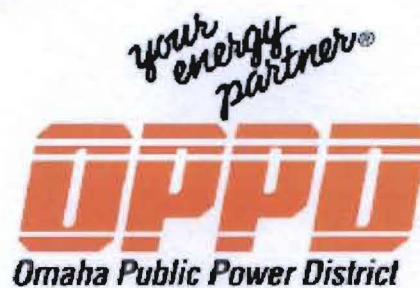
D. J. Bannister  
Site Vice President and CNO

DJB/rmc

Enclosure

E. E. Collins, Jr., NRC Regional Administrator, Region IV  
L. E. Wilkins, NRC Project Manager  
J. C. Kirkland, NRC Senior Resident Inspector

# **INTEGRATED PERFORMANCE IMPROVEMENT PLAN - REVISION 3**



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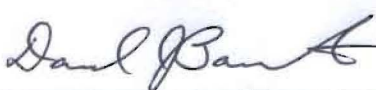
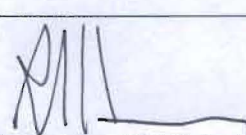
# FORT CALHOUN STATION

## INTEGRATED PERFORMANCE IMPROVEMENT PLAN

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REVISION 3

JULY 9, 2012

Approved by:	
	
David Bannister, Chief Nuclear Officer	Robert Hovey, Chief Recovery Officer

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## INTRODUCTION

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Fort Calhoun Station (FCS) is currently under the oversight of U.S. Nuclear Regulatory Commission (NRC) Inspection Manual Chapter 0350 (MC0350), "Oversight of Reactor Facilities in a Shutdown Condition due to Significant Performance and/or Operational Concerns." Additionally, FCS is in the Institute of Nuclear Power Operations (INPO) Special Focus Program under Policy Note 14. To address the underlying causes that led to these conditions and chart the course to safe restart, continued performance improvement and return to performance excellence, Omaha Public Power District (OPPD) and FCS leadership recognized the need to establish an Integrated Recovery Team. This team created the Integrated Performance Improvement Plan (IPIP), and drives the execution of the plan.

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## VISION

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Safe and efficient restart of Fort Calhoun Station and return to sustained excellent performance.

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## GOALS

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- Create an aligned, accountable organization with clear individual roles and responsibilities
- Transform culture to one that drives and rewards timely problem identification and resolution
- Strengthen Organizational Effectiveness, Corrective Action Program (CAP) and Human Performance – the right Tools, the right Behaviors, right NOW
- Develop an operational focus that results in improved station performance, equipment reliability, and risk reduction
- Ensure ownership of the improvement initiatives
- Reestablish regulatory confidence
- Reinforce stakeholder confidence

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## PLAN OVERVIEW

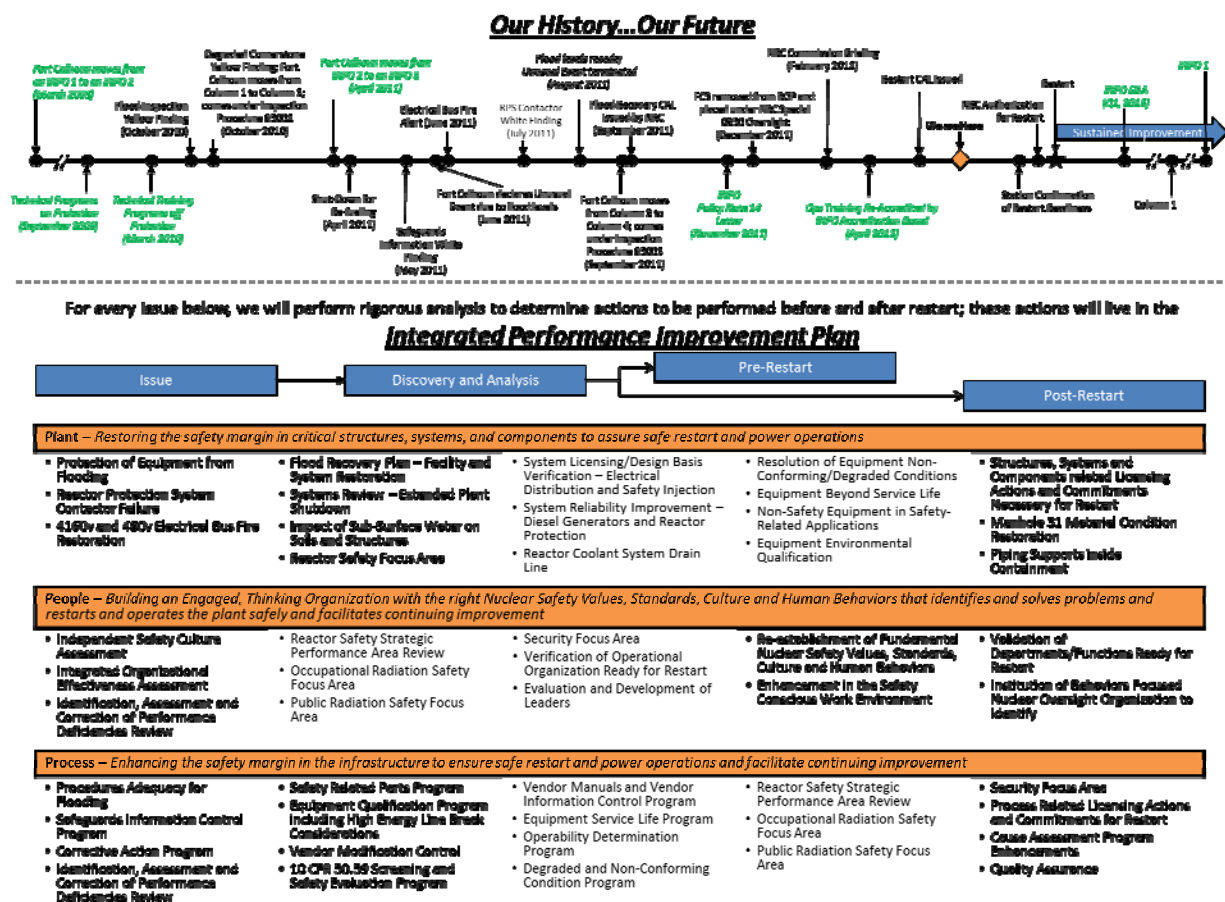
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There are a large number of activities required to be addressed simultaneously by OPPD at FCS related to problem discovery and resolution, performance improvement, restart readiness, and regulatory margin recovery. The purpose of the IPIP is to consolidate these activities to:

- Embody the full scope of recovery by consolidating various existing plans and validating scope and approach
- Coordinate resources and efforts through resource-loaded scheduling
- Drive accountability by assigning action items to specific owners
- Provide insight into critical path, milestones, and dependencies
- Create vertical and horizontal alignment across the site through comprehensive communications of the plan site-wide

The IPIP work schedule (link provided as Appendix A) shows the activities and tasks included in the plan. The activities and tasks are in one of three categories: Plant, People, and/or Process (the "3Ps"). The illustration below shows selected events that led to the current state as well as a general categorization of plan activities into the 3Ps. It is designed to create a baseline

understanding across management and the plant staff. The intent of the timeline is to show the series of events that lead to the current situation. Below the timeline is a diagram that illustrates the path forward and a high-level inventory of the items that need to be addressed through the recovery. This part of the illustration shows the steps OPPD will take to recover FCS.



This plan, the supporting activities, and resulting schedule are living documents. That is, as additional issues, extent of condition, or other items of impact are identified, the plan will be revised.

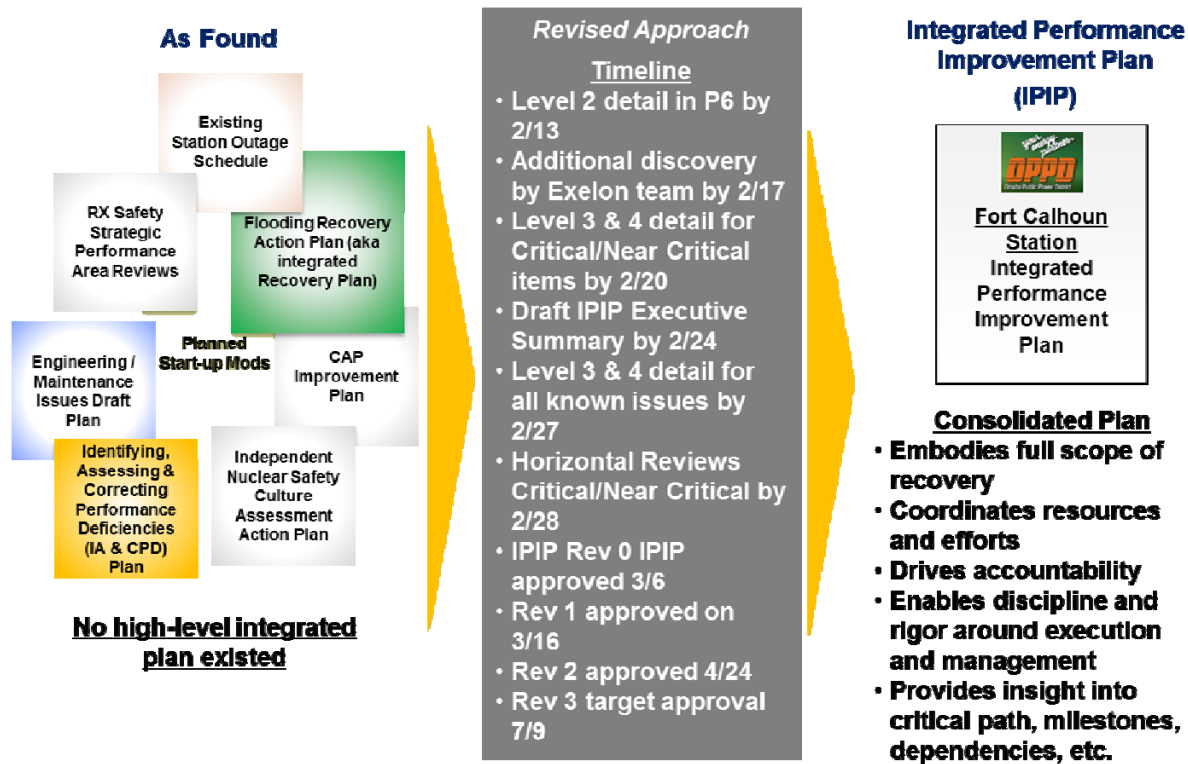
## Development

Since the June 2011 flood, OPPD created several different plans to address the issues at FCS. These include, but are not limited to, documents related to flood recovery, engineering issues, and CAP. These plans were in varying states of completion and had been created independently with little-to-no coordination between them. Upon its formation, the Recovery Team took the following steps:

- Inventoried current plans
- Challenged and validated scope
- Conducted additional discovery
- Integrated plans and added missing pieces



- Entered refined plans and additional discovery findings into the Primavera P6 Enterprise Project Portfolio Management tool (P6)



The resulting schedule forms the core of the Integrated Performance Improvement Plan, which has been loaded into P6 for scheduling and tracking. Using this tool, each item is assigned an accountable party and completion date.

Like other recovery items, the Flood Recovery Plan, Revision 3 (FRP) actions, the Confirmatory Action Letter (CAL), and Restart Checklist (dated June 11, 2012) actions are included in the IPIP P6 schedule. The FRP is included as Appendix B to the IPIP and the Restart Checklist Implementation Strategy is included as Appendix C.

Additionally, the IPIP incorporates INPO's Eight Steps for Improving Nuclear Plant Performance. These eight steps were compiled through a review of successful plant performance turnarounds accomplished by several major U.S. utilities over the past decade. Input from executives involved in developing the turnaround strategies, preparing the plans, and executing initiatives was included in the steps presented by INPO. The following are the key elements that will provide the means to move the plant toward excellence:

1. Establish Sense of Urgency
2. Align the Leadership Team
3. Develop or Revise Vision, Goals and Plans, Management Controls and Performance Monitoring



4. Communicate the New Vision and Goals
5. Engage the Workforce for Broad Based Action
6. Create Short-Term Wins
7. Consolidate Gains and Produce More Change
8. Ingrain New Approaches in the Culture

Significant additional consideration was given to the INPO-identified attributes of a high-performing nuclear plant organization:

- Strong leadership
- Self-critical
- Operationally focused
- Exceptional equipment performance
- Training to improve performance

As we work to change the culture at FCS, these five attributes will help shape the future state.

#### *Regulatory Interaction*

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While under MC0350 oversight, a decision to restart the plant not only requires the endorsement of Fort Calhoun Station management, but also needs approval from the NRC.

OPPD and the NRC have collaborated on the development of a “Restart Checklist” and this formal Checklist has been provided to OPPD in a publically available CAL dated June 11, 2012. This CAL describes the commitments that OPPD has made to:

- Understand the causes and implement corrective actions for the significant performance deficiencies as addressed in Restart Checklist Sections 1.a through 1.d
- Conduct a third-party safety culture assessment and integrated organizational effectiveness assessment as addressed in Restart Checklist Sections 1.e and 1.f and implement actions to address the findings of those assessments
- Update and implement the FRP and assess and improve the plant as addressed in Restart Checklist Section 2 to assure it is adequate to support safe restart
- Assess and improve the programs and processes addressed in Restart Checklist Section 3 to assure that they are adequate for safe restart
- Submit and implement this IPIP, including a schedule for completing the recovery activities
- Provide a written report to the NRC on the completion of the recovery actions and the basis for restart readiness

Restart is defined in the CAL as entering Operating Mode 2; the reactor will not be made critical and operated “above Hot Shutdown Condition (Operating Mode 3)” until the NRC has completed its review of the FCS recovery actions.

To ensure alignment with the NRC and across all OPPD and contractor personnel working on Restart Checklist items, the “Restart Checklist Implementation Strategy” was developed and provides additional detail and guidance on the basis for, the scope of, and the tasks necessary for

completion of each Restart Checklist item. It is attached to this Integrated Performance Improvement Plan as Appendix C.

OPPD is developing a set of metrics to provide insights on recovery progress as shown in Appendix D and will discuss recovery progress with the NRC at regular public meetings.

### *Restart Issue Definition*

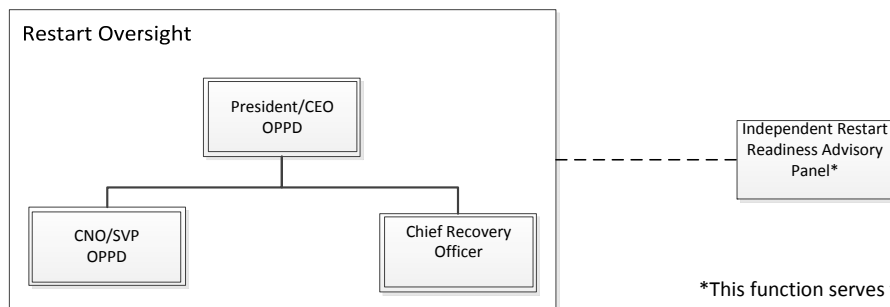
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The first phase of the recovery process includes the conduct of multiple root cause assessments, organizational effectiveness and cultural assessments, and discovery activities to bring more clarity and granularity to the scope and depth of the performance issues at FCS. Emerging from these discovery activities and assessments will be a large number of Condition Reports within CAP precipitating a large number of corrective actions and actions to prevent recurrence. Some of those actions will be necessary to be completed before restart and some will become part of the post-restart plan for sustained improvement which will be developed as the later stage of the IPIP. FCS has developed a set of safety-based criteria for categorizing those actions necessary to be completed before restart. These criteria will be applied by the Recovery Overview Panel typically chaired by a Division Manager.

### *Governance*

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The OPPD Chief Executive Officer (CEO) has ultimate accountability for the recovery and restart of the plant. The OPPD Chief Nuclear Officer and Site Vice President (CNO/SVP) has overall responsibility for the execution and success of the IPIP. The CNO/SVP has ultimate decision authority on restart of FCS given NRC approval. The Chief Recovery Officer (CRO) is responsible for providing advice to the CEO and CNO on recovery, restart and plant related matters and has direct responsibility for those items delegated organizationally to the recovery team. The CEO, CNO/SVP, and CRO will receive advice and insight from an independent Restart Readiness Advisory Panel who will monitor and provide insights on recovery progress and restart readiness.



\*This function serves to:

- Review plans and progress on a periodic basis
- Review restart recommendations
- Advise the CEO, CNO/SVP and CRO

### *Recovery and Outage Monitoring Activities*

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A recovery project management team operates a Recovery Control Center where the Recovery Lead and direct reports make twice-daily plan status updates and coordinate and prioritize planned activities and schedules related to the performance of the recovery tasks. In addition, there are daily station meetings (Plan of the Day and Daily Outage Meeting) with a broader group of plant and recovery personnel designed to align and integrate efforts across the station. These meetings serve to sharpen the prioritization of work activities and focus of the station and recovery team.

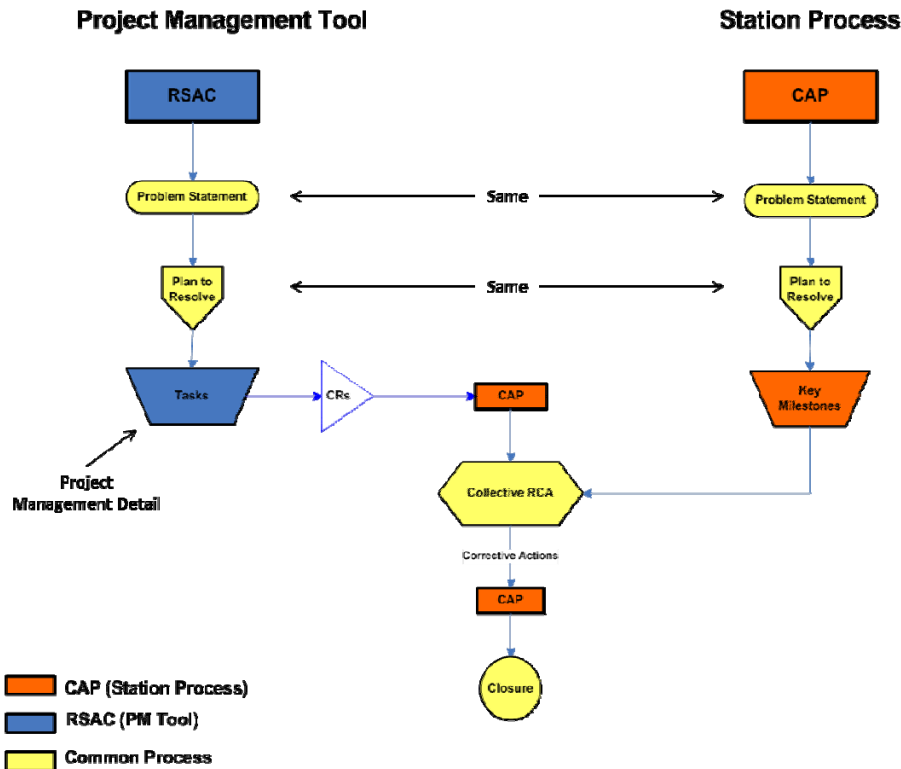
### *Scope Control*

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An effective recovery scope approval and control process ensures the restart objectives are achieved while reconciling scope changes such that tasks can be added/alterd with appropriate controls over critical deadlines, quality, and cost. The recovery scope control process maintains flexibility allowing critical changes to be incorporated into the restart scope and filters non-restart scope into the station post-restart Plan for Sustained Improvement.

The recovery team has instituted the Recovery Scope Approval Committee (RSAC) to review and approve problem definition, initial discovery scope, and scope expansion criteria, and set thresholds for cost and schedule change that would require approval by the RSAC. The RSAC is comprised of recovery team and station management so that scope approvals are aligned with station priorities.

Issue owners are required to present all scope items to the RSAC committee for approval. The RSAC committee approving members are the area manager, an FCS Division Manager, and the Senior Recovery Manager. The RSAC process itself is designed as a project management tool to facilitate scope approval, control, and the management of resources and tasks. It builds from the information documented in CAP and does not replace any elements of CAP. The process and documentation necessary for identification, review, and closure of deficiencies are contained in station procedure SO-R-2, "Condition Reporting and Corrective Action." As shown in the process diagram below, the problem statement and plan to resolve as documented in CAP are also documented on the RSAC form. In this manner, CAP maintains the quality documentation of the problem and how it is resolved; the RSAC process enables effective project management of the tasks required to resolve the problem.



Key milestones required to resolve the problem are documented in CAP, whereas the RSAC process hones in at the detailed task level. This is the key difference between CAP documentation and the RSAC process. CAP and RSAC processes are used synergistically; the RSAC process does not circumvent nor subvert CAP. As detailed tasks are performed, as documented in the RSAC form, any adverse conditions identified are documented via condition reports (CR) in CAP. The review, evaluation, and closure of each CR entered into CAP are accomplished according to CAP.

As tasks are completed, new issues are entered into CAP. Each of the CRs is coded based on the issue identification and a collective evaluation of the CRs is performed through cause analysis. The results of the collective evaluation are also fed back into CAP, such that corrective actions can be developed and tracked to completion to prevent recurrence. All of the CR reviews and collective evaluation reviews are performed according to the quality requirements of CAP. In this manner, the station management approves CAP products as prescribed by CAP requirements.

RSAC committee packages, signed Issue Status & Scope Approval & Control forms, meeting minutes with action item list, calendar of meetings, templates, and other relevant information/documents are housed on a SharePoint website for recovery team members to access. These scope control elements help to ensure the required recovery objectives are accomplished within the allotted schedule and cost. Further details and sample forms can be found in FCSG-65 *FCS IMC-350 Recovery Project Administrative Controls*.

### *Inspection Readiness Structure*

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The NRC will review or inspect each of the Restart Checklist items at multiple stages:

- The IPIP Restart Checklist Implementation Strategy, the RSAC approved problem definition, scope, and scope expansion criteria and the discovery implementation procedures or guidelines will be reviewed by the NRC to assure alignment between the NRC and OPPD on expectations under each Restart Checklist item.
- Once discovery is complete for a Restart Checklist item and identified issues are entered into the Corrective Action Program, the NRC will inspect the adequacy of the scope and depth of the discovery activities and the actions to fix and prevent recurrence of the performance problems.
- Prior to restart, the NRC will confirm that the People, Plant and Processes at FCS are ready for restart. This will involve selected review of completed corrective actions and actions to prevent recurrence, evaluation of effectiveness assessments and assessment of operational readiness, including around-the-clock observation of facility operations.

The preparation for inspection activities are described in FSCG-65-2 *Issue Closure/NRC Inspection Readiness Guideline*. The purpose of the document is to provide guidance on:

- Developing a package for NRC inspectors to facilitate their inspection of the Recovery Issue (RI) and provide a clear, consistent, and transparent understanding of how the RI was resolved
- Completing inspection readiness reviews for issues that are associated with the NRC Inspection Manual Chapter 0350 restart of the Fort Calhoun Station
- Determining NRC Inspection readiness
- Supporting execution of the inspection

The Licensing Staff will coordinate closely with the assigned inspectors to assure effective coordination on the scheduling and facilitation of inspections.

### *Additional Oversight*

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In addition to the OPPD and FCS executives and management, there are several additional boards and organizations that play a key role in providing oversight to the recovery and performance improvement process. This includes:

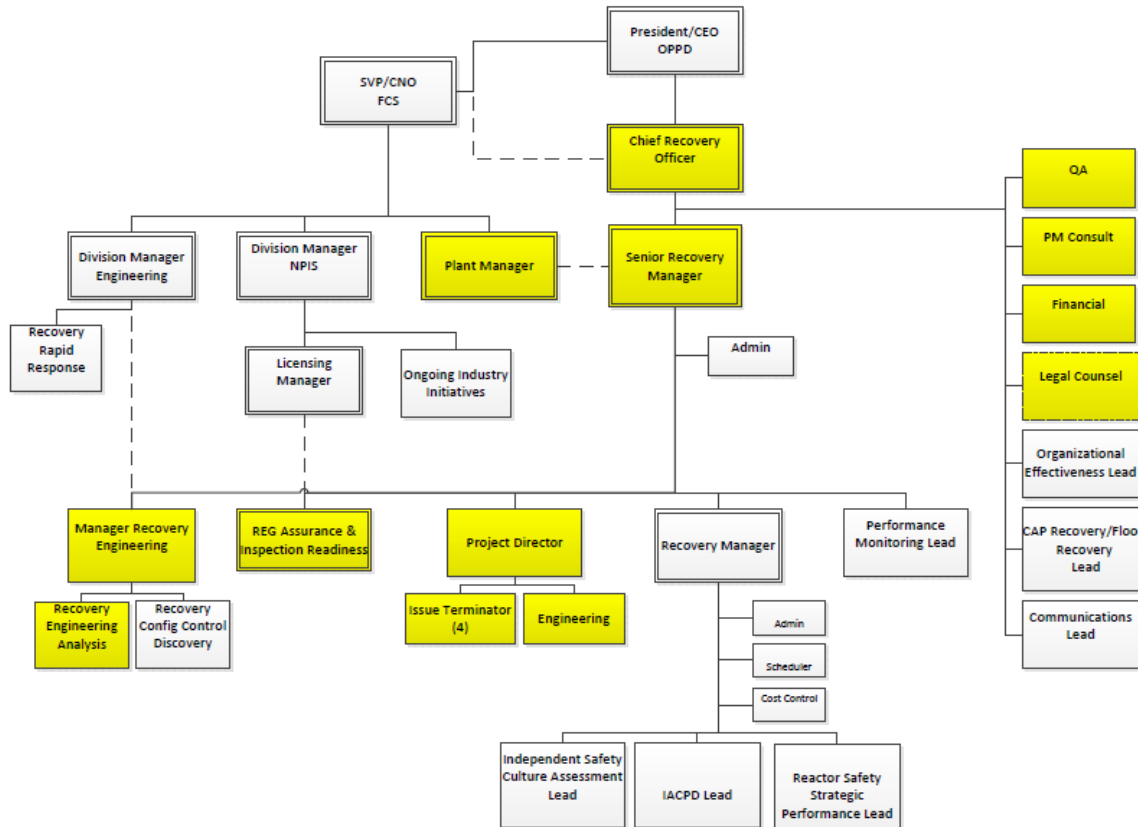
- Engineering Review Board – independent expert group in place as an interim measure to assure high confidence in the quality of engineering products (PED-HU-3, Engineering Risk and Rigor)
- Station Corrective Action Review Board, Department Corrective Action Review Boards and Condition Review Group– standing groups that provide high confidence in the effective implementation of the corrective action program
- Plant Review Committee – existing station committee to provide oversight of operating issues and activities and provide high confidence in safe approach to restart
- Plant Health Committee – existing station committee which provide high confidence in system readiness for restart

- Nuclear Oversight and Quality Assurance – permanent organization responsible for providing independent assessment of station organizations and activities
- Safety Assessment and Review Committee – independent assessment of station performance with feedback to station management and the CEO and CNO.

Additional boards and committees may be convened if additional needs are identified.

## ORGANIZATION

The IPIP will be executed by the Integrated Recovery Team. The team is structured to provide clear roles and responsibilities around each area in the recovery scope. The team is staffed with as many station personnel as possible to facilitate continuity once normal operations resume. This was balanced with the need to allow sufficient station staff to keep up with urgent work related to day-to-day station operations. Supplemental personnel (yellow boxes) are used where station personnel or expertise was not available. Each area has a lead that is accountable for results in their area.



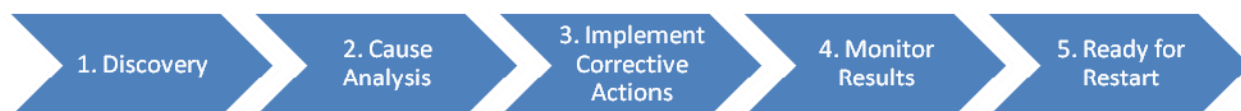
## Administration

The IPIP is maintained up to date by the Recovery Project Director or his designee. The IPIP is published to the FCS HOME web page and updated versions posted as revisions are made. The recovery schedule has been developed in and tracked using P6 and schedule documents will be published to folders linked to the FCS HOME web page.

## PLAN DETAILS

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The purpose of the IPIP is to return FCS to sustained excellent performance. The primary phase of this effort will result in the plant in a ready-to-restart condition. The focus is on issues around the plant, processes, and people. Although each aspect encompasses numerous issues, actions, and tasks in the plan, the general process followed is:



1. Some items are fully developed and do not require additional discovery; however, most issues require further data gathering and analysis. This confirms that the scope identified for recovery in a given area is of appropriate breadth and depth. This phase is designed to provide an opportunity for further problem identification and characterization.
2. Issues requiring cause analysis where the cause analysis has not been completed undergo this determination through the execution of the IPIP.
3. Once root causes are determined, corrective actions are developed and implemented.
4. When corrective actions are in place, they will be monitored for effectiveness.
5. The area will be deemed to be ready for restart in accordance with FCSG 65-2.

