Nuclear Energy Institute

Report on Prioritization and Scheduling Pilot

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The prioritization and scheduling demonstration pilot discussed in this report was accomplished through the dedicated efforts of the six nuclear plant sites who volunteered to participate as pilot plants. We recognize the leadership efforts of the team leads at each site: John Grubb, Xcel Energy; Greg Johnson, Southern Nuclear; Phil Lashley, FirstEnergy; Gerald Loignon, SCANA; Jim Miksa, Entergy; Sonja Myers, Duke Energy.

NOTICE

EXECUTIVE SUMMARY

A process for characterizing, prioritizing, and scheduling regulatory and plant-initiated actions consistent with safety significance was piloted at six nuclear power plant sites during the summer of 2014. This report summarizes the conduct and results from this pilot.

Not since the aftermath of the Three Mile Island Unit 2 accident in 1979 has the commercial nuclear industry seen such a large magnitude of regulatory actions to be implemented in a relatively short time frame. Combined with the many plant betterment projects needed to maintain plant systems reliability, the cumulative impact of regulation and plant activities is challenging the availability of skilled personnel in a number of specialties, as well as overall licensee resources.

In response to this need, a plant-specific prioritization and scheduling process was developed to improve the management of emerging regulatory issues and to address industry and regulatory concerns on the cumulative impact of additional regulatory requirements. Using nuclear safety impact/importance as the predominant factor in the assignment of scheduling priority, an overall characterization is performed that takes into account additional factors such as emergency preparedness (EP), security, equipment reliability, and radiological protection (RP). The process enables the development of scheduling priorities that are based on factors supporting safe plant operation. The industry approach, which is described in NEI 14-10, "Guidelines for Prioritization and Scheduling Implementation," is generally consistent with SECY-12-0137, "Implementation of the Cumulative Effects of Regulation Process Changes," as directed in the accompanying staff requirements memorandum,[1] as well as COMGEA-12-0001/COMWDM-12-0002,[2] "Proposed Initiative to Improve Nuclear Safety and Regulatory Efficiency."

In COMGEA-12-0001/COMWDM-12-0002, Commissioners Apostolakis and Magwood noted that:

> *A plant-specific approach to implementation of regulatory actions would serve to focus licensee and NRC attention more effectively on important safety issues in those cases in which they present higher relative risks and to defer other issues of lower safety significance. If such a prioritization were effected at each plant, it would improve the safety of the fleet and would also enable licensees to manage their resources and work in a more effective and efficient manner.*

Pilots at six nuclear power plant sites were completed during the summer of 2014 to exercise the methodology for a total of 105 issues comprising 59 plant improvement activities and 46 activities driven by a regulatory requirement or plant commitment. The process was carried out with the use of a plant integrated decision-making panel (IDP). The IDP is comprised of knowledgeable plant personnel whose expertise represents important process and functional elements of the plant organization. The panel reviews the evaluation of issues provided by a plant subject matter expert (SME), to arrive at plant-specific importance characterizations. After each issue is assigned a level of importance (high, medium, low, very low or none) in each of five categories (Safety, Security, EP, RP and Reliability), criteria are used to assign the issue a priority level from 1 to 5. The philosophy behind this approach is based on the objective to focus licensees' resources on those issues and

[1] SECY-12-0137, "Implementation of the Cumulative Effects of Regulation Process Changes," October 5, 2012, and associated SRM-12-0137, March 12, 2013.

[2] COMGEA-12-0001/COMWDM-12-0002, "Proposed Initiative to Improve Nuclear Safety and Regulatory Efficiency," February 6, 2013.

activities that have the greatest benefit to public safety. The prioritization process thus assigns higher weight to those issues and activities that are known to directly influence the metrics such as core damage frequency (CDF) and large early release frequency (LERF). However, the prioritization process also recognizes the need to address security, emergency preparedness, radiological protection, and reliability that have a nexus with safety. Generally, activities will be implemented as soon as practical considering the next available scheduled outage, if an outage is needed – based on priority.

The pilot activities clearly demonstrated the strength and value of a scheduling process that prioritizes plant safety. Each of the six pilot plants identified instances where low safety importance issues were scheduled ahead of issues with significantly higher safety importance. This result applied to both regulatory driven issues and to plant-initiated actions.

In one example, a pilot plant identified that the importance of an action to install incipient fire detection equipment in response to their transition to NFPA-805 would warrant accelerating its schedule. This same pilot identified multiple instances of issues, both regulatory driven and plant initiated, where relatively low importance would warrant a re-evaluation of schedules and possibly support a delayed implementation.