An exception to the linear process is in our approach to improving problem identification and resolution. At FCS, this is mainly addressed through CAP, Quality Assurance (QA), and components of organizational effectiveness. Experience tells us that corrective actions and common cause determinations will show common themes across all areas:

- Equipment is broken and needs to be replaced
- Personnel did not properly utilize or adhere to procedures
- Accountability for performance is insufficient

Given this, the approach that we deem to be most efficient and effective is to address CAP, QA, and organizational effectiveness now, in parallel with the additional discovery and causal analysis. That way, when the causal analysis determines that there were deficiencies in accountability, for instance, corrective actions will already be in place.

The overall framework of the IPIP follows three focus areas: Plant, Process, and People:

- Plant – Safely managing the station to restart-readiness. This includes most of the engineering technical issues and issues related to the physical condition of the plant.
- People – Building an engaged, thinking organization that identifies problems, implements timely and effective corrective actions, and regains regulatory and industry confidence. This addresses cultural and leadership aspects of the organization.
- Process – Developing the infrastructure for sustained excellence. This is the programmatic codification of the approach to work at the plant.

Categorization into these areas is not absolute. Each detailed component of the plan may have implications for one or more of the 3Ps. For instance, the resolution of an item categorized as



“plant” will likely involve some hardware changes but could also involve corrective actions with respect to people and processes. Also within each of the 3Ps are “short-term wins” designed to buoy FCS morale, develop a sense of urgency, and a winning momentum. Each is described in greater detail below:

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## **PLANT**

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The Plant items are those related to safely managing the station to restart-readiness with respect to the system readiness as well as operations, maintenance, and engineering technical and physical condition issues. This part of the plan will evolve further as discovery and cause determinations clarify the precise fixes required. The focus is on addressing those items required for station restart inspection readiness. Post-restart items will continue improvements to the plant via work items not required for restart.

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## **PEOPLE**

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This part of the IPIP describes the steps needed to build an engaged, thinking organization that identifies problems, implements timely and effective corrective actions, and regains regulatory and industry confidence. This includes cultural and leadership aspects of the organization. Several key areas are explained in more detail below. These initiatives will continue well past restart; some are permanent changes to personnel and the way we manage them.

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### **Leadership Alignment**

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The IPIP recognizes that alignment of the leadership team is integral to the effective execution of the recovery. The primary vehicle for alignment is the IPIP. Leadership will develop confidence in the plan and commitment to following the schedule, and hold each other and the team accountable for results. In conjunction with the IPIP, the communications plan, the Leadership Assessment completed in late 2011, and several standing meetings are designed to further foster alignment.

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### *Leadership Assessment*

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An external leadership assessment from the CNO through first line supervisors was completed in 2011. We will review the results and incorporate actions to address gaps and develop personnel into the Organizational Effectiveness section of the IPIP.

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### *Standing Meetings*

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Beyond the station-wide events (e.g., all-hands meetings) contained in the communications plan, there are three key meetings designed to promote alignment:

- Regular Recovery Team Meetings – weekly alignment meetings with the recovery team ensures that work under each discipline is progressing to achieve the same end goal in a synchronized fashion
- Leadership Alignment Meetings – weekly meetings between station leadership and the Chief Recovery Officer and/or OPPD CEO and CNO. Provide information and talking points for leadership to communicate back to the line

- Daily station meetings (Plant Plan of the Day, Daily Outage meeting) – several times daily personnel dedicated to recovery projects and personnel dedicated to daily plant operations confirm key focus areas and update status

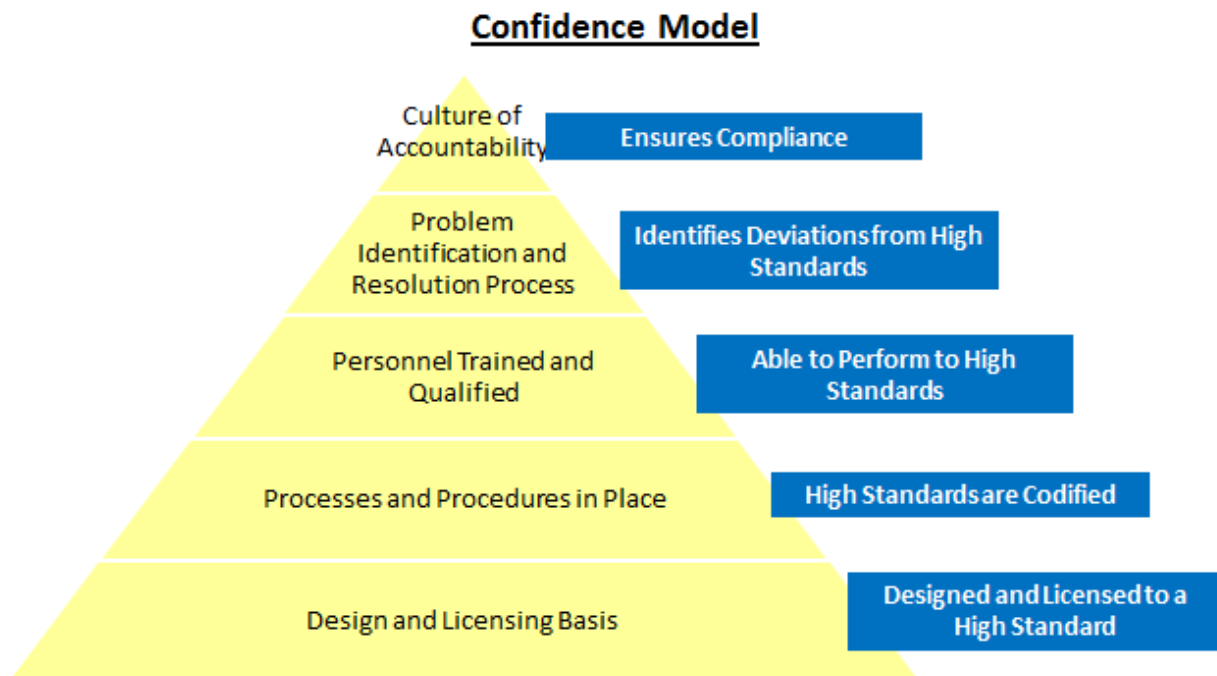
The goal of these meetings is to convey a clear set of priorities for the station and ensure that personnel are aligned and driving towards the stated vision.

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### Organizational Effectiveness

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A top-down accountability model is central to reviving organizational effectiveness. Implementing this accountability model and aligning personnel performance management with it is key to achieving stakeholder confidence. The illustration below shows that the organizational effectiveness pieces of the confidence model are at the top of the pyramid and therefore critical to effectiveness and achieving confidence.



Key to effective creation of a culture of accountability is analysis and understanding of the current state of organizational effectiveness and its deficiencies. An organizational effectiveness root cause analysis will provide the assessment and establish corrective actions for improvement. These will become part of the IPIP.

Additionally, FCS commissioned an Independent Safety Culture Survey in early 2012. The results of the survey are driving corrective actions designed to ensure that FCS maintains a safety conscious work environment and the desired level of employee engagement and buy-in to drive accountability.

The Corrective Action Program is already in place as the primary tool for problem identification and resolution. However, CAP was not fully effective as implemented. A new CAP process has been

implemented and root cause analysis on topics such as Condition Report quality continue to create improvement actions.

In all cases, the goal is to cultivate the right behaviors aligned with our vision and goals. We will reinforce this by reinstituting and linking individual performance plans to expected accomplishments and institute effective performance management.

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### Training

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Throughout the IPIP and across the 3Ps, achieving the desired results will require changes and improvement to current approaches, resetting expectations, refreshing understanding, and retraining on standards – to name a few. As we identify opportunities or needs for training support to make these endeavors effective, we will engage the training organization to apply a systematic approach to training. Training is recognized as a valuable tool for changing behaviors in the organization.

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### Communications

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A communications component is central to the IPIP. The communications plan includes cascading initial messages around the plan as well as detailed updates to the station and other stakeholders on a regular basis. For additional details, see the Communications Strategy section of this document.

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## PROCESS

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Processes are the infrastructure for sustained improvement. They are documented in policies, programs, procedures, etc. They are the programmatic codification of the approach to work at the plant. As such, they are the key management controls. The IPIP contains steps to identify gaps in existing management controls. This will result in modifying existing programs, or instituting new ones. Some of these will need to be addressed prior to restart; others will be addressed as post-restart initiatives.

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### Review of Management Controls

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The IPIP contains steps to identifying gaps in existing management controls. To maintain momentum, we will execute the plan using the “as found” controls recognizing that we will identify cases where we need to modify existing programs or institute new ones. We will use industry best practice in the gap analysis to assess the adequacy of management controls and specific areas of focus for improvements needed.

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## SHORT-TERM WINS

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The IPIP includes “short-term wins” designed to reinforce positive behaviors and recognize accomplishments. This will buoy OPPD morale, develop a sense of urgency, and a winning momentum. Short-term wins are quickly executed and are sometimes identified on an ad-hoc basis. Additional short-term wins will be celebrated as they are identified and implemented.

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## **TRANSITION TO PLANT OPERATIONS**

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The transition to plant operations will be deliberate and well-planned and executed. Based on industry experience, we intend to avoid the danger of declaring victory too early. Exiting MC0350 oversight and meeting other regulatory milestones are only part of what is necessary. OPPD must consolidate gains and ensure that improvements are ingrained in the culture. The causal analysis and corrective actions implemented from our broad based discovery activities forms the foundation for the successful transition to plant operations. Formal tracking and closure of post restart actions will be maintained.

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## **TRANSITION TO SUSTAINED EXCELLENCE**

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As noted in the timeline on page 3 of the IPIP, the journey from recovery through Plant Restart to the goal of sustained excellence is a multi-year effort. The IPIP will include triggers to disband the Integrated Recovery Team and execute a transition to sustainable plant operations. Senior management will challenge that these triggers have been met and that the IPIP contains plans for sustained improvement and addresses latent issues that may emerge.

The final transition to a business planning model based on industry best practices will complete the transition from the IPIP.

## PLAN EXECUTION

The IPIP will be executed with the discipline and rigor typically associated with station outage plans. It will be reinforced by regular performance monitoring and rigorous management controls.

### MANAGEMENT CONTROLS AND PERFORMANCE MONITORING

To keep the plan execution on track and to ensure that the activities are producing the required results, a program of performance monitoring and management controls will be consistently applied.

#### Management Controls

Management review meetings are conducted at several levels for the core of performance monitoring in the IPIP. Each meeting has a standard attendee list and standing agenda:

Meeting	Frequency	Attendees	Agenda
Plan of the Day	Daily (morning)	Recovery Leads and Plant Leadership	Report-out of action item status and results. Challenge progress and effectiveness.
Outage Meeting	Daily (afternoon)	Recovery Leads and Plant Leadership	Report-out of action item status and results. Challenge progress and effectiveness.
Recovery Meetings	2 x Daily	Recovery Lead, Recovery Team Leads, Division Managers, Plant Manager	Report-out of action item status and results. Scope includes outage and other daily plant work items. Challenge progress and effectiveness.
Senior Leadership Meetings	Weekly	CEO, CNO, Chief Recovery Officer, Recovery Lead	Alignment meetings to ensure clear picture of progress across the leadership team and provide guidance to the Recovery Lead.
Management Review Meeting	Monthly	Chief Recovery Officer, Recovery Lead	Reviewing and assessing current performance against desired performance and goals.
QA Review	Ongoing	QA Lead, others as required	Contains components of internal and external independent oversight with regular report-outs.

Additionally, existing management controls remain in place, including existing station procedures such as the contract approval process, and boards and committees such as Corrective Action Review Boards (CARB) at the department level and the Safety Audit and Review Committee (SARC) at the station level.

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## Performance Monitoring

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A distinct suite of metrics is used to track the progress and effectiveness of the IPIP. These metrics, as well as standard FCS plant performance metrics, will be published in monthly communications to all site personnel. Key areas of monitoring are listed below.

### *Schedule*

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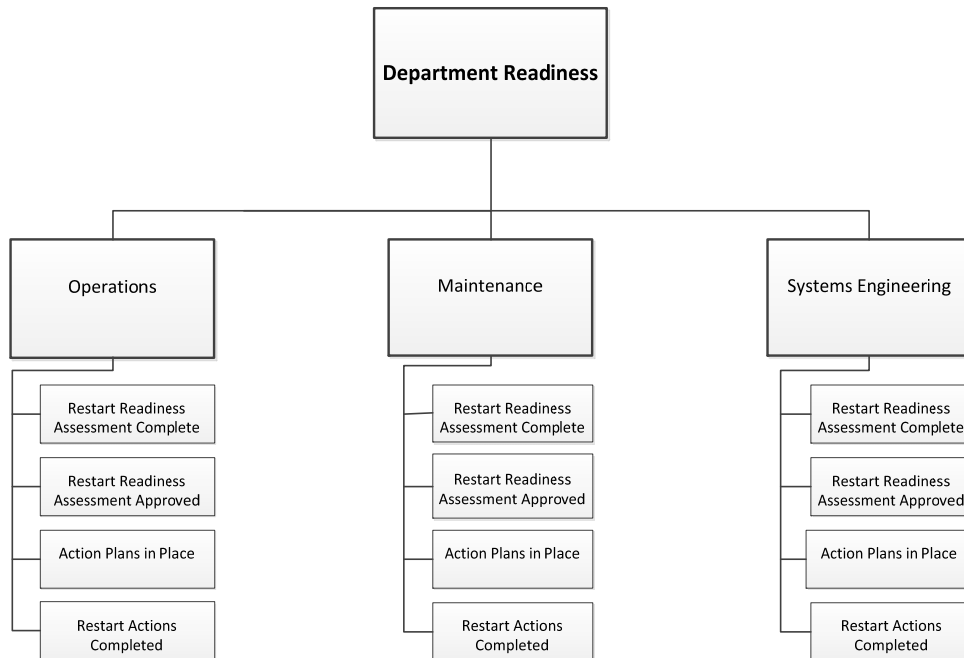
Schedule adherence and milestone achievement are the focus of recovery-specific metrics. They are monitored using work-down curves. Each task lead will present their work-down curve on a regular basis to demonstrate progress and enhance accountability. A work-down curve of all team tasks is used to track overall team adherence. A sample of the overall recovery work down curves is shown in Attachment D.

### *Readiness*

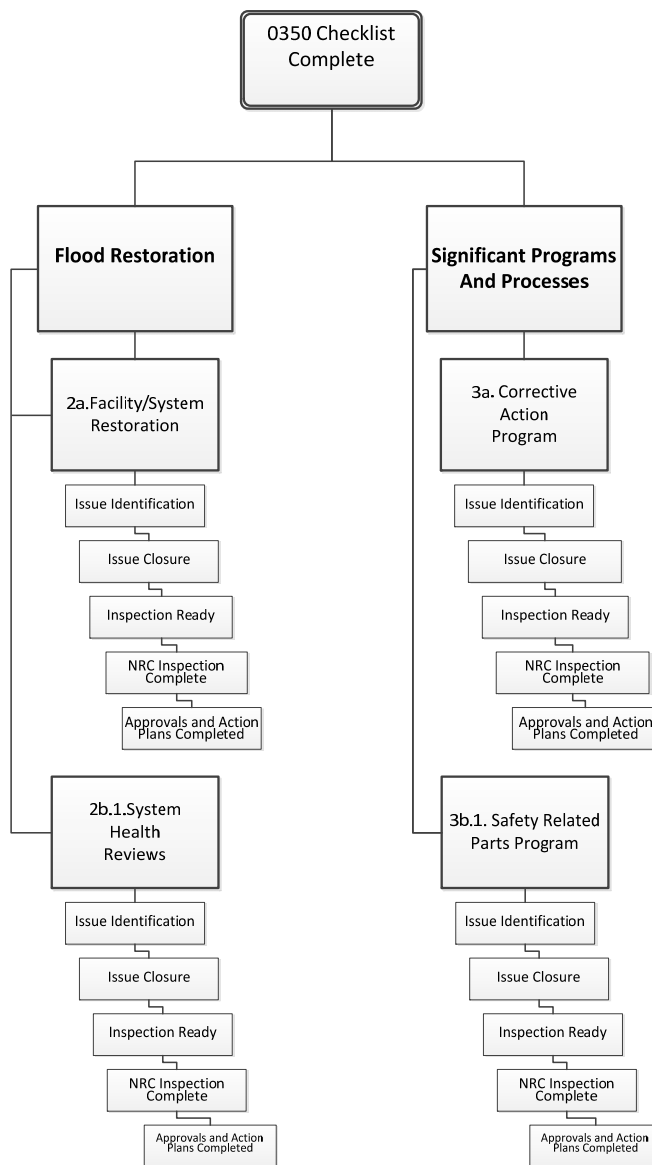
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A review of all existing Station Performance Indicators determined that a majority of the existing station indicators would be used to show system and program readiness for restart. An annunciator of these indicators as well as the System and Program Health reports will be prepared and reviewed regularly by the station and recovery leadership. Attachment D has an example of this annunciator. The supporting Performance Indicators can be found here: <http://insideoppd/Divisions/FcsHome/Information/fcspis/pi2012/Apr12.pdf>

Department or functional area readiness for restart will be assured by challenge boards. Performance indicators to support this will be presented in an indicator matrix that tracks the progress of each department's completion of readiness milestones. Color coding will be used to indicate whether activities are complete, on track, or behind schedule. A sample section for three departments is shown below. All eighteen departments will be displayed similarly:



Restart checklist items, from discovery to inspection, will be displayed as a large chart distributed throughout the station to visually communicate the progress of the recovery to all personnel. Sample sections of this chart are shown below. Color coding will be used to indicate whether activities are complete, on track, or behind schedule. All checklist items will be shown similarly:



### *Safety and Quality*

Safety and human performance goals for recovery will fall under existing station metrics. These include items such as clock resets, OSHA recordable events, and Human Performance events. They are published regularly on the FCS home page located here:

<http://insideoppd/Divisions/FcsHome/Information/fcspis/Pages/smpirpts.aspx>.



## COMMUNICATIONS STRATEGY

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The Communications Plan supports the implementation of the Fort Calhoun Station Integrated Performance Improvement Plan. It is key for all employees (our people) to fully understand and be able to act upon the critical priorities, and this will mean adopting behaviors that will change our culture now and in the future.

Clear information is power, and this plan is designed to empower our people to bring Fort Calhoun Station back online and back to the forefront of nuclear excellence. The cultural change necessary must be more than sustainable; it must become part of our corporate DNA.

The plan builds on OPPD's vision of being recognized as the ideal utility, with a mission of delivering energy services that exceed the expectations of our customers. It uses the corporate values throughout and will remain flexible to respond to changing events. Additionally, it reinforces the Fort Calhoun Station vision of sustained excellence.

The communications plan includes a number of steps, some already underway, that are divided into three basic phases: build a foundation of change, solidify and build on that foundation, and lock that change into our DNA for sustainability.



Additional detail can be found in the Communications Plan included as Appendix E.

## APPENDIX A: P6 SCHEDULE

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The P6 schedule can be accessed through the OPPD intranet using this link:

<http://insideoppd/DIVISIONS/FCSHOME/Pages/default.aspx>

## APPENDIX B: FLOODING RECOVERY PLAN

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The Flooding Recovery Plan is attached in two sections. Appendix B1 is the main Flooding Recovery Plan which is appropriate for public disclosure.

Appendix B2 is the Security portion of the plan should be withheld from public disclosure in accordance with the requirements of 10 CFR 2.390. The pages have been marked accordingly with the notation "Security-Related Information - Withhold Under 10 CFR 2.390."

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## **APPENDIX B1**

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**OMAHA PUBLIC POWER DISTRICT  
FORT CALHOUN STATION**

**FLOODING RECOVERY ACTION PLAN  
REVISION 3**

## Fort Calhoun Station Flooding Recovery Plan – Revision 3

<b>FRP Revision Log</b>		
<b>Revision</b>	<b>Date</b>	<b>Description</b>
0	8/10/11	Initial issuance
1	8/30/11	Updated some individual action items and/or deliverables, and changes in format and numbering. Added sections 4.5 and 4.6.
2		Not Issued
3	7/2/12	Updated and revised action items and/or deliverables. Changes from the Rev 1 Flooding Recovery Plan are described.

## **Table of Contents**

<b>Section 1</b>	Recovery Plan Overview
<b>Section 2</b>	Assessment and Restoration Focus Areas
<b>Section 3</b>	Action Plan Summary
<b>Section 4</b>	Internal and External Oversight
<b>FRP Appendix A</b>	Flooding Recovery Action Plans
<b>FRP Appendix B</b>	Removed Flooding Recovery Action Plans



## **1. RECOVERY PLAN OVERVIEW**

### **INTRODUCTION**

The Missouri River flooding experienced at Fort Calhoun Station (FCS) during the summer of 2011 has significantly challenged plant operation and has resulted in the station remaining shutdown since April 9, 2011, when the unit was removed from service for the start of the 2011 refueling outage. Throughout the flooding, Omaha Public Power District (OPPD) has ensured that FCS continues to be operated in a manner that protects the public health and safety. OPPD is fully committed to ensuring that public health and safety is assured when FCS is returned to power operation.

In response to this flooding event, OPPD is undertaking comprehensive, aggressive actions to fully scope, and then correct, the extent of flooding impact at FCS, beginning with comprehensive assessments of systems, structures and components (SSC) and continuing with detailed plans for repair and restoration. This document, the *FCS Flooding Recovery Plan (FRP)*, provides detailed plans and actions regarding the structure, content and methods for these restart actions.

The FCS Flooding Recovery Plan is organized as follows:

Section 1 – Recovery Plan Overview

Section 2 – Assessment and Restoration Focus Areas

Section 3 – Action Plan Summary

Section 4 – Internal and External Oversight

Appendix A – Flooding Recovery Action Plans

Appendix B – Removed Flooding Recovery Action Plans

### **PURPOSE**

The purpose of the FRP is to provide a roadmap for successful recovery of Fort Calhoun Station from the 2011 flooding event.. The FRP identifies specific focus areas that will be addressed..

### **ASSESSMENT AND RESTORATION FOCUS AREAS**

As described above, the FRP identifies actions that must be completed to recover FCS from the 2011 flooding event.. The objectives for the focus areas are characterized by the following statements:

- Assessment of SSCs impacted or potentially impacted by flooding to verify operability or functionality;
- Assessment of emergency preparedness to verify that the on-site and off-site emergency response infrastructure has been restored;
- Assessment of the current configuration of the physical protection system;

## Fort Calhoun Station Flooding Recovery Plan – Revision 3

- Restoration of facilities and equipment to pre-flooding conditions;
- Identification of SSCs that must be monitored long-term for degradation;
- Evaluation of the effects of the flooding event on the station design and licensing basis;
- Incorporation of lessons learned into station procedures.

These objectives are broad in scope and form the foundation for comprehensive evaluation of the impact of this flooding event. The focus area objectives have been translated into six focus areas for development of action plans:

- Site Restoration
- Plant Systems and Equipment
- Equipment Reliability
- Design and Licensing Basis
- Emergency Planning
- Security

The focus areas are discussed and defined in detail in Section 2.

### **EMERGENCY PREPAREDNESS**

The FCS Emergency Preparedness program and emergency response capability was maintained throughout the flooding event and assured protection of the health and safety of the public. Recognizing that the emergency response infrastructure may have been damaged by the flooding, OPPD assessed the capabilities of both the on-site and off-site emergency response facilities and organizations in the site's 10-mile emergency planning zone (EPZ) to respond to site emergencies. OPPD assisted the state emergency management organizations in Iowa and Nebraska with preparation of their required assessments of the infrastructure associated with the radiological emergency preparedness program. OPPD assisted the states in drafting a letter of certification that was submitted to FEMA stating that the offsite emergency response organizations are capable of responding to a radiological emergency. FEMA has since issued a Statement of Reasonable Assurance that offsite radiological emergency preparedness remains adequate to protect the health and safety of the public.

### **PHYSICAL SECURITY**

Throughout the flooding event, OPPD has maintained physical security measures in accordance with the Security Plan. However, because of the flooding, some security systems and equipment have been removed from service. A security system damage assessment and restoration plan has been included in the FRP and OPPD fully intends to restore the out-of-service equipment as soon as possible. If circumstances prevent full restoration of the physical security protection, OPPD will use compensatory measures as allowed by the Security Plan. Prior to plant restart, OPPD will conduct an assessment of the current configuration of the physical protection system to verify the security protective strategy meets the objective of providing high assurance that activities involving special nuclear material are not inimical to the

## Fort Calhoun Station Flooding Recovery Plan – Revision 3

common defense and security and do not constitute an unreasonable risk to the public health and safety. This assessment will include local law enforcement and emergency response organizations to verify that their response capability for a security event has not been adversely impacted.

### **DOCUMENTATION REQUIREMENTS**

#### Flooding Recovery Action Plans

For each action in the FRP, closure packages are developed to summarize the actions taken to address the issue and complete the deliverable identified in the individual action plan. The result will be an easy-to-review document summarizing the actions taken and describing the results achieved by implementation of the action plan.

## **2. ASSESSMENT AND RESTORATION FOCUS AREAS**

### **SUMMARY OF FOCUS AREAS**

An important step in developing the FRP was to identify and understand the scope of the assessment and restoration activities that will be required. Development of the FRP emphasized a broad and comprehensive approach to short term and long term assessment of flooding impact on plant systems, structures and components. As a result, FCS has identified six focus areas. Each focus area has been assigned to a station manager as the Focus Area Owner and each focus area has one or more associated action plans with Action Plan Owners.

The process requires that each action plan includes an Issue Definition and Objective to clearly define the scope and expected results for each action plan, action steps, due dates, and deliverables are included in each action in the individual action plans. As a summary overview, the following paragraphs identify the six focus areas and provide a brief characterization of scope of each focus area. Details regarding specific objectives and actions are contained in the FCS Flooding Recovery Action Plans in Appendix A.

### **FOCUS AREAS**

#### **Site Restoration**

Includes all activities to remove flooding protection and equipment from the site, restore facilities and equipment with known damage and restore equipment that was moved off-site for protection from flooding.

## Fort Calhoun Station Flooding Recovery Plan – Revision 3

### **Plant Systems and Equipment**

Includes assessment of the condition of plant systems and equipment to determine what, if any, damage has occurred and identify actions necessary to restore the equipment to operable or functional status.

### **Long Term Equipment Reliability**

Includes assessing the condition and reliability of station equipment that may have been impacted by flooding conditions but has not failed. This will include both short term and long term assessment and monitoring.

### **Design and Licensing Basis**

Includes all activities to verify that FCS is in compliance with the NRC-approved design and licensing basis and determine if changes to the licensing basis are required due to changes in the frequency or magnitude of an external flooding event.

### **Emergency Planning**

Includes assessing the capabilities of both the on-site and off-site emergency response facilities and organizations in the site's 10-mile emergency planning zone (EPZ) to respond to site emergencies and restoration of those facilities where required. Also includes identifying lessons learned from the external flooding event and incorporating those lessons into station procedures.

### **Security**

Includes assessment of security system damage and restoration of damaged equipment. Also includes verifying the response capability of local law enforcement and emergency response organizations for a security event has not been adversely impacted.

## **3. ACTION PLAN SUMMARY**

### **ACTION PLAN FORMAT AND CONTENT**

The FRP action plans are the primary tool for documenting and tracking flooding recovery progress and issue closure. The action plans show the desired action, the expected deliverable, and any change as compared to the Revision 1 Action Plan. Actions that were selected to be part of NRC letter CAL 4-11-003, Confirmatory Action Letter – Fort Calhoun Station, dated September 2, 2011 are indicated by an orange background behind the action number.

Oversight processes and practices will be used to oversee and monitor implementation and closure of each action plan. Section 4.0 provides additional details on the management oversight and monitoring practices that will be used to monitor execution of the FRP.

### LIST OF ACTION PLANS

The seventeen FRP action plans are grouped by focus area as shown below. This is the current list of action plans. During assessment activities, it is possible that additional action plans will be identified for development.

#### 1. Site Restoration

- 1.1. Flooding Protection and Equipment Demobilization
- 1.2. Plant and Facility Restoration
- 1.3. Bus 1B4A Restoration and Extent of Condition Actions (Removed from FRP but will be addressed by the IM 0350 Recovery Team)
- 1.4. 13.8 kV Underground Distribution Damage Assessment and Restoration

#### 2. Plant Systems and Equipment

- 2.1. Station Fire Protection System Damage Assessment and Restoration
- 2.2. System Health Assessments
- 2.3. Wetted Motor Damage Assessment and Restoration

#### 3. Long Term Equipment Reliability

- 3.1. Engineering Program Reviews
- 3.2. Underground Cable Assessment
- 3.3. Underground Piping and Tanks Assessment
- 3.4. I&C Power Supply Service Life Assessment (Removed from the FRP and will be addressed by the IM 0350 Recovery Team)

#### 4. Design and Licensing Basis

- 4.1. Plant and Facility Geotechnical and Structural Assessment
- 4.2. External Flooding Barrier Configuration
- 4.3. Plant Design Configuration Control
- 4.4. External Flood Design Basis Review (Removed from the FRP but will be addressed by the IM 0350 Recovery Team)
- 4.5. High Energy Line Break Remediation/EEQ Resolution (Removed from the FRP but will be addressed by the IM 0350 Recovery Team)
- 4.6. Design Resolution Items (Removed from the FRP but will be addressed by the IM 0350 Recovery Team)

#### 5. Emergency Planning

- 5.1. Return Alert Notification Sirens To Functional Status
- 5.2. Field Monitoring and Post Accident Environmental Monitoring
- 5.3. Assessment of Offsite Emergency Response Following a Natural Disaster

## Fort Calhoun Station Flooding Recovery Plan – Revision 3

### 5.4. Onsite Facility and Equipment Restoration

## 6. Security

### 6.1. Security System Damage Assessment and Restoration

## **ACTION PLAN IMPLEMENTATION**

### **RESPONSIBILITIES**

The focus area owner is responsible for the overall implementation of their action plans and will review all completed action plans for closure following completion. Each action plan step has a specific individual assigned responsibility for its implementation. Responsibilities of these individuals are summarized below:

- The Action Step Owner is responsible for completing the assigned action step by the specified completion date and preparing a closure package that documents action step closure;
- The Action Plan Owner is responsible for ensuring the on-time completion of all action steps and approving the closure packages;
- The Focus Area Owner is responsible for ensuring on-time and effective implementation and completion of all action plans in the assigned focus area and approving action plan closure.

### **ACTION PLAN SCHEDULING AND TRACKING**

The actions outlined in the FRP will be included in an integrated project schedule. The action plan owners are responsible for updating the project schedule.

### **ACTION PLAN CLOSURE PROCESS**

The closure process for the action steps and action plans are summarized in the following paragraphs.

#### **ACTION STEP CLOSURE**

The closure of each action step in an action plan will require a closure report using a standard closure format. The action plan owner will be responsible for ensuring that the completion of an action step is documented and preparing the closure report package. An independent review of the action step's closure documentation will be performed.

#### **ACTION PLAN CLOSURE**

Following completion of the action steps in an action plan, the Action Plan Owner and the Focus Area Owner will review the action plan for closure. A final closure report will be prepared which documents justification for closure of the action plan. The package will then be reviewed and signed by the Action Plan Owner and Focus Area Owner.

### **ACTION PLAN REVISIONS**

## Fort Calhoun Station Flooding Recovery Plan – Revision 3

Revisions that affect the scope, intent, or basis of previously approved revisions (e.g., deletion of actions or addition of actions) require review and approval by the Action Plan Owner and the Focus Area Owner. Revisions that affect scope will require a change to the revision number and date of the action plan. Revisions that may impact NRC commitments will be reviewed by Licensing to evaluate the potential commitment impact and any changes to commitments will be approved by the Site Vice President.

### **4. INTERNAL AND EXTERNAL OVERSIGHT**

FCS management is responsible for monitoring progress in accomplishing the FRP and is accountable for the overall implementation of the FRP. Management oversight will be accomplished through review meetings and oversight activities as described in the following paragraphs:

#### **FRP PROGRESS REVIEW MEETINGS**

Overall progress toward completing FRP action plans will be managed through the recovery schedule process.

#### **INDEPENDENT OVERSIGHT**

Nuclear Oversight has developed a plan for oversight of activities associated with the FRP. This plan contains guidance for performing QA evaluations of FRP activities and action plans. Specifically, the plan ensures that QA activities are documented and performed in accordance with written procedures or checklists to verify, by examination and evaluation of evidence, that applicable elements of the FRP have been developed, planned, effectively implemented and appropriately documented. During these evaluations, QA will use existing processes for oversight of and for response to emergent issues. Any QA findings that identify conditions adverse to quality will be documented in the Corrective Action Program (CAP) as required by Standing Order R-2, "Condition Reporting and Corrective Action."



## **FRP APPENDIX A – FLOODING RECOVERY ACTION PLANS**

# FCS Flooding Recovery Action Plan 1.1

## Flooding Protection and Equipment Demobilization

<b>FOCUS AREA:</b>	Site Restoration
<b>ACTION PLAN:</b>	Flooding Protection and Equipment Demobilization
<b>ACTION PLAN NUMBER:</b>	1.1

<b>ISSUE DEFINITION:</b>
Temporary flood protection barriers and equipment were installed prior to the flooding event

<b>OBJECTIVE:</b>
Remove temporary flood protection barriers and equipment

1.1.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes
1.	Remove AOP-1 floodgates and store	AOP-1 floodgates removed and stored	No changes
2.	Remove temporary diesel, fuel tankers/tanks and transformer from Protected Area	Temporary diesel, fuel tankers/tanks and transformers removed	No changes
3.	Remove the Aqua Dams from the Protected Area	Aqua Dams removed	No changes
4.	Remove flood protection around Security Building	Flood protection removed	No changes
5.	Remove pumps and hoses from Security building	Pumps and hoses removed	No changes
6.	Remove sandbags from turbine building	Sandbags removed	No changes

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

# FCS Flooding Recovery Action Plan 1.1

## Flooding Protection and Equipment Demobilization

1.1.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
1.	Determine where OPPD will store purchased flood protection equipment	Storage location determined	No changes
2.	Return all flood protection rental equipment to vendors	Flood protection rental equipment returned	No changes
3.	Remove Aqua Dam around training center	Aqua Dam removed	No changes
4.	Remove fuel cans, empty and store as company assets	Fuel cans removed, emptied and stored	No changes
5.	Remove pumps and FME around training center	Pumps and FME removed	No changes
6.	Remove scaffold bridges around training center	Scaffold bridges removed	No changes
7.	Dewater and remove all Aqua Dams around the Admin Building	Aqua Dams removed	No changes
8.	Remove all pumps and hoses from around Admin Building	Pumps and hoses removed	No changes
9.	Remove iron bridge to the front entrance of Admin Building	Bridge removed	No changes
10.	Remove sandbags and Hesco barriers around Admin Building	Sandbags and Hesco barriers removed	No changes
11.	Remove flood materials and debris on the grounds of the training center	Training Center grounds cleaned	No changes
12.	Gather, clean and store purchased flood control equipment (waders, life jackets, boots, rain gear, etc.)	Equipment gathered, cleaned and stored	No changes
13.	Remove the Aqua Dam from the old warehouse	Aqua Dams removed	No changes

## FCS Flooding Recovery Action Plan 1.1

### Flooding Protection and Equipment Demobilization

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1.1.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
14	Remove Hesco Barriers and pumps from the Training Center chiller	Hesco barriers and pumps removed	No changes
15	Remove elevated walkways and store scaffold material	Walkways removed and scaffold stored	No changes
16	Remove sandbags from intake structure	Sandbags removed	No changes
17	Remove sandbags and Hesco barriers at south transformer of new warehouse	Sandbags and Hesco barriers removed	No changes
18	Remove sandbags in new warehouse	Sandbags removed	No changes
19	Remove sandbags from switchyard	Sandbags removed	<b>New action</b>
20	Remove or relocate switchyard berm	Berm removed or relocated	<b>New action</b>

## FCS Flooding Recovery Action Plan 1.2 Plant and Facility Restoration

<b>FOCUS AREA:</b>	Site Restoration
<b>ACTION PLAN:</b>	Plant and Facility Restoration
<b>ACTION PLAN NUMBER:</b>	1.2

<b>ISSUE DEFINITION:</b>
Site structures and facilities may have been damaged by flooding

<b>OBJECTIVE:</b>
Repair flood-related damage to site facilities and structures

1.2.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes
1	Determine if equipment in the intake structure and cells has been damaged	Evaluation report	No changes
2	Determine if intake cell cleaning is required	Evaluation report	No changes
3	Repair any structural damage identified in the intake structure	Repairs completed	No changes
4	Return B.5.b materials to proper location	Equipment returned to proper location	No changes
5	Correct any structural damage that is identified in Turbine Building	Repairs completed	No changes

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

## FCS Flooding Recovery Action Plan 1.2 Plant and Facility Restoration

1.2.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
1.	Repair damage to the ISFSI Mux building	Repairs completed	No changes
2.	Original Action: Inspect and replace caulking between the concrete barriers as necessary  Revised Action: None	Original Deliverable: Repairs completed  Revised Deliverable: None	Close, duplicate to existing action 6.1.2.27.
3.	Clean intake structure building as needed	Clean up complete	No changes
4.	Determine if any biohazards exist in CARP Bldg; mitigate as required	Mitigation complete	No changes
5.	Original Action: Determine if any biohazards exist in intake structure and resolve  Revised Action: Determine if any biohazards exist in intake structure; mitigate as required	Original Deliverable: Biohazards identified and resolved  Revised Deliverable: Mitigation complete	Wording changed for consistency with other similar actions.
6.	Original Action: Determine if any biohazards exist in Protected Area fab shop and resolve  Revised Action: Determine if any biohazards exist in Protected Area fab shop; mitigate as required	Original Deliverable: Biohazards identified and resolved  Revised Deliverable: Mitigation complete	Wording changed for consistency with other similar actions.

## FCS Flooding Recovery Action Plan 1.2 Plant and Facility Restoration

1.2.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
7.	Original Action: Determine if any biohazards exist in Radioactive Waste building and take corrective actions  Revised Action: Determine if any biohazards exist in Radioactive Waste building; mitigate as required	Original Deliverable: Biohazards identified and resolved  Revised Deliverable: Mitigation complete	Wording changed for consistency with other similar actions.
8.	Determine if there are any environmental issues in common areas and resolve	Environmental issues resolved	No changes
9.	Dismantle all scaffold walkways in Protected Area and store as required	Scaffold removed	No changes
10.	Original Action: Inspect for biohazards in the Security Building, remediate as necessary  Revised Action: Determine if any biohazards exist in the Security Building; mitigate as required	Original Deliverable: Biohazards identified and resolved  Revised Deliverable: Mitigation complete	Wording changed for consistency with other similar actions.
11.	Recover stored equipment from Blair substation to FCS site	Equipment returned to site	No changes
12.	Remove any flood protection materials from storm drains	Materials removed	No changes
13.	Remove debris around DW-68 storage tank and utility building	Debris removed	No changes
14.	Remove temporary berms around A/C units and transformers in Protected Area	Temporary berms removed	No changes

## FCS Flooding Recovery Action Plan 1.2 Plant and Facility Restoration

1.2.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
15	Restore configuration of Protected Area - HazStor building, insulator shed	Configuration restored	No changes
16	Original Action: Check for biohazards in Chem Storage building and initiate clean up if necessary  Revised Action: Determine if any biohazards exist in the Chem Storage building; mitigate as required	Original Deliverable: Clean up complete  Revised Deliverable: Mitigation complete	Wording changed for consistency with other similar actions.
17	Clean Protected Area fab shop as required	Clean up complete	No changes
18	Original Action: Restore equipment to Security Building that was removed during flooding  Revised Action: None	Original Deliverable: Equipment restored  Revised Deliverable: None	Close, duplicate to existing action 1.2.3.20.
19	Restore concrete barriers inside the Protected Area to the previous locations	Original Deliverable: Repairs completed  Revised Deliverable: Barriers relocated	Revised deliverable to match the specified action.
20	Original Action: Return security and RP equipment to the security building  Revised Action: Return RP equipment to the security building	Equipment restored	Removed security equipment from this action. Security equipment is covered in action 6.1.2.26.
21	Inspect tank and equipment on DI tank for damage	Inspection report	No changes
22	Replace carpet tiles in Training Center auditorium	Carpet replaced	No changes



## FCS Flooding Recovery Action Plan 1.2 Plant and Facility Restoration

1.2.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
23	Replace carpeting in the OPS NRC Exam room, check for mold and remediate mold	Carpet replaced, remediation complete	No changes
24	Replace desks and tables in the NRC Exam Room/Storage Area	Desks and tables replaced	No changes
25	Evaluate material stored in the warehouse for shelf-life	Material evaluated	No changes
26	Clean and inspect Admin building interior for mold and insects	Inspection and cleaning complete	No changes
27	Clean and inspect Training Center interior for mold and insects	Inspection and cleaning complete	No changes
28	Unplug drains in the Training Center atrium and simulator	Drains restored	No changes
29	As water recedes determine the extent of damage to each trailer	Evaluation report	No changes
30	Pump out pockets of water that are pooled on grounds	Water pumped out	No changes
31	Remove items stored along the access road	Items removed	No changes
32	Resolve environmental issues in Training Center	Environmental issues resolved	No changes
33	Determine the need for replacement of trailers on a case-by-case basis	Assessment completed	No changes
34	Discuss with trailer rental vendor the purchase of temporary trailers	Decision whether to purchase temporary trailers	No changes
35	Establish rental contracts for needed trailers	Contracts in place	No changes
36	Evaluate if each trailer is worth salvaging or needs to be scrapped	Assessment completed	No changes

## FCS Flooding Recovery Action Plan 1.2 Plant and Facility Restoration

1.2.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
37	Evaluate, repair and clean RP training trailer	Clean up complete	No changes
38	If temporary trailers are salvageable, complete required repairs	Repairs completed	No changes
39	Inspect RP training trailer interior for mold and insects	Inspection completed	No changes
40	Remove temporary pump and restore south lift station to normal configuration	Restored to normal configuration	No changes
41	Repair damaged sidewalks and gratings	Repairs completed	No changes
42	Tritium groundwater sampling	Flood-related sampling complete, documented	No changes
43	Determine the amount of damage to trees, grass, and other landscaping	Assessment completed	No changes
44	Repaint surfaces and structures exposed to flood waters as necessary	Painting complete	No changes
45	Clean maintenance storage building as required	Clean up complete	No changes
46	Clean removed flood access scaffold; oil hinges and knuckles	Scaffold cleaned, oiled and stored	No changes
47	Original Action: Determine if any biohazards exist in maintenance storage building and resolve  Revised Action: Determine if any biohazards exist in maintenance storage building; mitigate as required	Original Deliverable: Hazards identified and resolved  Revised Deliverable: Mitigation complete	Wording changed for consistency with other similar actions.

## FCS Flooding Recovery Action Plan 1.2 Plant and Facility Restoration

1.2.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
48	Determine if any regulatory requirements need to be addressed for sewage discharge	Evaluation report	No changes
49	Ensure any biohazards have been addressed for sewage discharge system	Biohazards identified and corrected	No changes
50	Inspect all equipment in the DW-68 tank utility building	Inspection report	No changes
51	Inspect materials in Maintenance Storage building for flood damage and discard appropriately	Materials inspected and dispositioned	No changes
52	Inspect materials in Protected Area fab shop for flood damage and discard appropriately	Materials inspected and dispositioned	No changes
53	Inspect warehouse laydown for damaged material, identify material for disposal	Inspection complete	No changes
54	Remove equipment from turbine deck and restore to original location	Items restored to normal location	No changes
55	Remove trailers from Protected Area and other areas and move to upper parking lot once lower lots can be opened.	Trailers removed	No changes
56	Repair cosmetic damage to 6 bay garage	Cosmetic repairs completed	No changes
57	Repair ISFSI as necessary (structural)	Repairs completed	No changes
58	Repair, replace and test B.5.b equipment as necessary	Repairs, replacement and testing completed	No changes

## FCS Flooding Recovery Action Plan 1.2 Plant and Facility Restoration

1.2.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
59	Repair sewage lagoons and lift stations as required	Repairs completed	No changes
60	Restore trash compactors	Trash compactors restored	No changes
61	Clean and inspect the Training Center cooling tower	Inspection and cleaning complete	No changes
62	Clean Protected area yard - remove water stains from buildings, algae, sludge, grade/level the grounds	Clean up complete	No changes
63	Evaluate condition of fuel tank at sally port inside Protected Area and repair, replace or remove as required	Repair, replacement or removal complete	No changes
64	Evaluate whether the old warehouse should be torn down and replace or restored.	Evaluation report	No changes
65	Put recovered equipment from Blair substation back in place	Equipment back in place	No changes
66	Remove dead trees and bushes as necessary	Trees and bushes removed	No changes
67	Repair damage to DW-68 tank and utility building	Repairs completed	No changes
68	Repair Security building as required	Repairs completed	No changes
69	Restore fences in switchyard	Fences restored	No changes
70	Assess and repair damage to the boat house	Boat house repaired	No changes
71	Clean up and restore old warehouse if it will be kept	Clean up complete	No changes
72	Mow grounds and spray weeds prior to winter	Yard maintenance completed	No changes

## FCS Flooding Recovery Action Plan 1.2 Plant and Facility Restoration

1.2.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
73	Remove debris at burn pad and restore area	Area restored	No changes
74	Remove equipment and material from ACP area, restore area	Equipment removed, area restored	No changes
75	Original Action: Remove sea vans from inside the switchyard berm  Revised Action: None	Original Deliverable: Sea vans removed  Revised Deliverable: None	Closed based on the fact that removal of sea vans from this area of the switchyard is not required. They are in a segregated area of the switchyard designated for storage.
76	Repair discovered geotechnical problems in common areas outside the Protected Area	Repairs completed	No changes
77	Repair structural or geotechnical deficiencies in CARP building	Repairs completed	No changes
78	Repair structural or geotechnical deficiencies in Chemistry Storage building	Repairs completed	No changes
79	Repair the ISFSI haul route as necessary	Repairs completed	No changes
80	Determine required landscaping replacement	Assessment completed	No changes
81	Excavate and repair drainage ditches as necessary	Ditches excavated and repaired	No changes
82	Original Action: ISFSI haul route load test  Revised Action: None	Original Deliverable: Load test complete  Revised Deliverable: None	Closed based on no planned spent fuel movements in the near future. Load testing of the ISFSI haul route will be included as part of the process for moving spent fuel and is therefore not needed in this plan.

## FCS Flooding Recovery Action Plan 1.2 Plant and Facility Restoration

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1.2.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
83	Original Action: Replant landscaping in OCA  Revised Action: None	Original Deliverable: Landscaping replaced  Revised Deliverable: None	Deleted, not required.
84	Original Action: Repave the DeSoto marker turnout at top of hill  Revised Action: None	Original Deliverable: Area repaved  Revised Deliverable: None	Deleted, not required.

## FCS Flooding Recovery Action Plan 1.4

### 13.8 kV Underground Distribution Damage Assessment and Restoration

<b>FOCUS AREA:</b>	Site Restoration
<b>ACTION PLAN:</b>	13.8 kV Underground Distribution Damage Assessment and Restoration
<b>ACTION PLAN NUMBER:</b>	1.4

<b>ISSUE DEFINITION:</b>
Flooding conditions and temporary mitigation measures have degraded station 13.8kV System

<b>OBJECTIVE:</b>
Restore Station 13.8kV System to functional status

1.4.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes
1.	Remove sandbags for access to Transmission & Distribution (T&D) switch SW1062	Original Deliverable: Completed CWO task or inspection.  Revised Deliverable: Before and after pictures of sandbags removed	Changed deliverable to pictures demonstrating completion of task.
2.	Original Action: Inspect 13.8kV underground pad mount T&D switch SW1062  Revised Action: None	Original Deliverable: Inspection punch list  Revised Deliverable: None	Close to new action 1.4.1.8 (Replace T&D Switch SW1062), SW1062 was replaced
3.	Original Action: Inspect and/or test T&D 13.8kV transformer T1B-3C-1 (T&D 13TN43G)  Revised Action: None	Original Deliverable: Inspection punch list and/or test report  Revised Deliverable: None	Close to new action 1.4.1.9 (Replace Transformer T1B-3C-1 (T&D ID 13TN43G)), transformer was replaced.
4.	Original Action: Inspect manholes MH1 through MH4 associated with circuit 231 (T&D 122) between T&D	Original Deliverable: Inspection punch list  Revised Deliverable:	Revised action to clarify scope  Revised deliverable to add more specific

# FCS Flooding Recovery Action Plan 1.4

## 13.8 kV Underground Distribution Damage Assessment and Restoration

1.4.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes
	switch SW1062 to T&D transformer 13TN43G  Revised Action: Inspect manholes and ducts for MH01 through MH04 from T&D switch SW1062 to transformer T1B-3C-1 to facilitate pulling a new 1/0 cable.	<ul style="list-style-type: none"> <li>Pictures documenting the cable pull through manholes.</li> <li>T&amp;D work order 425377 or Completed Surveillance EM-ST-ESF-0002, Emergency Power Periodic Test</li> </ul>	evidence of completion
5.	Original Action: Inspect ducts associated with manholes MH1 through MH4 between T&D switch SW1062 to T&D transformer 13TN43G and repair as necessary  Revised Action: None	Original Deliverable: Inspection punch list  Revised Deliverable: None	Close by consolidation into action 1.4.1.4 (Inspect manholes and ducts for MH01 through MH04 from T&D switch SW1062 to transformer T1B-3C-1 to facilitate pulling a new 1/0 cable.)
6.	Original Action: Inspect and/or test Circuit 231 from T&D switch SW1062 to T&D transformer 13TN43G and repair as necessary  Revised Action: None	Original Deliverable: Inspection punch list and/or test report  Revised Deliverable: None	Close to new actions 1.4.1.7, 1.4.1.8, 1.4.1.9, 1.4.1.10, 1.4.1.11 and 1.4.1.12 which provide a more detailed description of this scope of work.
7.	Replace cable T&D switch SW1062 to transformer T1B-3C-1 (T&D ID 13TN43G) line side.	<ul style="list-style-type: none"> <li>T&amp;D work order 425377.</li> <li>Pictures showing new cable installation.</li> <li>Documentation showing that new cable is equivalent to existing cable</li> </ul>	<b>New action</b>
8.	Replace T&D Switch SW1062	<ul style="list-style-type: none"> <li>T&amp;D work order 425377.</li> <li>Pictures showing new switch SW1062 installation.</li> <li>Documentation showing that new switch SW1062 is equivalent to existing</li> </ul>	<b>New action</b>



# FCS Flooding Recovery Action Plan 1.4

## 13.8 kV Underground Distribution Damage Assessment and Restoration

1.4.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes
		switch	
9.	Replace Transformer T1B-3C-1 (T&D ID 13TN43G)	<ul style="list-style-type: none"> <li>T&amp;D work order 425377.</li> <li>Pictures showing new transformer T1B-3C-1 installation.</li> <li>Documentation showing that new transformer T1B-3C-1 is equivalent to existing transformer</li> </ul>	New action
10.	Perform Tan/Delta and AC Hypot test on existing 1000mcm cable from 161kV switchyard breaker 122 to T&D switch SW1062	Tan/Delta and AC Hypot test results	New action
11.	Perform Tan/Delta and AC Hypot test on new 1/0 cable from T&D switch SW1062 to the line side of transformer T1B-3C-1 (T&D ID 13TN43G)	Tan/Delta and AC Hypot test results	New action
12.	Perform EM-ST-ESF-0002 Emergency Power Periodic Test	Completed Surveillance EM-ST-ESF-0002, Emergency Power Periodic Test	New action

1.4.2 Short-Term Actions (Prior To Reactor Critical)			
#	Action	Deliverable	Description of Changes
1.	N/A		

# FCS Flooding Recovery Action Plan 1.4

## 13.8 kV Underground Distribution Damage Assessment and Restoration

1.4.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
1.	Original Action: Develop design changes based on walk down and lesson learned to allow circuit 231 from T&D switch SW1062 to transformer 13TN43G to function during applicable design basis flooding  Revised Action: Perform a study to Analyze FCS 13.8kV Underground Distribution system to reduce potential vulnerabilities	Original Deliverable: Design Change Package.  Revised Deliverable: Copy of T&D's FCS Off-Site Power Reliability Report	Revised action to include a documented review.
2.	Original Action: Verify inventory and/or develop material requisitions.  Revised Action: None	Original Deliverable: Completed Material Requisitions or inventory list  Revised Deliverable: None	Close to action 1.4.3.4 (Implement T&D Work Order 425377). Materials used to complete the changes will be referenced in T&D Work Order 425377
3.	Original Action: Develop required Work Orders  Revised Action: None	Original Deliverable: Approved Work Orders  Revised Deliverable: None	Close to action 1.4.3.4 (Implement T&D Work Order 425377). T&D Work Order 425377 is applicable to this work.
4.	Original Action: Implement Work Orders Revised Action: Implement T&D Work Order 425377	Original Deliverable: Completed Work Orders  Revised Deliverable: T&D Work Order 425377	Included work order number in action and deliverable
5.	Original Action: T&D test new installation as required  Revised Action: Inspect, clean and energize the remainder of the 13.8kV system as required.	Original Deliverable: Completed test procedures and verifying that system is functional  Revised Deliverable: T&D Work Order 425377	T&D did not test the system. Action taken was to inspect, clean and energize the remainder of the 13.8kV system that did not require replacement under section 1.4.1 short term actions

# FCS Flooding Recovery Action Plan 1.4

## 13.8 kV Underground Distribution Damage Assessment and Restoration

1.4.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
6.	Remove sandbags for access to 13.8kV T&D transformers, switchgear and switches.	Original Deliverable: Completed CWO task or inspection  Revised Deliverable: Before and after pictures of 13.8kv equipment with sandbags removed	Changed deliverable to pictures demonstrating completion of task.
7.	Original Action: Inspect T&D 13.8kV underground pad mount switches  Revised Action: Inspect, clean and energize all remaining 13.8kV pad mounted switches	Original Deliverable: Inspection punch list  Revised Deliverable: T&D Work Order 425377	Revise action and deliverable to incorporate scope of T&D work order 425377
8.	Original Action: Inspect T&D switchgear SW1067 and recommend replacement and/or relocation to preclude loss during design basis flooding  Revised Action: Inspect T&D switchgear SW1067 and recommend replacement and/or relocation.	Original Deliverable: Inspection punch list  Revised Deliverable: <ul style="list-style-type: none"> <li>T&amp;D Work Order 425377</li> <li>Copy of Transmission and Distributions FCS Off-Site Power Reliability Report</li> </ul>	Revised action and deliverable to more clearly define action and incorporate scope of T&D work order 425377 to document inspection and T&D's FCS Off-Site Power Reliability Report.
9.	Original Action: Inspect and/or test T&D 13.8kV transformers located in the OCA  Revised Action: Inspect, clean and energize, as required, all 13.8kV transformers located in the OCA as determined by T&D	Original Deliverable: Inspection punch list and/or test report  Revised Deliverable: T&D Work Order 425377	Revised action and deliverable to more clearly define action and remove testing requirements. T&D did not perform testing; they inspected and/or reenergized OCA transformers consistent with their normal practice

## FCS Flooding Recovery Action Plan 1.4

### 13.8 kV Underground Distribution Damage Assessment and Restoration

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1.4.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
10	<p>Original Action: Inspect and/or test T&amp;D 13.8kV transformers located in the PA</p> <p>Revised Action: Inspect, clean and energize, as required, all 13.8kV transformers located in the PA as determined T&amp;D</p>	<p>Original Deliverable: Inspection punch list and/or test report</p> <p>Revised Deliverable: T&amp;D Work Order 425377</p>	Revised action and deliverable to more clearly define action and remove testing requirements. T&D did not perform testing; they inspected and/or reenergized OCA transformers consistent with their normal practice. Transformer T1B-3C-1 replaced under action 1.4.1.9 and tested under action 1.4.1.12.
11	<p>Original Action: Inspect associated T&amp;D 13.8kV distribution manholes for possible waterproofing</p> <p>Revised Action: None</p>	<p>Original Deliverable: Inspection punch list</p> <p>Revised Deliverable: None</p>	Close based on no action required. Manholes associated with the T&D 13.8kV system have an open design that cannot be waterproofed. They are designed to allow water to drain from the enclosures naturally.
12	<p>Original Action: Inspect any pole mounted drops for necessary extensions and waterproofing</p> <p>Revised Action: None</p>	<p>Original Deliverable: Inspection punch list</p> <p>Revised Deliverable: None</p>	Close based on no action required. Conduits associated with the T&D 13.8kV system have an open design that cannot be waterproofed. They are designed to allow water to drain from the enclosures naturally

## FCS Flooding Recovery Action Plan 1.4

### 13.8 kV Underground Distribution Damage Assessment and Restoration

1.4.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
13	Original Action: Test T&D 13.8kv cables and recommend replacement.  Revised Action: None	Original Deliverable: Inspection punch list and/or test report  Revised Deliverable: None	Close based on no action required. Except for cables replaced and tested by actions 1.4.1.9, 1.4.1.11, 1.4.1.14, 1.4.1.15 and 1.4.3.24, T&D inspected, cleaned and energized the remainder of the 13.8kV system cables as normal practice. No additional cables required testing. See action 1.4.3.19 (Inspect, clean and energize, as required, all remaining 13.8kv cables) for cable inspection, cleaning and energizing.
14	Original Action: Test 13.8kV load cables associated with switchgear SW1067 and recommend replacement  Revised Action: None	Original Deliverable: Inspection punch list and/or test report  Revised Deliverable: None	Close based on no action required. T&D switchgear SW1067 was energized during the entire flood and protected by sandbags. No testing was required.
15	Original Action: Recommend and develop design changes to preclude loss during design basis flooding as determined by analysis  Revised Action: None	Original Deliverable: Design Change Package  Revised Deliverable: None	Close. Duplicate of action 1.4.3.1 (Perform a study to analyze FCS 13.8kV Underground Distribution system to reduce potential vulnerabilities).
16	Original Action: Verify inventory and/or develop material requisitions with lead times.  Revised Action: None	Original Deliverable: Completed material requisitions or inventory lists  Revised Deliverable: None	Close to 1.4.3.4 (Duplicate of action 1.4.3.2 which was closed to 1.4.3.4)

# FCS Flooding Recovery Action Plan 1.4

## 13.8 kV Underground Distribution Damage Assessment and Restoration

1.4.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
17	Original Action: Develop required T&D Work Orders  Revised Action: None	Original Deliverable: Approved Work Orders  Revised Deliverable: None	Close to 1.4.3.4 (Duplicate of action 1.4.3.3 which was closed to 1.4.3.4)
18	Original Action: Implement Work Orders  Revised Action: None	Original Deliverable: Completed Work Orders  Revised Deliverable: None	Close. Duplicate of action 1.4.3.4
19	Original Action: Replace 13.8kv cables as recommended by T&D  Revised Action: Inspect, clean and energize, as required, all remaining 13.8kv cables	Original Deliverable: Complete Work Orders  Revised Deliverable: T&D Work Order 425377	Revised action and deliverable. Except for cables replaced by action 1.4.1.9 and action 1.4.3.24, T&D inspected, cleaned and energized the remainder of the 13.8kV system consistent with their normal practice. No additional cables required replacement.
20	Original Action: Replace/repair pad mounted switches as recommended by T&D  Revised Action: None	Original Deliverable: Complete Work Orders  Revised Deliverable: None	Close based on no action required: Except for switch SW1062 replaced by action 1.4.1.8, T&D inspected, cleaned and energized the remainder of the 13.8kV system as normal practice. No additional switches required replacement. See action 1.4.3.7
21	Original Action: T&D test new installation as required  Revised Action: None	Original Deliverable: Completed test procedures and verify that system is functional  Revised Deliverable: None	Close. Duplicate of action 1.4.3.5 (Inspect, clean and energize the remainder of the 13.8kV system as required).
22	Replace 13.8kV feeder cables to MET tower and shooting range	T&D Work Order 425377	<b>New action</b>

## FCS Flooding Recovery Action Plan 2.1

### Station Fire Protection Damage Assessment and Restoration

<b>FOCUS AREA:</b>	Plant Systems and Equipment
<b>ACTION PLAN:</b>	Station Fire Protection Damage Assessment and Restoration
<b>ACTION PLAN NUMBER:</b>	2.1

<b>ISSUE DEFINITION:</b>
Flooding conditions and temporary mitigation measures may have degraded station fire protection and fire detection systems and components.