The uniqueness of each nuclear plant's design and operation impacts the safety importance of issues, warranting consideration of plant-specific designs in determining the implementation schedules for issues that impact multiple plants (i.e., generic issues). The prioritization process serves a valuable role in identifying the unique plant design features that impact the importance of an issue. An action that illustrates this is replacement of reactor coolant pump seals with enhanced low-leakage designs. Four of the six pilots included RCP seal replacement actions in their evaluations. Driven by site specific design features, the safety importance for this action ranged from Very Low to Medium and led to a broad array of priority assignments (from 4 to 2). In a second example, four of the six pilots evaluated the importance of design modifications to address vulnerabilities to open electrical phases. The results from these four plants all showed very low safety importance for this modification. This result is inconsistent with the current generic implementation schedules that were established, in part, based on a plant design that exhibited a higher safety importance for the issue.

The use of a multi-disciplinary panel, bringing together a broad range of expertise and experience, is viewed as a critical part of the prioritization process. A strong level of engagement of all panel members was observed during the pilots. The inter-disciplinary discussion that occurred during IDP meetings led to the identification of factors that had not been fully considered previously and resulted in changes to decisions reached by subject matter experts.

The examination of more than 100 issues provided an opportunity to compare the results obtained by the six sites on similar issues. The results showed the process to be robust and repeatable. Areas for improvement were also identified and have been addressed in the guidance document.

The prioritization and scheduling process provides a means to prioritize plant activities on the basis of their importance to plant safety, independent of whether the issue is plant-initiated or driven by a regulatory requirement or commitment. The process can be used to support plant decisions on the scheduling of plant-initiated and regulatory actions. Two of the pilot plants are using results from the pilot to support changes to regulatory commitments. A final determination by the NRC on whether the process can be used to support schedule changes on regulatory issues is expected to be made in the spring of 2015.

TABLE OF CONTENTS

Executive Summary ii

1.0 Introduction 1

2.0 Prioritization and Scheduling Process Development 2

2.1 Brief History 2

2.2 Tabletops 2

2.3 Generic Assessment Expert Team Evaluations 2

3.0 Conduct of the PilotS 4

3.1 Pilot Process 4

3.2 Identification of Issues 4

3.3 Identification of SME and IDP Members 5

3.4 Training 6

3.5 Issue/IDP Assessments 6

3.6 Aggregation and Assessment of Potential Schedule Changes 7

4.0 Review and Assessment of Pilot Results 12

4.1 Repeatability and Consistency of Pilot Results 12

4.2 Pilot Plant Assessments of Process and Results 14

4.3 Costs Associated with Conduct of Pilot 15

4.4 Guidance Revisions 16

Appendix A – Pilot Issues A-1

Appendix B – Compilation of Issue Assessment B-1

1.0 INTRODUCTION

The purpose of this document is to describe and summarize the conduct and results of an industry pilot for a process used to characterize, prioritize and schedule regulatory and plant-identified actions at licensee facilities consistent with safety significance. The process is documented in topical report NEI 14-10[3].

In the NEI 14-10 process, safety impact/importance is the predominant factor used in the assignment of scheduling priority. Following safety importance characterization (high, medium, low, very low, none), an overall characterization is performed that takes into account additional factors such as emergency preparedness, security, equipment reliability, and radiological protection to capture the broader safety significance of any issues in those areas that could not be directly captured under the (nuclear) safety importance. This overall characterization is factored into the plant's existing scheduling process that takes into account other factors, such as availability of personnel and equipment.

The approach is risk-informed, in that generic and plant-specific risk information is an important input to the overall safety impact characterization process. Relevant sources of risk information are considered, and both qualitative and quantitative approaches are used. A set of qualitative screening questions is used to support the initial steps of the process. PRA models can be used, and were used as appropriate, to inform the process. The ability to factor in the quantitative risk information relies on the quality and availability of PRA models. For the purposes of scheduling activities, this process provides an appropriate level of technical rigor. The approach is consistent with existing functions such as the reactor oversight process and the 10 CFR 50.59 process. *This safety importance characterization is intended only for the purposes of scheduling.*

[3] NEI 14-10, Guidelines for Prioritization and Scheduling Implementation, November 2014

2.0 PRIORITIZATION AND SCHEDULING PROCESS DEVELOPMENT

2.1 Brief History

Regulatory related expenditures have more than doubled since 2005, while expenditures on engineering and plant reliability improvements have decreased by more than 20 percent with no reduction in industry safety performance. Compounding the increased regulatory workload have been numerous examples of changing and expanding regulatory expectations, including administrative requirements and guidance. Whether it is meeting expectations for compliance (with margin) for new regulatory requirements, striving for excellence with INPO performance objectives and criteria, or implementing NEI industry initiatives, there is ample evidence that plants overshoot implementation, applying more and more programmatic requirements to a broader scope of equipment than was either intended or necessary. Taken together, the regulatory and industry self-imposed cumulative impact threatens to dilute the necessary focus on safe, reliable operation and places an unsustainable and growing cost burden on plant sites.