<b>OBJECTIVE:</b>
Restore all flood affected fire protection systems and equipment to functional and operable status. Ensure all areas of the plant are in compliance with applicable fire protection standing orders and program requirements.

2.1.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes
1.	<p>Original Action: Ensure underground FP piping is intact and no voids are present near FP piping</p> <p>Revised Action: Ensure underground FP piping is intact and no unacceptable voids are present near FP piping</p>	<p>Original Deliverable: System health assessment report and geotechnical assessment report</p> <p>Revised Deliverable: Geotechnical assessment report.</p>	Revised action to specify no unacceptable voids present. Removed system health assessment reports as the geotechnical assessment report completely fulfills the action.
2.	Repair any damaged or non-functional fire hydrants located inside the protected area or connected to the main fire protection header ring	<p>Original Deliverable: Completed maintenance work documents (WR 167645) (Tool Pouch to Ops to return the equipment that has been removed from the cabinets)</p> <p>Revised Deliverable: Completed copy of OP-ST-FP-0001A, WO 422051</p>	Revised deliverable to state specific test that demonstrates functionality.

## FCS Flooding Recovery Action Plan 2.1

### Station Fire Protection Damage Assessment and Restoration

2.1.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes
3.	Flush fire protection system piping connected to the fire protection header ring which flowed river water during flood mitigation actions	Completed system flushing plan	No changes
4.	Inspect all SO-G-103 fire barriers in plant buildings affected by flood waters. Include Pyrocrete barriers in Intake Structure.	Original Deliverable: Completed maintenance / inspection work documents WO 423212-01 (Completed copy of SE-ST-FP-0005)  Revised Deliverable: Completed Inspection work document SE-ST-FP-0005 WO 423212-01.	Revised deliverable to remove reference to maintenance.
5.	Verify soil compaction and moisture content in areas of underground fire protection main header ring and attached piping is per NFPA requirements	Original Deliverable: System health assessment report and geotechnical assessment report  Revised Deliverable: Geotechnical assessment.	The required action is completely described in the Geotechnical assessment report.
6.	Restore the exterior fire hose houses impacted by flooding to functional condition	Completed PM and ST procedures for hose house inspections and testing (OP-ST-FP-0002, OP-ST-FP-0009, OP-ST-FP-0001A)	No changes
7.	Verify proper functioning of flood affected fire hose houses	Completed PM and ST procedures for hose house testing. Closed fire impairment permits (OP-ST-FP-0002, OP-ST-FP-0009, OP-ST-FP-0001A)	No changes
8.	Complete FP System PMs and STs on flood impacted equipment which was not accessible for inspection and testing	Original Deliverable: Completed PMs and STs and associated work order documents (OP-ST-FP-0002, OP-ST-FP-0009, OP-ST-FP-0001A, OP-PM-FP-0001A)	Revised deliverable to remove OP-ST-FP-0009. This test was not impacted by flooding.



## FCS Flooding Recovery Action Plan 2.1

### Station Fire Protection Damage Assessment and Restoration

2.1.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes
		Revised Deliverable: Completed PMs and STs, OP-ST-FP-0002, OP-ST-FP-10001A, OP-PM-FP-0001A,	
9.	Original Action: Complete full flow testing of fire pumps prior to drop date of 9/14/2011  Revised Action: Complete full flow testing of fire pumps	Original Deliverable: Completed STs (WO 400199-01, WO 396921-01)  Revised Deliverable: Completed copy of SE-ST-FP-0002 and SE-ST-FP-0003 (WOs 400199-01, WO 396921-01)	Revised action to remove due date.  Revised deliverable to add Surveillance Test numbers
10	Remove the plugs that were installed in the transformer pits for drainage from the rocks	Completed work maintenance documents (WR 168171)	No changes
11.	Complete monitoring and assessment of system leakage for FP piping.	White paper documenting assessment, trends of cycle times for FP-5 Jockey pump.	New action
12.	Restore HALON systems in new warehouse security area	Completed work documents WO 425634-01, WO 425636-01	New action

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

## FCS Flooding Recovery Action Plan 2.1

### Station Fire Protection Damage Assessment and Restoration

2.1.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
1.	Restore transformers T1A3 and T1A1 deluge valves to service	Completed operating instructions and closed fire impairment permits.	No changes
2.	Repair any damaged or nonfunctional fire hydrants not connected to the fire protection header ring	Completed work maintenance documents from Facility Management.	No changes
3.	Original Action: Flush fire protection system piping not connected to the fire protection header ring which flowed river water during flood mitigation actions  Revised Action: None	Original Deliverable: Completed system flushing plan  Revised Deliverable: None	Close based on no actions required. Fire hydrants not connected to the fire main are supplied water from Blair Water which is clean.
4.	Clean and repair coating of all flood affected FP piping and equipment exposed to flood waters	Completed work maintenance documents	No changes
5.	Restore Maintenance fabrication shop deluge valve	Completed operating instructions and closed fire impairment permits	No changes.
6.	Clean and or replace sight glasses and indication lettering on FP Post Indicating Valves inside fence.	Completed maintenance work instructions.	<b>New action.</b>
7.	Repair damaged fire hose rack in Old Warehouse FP-744 (FP-22B).	Completed maintenance work documents.	<b>New action.</b>
8.	Replace or Repair Broken Fire Hydrant FP-3C near Security Building	Completed maintenance work documents (WO 418123) and operability testing of FP-3C.	<b>New action.</b>

## FCS Flooding Recovery Action Plan 2.1

### Station Fire Protection Damage Assessment and Restoration

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2.1.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
9.	Repair Damaged Pyrocrete Barriers in Intake Structure	Complete Maintenance work documents 426317-01 and 426318-01	New action.
10.	Restore the exterior fire hose houses impacted by flooding to functional condition (FP-3G)	Completed procedure OP-PM-FP-0001B Att. 5, OP-ST-FP-0011.	New action.
11	Repair Damaged Pyrocrete Barrier near Manhole #31 in Intake Structure	Completed WO 421700 and closed FPIP 2011-331.	New action.

## FCS Flooding Recovery Action Plan 2.2 System Health Assessments

<b>FOCUS AREA:</b>	Plant Systems and Equipment
<b>ACTION PLAN:</b>	System Health Assessments
<b>ACTION PLAN NUMBER:</b>	2.2

<b>ISSUE DEFINITION:</b>
Flooding conditions and temporary mitigation measures may have degraded station structures, systems, and components.

<b>OBJECTIVE:</b>
Identify actions required to restore system health.

2.2.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes
1.	Original Action: Complete the Auxiliary Cooling System (ACS) Flooding Recovery System Health Assessment report  Revised Action: Assess the effects of the flood on the Auxiliary Cooling System (ACS) and identify actions to restore the system.	Original Deliverable: Auxiliary Cooling System (ACS) Flooding Recovery System Health Assessment report  Revised Deliverable: Auxiliary Cooling System (ACS) 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 start up system health report.

## FCS Flooding Recovery Action Plan 2.2 System Health Assessments

2.2.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes
2.	<p>Original Action: Complete the Auxiliary Feedwater System (AFW) Flooding Recovery System Health Assessment report</p> <p>Revised Action: Assess the effects of the flood on the Auxiliary Feedwater System (AFW) and identify actions to restore the system.</p>	<p>Original Deliverable: Auxiliary Feedwater System (AFW) Flooding Recovery System Health Assessment report</p> <p>Revised Deliverable: Auxiliary Feedwater System (AFW) Flooding Recovery Start Up System Health Assessment report</p>	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the start up system health report.
3.	<p>Original Action: Complete the Auxiliary Instrumentation System (AIS) Flooding Recovery System Health Assessment report</p> <p>Revised Action: Assess the effects of the flood on the Auxiliary Instrumentation System (AIS) and identify actions to restore the system.</p>	<p>Original Deliverable: Auxiliary Instrumentation System (AIS) Flooding Recovery System Health Assessment report</p> <p>Revised Deliverable: Auxiliary Instrumentation System (AIS) Flooding Recovery Start Up System Health Assessment report</p>	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the start up system health report.
4.	<p>Original Action: Complete the Control Rod Drive System (CRD) Flooding Recovery System Health Assessment report</p> <p>Revised Action: Assess the effects of the flood on the Control Rod Drive System (CRD) and identify actions to restore the system.</p>	<p>Original Deliverable: Control Rod Drive System (CRD) Flooding Recovery System Health Assessment report</p> <p>Revised Deliverable: Control Rod Drive System (CRD) Flooding Recovery Start Up System Health Assessment report</p>	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the start up system health report.

## FCS Flooding Recovery Action Plan 2.2 System Health Assessments

2.2.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes
5.	<p>Original Action: Complete the Chemical and Volume Control System (CVC) Flooding Recovery System Health Assessment report</p> <p>Revised Action: Assess the effects of the flood on the Chemical and Volume Control System (CVC) and identify actions to restore the system.</p>	<p>Original Deliverable: Chemical and Volume Control System (CVC) Flooding Recovery System Health Assessment report</p> <p>Revised Deliverable: Chemical and Volume Control System (CVC) Flooding Recovery Start Up System Health Assessment report</p>	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the start up system health report.
6.	<p>Original Action: Complete the Circulating Water System (CWS) Flooding Recovery System Health Assessment report</p> <p>Revised Action: Assess the effects of the flood on the Circulating Water System (CWS) and identify actions to restore the system.</p>	<p>Original Deliverable: Circulating Water System (CWS) Flooding Recovery System Health Assessment report</p> <p>Revised Deliverable: Circulating Water System (CWS) Flooding Recovery Start Up System Health Assessment report</p>	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the start up system health report.
7.	<p>Original Action: Complete the Emergency Core Cooling System (ECC) Flooding Recovery System Health Assessment report</p> <p>Revised Action: Assess the effects of the flood on the Emergency Core Cooling System (ECC) and identify actions to restore the system.</p>	<p>Original Deliverable: Emergency Core Cooling System (ECC) Flooding Recovery System Health Assessment report</p> <p>Revised Deliverable: Emergency Core Cooling System (ECC) Flooding Recovery Start Up System Health Assessment report</p>	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the start up system health report.

## FCS Flooding Recovery Action Plan 2.2 System Health Assessments

2.2.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes
8.	<p>Original Action: Complete the Emergency Diesel Generator System (EDG) Flooding Recovery System Health Assessment report</p> <p>Revised Action: Assess the effects of the flood on the Emergency Diesel Generator System (EDG) and identify actions to restore the system.</p>	<p>Original Deliverable: Emergency Diesel Generator System (EDG) Flooding Recovery System Health Assessment report</p> <p>Revised Deliverable: Emergency Diesel Generator System (EDG) Flooding Recovery Start Up System Health Assessment report</p>	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the start up system health report.
9.	<p>Original Action: Complete the Electrical Distribution System (EDS) Flooding Recovery System Health Assessment report</p> <p>Revised Action: Assess the effects of the flood on the Electrical Distribution System (EDS) and identify actions to restore the system.</p>	<p>Original Deliverable: Electrical Distribution System (EDS) Flooding Recovery System Health Assessment report</p> <p>Revised Deliverable: Electrical Distribution System (EDS) Flooding Recovery Start Up System Health Assessment report</p>	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the start up system health report.
10.	<p>Original Action: Complete the Engineered Safety Features System (ESF) Flooding Recovery System Health Assessment report</p> <p>Revised Action: Assess the effects of the flood on the Engineered Safety Features System (ESF) and identify actions to restore the system.</p>	<p>Original Deliverable: Engineered Safety Features System (ESF) Flooding Recovery System Health Assessment report</p> <p>Revised Deliverable: Engineered Safety Features System (ESF) Flooding Recovery Start Up System Health Assessment report</p>	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the start up system health report.

## FCS Flooding Recovery Action Plan 2.2 System Health Assessments

2.2.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes
11.	<p>Original Action: Complete the Fuel Handling System (FHS) Flooding Recovery System Health Assessment report</p> <p>Revised Action: Assess the effects of the flood on the Fuel Handling System (FHS) and identify actions to restore the system.</p>	<p>Original Deliverable: Fuel Handling System (FHS) Flooding Recovery System Health Assessment report</p> <p>Revised Deliverable: Fuel Handling System (FHS) Flooding Recovery Start Up System Health Assessment report</p>	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the start up system health report.
12.	<p>Original Action: Complete the Fire Protection System (FPS) Flooding Recovery System Health Assessment report</p> <p>Revised Action: Assess the effects of the flood on the Fire Protection System (FPS) and identify actions to restore the system.</p>	<p>Original Deliverable: Fire Protection System (FPS) Flooding Recovery System Health Assessment report</p> <p>Revised Deliverable: Fire Protection System (FPS) Flooding Recovery Start Up System Health Assessment report</p>	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the start up system health report.
13.	<p>Original Action: Complete the Hoisting Equipment System (HES) Flooding Recovery System Health Assessment report</p> <p>Revised Action: Assess the effects of the flood on the Hoisting Equipment System (HES) and identify actions to restore the system.</p>	<p>Original Deliverable: Hoisting Equipment System (HES) Flooding Recovery System Health Assessment report</p> <p>Revised Deliverable: Hoisting Equipment System (HES) Flooding Recovery Start Up System Health Assessment report</p>	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the start up system health report.



## FCS Flooding Recovery Action Plan 2.2 System Health Assessments

2.2.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes
14.	<p>Original Action: Complete the Instrument Air System (IAS) Flooding Recovery System Health Assessment report</p> <p>Revised Action: Assess the effects of the flood on the Instrument Air System (IAS) and identify actions to restore the system.</p>	<p>Original Deliverable: Instrument Air System (IAS) Flooding Recovery System Health Assessment report</p> <p>Revised Deliverable: Instrument Air System (IAS) Flooding Recovery Start Up System Health Assessment report</p>	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the start up system health report.
15.	<p>Original Action: Complete the Main Feedwater System (MFW) Flooding Recovery System Health Assessment report</p> <p>Revised Action: Assess the effects of the flood on the Main Feedwater System (MFW) and identify actions to restore the system.</p>	<p>Original Deliverable: Main Feedwater System (MFW) Flooding Recovery System Health Assessment report</p> <p>Revised Deliverable: Main Feedwater System (MFW) Flooding Recovery Start Up System Health Assessment report</p>	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the start up system health report.
16.	<p>Original Action: Complete the Reactor Coolant System (RCS) Flooding Recovery System Health Assessment report</p> <p>Revised Action: Assess the effects of the flood on the Reactor Coolant System (RCS) and identify actions to restore the system.</p>	<p>Original Deliverable: Reactor Coolant System (RCS) Flooding Recovery System Health Assessment report</p> <p>Revised Deliverable: Reactor Coolant System (RCS) Flooding Recovery Start Up System Health Assessment report</p>	Revised the action statement to clarify the purpose of the initial System Health Assessments. Revised the deliverable to specify the start up system health report.

## FCS Flooding Recovery Action Plan 2.2 System Health Assessments

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

## FCS Flooding Recovery Action Plan 2.2 System Health Assessments

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

## FCS Flooding Recovery Action Plan 2.2 System Health Assessments

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

## FCS Flooding Recovery Action Plan 2.2 System Health Assessments

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

## FCS Flooding Recovery Action Plan 2.2 System Health Assessments

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

## FCS Flooding Recovery Action Plan 2.2 System Health Assessments

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

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

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

## FCS Flooding Recovery Action Plan 2.3

### Wetted Motor Damage Assessment and Restoration

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

<b>ISSUE DEFINITION:</b>
Flooding conditions may have wetted and degraded plant electric motors.

<b>OBJECTIVE:</b>
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
1	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.



## FCS Flooding Recovery Action Plan 2.3

### Wetted Motor Damage Assessment and Restoration

2.3.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes
3.	<p>Original Action: Evaluate if water has gotten in contact with bearings.</p> <p>Revised Action: Evaluate if water has gotten in contact with bearings.</p> <p>CW-1A-M CW-1B-M CW-1C-M</p>	<p>Predictive Maintenance Group to evaluate sampled oil test results for water contamination</p>	<p>Revised action to include only the affected equipment tag numbers per results of action 2.3.1.1.</p>
4.	<p>Original Action: Refurbish motor if water contamination is present in oil. Replace motor in whole is an additional option.</p> <p>Revised Action: None</p>	<p>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</p> <p>Revised Deliverable: None</p>	<p>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.</p>
5.	<p>Original Action: Perform visual and boroscope inspection of motor internals (to include termination box) looking for silt, pools of water, corrosion, etc.</p> <p>Revised Action: Perform visual and boroscope inspection of motor internals (to include termination box) looking for silt, pools of water, corrosion, etc.</p> <p>CW-1A-M CW-1B-M</p>	<p>Completed maintenance work documents. Visual inspection looking for internal contamination and degradation</p>	<p>Revised action to include only the affected equipment tag numbers per results of action 2.3.1.1.</p>

## FCS Flooding Recovery Action Plan 2.3

### Wetted Motor Damage Assessment and Restoration

2.3.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes
	CW-1C-M		
6.	<p>Original Action: Evaluate visual inspection results for possible actions (removal of moisture, cleaning, refurbishment of motor)</p> <p>Revised Action: Evaluate visual inspection results for possible actions (removal of moisture, cleaning, refurbishment of motor)</p> <p>CW-1A-M CW-1B-M CW-1C-M</p>	<p>Condition reports and/or Work Request will be generated for actions needed based on visual inspection results</p>	<p>Revised action to include only the affected equipment tag numbers per results of action 2.3.1.1.</p>
7.	<p>Original Action: If bearings are in good condition and motor is visibly in good condition, Static Test Motor (resistive balance, megger, PI).</p> <p>Revised Action: None</p>	<p>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)</p> <p>Revised Deliverable: None</p>	<p>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.</p>
8.	<p>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</p> <p>Revised Action: None</p>	<p>Original Deliverable: Completed maintenance work documents</p> <p>Revised Deliverable: None</p>	<p>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.</p>

## FCS Flooding Recovery Action Plan 2.3

### Wetted Motor Damage Assessment and Restoration

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.

## FCS Flooding Recovery Action Plan 2.3 Wetted Motor Damage Assessment and Restoration

2.3.1 Short-Term Actions (Prior To RCS >210°F)			
#	Action	Deliverable	Description of Changes
14.	Original Action: Remove degraded motor  Revised Action: Remove degraded motor pump assembly  DW-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.
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  Revised Action: Post Maintenance Testing of motor pump assembly.DW-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.

## FCS Flooding Recovery Action Plan 2.3 Wetted Motor Damage Assessment and Restoration

2.3.2 Short-Term Actions (Prior To Reactor Critical)			
#	Action	Deliverable	Description of Changes
1.	<p>Original Action: Refurbish motor if water contamination is present in oil. Replace motor in whole is an additional option.</p> <p>Revised Action: Refurbish motor if water contamination is present in oil. [CW-1A-M (PO167480), CW-1C-M (PO166728)]</p>	<p>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.</p> <p>Revised Deliverable: Completed maintenance work documents.</p>	<p>Moved from 2.3.1.4</p> <p>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.</p> <p>Revised Deliverable to delete the option of utilizing a new motor.</p>
2.	<p>Original Action: If bearings are in good condition and motor is visibly in good condition, Static Test Motor (resistive balance, megger, PI).</p> <p>Revised Action: If bearings are in good condition and motor is visibly in good condition, Static Test Motor (resistive balance, megger, PI).</p> <p>CW-1A-M CW-1B-M CW-1C-M</p>	<p>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)</p>	<p>Moved from 2.3.1.7</p> <p>Revised action to include only the affected equipment tag numbers per results of action 2.3.1.1.</p>

## FCS Flooding Recovery Action Plan 2.3 Wetted Motor Damage Assessment and Restoration

2.3.2 Short-Term Actions (Prior To Reactor Critical)			
#	Action	Deliverable	Description of Changes
3.	<p>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</p> <p>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</p> <p>CW-1A-M CW-1B-M CW-1C-M</p>	Completed maintenance work documents	<p>Moved from 2.3.1.8</p> <p>Revised action to include only the affected equipment tag numbers per results of action 2.3.1.1.</p>
4.	<p>If Action 2.3.2.3 is SAT, change lower bearing oil.</p> <p>CW-1B-M</p>	Completed maintenance work documents	<b>New action</b>

2.3.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
1.	<p>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)</p> <p>Revised Action: None</p>	<p>Original Deliverable: Completed maintenance work documents</p> <p>Revised Deliverable: None</p>	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

<b>FOCUS AREA:</b>	Long Term Equipment Reliability
<b>ACTION PLAN:</b>	Engineering Program Reviews
<b>ACTION PLAN NUMBER:</b>	3.1

<b>ISSUE DEFINITION:</b>
Review all Engineering Programs and determine if flood recovery plans are needed for each program.

<b>OBJECTIVE:</b>
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

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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

<b>FOCUS AREA:</b>	Long Term Equipment Reliability
<b>ACTION PLAN:</b>	Underground Cable Assessment
<b>ACTION PLAN NUMBER:</b>	3.2

<b>ISSUE DEFINITION:</b>
Flooded cable manholes and vaults have subjected cables to conditions which may have impacted cable function and/or reliability.

<b>OBJECTIVE:</b>
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
1	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.	<p><b>Original Action:</b> Test Maintenance Rule Low Voltage Control and Instrumentation Cables subjected to wetting / submergence</p> <p><b>Revised Action:</b> Test representative sample of Maintenance Rule Low Voltage Control and Instrumentation Cables subjected to wetting/submergence</p>	<p><b>Original Deliverable:</b> 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</p> <p><b>Revised Deliverable:</b> Completed Work Order(s) and Test Analysis Report.</p>	<p>Action was revised to reflect the testing of a representative sample population which was recommended in the deliverable.</p> <p>Deliverable was changed to "Completed Work Order(s) and Test Analysis Report".</p>
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)	<b>New action</b>

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

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

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

<b>ISSUE DEFINITION:</b>
Flooding conditions and temporary mitigation measures may have degraded underground piping and tanks.

<b>OBJECTIVE:</b>
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
1	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 plan 4.1 resolves any operability issues.

## FCS Flooding Recovery Action Plan 3.3 Underground Piping and Tanks Assessment

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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.	<b>New action</b>

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

## FCS Flooding Recovery Action Plan 4.1 Plant and Facility Geotechnical and Structural Assessment

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

<b>ISSUE DEFINITION:</b>
Flooding may have negatively affected the functionality of existing structures.

<b>OBJECTIVE:</b>
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
<b>Planning and Logistics Activities:</b>			
1.	Original Action: Establish assessment requirements  Revised Action: None	Original Deliverable: Assessment requirements defined  Revised Deliverable: None	Close by consolidating into action 4.1.1.7 (Priority 1 proposal)
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

## FCS Flooding Recovery Action Plan 4.1 Plant and Facility Geotechnical and Structural Assessment

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: Detailed scope and schedule proposal for priority 1 structures.	Revised deliverable to more accurately reflect its content
8.	Prepare draft report document plan and outline	Draft report document plan and outline.	No changes
<b>Data Acquisition</b>			
9.	Acquire historical geotechnical and structural data	Data acquired.	No changes
10.	Create shareable database	Database shareable by OPPD and HDR staff.	No changes
<b>Class 1 Priority 1 Structures Evaluation and Analysis (See Attachment A)</b>			
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  Revised Action: None	Original Deliverable: Field reports  Revised Deliverable: None	Close by consolidation into action 4.1.1.16 (Create report of findings)
14.	Original Action: Assess post-inundation condition of structures	Original Deliverable: Post inundation condition report. Successor to AI 13	Close by consolidation into action 4.1.1.16 (Create report of findings)

## FCS Flooding Recovery Action Plan 4.1 Plant and Facility Geotechnical and Structural Assessment

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 AI 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	Clarified deliverable
		Revised Deliverable: HDR Geotechnical-Structural Assessment Summary Report Revision 0	
17.	Review findings and recommendations with OPPD and document results	Meetings and documentation	No changes
<b>Non-Class 1 Priority 1 Structures Evaluation and Analysis</b> (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		



## FCS Flooding Recovery Action Plan 4.1 Plant and Facility Geotechnical and Structural Assessment

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.	<b>New action</b>
27.	Perform follow-on field inspection and testing.	Complete on-site testing and inspection activities.	<b>New action</b>
28.	Resolve remaining non-class 1 open issues as necessary based on follow on testing report.	Document follow-on inspection and testing plan results	<b>New action</b>
29.	Update Geotechnical-Structural Assessment Summary Report based on results of follow-on inspection and	HDR Geotechnical-Structural Assessment Summary Report Revision 1	<b>New action</b>

## FCS Flooding Recovery Action Plan 4.1 Plant and Facility Geotechnical and Structural Assessment

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.	EC-55000 to allow follow on geotechnical testing that will involve core drilling in the Auxiliary Building floor slab.	Completed EC package to allow field testing in Class 1 structures to define the boundary of loose soil area identified under the Turbine Building	New action
32.	Remediation of the Turbine Building and Class 1 Structure void.	Completed remediation of the Turbine Building and Class 1 structure void (if required).	New action

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
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 Evaluation and Analysis (See Attachment A)		

## FCS Flooding Recovery Action Plan 4.1 Plant and Facility Geotechnical and Structural Assessment

4.1.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
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  Revised Action: None	Original Deliverable: Post inundation condition report  Revised Deliverable: None	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.
7.	Review findings and recommendations with OPPD and document results	Meetings and documentation	No changes
<b>Reports and Submittals:</b>			

## FCS Flooding Recovery Action Plan 4.1 Plant and Facility Geotechnical and Structural Assessment

4.1.3 Long-Term Actions			
#	Action	Deliverable	Description of Changes
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.
9.	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.	<b>New action</b>

### 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
- Rad Waste Building
- Technical Support Center

##### Non-Class 1 Structures Inside Protected Area

- Security Building
- Turbine Building
- Security BBREs

## FCS Flooding Recovery Action Plan 4.1

### Plant and Facility Geotechnical and Structural Assessment

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- 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

## FCS Flooding Recovery Action Plan 4.1

### Plant and Facility Geotechnical and Structural Assessment

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- 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

## FCS Flooding Recovery Action Plan 4.2 External Flooding Barrier Configuration

<b>FOCUS AREA:</b>	Design and Licensing Basis
<b>ACTION PLAN:</b>	External Flooding Barrier Configuration
<b>ACTION PLAN NUMBER:</b>	4.2

<b>ISSUE DEFINITION:</b>
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.

<b>OBJECTIVE:</b>
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

## FCS Flooding Recovery Action Plan 4.2

### External Flooding Barrier Configuration

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



## FCS Flooding Recovery Action Plan 4.2

### External Flooding Barrier Configuration

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	<b>New action</b>
9.	Identify design solution to MH-31 degraded conduit seals (CR 2011-6999)	Engineering Change Package to address degraded conduit seals.	<b>New action</b>
10.	Repair MH-31 conduits	Completed work orders documenting repairs performed.	<b>New action</b>

## FCS Flooding Recovery Action Plan 4.2

### External Flooding Barrier Configuration

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

<b>FOCUS AREA:</b>	Design and Licensing Basis
<b>ACTION PLAN:</b>	Station Design Configuration Control
<b>ACTION PLAN NUMBER:</b>	4.3

<b>ISSUE DEFINITION:</b>
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.

<b>OBJECTIVE:</b>
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
1	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

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

<b>ISSUE DEFINITION:</b>
Flooding conditions and power cut offs have made sirens 1, 69, 75, 76, 135, 143, 257, 259, and 260 non-functional.

<b>OBJECTIVE:</b>
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  Revised Action: None	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 kits have been received and inspected.  Revised Deliverable: None	Close. 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
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  Revised Action: None	Original Deliverable: Written approval by FEMA or a FEMA approved plan for restoration based on infrastructure or resident restoration  Revised Deliverable: None	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).
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

<b>FOCUS AREA:</b>	Emergency Planning
<b>ACTION PLAN:</b>	Field Monitoring and Post Accident Environmental Monitoring
<b>ACTION PLAN NUMBER:</b>	5.2

<b>ISSUE DEFINITION:</b>
Performing fielding monitoring and environmental sampling in flood affected sectors or through roads closed by flooding.

<b>OBJECTIVE:</b>
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 Iowa	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

## FCS Flooding Recovery Action Plan 5.3

### Assessment of Offsite Emergency Response Following a Natural Disaster

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

<b>ISSUE DEFINITION:</b>
Assess the capabilities of the offsite emergency response to respond to a radiological emergency.

<b>OBJECTIVE:</b>
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	<p>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.</p> <p>Revised Deliverable: Perform normal testing per EPT-21.</p>	Removed status information

## FCS Flooding Recovery Action Plan 5.3

### Assessment of Offsite Emergency Response Following a Natural Disaster

5.3.2 Short-Term Actions (Prior To Reactor Critical)			
#	Action	Deliverable	Description of Changes
2.	Perform normal communications testing	<p>Original Deliverable: Perform normal testing per EPT-5 and EPT-6. Last was completed 7/28/2011 (EPT-5 &amp; EPT-6) satisfactory. Test results will support EPDM-20 documentation EPT-5 &amp; 6 are monthly tests were completed last on 7/28/11.</p> <p>Revised Deliverable: Perform normal testing per EPT-5 and EPT-6.</p>	Removed status information
3.	<p>Original Action: Restore area radiation monitors</p> <p>Revised Action: None</p>	<p>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.</p> <p>Revised Deliverable: None</p>	No action required, radiation monitors were not affected by flooding.
4.	<p>Original Action: Ensure effluent radiation monitors are functional</p> <p>Revised Action: None</p>	<p>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.</p> <p>Revised Deliverable: None</p>	No action required, radiation monitors were not affected by flooding.

## FCS Flooding Recovery Action Plan 5.3

### Assessment of Offsite Emergency Response Following a Natural Disaster

5.3.2 Short-Term Actions (Prior To Reactor Critical)			
#	Action	Deliverable	Description of Changes
5.	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

## FCS Flooding Recovery Action Plan 5.3

### Assessment of Offsite Emergency Response Following a Natural Disaster

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.

## FCS Flooding Recovery Action Plan 5.3

### Assessment of Offsite Emergency Response Following a Natural Disaster

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.

## FCS Flooding Recovery Action Plan 5.3

### Assessment of Offsite Emergency Response Following a Natural Disaster

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  Revised Action: None	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).
19.	Obtain statement of reasonable assurance from FEMA	Letter from FEMA to NRC documenting Statement of Reasonable Assurance	<b>New action</b>

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.  Revised Deliverable: Inspect all offsite monitoring locations to ensure accessibility.	Change to clarify the action needed.

## FCS Flooding Recovery Action Plan 5.4 Onsite Facility and Equipment Restoration

<b>FOCUS AREA:</b>	Emergency Planning
<b>ACTION PLAN:</b>	Onsite Facility and Equipment Restoration
<b>ACTION PLAN NUMBER:</b>	5.4

<b>ISSUE DEFINITION:</b>
Assess the capabilities of the onsite emergency response facilities and equipment for a radiological emergency.

<b>OBJECTIVE:</b>
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**

## Removed FCS Flooding Recovery Action Plan 1.3 Bus 1B4A Restoration and Extent of Condition Actions

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

<b>ISSUE DEFINITION:</b>
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.

<b>OBJECTIVE:</b>
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

## Removed FCS Flooding Recovery Action Plan 1.3 Bus 1B4A Restoration and Extent of Condition Actions

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
6.	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

## Removed FCS Flooding Recovery Action Plan 1.3 Bus 1B4A Restoration and Extent of Condition Actions

1.3.1 Short-Term 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

## Removed FCS Flooding Recovery Action Plan 1.3 Bus 1B4A Restoration and Extent of Condition Actions

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

## Removed FCS Flooding Recovery Action Plan 1.3 Bus 1B4A Restoration and Extent of Condition Actions

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 1B4A to 1B3A-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

## Removed FCS Flooding Recovery Action Plan 1.3 Bus 1B4A Restoration and Extent of Condition Actions

1.3.1 Short-Term 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 1B4A 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.



## Removed FCS Flooding Recovery Action Plan 1.3 Bus 1B4A Restoration and Extent of Condition Actions

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

## Removed FCS Flooding Recovery Action Plan 1.3 Bus 1B4A Restoration and Extent of Condition Actions

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.)

## Removed FCS Flooding Recovery Action Plan 1.3 Bus 1B4A Restoration and Extent of Condition Actions

1.3.1 Short-Term 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 AI 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/A			

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

## Removed FCS Flooding Recovery Action Plan – 3.4 I&C Power Supply Service Life Assessment

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

<b>ISSUE DEFINITION:</b>
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.

<b>OBJECTIVE:</b>
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

## Removed FCS Flooding Recovery Action Plan – 3.4 I&C Power Supply Service Life Assessment

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

## Removed FCS Flooding Recovery Action Plan – 3.4 I&C Power Supply Service Life Assessment

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

## Removed FCS Flooding Recovery Action Plan – 3.4 I&C Power Supply Service Life Assessment

3.4.2 Short-Term Actions (Prior To Reactor Critical)				
#	Action	Lead Group	Owner	Deliverable
6.	<p>Determine the recommended service life for CQE power supplies based on analyses performed earlier in this action plan</p> <p>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</p>	Engineering Programs	Ravi Tella	Excel list with manufacturer and model number and recommended service lives for each CQE power supply

## Removed FCS Flooding Recovery Action Plan – 3.4 I&C Power Supply Service Life Assessment

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.	<p>Document the time based replacement strategy and basis for CQE and RPS power supplies</p> <p>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 recommended service life defined</p>	Engineering Programs	Ravi Tella	Word and Excel documents defining the time based replacement strategy and basis



## Removed FCS Flooding Recovery Action Plan – 3.4 I&C Power Supply Service Life Assessment

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.

## Removed FCS Flooding Recovery Action Plan – 3.4 I&C Power Supply Service Life Assessment

3.4.3 Long-Term Actions				
#	Action	Lead Group	Owner	Deliverable
1.	<p>Complete the development of the ER Strategy for CQE power supplies</p> <p>This action will include all tasks to be performed and basis for those tasks and PM Change Requests for any PM changes</p>	Engineering Programs	Ravi Tella	<p>Fully developed ER Strategy loaded into IQReview (software)</p> <p>PM Change Requests (FC-1065) for PM Changes</p>
2.	<p>Implement PM Change Requests by changing PMs in Asset Suite</p> <p>Validate PM Changes in Asset Suite to be correct</p>	Engineering Programs	Ravi Tella	PMs changed. PM Change Requests (FC-1065) verified to be closed accurately
3.	Schedule new and revised PMs	Engineering Programs	Ravi Tella	PMs scheduled in Asset Suite

## Removed FCS Flooding Recovery Action Plan 4.4 External Flood Design Basis Review

<b>FOCUS AREA:</b>	Design and Licensing Basis
<b>ACTION PLAN:</b>	External Flood Design Basis Review
<b>ACTION PLAN NUMBER:</b>	4.4

<b>ISSUE DEFINITION:</b>
The station design basis needs to be reviewed with respect to the 2011 flood event to determine if changes to the design basis are appropriate based on lessons learned regarding flood character.

<b>OBJECTIVE:</b>
Determine if the station flood design basis is adequate to maintain nuclear safety and protect the health and safety of the public. Based on the conclusion of the assessment revise design basis, processes and procedures as appropriate.

4.4.1 Short-Term Actions (Prior To RCS >210°F)				
#	Action	Lead Group	Owner	Deliverable
	N/A			

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

## Removed FCS Flooding Recovery Action Plan 4.4 External Flood Design Basis Review

4.4.3 Long-Term Actions				
#	Action	Lead Group	Owner	Deliverable
1	Gather flood response lessons learned through CR reviews to determine if procedure or strategy changes should be implemented.	DEN	Hyde	Recommended process and strategy changes
2	Review Flood Design Basis and determine if the 2011 flood event provides additional information that should drive design basis changes	DEN	Hyde	The external flooding design basis document was prepared as a result of action assignments in CR 2010-2387. This DBD has been under examination throughout the 2011 flood event. Further review will be conducted to determine if design basis changes are warranted
3	Implement procedure and strategy changes as indicated by the lessons learned review conducted above.	DEN	Hyde	This is similar to action item 39 of level A CR 2010-2387 which requires implementation of enhanced external flooding procedures. This action item is due 12/09/2011  This action is being driven by responses to CRs from the flooding event.
4	Gather all information from lessons learned during 2011 flood event	DEN	Hyde	Comprehensive collection of lessons learned assembled in a table

## Removed FCS Flooding Recovery Action Plan 4.4 External Flood Design Basis Review

4.4.3 Long-Term Actions				
#	Action	Lead Group	Owner	Deliverable
5	Not Used			
6	Site expert panel to review lessons learned information	DEN	Hyde	Confirmed assessment table and additional actions.
7	Specify assumed flood duration in strategy portion of External Flood DBD	DEN	Hyde	Revised PLDBD-CS-56.
8	Establish plan for periodic review of US Army Corps of Engineer Master Plan to ensure External Flood DBD strategy remains current.	DEN	Hyde	Administrative task established to drive periodic review of USACE Master Plan.
9	Develop strategies for beyond design basis flooding	DEN	Hyde	Draft Strategy Guideline.

## Removed FCS Flooding Recovery Action Plan 4.5 High Energy Line Break Remediation

<b>FOCUS AREA:</b>	Design and Licensing Basis
<b>ACTION PLAN:</b>	High Energy Line Break Remediation
<b>ACTION PLAN NUMBER:</b>	4.5

<b>ISSUE DEFINITION:</b>
The reconstitution of the Electrical Equipment Qualification (EEQ) program involved a re-analysis of high energy lines to current industry standards. The High Energy Line Break (HELB) analyses have determined that there are some systems that require modification to prevent new harsh environments and some that result in new harsh environments.

<b>OBJECTIVE:</b>
This action plan addresses analysis and configuration change work to be performed to address the HELB concerns.

4.5.1 Short-Term Actions (Prior To RCS >210°F)				
#	Action	Lead Group	Owner	Deliverable
1	90% SMART Review of EC 53202; FW-10 Steam Line HELB Modification	DEN	Swearngin	EC 53202 SMART review comments developed and provided to DEN  Closed to final action 4.5.1.3 (PRC Review of EC 53202; FW-10 Steam Line HELB Modification). SMART reviews are an interim part of the approval process.
2	Final SMART Review of EC 53202; FW-10 Steam Line HELB Modification	DEN	Swearngin	SMART approval of EC 53202  Closed to final action 4.5.1.3 (PRC Review of EC 53202; FW-10 Steam Line HELB Modification). SMART reviews are an interim part of the approval process.
3	PRC Review of EC 53202; FW-10 Steam Line HELB Modification	DEN	Swearngin	PRC Approval of EC 53202

## Removed FCS Flooding Recovery Action Plan 4.5 High Energy Line Break Remediation

4.5.1 Short-Term Actions (Prior To RCS >210°F)				
#	Action	Lead Group	Owner	Deliverable
4	Develop Construction Work Orders for EC 53202; FW-10 Steam Line HELB Modification	Construction	Allen	Approved Construction Work Orders  Closed to final action 4.5.1.5 (Complete installation of EC 53202; FW-10 Steam Line HELB Modification). This is an interim step in installation of the EC.
5	Complete installation of EC 53202; FW-10 Steam Line HELB Modification	Construction	Allen	OPSAC of EC 53202
6	Prepare EC 52662; Add a new Pipe Support on the SGBD vertical line above FW-1020	DEN	Swearngin	EC 52662 issued to plant
7	Install EC 52662; Add a new Pipe Support on the SGBD vertical line above FW-1020	Construction	Allen	OPSAC of EC 52662
8	Complete EEQ Harsh Environment analysis for Room 13 crack in Steam Generator Blowdown system	Engineering Programs	Shudak	Analysis is complete
9	Develop plan to address Room 13 EEQ harsh environment qualification of electrical equipment	DEN	Sterba	Completed Action Plan with timeline for resolution  Close to actions 4.5.1.16 thru 4.5.1.36 that resolve the identified issues.

## Removed FCS Flooding Recovery Action Plan 4.5 High Energy Line Break Remediation

4.5.1 Short-Term Actions (Prior To RCS >210°F)				
#	Action	Lead Group	Owner	Deliverable
1	Initiate actions to resolve Room 13 EEQ harsh environment qualification of equipment which must be addressed prior to leaving cold shutdown	DEN	Sterba	Maintenance work orders written and ECs developed  Close to actions 4.5.1.16 thru 4.5.1.36 that resolve the identified issues.
1	Resolve Room 13 EEQ harsh environment qualification of equipment which must be addressed prior to leaving cold shutdown	Maintenance	Uehling	Work orders complete and ECs implemented  Close to actions 4.5.1.16 thru 4.5.1.36 that resolve the identified issues.
1	Perform analysis to address HCV-1385/1386 Main Steam Line Break/Feedwater isolation concern (CR 2011-6757)	DEN	Mathew	Completed analysis
1	Implement resolution of HCV-1385/1386 Main Steam Line Break/Feedwater isolation concern	DEN	Swearngin	Engineering Changes implemented



## Removed FCS Flooding Recovery Action Plan 4.5 High Energy Line Break Remediation

4.5.1 Short-Term Actions (Prior To RCS >210°F)				
#	Action	Lead Group	Owner	Deliverable
1	Perform HELB analysis of Auxiliary Steam piping in the auxiliary building	DEN	Mathew	Completed analysis  Closed to 4.5.2.1 (Perform HELB analysis of Auxiliary Steam piping in the auxiliary building). Auxiliary Steam can be isolated to the Auxiliary Building prior to plant heatup and startup.
1	Implement resolution of Auxiliary Steam piping in the auxiliary building	DEN	Mathew	Engineering Changes implemented (OPSAC complete)  Closed to 4.5.3.5 (Develop EC 53958 to prevent harsh areas resulting from Auxiliary Steam System) and 4.5.3.6 (Implement EC 53958 to prevent harsh areas resulting from the Auxiliary Steam system). Auxiliary Steam can be isolated to the Auxiliary Building prior to plant heatup and startup.
1	Implement EC's to address HCV-1105/1106 qualification for FW isolation	Construction	Dailey	Completed work order and OPSAC (if required)
1	Prepare EC to replace VA-63A-M and VA-63B-M	DEN	Smidt/Jorgensen	EC Issued
1	Implement EC to replace VA-63A-M and VA-63B-M	Construction	Dailey	Completed work order and OPSAC (if required)
1	Prepare EC 53866 for SGBD isolation based on A SGBD pipe break in Room 13	DEN	Sterba	Engineering Change package, EC53866.

## Removed FCS Flooding Recovery Action Plan 4.5 High Energy Line Break Remediation

4.5.1 Short-Term Actions (Prior To RCS >210°F)				
#	Action	Lead Group	Owner	Deliverable
2	Implement EC 53866 to provide SGBD isolation based on pipe break in Room 13	Construction	Dailey	Completed work order and OPSAC (if required)
2	Prepare EC 54243; FQ-236, FT-236 to be relocated to AI-100 (EC 54243)	DEN	Sterba	Engineering change package
2	Implement EC 54243 to relocate FQ-236 and FT-236	Construction	Dailey	Completed work order and OPSAC (if required)
2	Prepare EC; HCV-1041/1042 – Room 81, install additional isolation fuses	DEN	Sterba	Engineering change package
2	Implement EC to install isolation fuses EEQ MEL concern	Construction	Dailey	Completed work order and OPSAC (if required)
2	Prepare EC 54245 to install isolation fuses for PIC-242, 243, 244	DEN	Sterba	EC Issued
2	Implement EC 54245 to install isolation fuses for PIC-242, 243, 244	Construction	Andersen	Completed work order and OPSAC (if required)
2	Prepare EC 54246 to replace PCS-2937, 2947	DEN	Sterba	EC issued. (EC 54246).

## Removed FCS Flooding Recovery Action Plan 4.5 High Energy Line Break Remediation

4.5.1 Short-Term Actions (Prior To RCS >210°F)				
#	Action	Lead Group	Owner	Deliverable
2	Implement EC to replace or qualify PCS-2937, 2947	Construction	Andersen	Completed work order to install EC. CWO 428164-6
2	Prepare EC to replace TE-6683-2, 6683-3, 6684-2, 6684-3	DEN	Sterba	EC package issued.
3	Implement EC to replace TE-6683-02, 6681-3, 6684-2, 6684-3	Construction	Dailey	Completed work order and OPSAC (if required)
3	Prepare EC to replace/rewind VA-40A, 40B, 40C motors	DEN	Sterba	EC package prepared
3	Implement EC 54554 to replace VA-40A, 40B, 40C motors	Construction	Dailey	Completed work order and OPSAC (if required)
3	Prepare EC 54554 to replace HCV-1042C-O with class RH insulation motor	DEN	Sterba	EC 52116 Issued
3	Implement EC to replace HCV-1042C-O	Construction	Dailey	Completed work order and OPSAC (if required)
3	Prepare EC 54428 to replace diodes (CR 11-8772).	DEN	Sterba	EC package issued.
3	Implement EC54428 to replace diodes	Construction	Dailey	Completed work order and OPSAC (if required)

## Removed FCS Flooding Recovery Action Plan 4.5 High Energy Line Break Remediation

4.5.1 Short-Term Actions (Prior To RCS >210°F)				
#	Action	Lead Group	Owner	Deliverable
3	Perform Radiation Analysis to evaluate streaming affects and point-specific calculations	DEN	Swearngin	Complete Engineering Analysis
3	Identify actions for startup issues for radiation – only areas as identified in CR 2011-7462.	Programs	Smidt/Jorgensen	Recommendations for additional actions
3	Complete Engineering review of EA 08-11; EEQ Master Equipment List	DEN	Sterba	Preliminary Engineering Analysis and final disposition of EEQ Master Equipment List to support plant startup.
4	Complete engineering review of EA 06-032; EEQ Environmental Parameters	DEN	Swearngin	Review and disposition engineering analysis to support plant startup
4	Complete EA 11-037; HELB Analysis	DEN	Mathew	Completed Engineering Analysis
4	Perform Owner Acceptance Review of EA 11-038; RG 1.97 Compliance	DEN	Sterba	Completed Engineering Analysis
4	Perform Owner Acceptance Review of EA 11-041; Ambient Temperature Analysis	DEN	Swearngin	Completed Engineering Analysis, Rev 0

## Removed FCS Flooding Recovery Action Plan 4.5 High Energy Line Break Remediation

4.5.1 Short-Term Actions (Prior To RCS >210°F)				
#	Action	Lead Group	Owner	Deliverable
4	Evaluate Room 81 components due to MSLB analysis requiring survivability to 370 degrees F	Programs	Smidt/Jorgensen	Completed Engineering Analysis
4	Perform Engineering Analysis to demonstrate qualification of new components added to EEQ MEL. CR 2011-7463	Programs	Smidt/Jorgensen	Completed Engineering analysis EA 11-046.
4	Establish resolution of EEQ MEL components that require some form of remediation	Programs	Smidt/Jorgensen	Condition Reports documenting results of evaluations, initiation of Engineering Changes, new action plan items.
4	Identify components that would exceed qualified life per EA 11-041	Programs	Smidt	WRs placed in RFO scope to replace identified components.
4	Implement replacement of components per EA 11-041.	Maintenance	Uehling	Completed component replacement.
4	Revise EEQ Program documents to remove need for 4.5.1-17/18	Programs	Smidt/Jorgensen	Revised program documents

## Removed FCS Flooding Recovery Action Plan 4.5 High Energy Line Break Remediation

4.5.1 Short-Term Actions (Prior To RCS >210°F)				
#	Action	Lead Group	Owner	Deliverable
5	Prepare EC 55210 to replace PS-1107B and PS-1108B.	DEN	Sterba	Completed Engineering Change Package.
5	Implement EC 55210 to replace PS-1107B and PS-1108B.	Construction	TBD	Completed work order and OPSAC (if required).

4.5.2 Short-Term Actions (Prior To Reactor Critical)				
#	Action	Lead Group	Owner	Deliverable
1.	Perform HELB analysis of Auxiliary Steam piping in the auxiliary building.	DEN	Mathew	Completed analysis
2.	Not Used			
3.	Not Used			
4.	Update EEQ Harsh Files	Programs	Jorgensen/Smidt	Updated Harsh Files

4.5.3 Long-Term Actions				
#	Action	Lead Group	Owner	Deliverable
1.	Complete EA 10-020 Owner Acceptance Review	DEN	Swearngin	Completed Engineering Analyses.
2.	Complete EA 06-032 Owner Acceptance Review.	DEN	Swearngin	Completed Engineering Analysis.

## Removed FCS Flooding Recovery Action Plan 4.5 High Energy Line Break Remediation

4.5.3 Long-Term Actions				
#	Action	Lead Group	Owner	Deliverable
3.	Complete EA 08-011 Owner Acceptance Review	DEN	Sterba	Completed Engineering Analysis.
4.	Develop enhanced design bases document and/or Program Bases Document for EEQ program	Programs	Smidt/Jorgensen	Comprehensive description of the FCS EEQ program
5.	Develop EC 53958 to prevent harsh areas resulting from Auxiliary Steam System	DEN	Swearngin	Engineering Changes approved. (EC 53958)
6.	Implement EC 53958 to prevent harsh areas resulting from the Auxiliary Steam system	Construction	Dailey	Completed work order and OPSAC (if required)

## Removed FCS Flooding Recovery Action Plan 4.6 Design Resolution Items

<b>FOCUS AREA:</b>	Design and Licensing Basis
<b>ACTION PLAN:</b>	Design Resolution Items
<b>ACTION PLAN NUMBER:</b>	4.6

<b>ISSUE DEFINITION:</b>
Significant Design Issues which require resolution prior to plant startup and are not covered in other Recovery Plan are identified in this Action Plan. Items are considered to be significant issues if they require a large amount of resource to resolve or could pose a challenge to the timely completion of the Recovery.

<b>OBJECTIVE:</b>
This action plan tracks the resolution of significant design issues.

4.6.1 Short-Term Actions (Prior To RCS >210°F)				
#	Action	Lead Group	Owner	Deliverable
1.	Address concerns identified with the Reactor Coolant Pump oil collection system	DEN	Swearngin	Complete CR 2011-6631 corrective actions to address RCP oil collection system  Closed to specific action 4.6.1.8 (Reactor Coolant pump oil collection system brazed joint rework. CR 2011-6631)
2.	Address non-conservative 161 kV minimum voltage to support operation of a main feedwater pump in an SIAS-only scenario (CR 2011-6725)	DEN	Sterba	EA-FC-92-081; OPLS setpoint analysis update and recommendations for setpoint changes



## Removed FCS Flooding Recovery Action Plan 4.6 Design Resolution Items

4.6.1 Short-Term Actions (Prior To RCS >210°F)				
#	Action	Lead Group	Owner	Deliverable
3.	Provide analysis of Steam Generator accident ring (CR 2011-6825)	DEN	Swearngin	Engineering Analysis provided by Westinghouse and recommendation for additional supports
4.	Provide analysis to address LTOP PORV concern (CR 2011-7164)	Den	Swearngin	Engineering analysis to evaluate adequacy of PORV supports during water-solid conditions.
5.	1B3A tripping during 1B4A bus fire (CR 2011-6621)	DEN	Sterba	Root Cause Analysis approved by Station CARB.
6.	Not Used			
7.	CCW thermal analysis by Stevenson & Associates identified the need for support modification for several CCW system supports in containment ( <b>Cr 2011-7938</b> ).	DEN	Swearngin	A new reportability is assigned to address this issue
8.	Reactor Coolant pump oil collection system brazed joint rework. CR 2011-6631	Maintenance	Uehling	Completed work order packages WO 425667.
9.	Not Used			

## Removed FCS Flooding Recovery Action Plan 4.6 Design Resolution Items

4.6.1 Short-Term Actions (Prior To RCS >210°F)				
#	Action	Lead Group	Owner	Deliverable
10	Main steam piping analysis; seismic anchor movement and break anchor movements to be included in analysis (CR 2011-7939)	DEN	Swearngin	Reportability Evaluation.
11	Develop EC scope to allow removal of interconnecting 480 volt buswork when RCS above 300F (address 1B3A tripping CR 2011-6621)	DEN	Sterba	EC scope statement.
12	Develop EC 54429 to address interconnecting 480 volt buswork (address 1B3A tripping CR 2011-6621)	DEN	Sterba	EC in ACTIVE status.
13	Identify solution to address load shed of Spent Fuel Pool Cooling pumps during accident conditions (CR 2011-4725)	DEN	Sterba	EC scope statement or procedure change.