In response to the growing cumulative impact, industry developed a straightforward process for prioritization and scheduling as documented in NEI 14-10. The process is safety focused and risk informed. It includes generic and plant-specific components and could be applied by industry, NRC, or NRC and industry in coordination.

2.2 Tabletops

Instrumental in the development of the prioritization and scheduling process was the conduct of various tabletops to test and refine the process and associated draft guidance. Generic safety importance aspects of the process were exercised in a December 2013 tabletop as described in Section 2.3. Plant-specific (P-S) use of the process was exercised at three licensees, Xcel Energy (Prairie Island/Monticello), Duke Energy (Robinson), and SCANA (V.C. Summer), during tabletops in the first quarter of 2014. The P-S tabletops included approximately 10 issues/items each and evaluated them based mainly on Safety as well as other categories (Security, Emergency Preparedness, Radiation Protection, and Reliability) but to a lesser extent. This resulted in refinements to the draft guidance prior to conducting the full pilots as described in Section 3. Concurrent with the pilots, public meetings were held to continue to improve and tabletop the Security, Emergency Preparedness, Radiation Protection, and Reliability category assessments.

2.3 Generic Assessment Expert Team Evaluations

The prioritization and scheduling process outlined in NEI 14-10 relies upon the use of industry experts to perform an initial assessment for generic regulatory issues. The generic assessment expert team (GAET) essentially takes the form of a generic, versus plant-specific, Integrated Decision-making Panel, comprised of Industry technical leaders supported by subject matter experts (SMEs), as needed, using the process provided in the implementation guidance for prioritization and scheduling. The output of the GAET deliberations is a document of issue significance

characterization and associated bases, including identification of plant-specific considerations which could influence the significance on a P-S basis. These results are then made available for use by plant IDPs.

A tabletop exercise of the GAET process was conducted in December 2013 and evaluated seven issues:

- Improved RCP Seal Packages
- Fitness for Duty Enhanced Testing
- SAMG and EOP Integration
- Extended Loss of AC Power and Associated FLEX
- NTTF 2.1 Flooding Hazard Reevaluation
- Cyber Security Rule Implementation
- Reliable Spent Fuel Pool Instrumentation

The GAET process was then piloted on three generic regulatory issues in May 2014:

- Draft Generic Letter on Spent Fuel Pool Neutron Absorbers
- Draft Regulatory Issue Summary on Tornado Missile Protection
- Open Phase Vulnerability

3.0 CONDUCT OF THE PILOTS

3.1 Pilot Process

The prioritization and scheduling process was piloted at six sites during the Summer of 2014. The six sites were:

- Davis-Besse, operated by FirstEnergy
- Hatch, operated by Southern Nuclear
- Palisades, operated by Entergy
- Prairie Island, operated by Xcel Energy
- Robinson, operated by Duke Energy
- V.C. Summer, operated by SCANA

Each of the pilot plants was requested to conduct a pilot of the prioritization and scheduling process over a period of 6 months (April 2014 – October 2014). The pilot process closely followed the prioritization and scheduling process outlined in the draft NEI 14-10 guidance document as of the late spring of 2014. This process involved:

- Identification of issues to be examined in the pilot
- Identification of Integrated Decision-making Panel (IDP) members
- Training of personnel on the prioritization and scheduling process
- Development of plant-specific assessments for each issue
- Evaluation of each issue by the IDP
- Aggregation of results and assessment of potential schedule changes
- Review and assessment of results from the pilot

The conduct of and outcome from each of these steps is discussed below.

3.2 Identification of Issues

Each pilot was requested to identify and pilot 10 to 20 activities/issues[4] at their plant site. This number was chosen as an appropriate number to exercise the process steps and provide information on the value of the process. Approximately half of the issues were to be plant-initiated activities and half of the issues were to be issues driven by a regulatory requirement or plant commitment. The pilot plants were further instructed to select a broad range of issues that would serve the purpose of exercising the prioritization and scheduling guidance. To this end, the pilot plants were asked to

[4] For the purposes of this report, the term "issue" will be used in a broad sense to cover those items addressed by the prioritization process. These items cover actions alternatively referred to as projects, plant improvement actions, and process changes.

specifically identify and include, if possible, issues that impacted the areas of physical protection (Security), Cyber Security, Emergency Preparedness, and Radiological Protection.

A total of 105 issues were evaluated by the pilot plants, comprising 46 activities driven by a regulatory requirement or plant commitment and 59 plant-initiated (Plant Improvement) activities . The number of issues evaluated by each pilot plant is shown in Table 3-1. A listing and description of issues evaluated by each plant is provided in Appendix A.