## Removed FCS Flooding Recovery Action Plan 4.6 Design Resolution Items

4.6.1 Short-Term Actions (Prior To RCS >210°F)				
#	Action	Lead Group	Owner	Deliverable
14	Perform inspection inside pressurizer to address pressurizer heater sheath integrity concern (CR 2011-6523)	System Engineering	Kevin Naser	Completed inspection of heater sheath on failed heaters
15	Complete analysis of pressurizer heater sheath (CR 2011-6523)	DEN	Swearngin	Reportability evaluation completed
16	Perform analysis of CVCS and RCS drain line piping supports down stream of isolation valve cclass break (CR 2011-8063)	Nuclear Projects	Jeff Spilker	Analysis completed
17	Develop EC 54437 to address CVCS and RCS drain line piping supports (CR 2011-8063)	Nuclear Projects	Jeff Spilker	Engineering Change package issued
18	Implement EC 54437 to address CVCS and RCS drain line piping supports (CR 2011-8063)	Construction	Andersen	Completed work Orders

## Removed FCS Flooding Recovery Action Plan 4.6 Design Resolution Items

4.6.1 Short-Term Actions (Prior To RCS >210°F)				
#	Action	Lead Group	Owner	Deliverable
19	Developed EC 54435 to address supports for PORVs (CR 2011-7164)	Nuclear Projects	Jeff Spilker	Engineering Change package prepared to ensure piping is adequately supported for all scenarios
20	Implement EC 54435 to address supports for PORV's (CR 2011-7164)	Construction	Andersen	Completed work Order

4.6.2 Short-Term Actions (Prior To Reactor Critical)				
#	Action	Lead Group	Owner	Deliverable
1.	Run FW-541 to validate engineering analysis for suction void	DEN	Swearngin	Validation of Fauske analysis.
2.	Analyze main steam piping in containment for Turbine Stop Valve Transient (CR 2011-7840)	DEN	Swearngin	Complete analysis for MSVT.
3.	Not Used			
4.	Develop EC 46038 solution for turbine stop valve transient	Projects	Spilker	Engineering change package issued
5.	Implement EC 46038 solution for turbine stop valve transient	Construction	Dailey	Completed work order

## Removed FCS Flooding Recovery Action Plan 4.6 Design Resolution Items

4.6.2 Short-Term Actions (Prior To Reactor Critical)				
#	Action	Lead Group	Owner	Deliverable
6.	Implement EC procedure change to address load shed of Spent Fuel Pool Cooling pumps during accident conditions (CR 2011-4725)	Operations	Smith	Procedure changes issued
7.	Develop EC 54436 solution to address containment CCW piping thermal analysis (CR 2011-7938)	Nuc Projects	Spilker	Engineering change package issued.
8.	Implement EC 54436 solution to address containment CCW piping thermal analysis (CR 2011-7938)	Construction	Dailey	Completed work order.

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

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## **APPENDIX B2**

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Security-Related Information - Withhold Under 10 CFR 2.390

**SECURITY-RELATED INFORMATION - WITHHOLD UNDER 10 CFR 2.390**

## APPENDIX C: RESTART CHECKLIST IMPLEMENTATION STRATEGY

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# **Fort Calhoun Station Restart Checklist Implementation Strategy**

The Restart Checklist includes a list of items that require resolution prior to restart. The purpose of the Restart Checklist is to identify and resolve those issues that have resulted in the prolonged performance decline at Fort Calhoun Station (FCS). The Restart Checklist is focused on those items related to the basis expressed in the December 13, 2011, letter placing FCS under NRC Inspection Manual Chapter 0350, "Oversight of Reactor Facilities in a Shutdown Condition due to Significant Performance and/or Operational Concerns," (MC0350), the 2011 flood, and the performance categorization within the Multiple/Repetitive Degraded Cornerstone column of the Reactor Oversight Process Action Matrix prior to being placed under MC0350. The Restart Checklist also includes the third party evaluation of the FCS safety culture. Resolution of all performance deficiencies that have been characterized as white, yellow, or red significance will be completed before restart of FCS.

This implementation strategy for the Restart Checklist provides clarification of the scope and breadth of the actions Omaha Public Power District (OPPD) will take to address each of the Restart Checklist items.

The outcome of completing the Restart Checklist will be thorough assessment of the causes of the protracted performance decline at FCS and identification and implementation of those corrective actions, actions to prevent recurrence, and/or compensatory measures to assure the plant, people and processes are sufficiently robust to provide reasonable assurance of safe restart and continued safe operation of FCS. The items in the Restart Checklist are the critical subset of activities in the Integrated Performance Improvement Plan that the NRC has identified that must be adequately addressed before restart. Addressing the Checklist items includes the performance of extensive discovery activities. Consequently, the Checklist will be a living document incorporating any additional deficiencies that are identified through the discovery process that are classified greater than green utilizing the NRC Significance Determination Process.

This implementation strategy will describe the purpose of the actions within each Restart Checklist section. For each item in the section, the strategy will list the Reactor Oversight Process cornerstones addressed by that item and further describe the scope of the discovery actions that will be accomplished to address that item, and the scope expansion criteria.

Success criteria for completion of each Restart Checklist item will differ depending on the section of the Checklist and the nature of the action.

Under Section 1, the root cause and other assessments will be completed using procedures and processes that consider best industry practices for those assessments. Each item in Section 1 will be considered complete when the assessment is completed and identified deficiencies, corrective actions and actions to prevent recurrence from these assessments are incorporated into the Corrective Action Program (CAP) for resolution.

Section 2 addresses the readiness of the structures, systems and components for safe restart of FCS. Checklist item 2.a addresses the flood related restoration activities contained in the Flood Recovery Plan, Revision 3 included in Appendix B to this IPIP. This item will be considered complete when the restoration activities are addressed under the procedures in the CAP. Checklist item 2.b includes actions to assure important systems are ready for restart. The items will be complete when the reviews are completed using procedures that consider industry standards and best practices for those activities and identified deficiencies, corrective actions and actions to prevent recurrence from these reviews are incorporated into the CAP for resolution.

For the programmatic areas addressed in Section 3, the Checklist item will be considered completed when the discovery is completed without further scope expansion, identified deficiencies, corrective



actions and actions to prevent recurrence are incorporated into the CAP for resolution, the program has been evaluated and enhanced where necessary considering industry best practices, and performance metrics are established and monitored to assure continued successful program implementation.

Section 4 of the Restart Checklist involves the NRC evaluation of the FCS Integrated Performance Improvement Plan. No specific completion activities are necessary for OPPD.

Section 5 of the Restart Checklist involves the NRC evaluation of the NRC Inspection Procedure 95003 key attributes at FCS. No specific completion activities are necessary for OPPD.

Any licensing actions necessary for restart in Checklist item 6.a will be complete when NRC has approved the licensing actions or amendments. Checklist item 6.b addresses licensing commitments, including the activities contained in Flood Recovery Plan (FRP), Revision 1 reflected in the September 2011 Confirmatory Action Letter that are not associated with flood restoration. These are the items that are in FRP, Revision 1 that not captured in FRP, Revision 3. These commitments will be considered complete when they are addressed under the procedures in the CAP.

Checklist items 7.a and 7.b will be considered complete when the operations organization, including necessary support from other plant organizations, has demonstrated capability to safely restart, operate at power, and control the plant, and all necessary systems have been returned to operability and mode restraint checklists have been completed.

It is anticipated that a large number of Condition Reports (CRs) will be written within the CAP documenting problems identified during performance of the discovery activities to address the Restart Checklist items. OPPD has developed safety-based criteria for differentiating those corrective actions and actions to prevent recurrence that are necessary to complete before restart, and those actions that will be incorporated into the post-restart IPIP plan for sustained improvement. Successful completion under the procedures in the CAP of those actions determined to be restart constraints will be the final step in closure of the actions under Checklist item 7.c.

The corrective actions and corrective actions to prevent recurrence taken in the areas of the CAP, and safety culture, safety conscious work environment and organizational effectiveness will be evaluated for effectiveness prior to restart.

Section 8 of the Restart Checklist addresses closure of the restart Confirmatory Action Letter. The items in this section will be complete when all the conditions in the Restart Confirmatory Action Letter are confirmed as completed under the procedures in the CAP, OPPD submits its Readiness for Restart Report and the NRC and OPPD conduct a Category 1 public meeting to discuss completion of the actions necessary for restart.

Section 9 of the Restart Checklist addresses the NRC actions necessary to approve restart of FCS. No specific completion activities are necessary for OPPD.

## Fort Calhoun Station Restart Checklist

The NRC issued a restart Confirmatory Action Letter with an enclosed Restart Checklist on June 11, 2012. That Restart Checklist is captured in the shaded rows in this strategy. The additional rows include details regarding specific actions that OPPD will take to address the specific the Restart Checklist items.

Item Number	Description	
<b>1</b>	<b>Causes of Significant Performance Deficiencies and Assessment of Organizational Effectiveness</b>	
1.a	Flooding Issue – Yellow Finding	
1.b	Reactor Protection System Contactor Failure – White Finding	
1.c	Electrical Bus Modification and Maintenance – Red Finding	
1.d	Security – Greater than Green Findings	
1.e	Third Party Safety Culture Assessment	
1.f	Integrated Organizational Effectiveness Assessment	
<b>2</b>	<b>Flood Restoration and Adequacy of Structures, Systems, and Components</b>	
2.a	Flood Recovery Plan Actions Associated with Facility and System Restoration	
2.b	System Readiness for Restart from Extended Plant Shutdown	
2.b.1	System Health Reviews	
2.b.2	Detailed Review of Alternating and Direct Current Electrical Distribution and High Pressure Safety Injection Systems - Reactor Safety Strategic Performance Area Review	
2.b.3	Specific System Reliability Improvement Actions	

2.b.4	Impact of Sub-Surface Water on Soils and Structures	
<b>3</b>	<b>Adequacy of Significant Programs and Processes</b>	
3.a	Corrective Action Program	
3.b	Equipment Design Qualifications	
3.b.1	Safety Related Parts Program	
3.b.2	Equipment Qualification Program including High Energy Line Break Considerations	
3.c	Design Changes and Modifications	
3.c.1	Vendor Modification Control	
3.c.2	10 CFR 50.59 Screening and Safety Evaluation Programs	
3.d	Maintenance Programs	
3.d.1	Vendor Manuals and Vendor Information Control Programs	
3.d.2	Equipment Service Life Program	
3.e	Operability Process	
3.e.1	Operability Determination Program	
3.e.2	Degraded and Non-Conforming Condition Program	
3.f	Quality Assurance	

<b>4</b>	<b>Review of Integrated Performance Improvement Plan</b>	
<b>5</b>	<b>Assessment of NRC Inspection Procedure 95003 Key Attributes</b>	
5.a	Design	
5.b	Human Performance	
5.c	Procedure Quality	
5.d	Equipment Performance	
5.e	Configuration Control	
5.f	Emergency Response	
5.g	Occupational Radiation Safety	
5.h	Public Radiation Safety	
5.i	Security	
<b>6</b>	<b>Licensing Issue Resolution</b>	
6.a	Review of Necessary Licensing Amendments or Actions	
6.b	Review of Licensing Commitments Necessary for Restart	
<b>7</b>	<b>Readiness for Restart</b>	

7.a	Operations Organization Ready for Restart	
7.b	Systems Ready for Restart and Mode Restraints Properly Addressed	
7.c	Final Review of Corrective Action Program for Restart Items	
<b>8</b>	<b>Confirmatory Action Letter Resolution</b>	
8.a	Verification that All Restart-Related Confirmatory Action Letter Items are Appropriately Resolved	
8.b	Conduct Public Meeting Regarding Plant Readiness for Restart	
<b>9</b>	<b>Final Recommendation for Restart</b>	
9.a	Manual Chapter 0350 Panel recommends restart to the Region IV Administrator. The Region IV Administrator obtains concurrence for restart from the Deputy Executive Director for Reactor and Preparedness Programs and the Director of the Office of Nuclear Reactor Regulation.	

## Restart Checklist Implementation Strategy

For each section of the NRC issued Restart Checklist and the additional sections that contain other specific OPPD actions to address an NRC Checklist section, described below are implementation strategies that include the scope of actions that will be taken to address that section, scope expansion criteria where appropriate, and closure criteria for completion of the actions in that section.

<b>1</b>  <b>IE, MS, BI, EP, PRS, ORS and SEC</b>  <b>Cornerstones</b>	<b>Root Causes of Significant Performance Deficiencies and Assessment of Organizational Effectiveness</b>	
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Section 1 of the Restart Checklist contains those items necessary to develop a comprehensive understanding of the root causes of the performance deficiencies identified at FCS that have been determined under the Significance Determination Process to have a risk significance of White, Yellow or Red. In addition, Section 1 includes an independent safety culture assessment and an integrated organizational effectiveness assessment. The integrated organizational effectiveness assessment will identify the fundamental aspects of organizational performance in the areas of organizational structure and engagement, values, standards, culture, behaviors and leadership that have resulted in the protracted performance decline and are critical for sustained performance improvement.

The outcome of the assessments described in Section 1 will be issues incorporated into the CAP, including corrective actions, actions to prevent recurrence and/or compensatory measures addressing organizational effectiveness and human performance, the physical plant, and the station procedures and processes revealed through those assessments. Specific findings arising from these assessments related to other Checklist items will be incorporated into the action plans for those items.

As additional critical areas for improvement are identified through the completion of the root cause and other assessments that have not yet been addressed through the Restart checklist items, it may be necessary to supplement the Restart Checklist to reflect those new areas.

<b>1.a</b>  MS Cornerstone	Flooding Issue – Yellow finding	
<b>1.b</b>  MS Cornerstone	Reactor Protection System Contact Failure – White Finding	
<b>1.c</b>  IE Cornerstone	Electrical Bus Modification and Maintenance – Red Finding	
<b>1.d</b>  SEC	Security – Greater than Green Findings	

Cornerstone		
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Root cause assessments will be completed for all findings determined to be classified at White, Yellow or Red under the Significance Determination Process. Those Root Cause Assessments will be performed utilizing station procedures that consider standard industry best practices and procedures under the leadership of qualified root cause assessors.

Corrective actions, actions to prevent recurrence, and/or compensatory measures from these root cause assessments will be entered into the CAP.

1.e		
IE, MS, BI, EP, PRS, ORS and SEC		
Cornerstones	Independent Safety Culture Assessment	

An assessment of the safety culture at FCS will be performed consistent with the guidance in Inspection Procedure (IP) 95003, Sections 02.07 and 03.07. The assessment will be performed by an organization independent of OPPD that is nationally recognized for successful performance of behavior-anchored nuclear safety culture assessments. The findings of this assessment will be appropriately considered in the Integrated Organizational Effectiveness Assessment.

1.f		
IE, MS, BI, EP, PRS, ORS and SEC		
Cornerstones	Integrated Organizational Effectiveness Assessment	

OPPD will perform an integrated organizational effectiveness assessment utilizing a methodology that considers industry best practices for identifying organizational concerns and areas for improvement. This assessment will appropriately consider the results of the assessments performed under Restart Checklist Items 1.a through 1.e, including the independent safety culture assessment. This assessment will identify those fundamental aspects of organizational performance in the areas of organizational structure and engagement, values, standards, culture behaviors and leadership that have resulted in the protracted performance decline and are critical for sustained performance improvement. This assessment will be performed by qualified individuals from OPPD, supplemented by outside experts.

<b>2</b>  <b>IE, MS, BI, EP, PRS, ORS and SEC Cornerstones</b>	<b>Flood Restoration and Adequacy of Structures, Systems, and Components</b>	
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Section 2 of the Restart Checklist contains those items necessary to assure that important structures, systems and components affected by the flood and safety significant structures, systems and components at FCS are in appropriate condition to support safe restart and continued safe plant operation.

Section 2 includes the items in the Flood Recovery Plan, Revision 3 (FRP). Those items focus on returning the plant to pre-flood condition. Also, to assure that structures, systems, and components are in satisfactory working order, System Health Readiness Reviews (SHRRs) will be performed on safety significant and Maintenance Rule systems utilizing updated procedures that consider industry best practices.

In addition, Section 2 includes the performance of the Reactor Safety Strategic Performance Area review (RSSPA) consistent with the guidance in IP 95003, Sections 02.03 and 03.03 to evaluate and verify the capability of selected systems to fulfill their intended safety functions, identify broad-based safety, organizational and performance issues, and evaluate the readiness of the Emergency Response Organization. The RSSPA will include detailed vertical slice reviews of the safety related electrical distribution system, the high pressure safety injection system, the emergency diesel generators and the reactor protection system.

Also, the effect on soils and structures from sub-surface water will be addressed.

In Section 2, the FRP, Revision 3 flood restoration actions will be addressed under the procedures in the CAP, and the systems reviews will be conducted using procedures that consider industry standards and best practices for those activities. Findings and identified actions from these systems reviews will be incorporated into the CAP for resolution

It is expected that a number of repairs and enhancements will be identified and captured in the CAP during the process of assuring flood restoration and adequacy of structures, systems, and components. OPPD has developed safety-based criteria for differentiating those corrective actions, repairs, and enhancements that are necessary to complete before restart and those actions that will be incorporated into the IPIP plan for sustained improvement.

<b>2.a</b>  <b>MS, EP, ORS, PRS, and SEC Cornerstones</b>	<b>Flood Recovery Plan Actions Associated with Facility and System Restoration</b>	
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The FRP, Revision 3 actions are related to restoration from flood-related impacts and are keyed to major plant milestones. The following actions in the FCS FRP will be addressed under this Restart Checklist



item. Each action has been entered into the CAP. This item will be considered complete when the restoration activities are adequately addressed under the procedures in the CAP.

FRP Item Number	FRP Restoration Action Item
<b><i>Prior to Exceeding 210 Degrees Fahrenheit in the Reactor Coolant System</i></b>	
1.2.1.1	Determine if equipment in the intake structure and cells has been damaged
1.2.1.3	Repair any structural damage identified in the intake structure
1.2.1.4	Return B.5.b materials to proper location
1.4.1.4	Inspect manholes and ducts for MH01 through MH04 from T&D switch SW1062 to transformer T1B-3C-1 to facilitate pulling a new 1/0 cable.
1.4.1.7	Replace cable T&D switch SW1062 to transformer T1B-3C-1 (T&D ID 13TN43G) line side.
1.4.1.8	Replace T&D Switch SW1062
1.4.1.9	Replace Transformer T1B-3C-1 (T&D ID 13TN43G)
1.4.1.10	Perform Tan/Delta and AC Hypot test on existing 1000mcm cable from 161kV switchyard breaker 122 to T&D switch SW1062
1.4.1.11	Perform Tan/Delta and AC Hypot test on new 1/0 cable from T&D switch SW1062 to the line side of transformer T1B-3C-1 (T&D ID 13TN43G)
1.4.1.12	Perform EM-ST-ESF-0002 Emergency Power Periodic Test
2.1.1.1	Ensure underground FP piping is intact and no unacceptable voids are present near FP piping
2.1.1.2	Repair any damaged or non-functional fire hydrants located inside the protected area or connected to the main fire protection header ring
2.1.1.3	Flush fire protection system piping connected to the fire protection header ring which flowed river water during flood mitigation actions
2.1.1.4	Inspect all SO-G-103 fire barriers in plant buildings affected by flood waters. Include Pyrocrete barriers in Intake Structure.
2.1.1.5	Verify soil compaction and moisture content in areas of underground fire protection main header ring and attached piping is per NFPA requirements
2.1.1.6	Restore the exterior fire hose houses impacted by flooding to functional condition
2.1.1.7	Verify proper functioning of flood affected fire hose houses
2.1.1.8	Complete FP System PMs and STs on flood impacted equipment which was not accessible for inspection and testing
2.1.1.9	Complete full flow testing of fire pumps

<b>FRP Item Number</b>	<b>FRP Restoration Action Item</b>
2.1.1.10	Remove the plugs that were installed in the transformer pits for drainage from the rocks
2.1.1.11	Complete monitoring and assessment of system leakage for FP piping.
2.1.1.12	Restore HALON systems in new warehouse security area
2.2.1.1	Assess the effects of the flood on the Auxiliary Cooling System (ACS) and identify actions to restore the system.
2.2.1.2	Assess the effects of the flood on the Auxiliary Feedwater System (AFW) and identify actions to restore the system.
2.2.1.3	Assess the effects of the flood on the Auxiliary Instrumentation System (AIS) and identify actions to restore the system.
2.2.1.4	Assess the effects of the flood on the Control Rod Drive System (CRD) and identify actions to restore the system.
2.2.1.5	Assess the effects of the flood on the Chemical and Volume Control System (CVC) and identify actions to restore the system.
2.2.1.6	Assess the effects of the flood on the Circulating Water System (CWS) and identify actions to restore the system.
2.2.1.7	Assess the effects of the flood on the Emergency Core Cooling System (ECC) and identify actions to restore the system.
2.2.1.8	Assess the effects of the flood on the Emergency Diesel Generator System (EDG) and identify actions to restore the system.
2.2.1.9	Assess the effects of the flood on the Electrical Distribution System (EDS) and identify actions to restore the system.
2.2.1.10	Assess the effects of the flood on the Engineered Safety Features System (ESF) and identify actions to restore the system.
2.2.1.11	Assess the effects of the flood on the Fuel Handling System (FHS) and identify actions to restore the system.
2.2.1.12	Assess the effects of the flood on the Fire Protection System (FPS) and identify actions to restore the system.
2.2.1.13	Assess the effects of the flood on the Hoisting Equipment System (HES) and identify actions to restore the system.
2.2.1.14	Assess the effects of the flood on the Instrument Air System (IAS) and identify actions to restore the system.
2.2.1.15	Assess the effects of the flood on the Main Feedwater System (MFW) and identify actions to restore the system.

<b>FRP Item Number</b>	<b>FRP Restoration Action Item</b>
2.2.1.16	Assess the effects of the flood on the Reactor Coolant System (RCS) and identify actions to restore the system.
2.2.1.17	Assess the effects of the flood on the Radiation Monitoring System (RMS) and identify actions to restore the system.
2.2.1.18	Assess the effects of the flood on the Reactor Protection System (RPS) and identify actions to restore the system.
2.2.1.19	Assess the effects of the flood on the Spent Fuel Pool System (SFP) and identify actions to restore the system.
2.2.1.20	Assess the effects of the flood on the Steam Generator System (SGS) and identify actions to restore the system.
2.2.1.21	Assess the effects of the flood on the Sampling System (SLS) and identify actions to restore the system.
2.2.1.22	Assess the effects of the flood on the Structures System (STR) and identify actions to restore the system.
2.2.1.23	Assess the effects of the flood on the Turbine Generator System (TGS) and identify actions to restore the system.
2.2.1.24	Assess the effects of the flood on the Turbine Plant Cooling System (TPC) and identify actions to restore the system.
2.2.1.25	Assess the effects of the flood on the Ventilating Air Conditioning System (VAC) and identify actions to restore the system.
2.2.1.26	Assess the effects of the flood on the Waste Disposal System (WDS) and identify actions to restore the system.
2.2.1.27	Assess the effects of the flood on the Demineralized Water / Potable Water System (DW/PW) and identify actions to restore the system.
2.2.1.28	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.
2.2.1.29	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.
2.2.1.30	Assess the effects of the flood on the Meteorological Monitoring System (MMS) and identify actions to restore the system.
2.2.1.31	Assess the effects of the flood on the Plant Security Systems (SEC) and identify actions to restore the system.
2.2.1.32	Assess the effects of the flood on the Communications Systems (COM) and identify actions to restore the system.

<b>FRP Item Number</b>	<b>FRP Restoration Action Item</b>
2.3.1.1	Assess whether motor is 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."
2.3.1.2	Take oil sample from bearing housings.
2.3.1.3	Evaluate if water has gotten in contact with bearings.
2.3.1.5	Perform visual and boroscope inspection of motor internals (to included termination box) looking for slit, pools of water, corrosion, etc.
2.3.1.6	Evaluate visual inspection results for possible actions (removal of moisture, cleaning, refurbishment of motor)
2.3.1.9	Remove motor and prepare for shipment to vendor.
2.3.1.10	Refurbish motor
2.3.1.11	Install refurbished motor
2.3.1.12	Post Maintenance Testing of motor
2.3.1.13	Ensure spare motor is available or order new motor
2.3.1.14	Remove degraded motor
2.3.1.15	Install new motor
2.3.1.16	Post Maintenance Testing of motor
3.1.1.1	Document review of all Engineering Programs
3.1.1.2	Document justification of no flood recovery plan for each program that screened out as not needing one
3.2.1.1	Test Maintenance Rule Medium Voltage Power Cables subjected to wetting/ submergence
3.2.1.2	Test Maintenance Rule Low Voltage Power Cables subjected to wetting/ submergence
3.2.1.3	Test Maintenance Rule Low Voltage Control and Instrumentation Cables subjected to wetting/ submergence
3.2.1.4	Test or Replace 13.8kV Medium Voltage Cable for Plant Emergency Power Feed and Meteorological Tower Feeds.
3.3.1.1	Inspect underground Raw Water, EDG Fuel Oil and Fire Protection piping and tanks using GPR (Ground Penetrating Radar)
3.3.1.2	Assess results of GPR
4.1.1.12	Review structure design features to assess potential for damage due to flooding

<b>FRP Item Number</b>	<b>FRP Restoration Action Item</b>
4.1.1.16	Create report of findings
4.1.1.17	Review findings and recommendations with FCS and document results
4.1.1.23	Create report of findings
4.1.1.24	Review findings and recommendations with FCS and document results
4.1.1.25	Post-Flood River Channel Evaluation
4.1.1.26	Develop follow-on geotechnical inspection and testing plan based on summary report results.
4.1.1.27	Perform follow-on field inspection and testing.
4.1.1.28	Resolve remaining non-class 1 open issues as necessary based on follow on testing report.
4.1.1.29	Update Geotechnical-Structural Assessment Summary Report based on results of follow-on inspection and testing
4.1.1.30	Verify no geotechnical or structural impact to Turbine Building and Auxiliary Building/Containment) as a result of the 2011 flood
4.1.1.31	EC-55000 to allow follow on geotechnical testing that will involve core drilling in the Auxiliary Building floor slab.
4.1.1.32	Remediation of the Turbine Building and Class 1 Structure void.
4.2.1.1	Review / observe all external flood barrier configurations and verify that they have not been altered during flood response or outage activities
4.2.1.2	Issue SO-G-124, Flood Barrier Impairment program
4.2.1.3	Document external flood barrier impairments as applicable in accordance with SO-G-124
4.2.1.6	Identify flood barriers which will not have adequate qualification basis before leaving Cold Shutdown.
4.3.1.1	Finalize identification of all configuration changes for restoration
4.3.1.2	Finalize identification of configuration changes to be made permanent
4.3.1.3	Establish Priority/Schedule for restoration
4.3.1.4	Initiate actions to remove non-permanent configuration changes
5.2.1.1	Develop a field monitoring and environmental sampling plan

<b>Prior to Reactor Criticality</b>	
2.3.2.1	Refurbish motor if water contamination is present in oil. Replace motor in whole is an additional option.
2.3.2.2	If bearings are in good condition and motor is visibly in good condition, Static Test Motor (resistive balance, megger, PI).
2.3.2.3	If Static Test results are SAT, motor can be started. Maintenance oversight of initial run. Vibration data to be taken during initial run
2.3.2.4	If Action 2.3.2.3 is SAT, change lower bearing oil.
3.2.2.2	Inspect Manholes and Vaults for structural integrity.
3.2.2.6	Inspect Manhole interiors and remove mud/debris
3.3.2.1	Update the Geotechnical / Structural Assessment Summary Report
4.1.2.1	Update the Geotechnical/Structural Assessment Summary Report
4.1.2.2	Verify no geotechnical or structural impact to site structures (except TB and Class 1) and equipment as a result of the 2011 flood.
4.2.2.1	Identify degraded flood barriers
4.2.2.2	Repair flood barriers as required
4.2.2.4	Prepare SO-G-124 documentation for all flood barriers which do not have adequate qualification
4.2.2.5	Review restoration plans for each impaired flood barrier per SO-G-124 form FC-1411
4.2.2.6	Review impaired flood barriers as identified in accordance with SO-G-124 form FC-1411
4.2.2.8	Prepare engineering changes as required to address degraded or unqualified flood penetrations
4.2.2.9	Identify design solution to MH-31 degraded conduit seals (CR 2011-6999)
4.2.2.10	Repair MH-31 conduits
4.3.2.1	Completion of all ECs/restoration required for plant start-up
4.3.2.2	Perform CR 2011-8566 walk-down to verify restoration of non-permanent configuration changes.
5.1.2.3	Based on siren inspection procure replacement siren heads, poles, electronic, and power supplies
5.1.2.8	Conduct a full siren test after sirens have been restore to functional status
5.2.2.1	Conduct a Protective Measure table top with the states of Nebraska and Iowa

5.3.2.1	Perform ERDS testing
5.3.2.2	Perform normal communications testing
5.3.2.6	Perform normal facility inventories and assessments
5.3.2.7	Conduct Meeting with FEMA, NRC, local Emergency Manager, and State Emergency Managers
5.3.2.19	Obtain statement of reasonable assurance from FEMA
5.4.2.1	MET tower restoration
5.4.2.2	MET tower building restoration
5.4.2.3	Secondary Evacuation Route restoration
5.4.2.4	Critique Flooding event
6.1.2.2	See IPIP Appendix B2
6.1.2.3	See IPIP Appendix B2
6.1.2.4	See IPIP Appendix B2
6.1.2.5	See IPIP Appendix B2
6.1.2.6	See IPIP Appendix B2
6.1.2.7	See IPIP Appendix B2
6.1.2.8	See IPIP Appendix B2
6.1.2.9	See IPIP Appendix B2
6.1.2.10	See IPIP Appendix B2
6.1.2.11	See IPIP Appendix B2
6.1.2.12	See IPIP Appendix B2
6.1.2.13	See IPIP Appendix B2
6.1.2.14	See IPIP Appendix B2
6.1.2.15	See IPIP Appendix B2
6.1.2.16	See IPIP Appendix B2
6.1.2.20	See IPIP Appendix B2
6.1.2.21	See IPIP Appendix B2
6.1.2.22	See IPIP Appendix B2
6.1.2.23	See IPIP Appendix B2

6.1.2.24	See IPIP Appendix B2
6.1.2.25	See IPIP Appendix B2
6.1.2.26	See IPIP Appendix B2
6.1.2.27	See IPIP Appendix B2
6.1.2.28	See IPIP Appendix B2
6.1.2.29	See IPIP Appendix B2
6.1.2.30	See IPIP Appendix B2
6.1.2.31	See IPIP Appendix B2
6.1.2.32	See IPIP Appendix B2
6.1.2.33	See IPIP Appendix B2
6.1.2.34	See IPIP Appendix B2
6.1.2.35	See IPIP Appendix B2
6.1.2.36	See IPIP Appendix B2
6.1.2.37	See IPIP Appendix B2
6.1.2.38	See IPIP Appendix B2
6.1.2.39	See IPIP Appendix B2

2.b		
IE, MS, BI and EP		
Cornerstones	System Readiness from Extended Shutdown	

To assure that important structures, systems, and components are in satisfactory working order, Section 2.b.1 addresses SHRRs. SHRRs will be performed on safety-significant and Maintenance Rule systems utilizing updated procedures that consider industry best practices.

Section 2.b.2 includes the performance of the RSSPA to evaluate and verify the capability of selected systems to fulfill their intended safety functions; identify broad-based safety, organizational and performance issues; and evaluate the readiness of the Emergency Response Organization. The RSSPA will include detailed vertical slice reviews that will be performed for the safety related 4160V breakers, 480V breakers, batteries and battery chargers (the safety related electrical distribution system) and the high pressure safety injection system (part of the emergency core cooling system), including selected risk significant components in these systems. This work is structured consistent with IP 95003 Sections 02.03 and 03.03 and is accomplished by review in six key attributes or areas. The six key attributes are design,



configuration control, equipment performance, human performance, procedure quality and emergency preparedness.

Also, Section 2.b.3 addresses improvement in the reliability of the reactor protection system and diesel generator system due to historical reliability issues with these systems. Finally, Section 2.b.4 addresses the effect on soils and structures from sub-surface water.

2.b.1  MS Cornerstone	System Health Reviews	
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To assure that safety significant and Maintenance Rule related structures, systems, and components are in satisfactory working order, OPPD will perform SHHRs on safety-significant and Maintenance Rule systems utilizing updated procedures that consider industry best practices.

These reviews will be conducted under a FCS procedure that addresses a comprehensive system walkdown and review of key information regarding system health, including, for example, commitments, open and closed CRs, open and closed work orders, preventative maintenance activities, modifications, operating experience, violations, open change-initiating documents and open operational concerns. The reviews will also include interviews with operations, maintenance and engineering staff. The system engineer will lead the review of each system and the output will be reviewed by a panel including outside support.

The SHRRs will be complete when the review procedures are implemented and identified deficiencies, corrective actions and actions to prevent recurrence from these reviews are incorporated into the CAP for resolution.

2.b.2  IE, MS, BI and EP Cornerstones	Reactor Safety Strategic Performance Area Review	
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OPPD will perform a RSSPA to evaluate and verify the capability of selected systems to fulfill their intended safety functions, identify broad-based safety, organizational and performance issues, and evaluate the readiness of the Emergency Response Organization. The RSSPA review will be performed consistent with the procedures and guidance in IP 95003, Sections 02.03 and 03.03.

The RSSPA will include a vertical slice review of the safety related 4160V breakers, 480V breakers, batteries and battery chargers (the safety related electrical distribution system), the high pressure safety injection system (part of the emergency core cooling system), the emergency diesel generators, and the reactor protection system, including selected risk significant components in these systems.

Procedures and detailed checklists will be used to complete a detailed review of these systems, equipment and components. The electrical distribution and high pressure safety injection systems were selected based on their high risk reduction worth and input from system health reports, the mitigating systems performance indicator, CRs, and licensee event reports. In addition to these considerations, the selection of the emergency diesel generators and reactor protection system included consideration of

system reliability and Plant Health Committee priorities. The review will cover the period from January 1, 2006 through December 31, 2011. The basis for this review period is that it predates the 2007 emergency diesel generator failures and also includes several other significant events at the Station.

The RSSPA will be performed in accordance with approved FCS procedures by teams of OPPD and external experts. The findings and corrective actions identified during the RSSPA reviews will be incorporated into the CAP.

The RSSPA will be complete when the review procedures are implemented and identified deficiencies, corrective actions and actions to prevent recurrence from these reviews are incorporated into the CAP for resolution.

2.b.3		
MS Cornerstone	Impact of Sub-Surface Water on Structures	

The extent and duration of the 2011 flood generated a question regarding the condition of the soil and structure foundation for safety related structures. In addition, a CR has been generated regarding the condition of turbine building drains buried piping. Consequently, an item was identified to evaluate the impact of sub-surface water on the soils and foundation of safety related structures. OPPD will evaluate the following:

- Did flooding negatively affect the functionality of existing site safety-related structures?
- Did cracks in a turbine building drains buried pipes impact the soil under the Turbine Building affecting the Turbine Building structure?
- What is the cause and consequences of settling of a support column in the Maintenance Building?

Appropriate outside experts will be utilized to supplement OPPD staff on these activities and an independent outside expert group will be utilized to provide independent assessment to assure quality work. CRs have been generated concerning these issues.

This item will be considered complete when corrective actions for any deficiencies identified during discovery activities are incorporated into the CAP for resolution.

<b>3</b>		
<b>IE, MS, BI, EP, PRS, ORS and SEC Cornerstones</b>	<b>Adequacy of Significant Programs and Processes</b>	

Section 3 of the Restart Checklist contains those actions necessary to develop a comprehensive understanding of the adequacy of key safety significant programs that were contributors to the greater than green findings and the significant performance decline at OPPD. The outcome of the evaluations described in Section 3 will be corrective actions and actions to prevent recurrence of safety significant performance deficiencies captured in the CAP.

OPPD will evaluate the adequacy of key safety significant programs that were contributors to the greater than green findings and the significant performance decline, including:

- Corrective action program
- Equipment design qualifications programs
- Design changes and modifications programs
- Maintenance programs
- Operability determination processes
- Quality assurance program

These evaluations will be performed by OPPD and outside experts.

The programmatic evaluations in Section 3 will be considered complete when the discovery is completed without further scope expansion, all hardware and programmatic deficiencies are entered into the CAP, the subject program has been evaluated and enhanced where necessary considering industry best practices, performance metrics are established and monitored, and supplementary oversight is provided where necessary as indicated by performance metrics to assure continued successful program implementation. Specifically with respect to the improvements in the CAP, in addition to monitoring performance metrics, an effectiveness review will be conducted by OPPD staff and outside experts prior to restart to assure the adequacy of program implementation for safe and effective restart.

It is expected that a number of hardware repairs and programmatic enhancements will be identified during these program evaluations and implementation reviews. OPPD has developed safety-based criteria for differentiating those corrective actions, repairs, and enhancements that are necessary to complete before restart and those actions that will be incorporated into the IPIP plan for sustained improvement.

3.a		
IE, MS, BI, EP, PRS, ORS and SEC Cornerstones	Corrective Action Program	

Effectiveness in problem identification and resolution (PI&R) will be evaluated. OPPD will re-establish the necessary leadership and organizational engagement and ownership for finding and fixing problems. This will include instilling requisite values, standards, culture, and behaviors.

To establish organizational ownership and accountability for PI&R, OPPD will improve the CAP by performing the following:

- Review and improve the CAP
- Establish organizational ownership and accountability for CAP
- Implement Daily Plant Manager led Condition Review Group and Station Corrective Action Review Board meetings
- Implement CAP coordinators in key areas
- Review past CAP actions for latent issues
- Establish and monitor performance metrics

In addition to these actions to improve the CAP, OPPD will implement a review of the stations control systems for Identifying, Assessing and Correcting Performance Deficiencies (IACPD) consistent with the expectations described in IP95003 Sections 02.02 and 03.02. This review will provide greater granularity on performance shortfalls in the IACPD area.

The following areas will be assessed:

- Sufficiency of significant performance deficiency evaluations and corrective actions to correct the deficiencies and prevent recurrence.
- Effectiveness of audits and assessments performed by the quality assurance group, line organizations, and external organizations.
- Adequacy of the process for allocating resources providing appropriate consideration of safety and compliance, and whether appropriate consideration is given to the management of maintenance backlogs and correction of work-arounds.
- Assess performance goals to ensure they are congruent with those corrective actions needed to address the documented performance issues.
- Evaluate the employee concerns program and the results of surveys or other workplace environment evaluations providing information regarding employees' willingness to raise safety concerns and those safety significant concerns brought to the employee concerns program are entered into the CAP and receive an appropriate level of attention.
- Determine whether a mechanism exists to suggest improvements and explain disagreements with technical resolutions of identified deficiencies, including a "Differing Professional Opinion" process. Also, whether there is a feedback mechanism in which the evaluation of deficiencies and follow-up corrective actions are reported back to the identifying workers.
- Effectiveness of the organization in using industry information for previously documented performance issues.

In addition to those items detailed above, the station will also assess the Observation, Benchmarking, and Trending programs.

The evaluation of CAP will be considered complete when the discovery is completed without further scope expansion, all hardware and programmatic deficiencies are entered into the CAP, the CAP has been evaluated and enhanced where necessary considering industry best practices, performance metrics are established and monitored, an effectiveness review is conducted by OPPD staff and outside experts to assure the adequacy of program implementation for safe and effective restart and supplementary oversight is provided where necessary.

3.b MS Cornerstone	Equipment Design Qualification	
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3.b.1 MS Cornerstone	Safety Related Parts Program	
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A number of instances have been identified where non-safety related parts have been installed into safety related applications. OPPD has determined it will perform thorough reviews to identify conditions where a non-safety related component/sub-component was improperly used in a safety related application. This effort will involve reviewing work orders dating back to the late 1990's. The assessment will evaluate approximately 30,000 work orders including assessment of 100 percent of the work orders over the past five years. The following criteria for scope expansion will be used:

- A single occurrence where equipment is determined to be inoperable
- A single occurrence where a system would not perform its intended design functions

- Two occurrences in one year where a component would not be able to perform its design function not resulting in the system losing its ability to perform its design function
- More than three occurrences in one year where non-safety related parts were used in a safety related component, but no adverse component or system impact occurred
- More than three occurrences in one year where use of non-qualified material were identified as documentation issues

Components/parts with inconsistent quality classification levels (i.e., part/sub-component of lesser quality classification than component) will be identified in a CR in the CAP for evaluation of the operability of the component and/or rework, as determined to be necessary to correct the noted discrepancy.

In addition to any specific hardware issues associated with use of non-safety related parts in safety related applications, the program for control of parts will be reviewed considering industry best practices. Programmatic deficiencies will be entered into the CAP and corrective actions taken, including actions to prevent recurrence.

The evaluation of the safety related parts program will be considered complete when the discovery is completed without further scope expansion, all hardware and programmatic deficiencies are entered into the CAP, the subject program has been evaluated and enhanced where necessary considering industry best practices, performance metrics are established and monitored, and supplementary oversight is provided where necessary as indicated by performance metrics to assure continued successful program implementation.

3.b.2		
MS Cornerstone	Equipment Qualification Program including High Energy Line Break Considerations	

An Electrical Equipment Qualification (EEQ) design bases reconstitution effort has been underway since 2007. The reconstitution of the EEQ program involved a re-analysis of high energy lines to current industry standards. The High Energy Line Break (HELB) analyses have determined that there are some systems that require modification to prevent new harsh environments and some that result in new harsh environments. This project addresses gaps in documentation and analyses supporting the EEQ program, associated principally with harsh environments due to HELB and radiation.

It is anticipated that there will be documentation/analyses and equipment issues identified during these discovery activities that must be completed prior to startup. These activities will resolve both the HELB and radiation dose issues identified during the EEQ Program Reconstitution and resolve the resulting equipment issues.

The evaluation of the EEQ program will be considered complete when the discovery is completed, all hardware, analysis and programmatic deficiencies are entered into the CAP, the subject program has been evaluated and enhanced where necessary considering industry best practices, performance metrics are established and monitored, and supplementary oversight is provided where necessary as indicated by performance metrics to assure continued successful program implementation.

3.c		
MS Cornerstone	Design Changes and Modifications	

3.c.1		
MS Cornerstone	Vendor Modification Control Program	

Review by station personnel revealed that certain vendor modification packages lack the technical rigor necessary to ensure critical characteristics are identified and properly addressed. To address this issue, OPPD will sample engineering change packages that were performed by vendors. The sampling will be performed such that 20 percent of the control work projects packages dating back to 2007 will be sampled with an appropriate mix of Modifications, Facility Changes, Substitute Replacement Items, and Minor Configuration Changes included. The sample population will be expanded if conservative criteria are exceeded:

- The assessment finds one instance where it questions the viability of the design change in that it is found to have a fundamental flaw.
- Two instances where the assessment determines that critical characteristics were not properly evaluated, but the design changes were acceptable as designed.
- Two instances in any one modification package where the assessment determines that there is a need to perform more engineering work to validate that the change, as designed, was appropriate and would function as intended
- Four instances in any one modification package where the assessment determines that there is a need to update additional design documents or add additional design information/features to documents.
- 12 instances in any one modification package where the assessment determines that there are weaknesses in the package documentation, but the overall change was acceptable and only clarification was required.

Once sampling is complete, the chosen packages will be evaluated to determine if adequate controls were in place to assure that the vendor performed the task of interest in an appropriate manner. Any deficiencies in the modifications will be identified in a CR and placed into the CAP for evaluation of the operability and/or rework, as determined to be necessary to correct the noted discrepancy.

In addition to any specific hardware or design issues associated with the vendor work, the program for control of vendor modifications will be reviewed considering industry best practices. Programmatic deficiencies will be entered into the CAP and corrective actions taken, including actions to prevent recurrence.

The evaluation of vendor modifications will be considered complete when the discovery is completed without further scope expansion, all hardware and programmatic deficiencies are entered into the CAP, the subject program has been evaluated and enhanced where necessary considering industry best practices, performance metrics are established and monitored, and supplementary oversight is provided where necessary as indicated by performance metrics to assure continued successful program implementation.

3.c.2		
IE, MS, BI, EP, PRS, ORS and SEC Cornerstones	10CFR50.59 Screening and Safety Evaluations Program	

The quality of certain 10 CFR 50.59 evaluations has come into question, and therefore the 10 CFR 50.59 program has been included in the Restart Checklist. For the 10 CFR 50.59 program, OPPD will review plant activities over the last five years to determine if modifications to the plant and to procedures were appropriately identified as needing a 10 CFR 50.59 review and whether the review, if required, was appropriately performed. This assessment will involve checking 20 percent of the Applicability Determinations, 20 percent of the Screenings, and 100 percent of the 10 CFR 50.59 evaluations, which constitutes approximately 3,100 documents.

The scope of the sample population will be expanded if any of the following criteria are exceeded:

- The assessment identifies a single occurrence where there is a need to update or revise the conclusion of a 10 CFR 50.59 evaluation or the 10 CFR 50.59 documentation.
- The assessment determines there was a single occurrence where there was a failure to identify the need for additional required evaluations (e.g., Security or Emergency Planning), or there was a need to escalate an Applicability Determination to a Screen, escalate a Screen to an Evaluation, or escalate an Evaluation to a License Amendment Request.
- The assessment identifies multiple weaknesses (two occurrences for an Applicability Check, four occurrences for a Screen, eight occurrences for an Evaluation) in the 10 CFR 50.59 documentation.

Any deficiencies in the screenings or safety evaluations will be identified in a CR and placed into the CAP for evaluation of the need for a licensing action or other corrective actions.

In addition to any specific licensing basis issues associated with the screening or safety evaluation, the program for performing 10 CFR 50.59 reviews will be reviewed considering industry best practices. Programmatic deficiencies will be entered into the CAP and corrective actions taken.

The evaluation of the screening and safety evaluation program will be considered complete when the discovery is completed without further scope expansion, all licensing basis, hardware and programmatic deficiencies are entered into the CAP, the subject program has been evaluated and enhanced where necessary considering industry best practices, performance metrics are established and monitored, and supplementary oversight is provided where necessary as indicated by performance metrics to assure continued successful program implementation.

3.d		
MS Cornerstone	Maintenance	

3.d.1		
MS Cornerstone	Vendor Manuals and Vendor Information Control Program	

Vendor manuals and vendor information have not been adequately maintained. OPPD classifies FCS safety related equipment and Critical Quality Elements (CQE). OPPD will perform a thorough review to identify and incorporate vendor manual technical documentation updates for CQE or determined to have high functional importance (i.e., FID 1 and FID 2). This population of vendor information chosen for review focuses the activity on the equipment and components that have functional significance to the

plant in terms of nuclear safety and operation. As such, completing the review for CQE-related vendor information will be given priority.

There are two parts to this review. The first is to identify and evaluate all vendor changes to the existing vendor manuals of interest. The vendor changes will be evaluated and any gaps will be identified in a CR within the CAP. A gap analysis will be performed and documented within the CR to evaluate the effect that the new information has on scheduled work and work completed since the last vendor manual update was made. Resolution of the CR will include whether a potentially deficient condition exists and ensure that appropriate evaluations are performed and corrective actions taken.

The second part to this review will ensure that vendor recommendations contained in the updates have been properly incorporated into appropriate plant documentation. This scope of this section depends on successful implementation of the "Project 1991" vendor manual reconstitution initiative. The focus of the current review is to identify whether the most recently available vendor information associated with vendor manuals of interest has been adequately captured since the Project 1991 effort. CRs will be generated where vendor requirements were missed or not incorporated into plant documents, where plant documents are found to deviate from vendor manual information without a basis for the deviation or where service life discrepancies are identified.

In addition to any specific vendor manual and vendor information control issues, the program for controlling vendor information will be reviewed considering industry best practices. Programmatic deficiencies will be entered into the CAP and corrective actions taken.

The evaluation of the vendor manual and vendor information control program will be considered complete when the discovery is completed, all hardware, procedure and programmatic deficiencies are entered into the CAP, the subject program has been evaluated and enhanced where necessary considering industry best practices, performance metrics are established and monitored, and supplementary oversight is provided where necessary as indicated by performance metrics to assure continued successful program implementation.

3.d.2		
MS Cornerstone	Equipment Service Life Program	

Some equipment at FCS has been allowed to operate beyond its vendor recommended service life or standard industry guideline for service life, and in some cases this has resulted in age-related failures. OPPD will conduct the following actions before restart associated with CQE classified as FID-1 N/P/O and FID 2 N equipment that has high safety significance to address this issue. The pre-restart effort includes approximately 8,400 components:

- Identify component types and equipment that require immediate replacement based on service life considerations.
- Identify components where "first performance" preventative maintenance activities have not been performed. Review specific components and recommend replacements based on service life considerations. Consider other programs, e.g., EQ program, power supply review project, etc., where service life and preventative maintenance would have already been addressed.
- Review past equipment failures for causes attributable to components or subcomponents being left in a system beyond their intended service life.
- Conduct a programmatic self-assessment of the Preventative Maintenance Program consistent with NRC inspection guidance contained in "Operating Experience Smart Sample FY-2010-01,



Recent Inspection Experience for Components Installed Beyond Vendor Recommended Service Life". This will ensure that the station has procedures for establishing, implementing, and maintaining preventative maintenance requirements that are consistent with industry best practices.

All hardware or programmatic deficiencies will be documented in the CAP.

After restart, the remaining CQE for less safety significant equipment will be evaluated utilizing the same approach. This will involve approximately 7,100 components.

The evaluation of the service life/preventative maintenance program will be considered complete when the discovery is completed, all hardware and programmatic deficiencies are entered into the CAP, the subject program has been evaluated and enhanced where necessary considering industry best practices, performance metrics are established and monitored, and supplementary oversight is provided where necessary as indicated by performance metrics to assure continued successful program implementation.

3.e		
MS Cornerstone	Operability Determination Process Including Degraded and Non-Conforming Conditions	

3.e.1		
MS Cornerstone	Operability Determination Process	

The station has not consistently conducted sufficiently rigorous Operability Evaluations to ensure that the impact of degraded conditions on plant operations is fully understood or appropriately acted on. OPPD will:

- Develop and incorporate refined guidance for Operability Evaluations into station procedures to use as criteria for performing reviewing Operability Evaluations to identify weaknesses from the FID 1 and FID 2 CR reviews. Training will be given to personnel conducting the reviews to ensure a consistent review is given.
- Provide thorough review of all open and the last two operating cycles of closed Operability Evaluations as documented in CRs to validate the documented evaluation as compared to industry best Operability Evaluation practices. The basis for selecting all open and past two operating cycles of closed operability evaluations initially is to determine the extent of the problem. Expansion of the sample beyond two operating cycles will be determined based on the results of the degraded and non-conforming condition review under Checklist Item 3.e.2.

CRs will be generated when discrepancies are identified during the assessment. Upon completion of this review a collective significance evaluation will consider the number and importance of the findings. Station procedures will be updated considering industry best practices in operability evaluations.

The assessment of the operability evaluation program will be considered complete when the discovery is completed without the need for further scope expansion, all hardware, procedure and programmatic deficiencies are entered into the CAP, the subject program has been evaluated and enhanced where necessary considering industry best practices, performance metrics are established and monitored, and

supplementary oversight is provided where necessary as indicated by performance metrics to assure continued successful program implementation.

3.e.2		
MS Cornerstone	Degraded and non-conforming conditions	

Equipment identified as “operable but degraded” has sometimes remained degraded until subsequent failure and/or inoperability occurs. Station processes have not adequately identified degraded equipment or restored the equipment from a degraded condition in a timely manner.

To address this issue, OPPD will:

- Refined guidance and definition for Degraded/Nonconforming condition evaluations will be developed and incorporated into station procedures to use as criteria for performing an assessment of all potential and existing Degraded/Nonconforming condition concerns identified from FID 1 and FID 2 CRs. Training will be given to the people conducting the reviews to ensure a consistent review.
- Thoroughly review of all open and two operating cycles of closed CRs written on components with high functional importance (FID 1 and 2) for potential Degraded/Nonconforming conditions. The basis for selecting all open and two operating cycles of closed CRs initially is to determine the extent of the problem. If a degraded condition is identified in the plant that has not been documented in a CR within the CAP, then the scope will be expanded utilizing a smart sampling approach based on the findings in the original review scope.

CRs within the CAP will be written when discrepancies are identified during the assessment. Upon completion of this review a collective significance evaluation will consider the number and importance of the findings. Station procedures will be updated considering industry best practices in dealing with degraded and non-conforming equipment conditions.

The assessment of the degraded and non-conforming conditions program will be considered complete when the discovery is completed without the need for further scope expansion, all hardware, procedure and programmatic deficiencies are entered into the CAP, the subject program has been evaluated and enhanced where necessary considering industry best practices, performance metrics are established and monitored, and supplementary oversight is provided where necessary as indicated by performance metrics to assure continued successful program implementation.

3.f		
IE, MS, BI, EP, PRS, ORS and SEC Cornerstones	Quality assurance	

Quality Assurance (QA) should provide an independent assessment of safety-related work activities to identify problems and trends before they become significant plant problems. The QA organization was not effective in identifying and driving improvement in a broad range of problematic performance areas that led to protracted performance decline at FCS. In addition, QA has been the subject of multiple

critical third party assessments, including the Nuclear Industry Evaluation Program assessment in 2010 and the INPO evaluation in March 2011 that resulted in an area for improvement in independent monitoring and assessment.

A thorough apparent cause assessment has been completed regarding QA effectiveness identifying the following areas for attention:

- There was insufficient guidance on how to assess behavior attributes related to the performance of specific plant activities,
- The assessment activities that did not utilize sufficient behavioral observation data as part of their assessment process,
- Behavioral standards were not well defined complicating QAs ability to provide adequate independent assessment of behavioral compliance issues,
- Independent trend analysis of organizational processes and behaviors was not defined or performed,
- The escalation process was not effective to drive station improvements, and
- Management oversight of the conduct of assessments was not sufficient to identify weaknesses in QA.

Corrective actions were developed, including consideration of benchmarking results from other QA organizations, and are being implemented to address these issues. Critical to these actions is a focus on clarity of roles and responsibilities, ownership and accountability, focus on behaviors and other precursors to more significant performance problems, trending performance observations for early identification of problems, and effective management oversight and escalation of issues to assure effective organizational response to QA findings.

These actions will result in a QA organization with the following focus areas:

- Verify that activities are being correctly performed in accordance with procedural and regulatory requirements,
- Assess station performance against management expectations,
- Identify problems and issues before they become events,
- Verify the effectiveness of corrective actions,
- Progressively escalate issues for resolution through the organization, and
- Exercise stop work authority when a violation of the company QA program, procedures, specifications or drawings is identified.

The area will be considered complete when the implementation of the corrective actions addressing programmatic deficiencies has resulted in improved performance, performance metrics are established and monitored, and supplementary oversight is provided where necessary as indicated by performance metrics to assure continued successful program implementation.

<b>4</b>  <b>IE, MS, BI, EP, PRS, ORS and SEC Cornerstones</b>	<b>Review of Integrated Performance Improvement Plan</b>	
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This section of the checklist includes NRC review and evaluation of the FCS IPIP.

OPPD has no activities under this Restart Checklist section.

<b>5</b> <b>IE, MS, BI, EP, PRS, ORS and SEC Cornerstones</b>	<b>Assessment of NRP Inspection Procedure 95003 Key Attributes</b>	
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The NRC MC0350 Oversight Panel will designate appropriate inspection activities to be accomplished to evaluate FCS performance. Below are listed the sections of NRC Inspection Procedure (IP) 95003 included in the Reactor Safety Strategic performance Area (Sections 5.a through 5.f), the Occupational Radiation Safety Strategic Performance Area (Section 5.g), the Public Radiation Safety Strategic Performance Area (Section 5.h), and the Security Strategic Performance Area (Section 5.i). The NRC will assure that the critical aspects of these areas are adequately addressed during inspections at FCS.

OPPD has no activities under this Restart Checklist section.

5.a	Design	
5.b	Human Performance	
5.c	Procedure Quality	
5.d	Equipment Performance	
5.e	Configuration Control	
5.f	Emergency Response	
5.g	Occupational Radiation Safety	
5.h	Public Radiation Safety	
5.i	Security	

<b>6</b> <b>IE, MS, BI, EP, PRS, ORS and SEC Cornerstones</b>	<b>Licensing Issue Resolution</b>	
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6.a  IE, MS, BI, EP, PRS, ORS and SEC Cornerstones	Review of Licensing Amendments and Actions Necessary for Restart	
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This section of the checklist will include any licensing actions that are identified through the discovery process and are necessary to support safe restart of the FCS. There are currently no licensing actions necessary for restart.

6.b  IE, MS, BI, EP, PRS, ORS and SEC Cornerstones	Review of Licensing Commitments Necessary for Restart	
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This section of the checklist includes a review of all open regulatory commitments; identifying and tracking to closure those necessary for safe restart of the FCS.

In addition, several of the Flood Recovery Plan, Revision 1 actions that were addressed in the September 2011 Confirmatory Action Letter were not related to flood restoration and, while not included in the FRP, Revision 3, are captured here as licensing commitments.

The following actions from the FCS Flood Recovery Plan, Revision 1 will be addressed under this Restart Checklist item. Each action has been entered into the CAP. This item will be considered complete when the restoration activities are adequately addressed under the procedures in the CAP.

FRP Rev.1 Item Number	Action Item (Non-Restoration Related)
<b><i>Prior to Exceeding 210 Degrees Fahrenheit in the Reactor Coolant System</i></b>	
1.3.1.12	Calibrate new Square D circuit breakers
1.3.1.14	Clean equipment in the switchgear room that has been coated with by-products from the fire
1.3.1.15	Provide any required Engineering Change for the non-segregated bus between 1B4A and 1B3A-4A
1.3.1.16	Repair 1B4A to 1B3A-4A non-segregated bus section

<b>FRP Rev.1 Item Number</b>	<b>Action Item (Non-Restoration Related)</b>
1.3.1.17	Perform testing of all circuits associated with 1B4A load center
1.3.1.18	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)
1.3.1.19	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.
1.3.1.21	Declare bus 1B4A Operable
1.3.1.22	Temporary Modification restoration
1.3.1.23	Extent of Condition repair requirements. At this time, the extent of condition is not fully known. Provide repair requirements for extent of condition.
1.3.1.24	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.
3.4.1.1	Replace Non-RPS CQE power supplies that will be beyond their recommended service life
4.5.1.1	90% SMART Review of EC 53202; FW-10 Steam Line HELB Modification
4.5.1.2	Final SMART Review of EC 53202; FW-10 Steam Line HELB Modification
4.5.1.3	PRC Review of EC 53202; FW-10 Steam Line HELB Modification
4.5.1.4	Develop Construction Work Orders for EC 53202; FW-10 Steam Line HELB Modification
4.5.1.5	Complete installation of EC 53202; FW-10 Steam Line HELB Modification
4.5.1.6	Prepare EC 52662; Add a new Pipe Support on the SGBD vertical line above FW-1020
4.5.1.7	Install EC 52662; Add a new Pipe Support on the SGBD vertical line above FW-1020
4.5.1.8	Complete EEQ Harsh Environment analysis for Room 13 crack in Steam Generator Blowdown system
4.5.1.9	Develop plan to address Room 13 EEQ harsh environment qualification of electrical equipment
4.5.1.10	Initiate actions to resolve Room 13 EEQ harsh environment qualification of equipment which must be addressed prior to leaving cold shutdown

<b>FRP Rev.1 Item Number</b>	<b>Action Item (Non-Restoration Related)</b>
4.5.1.11	Resolve Room 13 EEQ harsh environment qualification of equipment which must be addressed prior to leaving cold shutdown
4.5.1.12	Perform analysis to address HCV-1385/1386 Main Steam Line Break/Feedwater isolation concern (CR 2011-6757)
4.5.1.13	Implement resolution of HCV-1385/1386 Main Steam Line Break/Feedwater isolation concern
4.5.1.14	Perform HELB analysis of Auxiliary Steam piping in the auxiliary building
4.5.1.15	Implement resolution of Auxiliary Steam piping in the auxiliary building
4.6.1.1	Address concerns identified with the Reactor Coolant Pump oil collection system
4.6.1.2	Address non-conservative 161 kV minimum voltage to support operation of a main feedwater pump in an SIAS-only scenario (CR 2011-6725)
4.6.1.3	Provide analysis of Steam Generator accident ring (CR 2011-6825)
<b><i>Prior to Reactor Criticality</i></b>	
3.4.2.1	Establish High Impact Team with a Charter
3.4.2.2	Identify all CQE power supplies; priority will be on RPS CQE power supplies and then non-RPS CQE power supplies
3.4.2.3	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
3.4.2.4	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
3.4.2.5	Conduct an analysis of the current FCS ER Strategy for power supplies; contact vendors, review industry documentation, benchmark other plants
3.4.2.6	Determine the recommended service life for CQE power supplies based on analyses performed earlier in this action plan. 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
3.4.2.7	Conduct a failure modes and effects analysis on each power supply to ensure the impact of failures is understood
3.4.2.8	Document the time based replacement strategy and basis for CQE and RPS power supplies

<b>FRP Rev.1 Item Number</b>	<b>Action Item (Non-Restoration Related)</b>
	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 recommended service life defined
3.4.2.9	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
3.4.2.10	Replace RPS CQE power supplies beyond their service life

<b>7</b>  <b>IE, MS, BI, EP, PRS, ORS and SEC Cornerstones</b>	<b>Readiness for Restart</b>	
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<b>7.a</b>  IE, MS, BI, EP, PRS, ORS and SEC Cornerstones	Operations Organization Ready for Restart	
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This item in the Checklist includes a final readiness assessment of the operations organization and all support organizations for safe and reliable restart of the FCS. This assessment will involve thorough review of the organization and operating crew performance and will be completed by a team of OPPD and industry experts.

This will also include confirmation by directors and managers that their programs and work groups are ready for restart.

<b>7.b</b>  IE, MS, BI, EP, PRS, ORS and SEC Cornerstones	Systems Ready for Restart and Mode Restraints Properly Addressed	
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This item in the Checklist includes operations organization confirmation of completion of all the mode change constraints for systems required for restart. The systems will be operational as required by the Operating License and Technical Specifications, and all required actions and tests will be completed.

7.c IE, MS, BI, EP, PRS, ORS and SEC Cornerstones	Final Review of Actions for Restart and Actions Designated as Post-Restart	
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This item in the Checklist includes final confirmation that all restart designated actions have been adequately completed. In addition, this item includes confirmation that post-restart designated items have been tied to mode change checklists as appropriate and confirmation that:

- Degraded but operable equipment could remain at start-up provided it meets the following criteria:
  - Robust engineering justification,
  - Approval of the Plant Review Committee, and
  - Approval of the Site Vice President.
- A post-restart action can be readily worked on line, does not affect safe and reliable operation, does not represent a significant challenge to Maintenance Rule goals or required allowed outage time, and does not impair operations necessary to perform surveillance or monitoring.

<b>8</b>	<b>Confirmatory Action Letter Resolution</b>	
8.a	Verification that All Restart-Related Confirmatory Action Letter Items are Appropriately Resolved	
8.b	Conduct Public Meeting Regarding Plant Readiness for Restart	

OPPD will prepare a Restart Readiness Report that will describe the results of the implementation of the activities described in the Integrated Performance Improvement Plan, and provide verification that all activities necessary to address the restart-related Confirmatory Action Letter have been completed. This report will be submitted on the docket to the NRC requesting authorization for restart of FCS. In addition, OPPD will present the results of its recovery activities at a public meeting with the NRC.

<b>9</b>	<b>Final Recommendation for Restart</b>	
9.a	Manual Chapter 0350 Panel recommends restart to the Region IV Administrator. The Region IV Administrator obtains concurrence for restart from the Deputy Executive Director for Reactor and Preparedness Programs and the Director of the Office of Nuclear Reactor Regulation.	

This Checklist item addresses NRCs final decision making process authorizing the restart of FCS.

OPPD has no activities under this Restart Checklist section.



## Sample Annunciator

INPO/WANO Performance	INPO - 9 NPSI System Performance	INPO - 12 Collective Radiation Exposure	INPO - 13 Total Industrial Safety Accident Rate	INPO - 14 Loss of Shutdown Cooling Events		
NRC- Regulatory Performance	NRC - 4 MPSI Emergency AC Power System	NRC - 5 MSP High Pressure Safety Injection System	NRC - 6 MSP Auxiliary Feedwater System	NRC - 7 MSP Residual Heat Removal System	NRC - 8 MPSI Cooling Water System	NRC - 9 MSP Safety Systems Functional Failures
	NRC - 12 Emergency Plan Drill Exercise Event Performance	NRC - 13 ERO Exercise - Drill - Event Participation	NRC - 14 Alert Notification System Reliability	NRC - 15 Occupational Exposure Control Effectiveness	NRC - 16 RETS/OCOM Radiological Effluent Occurrences	NRC - 17 Protected Area Security Equipment Indicator
	WNLV - 1 Work Hour Limitation Violations	WNLV - 2 Schedule variance by Department				
Production / Cost / Staffing	COST - 4 Level 3 O&M Cost Management	COST - 3 Capital Cost Management	COST - 5 O&M Overtime	COST - 6 Staffing Levels (Full-time Employees)		
Operations	POP - 6 Operator Challenge Aggregate Impact Factor	POP - 2 Reactivity Management	POP - 3 Reactivity Management Event List	POP - 7 Mispositioned Plant Components	POP - 9 Tagging Errors	POP - 11 Procedural Compliance
Industrial Safety and Human Performance	CHU - 4 Station Human Performance Event Clock Resets	IS - 1 Industrial Safety Performance	IS - 3 Industrial Safety Work Order Inventory and Average Age	IS - 4 OSHA Recordable Injuries per 200,000 person hours	BP - 3 Outage Personnel Contaminations	
Maintenance	AMWM - 3 Corrective Maintenance Backlog	AMWM - 4 Deficient Maintenance Backlog	AMWM - 5 Timely Completion of PMs	AMWM - 6 PM Task Deferral	AMWM - 7 Overdue PM Task	AMWM - 8 Schedule Adherence
	NA					
	AMWM - 9 Outage Activity Backlog	AMWM - 12 Timely Completion of First Time Performance PMs	AMWM - 13 First Time PM Task Deferrals	AMWM - 14 Readiness of First Time Performance Preventative Maintenance Activities	AMP - 1 Engineering Change (EC) Implementation Backlog	AMTC - 2 Maintenance Rework
	CCA - 30 CIs with Open Non-Outage RIS 2005-30 (GURS-30) Action Items	CCA - 30 - 1 CIs with Open Outage Required RIS 2005-30 (GURS- 30) Action Items				
Engineering	CCA - 35 CIs for Calculation Errors	BACC - 1 Boric Acid Corrosion Control Program	EDEN - 2 Engineering Change Scheduled by DCIT - Schedule Adherence	EDEN - 4 Engineering Document Change Requests (DCRs) Inventory	EDEN - 7 Field Design Change Requests (FDCRs)	EDEN - 8 Engineering Change Closure Timeliness
	EPBG - 4 Equipment Reliability Clock Resets	EPBG - 5 ASME XI IST Components In Alert Range	EPBG - 7 Maintenance Rule Functional Failures (MRF)	EPBG - 10 AP 913 High Critical Component Failure	EPBG - 11 Components in Degraded PM as-found Condition	EPBG - 12 PM Feedback for Equipment as-found Condition
	EPBG - 13 Components in "Failed as- found" Condition	ESYS - 1 Temporary Modifications Installed	ESYS - 3 Fire Protection Impairment Permits			
Corrective Action and Performance Improvement	CCA - 1 CI Inventory and Average Age (excluding LTA CIs)	CCA - 7 CAPR Inventory and Avg. Age (CAs to Prevent Recurrence of Level A, B CIs)	CCA - 11 Overdue Corrective Actions	CCA - 13 Condition Reports Action Items Due Date Extensions	CCA - 16 Failed Condition Report Effectiveness Review	CCA - 18 CI Self-identification Ratio
	CCA - 23 Apparent Cause Analysis Effectiveness	CCA - 24 Root Cause Analysis Effectiveness	CCA - 36 Operating Experience Effectiveness	CPI - 1 Self Assessment Effectiveness	CPI - 2 Benchmark Effectiveness	CCA - 3 Line Responsiveness to Overnight Identified Issues
Training	TRNG - 1 Accredited Training Programs - Qualification Aggregate Index	TRNG - 2 Site Qualification Aggregate Index	TRNG - 3 Line Management Observations of Training - Accredited Training Programs	TRNG - 5 Simulator Change Requests		

## APPENDIX E: COMMUNICATIONS PLAN

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## Omaha Public Power District

### Fort Calhoun Station

### Integrated Performance Improvement Communications Plan

Revision 1

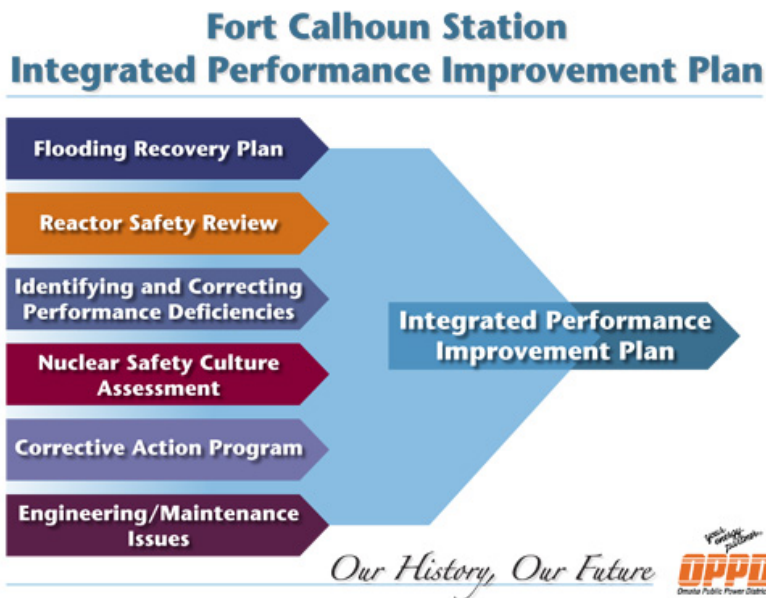
July 9, 2012

#### Situation Analysis

Omaha Public Power District (OPPD) has publicly committed to improving performance and processes at Fort Calhoun Station (FCS) and to return the plant to the highest level of excellence.

The plant has been placed in Manual Chapter 0350 by the Nuclear Regulatory Commission (NRC). There have been multiple initiatives to address the concerns from the NRC. These have been brought together into an Integrated Performance Improvement Plan. This plan provides the roadmap and ownership for returning the station to excellence in a safe, efficient and expedited manner.

To support this major task, a comprehensive and robust communications plan will help OPPD to effectively communicate to both internal and external audiences in a **thorough, professional and transparent** manner.



***Right Tools, Right Behaviors, Right Now***

This plan supports the implementation of the Fort Calhoun Station Integrated Performance Improvement Plan. It is key for all employees (our people) to fully understand and be able to act upon the critical priorities and this will mean adopting behaviors that will change our culture now and in the future.

Clear information is power, and this plan is designed to empower our people to bring Fort Calhoun Station back online and back to the forefront of nuclear excellence. The cultural change necessary must be more than sustainable; it must become part of our corporate DNA.

The plan builds off OPPD's vision of being recognized as the ideal utility, with a mission of delivering energy services that exceed the expectations of our customers. It will use the corporate values throughout and will remain flexible to respond to changing events. Additionally, it reinforces the Fort Calhoun Station vision of sustained excellence.

The communications plan includes a number of steps, some already underway, that are divided into three basic phases: build a foundation of change, solidify and build on that foundation, and lock that change into our DNA for sustainability.

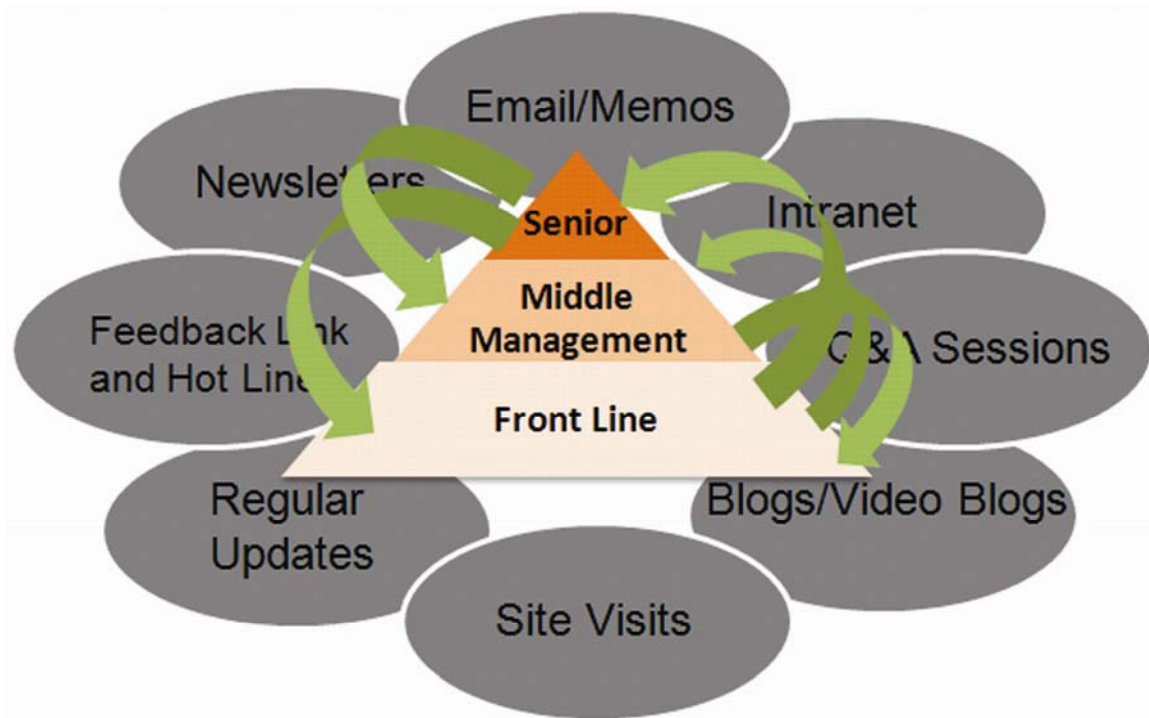


### Phase I: Build a foundation of change at Fort Calhoun Station

The first phase encompasses the first three steps. First, we have established the fact that, "This is urgent!" We are in a serious situation and must change how we operate and do it now. Next are the communications efforts promoting the fact that change can be accomplished and help is available. The third step will be to build a communications roadmap and infrastructure that show the channels, sources and destinations for communications.

## Phase II: Solidify and build on that foundation

Using the roadmap set out in Phase 1, the second phase of the plan opens various and, as necessary, new channels of communications among our people. It will also empower our people with communications tools and guidance to communicate up, down, laterally and diagonally to ensure alignment in critical tasks and missions.



## Phase III: Lock that change into our DNA

Positive reinforcement has been proven as one of the most effective means of changing behavior. Moving into the third phase of our communication, we will publicize the victories and the changed behavior. It will concentrate on catching employees “doing something right” and reinforcing that behavior. The last step will be one that will go on indefinitely; the step that takes the new culture and imprints it the Fort Calhoun Station DNA.



## **Overarching Communication Goals**

- Foster a strong nuclear safety culture
- Clearly define FCS's priorities and focus our people on their roles in accomplishing them
- Ensure all our people understand and embrace a sense of urgency and the need to change the way we all do business in order to achieve and sustain excellence at FCS
- Communicate new standards, expectations and accountabilities
- Show our people how to measure improvement
- Endorse the right behaviors that will lead to excellence
- Encourage change by recognizing those who do it best
- Reinforce the importance of their role in generating carbon-free electricity and exceeding customer expectations
- Provide channels of communication for our people to work together inside and outside their departments and organizations
- Provide information on successes at FCS to other parts of OPPD in order to engender understanding
- Provide transparency with various external audiences to maintain public trust and confidence

## **Strategies**

- Provide concise and accurate communications that reach our people at all levels using a variety of channels
- Provide a consistent look to communications vehicles
- Increase those channels of communication (e.g. digital signage) as necessary
- Provide our people with face-to-face engagement with leadership
- Increase leadership visibility to increase trust and reinforce accountability
- Promote victories and proper culture changes to encourage right behaviors
- Work closely with corporate, other divisions and the FCS Integrated Recovery Team to focus communications toward culture change
- Communicate changes at Fort Calhoun Station to the rest of the company to show progress and share experience
- Maintain and build relationships with local community, regulators and industry by communicating progress and challenges

## Audiences

- Employees (our people)
- FCS contractors/vendors (supplemental) personnel
- FCS managers & supervisors
- FCS senior leadership
- OPPD senior managers
- OPPD board of directors (esp. Nuclear Oversight Committee)
- OPPD employees companywide
- OPPD retirees
- Residents of Emergency Planning Zone in Nebraska and Iowa
- Nuclear Regulatory Commission
- Institute of Nuclear Power Operations, Nuclear Energy Institute
- Other Nebraska utilities
- Local leaders (governmental officials, other leaders)
- OPPD customers
- News media
- Local service organizations
- Educators

## Key Messages/Themes

Over the years, a tremendous number of priorities, messages and catch phrases have been communicated. This, inevitably, has led to confusion. This communications plan provides focus and clear direction, maintain a scorecard of our progress, and develop more tools to communicate with our people.

We will use the Integrated Performance Improvement Plan to serve as the visual roadmap which will provide milestones of our progress. Each section will be divided into three components: Plant, People and Processes.

The overall communications platform will be: ***Right Tools, Right Behaviors, Right Now.***

**Phase I:**  
**Building a Foundation of Change at Fort Calhoun Station**

This phase emphasizes to our various audiences that we are in a very serious situation. This already is apparent to most and media coverage during Phase I of various NRC findings and public meetings has underscored the seriousness. There is added pressure to restart the plant as quickly as possible to eliminate the need for purchased power before higher summer prices take hold.

The plan will link this urgency to the fact that past practices have not achieved excellence and FCS must change the way it does its work (the culture). During this phase, the communications team has begun to improve current communications channels, establish means to get regular feedback on communications and install new communications channels. Weekly updates (distributed electronically and through hard copy) already have begun.

Actions
Communicate priorities
Establish sense of urgency (by sharing details of situation, assessments, NRC findings)
Link urgency to need for change
Communicate new organizational/other changes
Communicate measurements
Organize Communications Council
Communicate principles for strong nuclear safety culture
Ongoing communication with community and other stakeholders

**Phase I Tactics:**

- **Communicate priorities**
  - Work with Recovery Team and senior leadership to communicate the top priorities to our people with an emphasis on critical path tasks and behavioral changes needed to accomplish.
    - Update top priorities weekly
    - Daily priority updates already exist in Plan of the Day
  - Utilize weekly update publication, alignment meetings, face-to-face meetings, video and other channels to make certain our people know their own top priorities and how those priorities fit into the overall recovery plan.
  - Introduce new tools and processes to help raise visibility and awareness of plant priorities.
    - Evaluate installation of digital video screens throughout plant
    - Create formal cascade process to leaders to take back to brief their teams
    - Create formal “cascade up” processes for people and teams to send input up the organization
    - Continue to publicize newly-created hotline and rumor control tools.

- **Establish sense of urgency**
  - Provide consistent and clear messages to our people regarding findings, assessments and other challenges.
    - FCS Leaders alignment meetings
    - OPPD Leader meetings
    - OPPD Senior Management meetings
    - Nuclear Oversight Committee
    - Weekly Updates
  - Inform our people of how we got into this situation
- **Link urgency to need for change**
  - Educate our people on the right behaviors
    - Leadership meetings and written tools
    - Promote training
    - Communicate accountability measures
  - Publicize cost of wrong behaviors
    - Injuries
    - Delays through improper work
- **Communicate new organizational/other changes**
  - Communicate to our people how Exelon, other contractors, and employees fit into Recovery Team
  - Communicate progress from various parts of Recovery Team
  - Communicate changes in operation through multiple channels.
- **Communicate measurements**
  - Keep progress of Recovery effort in front of our people
    - Utilize website & other channels of communication
  - Recognize the progress and successes of teams and efforts
  - Assist leaders in communicating new ways to measure performance
- **Communicate principles for strong nuclear safety culture**
  - Upon receipt of final report of Conger & Elsea Independent Nuclear Safety Culture Assessment, immediately start communicating the results to our people
  - Prior to that, communicate INPO behaviors and actions that support a strong nuclear safety culture
- **Ongoing communication with community and other stakeholders**
  - Offer speakers to local civic organizations
  - Offer opportunities for area leaders to tour plant and be updated on progress
  - Offer one-on-one interview opportunities for selected media representatives
  - Be available for comment following NRC public meeting

## **Phase II: Building on the Foundation of Change**

With communications needs identified and a process for filling those needs established in Phase I, the next phase continues to build on the work already accomplished. Communications Council and input from our people in general will direct efforts into how to most effectively communicate and align employees.

Of note is the fact that this phase covers the special time during which Fort Calhoun Station will start generating power again. In the days and weeks immediately prior to this, additional communication will be necessary on site. Following restart, communication will need to be made to the community and other leaders. This will bring about local, national and international media interest.

Also following restart will be a need to redouble communications efforts to keep our people from falling back to old habits.

Actions
Continue to communicate priorities
Deliver new channels of communication
Communicate nuclear safety culture information
Continue to communicate sense of urgency
Refine communication messages and channels in use based on Communications Council input
Assist Training as needed to foster leader communications skills
Communicate crucial startup information
External communications

### **Phase II Tactics:**

- **Continue to communicate priorities**
  - Continue to link priorities to success of plant
  - Establish clear priorities immediately prior to restart
  - Sponsor regular opportunities for small group meetings with Chief Nuclear Officer, Chief Executive Officer
  - Redesign booklets to include plant priorities and new expectations.
- **Organize Communications Council**
  - Council will include those from various areas of site and from various levels of employees.
  - Council will give input on information that needs communication
  - Council will seek feedback on communication issues
  - Council will meet every two weeks in this phase, extending time between meetings in later phases, if desired
  - Council will assist in development of certain communications standards, such as PowerPoint templates, etc.

- **Deliver new channels of communication**
  - As feasible, set up digital video boards and process to update them
  - As feasible, set up other channels as have been designated
  - Utilize video to demonstrate right behaviors
- **Communicate nuclear safety culture information**
  - Analyze and develop communication processes to improve nuclear safety culture
  - Educate our people on importance of improving the nuclear safety culture
  - Communicate processes for improving nuclear safety culture at the plant
- **Continue to communicate sense of urgency**
  - Maintain communication so our people understand the importance of the changes being undertaken.
  - Heighten amount of communication immediately following startup to avoid slipping to “the way things were”
- **Refine communication messages and channels in use based on Communications Council input**
  - Utilize input from Communications Council to direct further methods of communicating with our people
  - Utilize input communicated up from the general employee population to improve communications processes
  - Utilize input from Communications Council and our people to develop processes and channels for up, down, sideways and diagonal communications
- **Assist Training as needed to foster communications skills in leaders**
  - Offer one-on-one coaching to our people in face-to-face communications
  - Offer presentation training to our people
  - Assist in developing department level communications guidelines, processes and plans for leaders
  - Benchmark industry for best practices in communicating at department level and below.
- **Communicate crucial startup information**
  - Develop processes, as necessary, to assist in communicating information prior to startup
  - Following breaker close and attaining of 100 percent power, communicate restart of plant through news releases, website updates, Special Weekly Update edition, video story with leader comments
- **External communications**
  - Make presentations to area civic groups on progress at plant, challenges overcome, etc.
  - Continue to update website on progress being made
  - Be available for comment following NRC public meeting

**Phase III:**  
**Lock that change into our DNA**

Fort Calhoun Station's vision is "Sustained Excellence." Phase III will make that reality by locking the changes accomplished in the first two phases into our corporate DNA. The new way of operating that now being developed will be "Who we are."

Promoting and recognizing the positive results and behaviors will be critical in this. Incentives and recognition have proven most effective in driving behavior. They should be utilized here.

Actions
Continue to communicate priorities
Establish sustainable nuclear communications
Communicate nuclear safety culture information
Continue to communicate sense of urgency
Develop process to sustain Communications Council
External communications

**Phase III Tactics:**

- **Continue to communicate priorities**
  - As the plant proceeds toward INPO 1 status, priorities will continue to be set and need to be communicated
- **Establish sustainable nuclear communications**
  - Place into process the nuclear communications processes developed at this time
  - Train new nuclear communicators
  - Transition to permanent nuclear communications team
  - Establish communications improvement plan, including planning for technology and equipment upgrades
  - Develop and disseminate continuing communications roles and responsibilities for all leaders at Fort Calhoun Station
  - Inculcate into our people their responsibilities to communicate up, down, sideways and diagonally
- **Communicate nuclear safety culture information**
  - Maintain communications on link between a strong nuclear safety culture and success
  - Continue to communicate processes and practices to sustain strong nuclear safety culture

- **Continue to communicate sense of urgency**
  - Communicate link between need for continual improvement and success.
  - Communicate that restart, or even move out of IMC 0350 or Column IV is only beginning
  - Communicate costs of slipping or failure
  - Sponsor regular opportunities for small group meetings with Chief Nuclear Officer, Chief Executive Officer
- **Develop process to sustain Communications Council**
  - Develop process to codify Communications Council into the way we do business (our corporate DNA)
  - Assign a senior manager to sponsor the Communications Council
  - Develop rotation of the Communications Council members to ensure fresh ideas
- **External communications**
  - Continue one-on-one interviews with media to communicate successes and progress of our people and at the plant
  - Evaluate wisdom of media event to mark specific milestones
  - Develop and promote new presentations for local groups on progress and process changes at the plant.
  - Develop relationships with local school science classes to develop interest in nuclear power and develop understanding of nuclear power.
  - Work with industry groups (NEI, INPO) to promote understanding of nuclear power, especially with young people.



## REVISION HISTORY

Revision	Date	Change Summary	Approver
0.0	3/6/2012	Initial Draft	Dave Bannister / Bob Hovey/ Lou Cortopassi
1.0	3/16/2012	Appendix A updated to include link instead of Level I and II summary	Dave Bannister / Bob Hovey/ Lou Cortopassi
2.0	4/24/2012	Updated pages 4 and 5 to describe the tie-in between scoping and CAP. Enhanced text on page 11 describing return to normal operations. Updated org charts.	Dave Bannister / Bob Hovey/ Lou Cortopassi
3.0	7/9/2012	Revised text on pages 4 – 8. Added Flooding Recovery Plan as Appendix B, Restart Checklist Implementation Strategy as Appendix C and performance Monitoring as Appendix D. Moved Communications Plan to Appendix E.	Dave Bannister / Bob Hovey/ Lou Cortopassi