Table 3-1 Number of Piloted Issues

	Davis-Besse	Hatch	Palisades	Prairie Island	Robinson	Summer
Regulatory	6	7	10	8	11	4
Plant Improvement	12	13	10	9	11	4
Total	18	20	20	17	22	8

Included among the issues were a number of plant activities associated with transitions to performance-based fire protection under 10CFR50.48(c), commonly referred to as NFPA-805, and activities associated with the implementation of NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX)." Other issues that were addressed by more than one pilot plant were:

- Installation of reliable spent fuel pool instrumentation
- Modifications to address vulnerability to open phase offsite power source
- Reactor Coolant Pump seal replacements
- Cooling tower modification/replacement
- Installation of a security intrusion monitoring system (10 CFR 73.54 Recommendation 8)

The request that plants include a broad array of issues as part of the pilot resulted in the selection of issues that were well advanced in implementation. While these issues served the need to more fully exercise the prioritization guidance, their advanced stage of implementation meant that any prioritization results would likely not be used to change the current schedule for completion.

3.3 Identification of SME and IDP Members

Each issue is evaluated by one or more persons with familiarity and expertise on the issue. These subject matter experts (SMEs) are responsible for the development of an importance evaluation for the issue using guidance in NEI 14-10 and for the presentation of this evaluation to the integrated decision-making panel (IDP).

The IDP is composed of knowledgeable plant personnel whose expertise represents the important process and functional elements of the plant organization, such as operations, engineering (e.g., design, systems, electrical, I&C including information technology, nuclear risk management), Industry operating experience, licensing, training and maintenance. The panel can call upon

additional plant personnel (e.g., emergency planning), subject matter experts or external consultants, as necessary, to assist as appropriate.

The precise makeup of the panel is determined by the licensee. Experience, plant knowledge, familiarity with current regulatory issues, and availability to attend the majority, if not all meetings, are important elements in the selection of IDP members. In general, there should be at least five experts designated as members of the IDP with joint expertise in the following fields:

- Plant Operations (SRO qualified)
- Design and Systems Engineering
- Safety Analysis
- Probabilistic Risk Assessment
- Licensing

The panel members were assisted during meetings by subject matter experts and additional plant personnel to complete the evaluation of importance determinations.

3.4 Training

Training on the prioritization and scheduling process was conducted in two stages. The first stage involved training of pilot plant leads and industry personnel supporting generic assessment expert team (GAET) evaluations. This training was conducted at NEI offices in February and May 2014. The second stage of training involved pilot plant leads scheduling and conducting training of SME and IDP members at each pilot site prior to initiation of the prioritization process. The training addressed:

- Purpose of the prioritization
- Prioritization and scheduling process
- Risk-informed defense-in-depth philosophy and criteria to maintain this philosophy
- PRA fundamentals
- IDP process, including roles and responsibilities.

Each of these topics was covered to the extent necessary to provide personnel with a level of knowledge sufficient to evaluate and approve prioritization using both qualitative and quantitative information.

3.5 Issue/IDP Assessments

Each pilot scheduled and conducted the pilot evaluations in three general phases: SME evaluations, IDP assessment meeting(s) and a final IDP aggregation meeting. The SME evaluations were conducted over a period of several weeks. This was followed by one or more IDP meetings and, following the completion of IDP assessments, a final IDP aggregation and scheduling impact meeting.

Each IDP meeting was led by a chairman and used a consensus process for decision-making. The decisions of the IDP, including the basis, were documented and retained. The IDP assessments, in several instances resulted in changes to the SME assessment results. In other cases, the panel requested the SME to provide additional information before the IDP assessment was finalized.

NRC personnel attended many of the pilot IDP evaluation meetings and attended all six of the pilot IDP aggregation meetings.

3.6 Aggregation and Assessment of Potential Schedule Changes

After the plant IDP assigned each issue a level of importance (high, medium, low, very low, or none) in each of the five categories (Safety, Security, EP, RP and Reliability), a priority level from 1 to 5 was assigned using criteria from NEI 14-10:

Priority 1
- Issue defined by NRC as adequate protection, OR
- High for Safety, OR
- Two or more Highs for any of the four other categories (Security, EP, RP, Reliability)

Priority 2
- Medium for Safety, OR
- One High for any of the four other categories, OR
- Two or more Mediums for any of the four other categories

Priority 3
- Low for Safety, OR
- One Medium for any of the four other categories, OR
- Two or more Lows for any of the four other categories

Priority 4
- Very Low for safety, OR
- One Low for any of the four other categories

Priority 5
- Does not meet any of the criteria for Priorities 1 through 4

The priority assignments for all issues were reviewed in aggregate by the IDP during a final meeting. During the "aggregation" meeting, the IDP performed a pair-wise comparison of issues within each priority bin and across bins, as appropriate, and determined a final priority and ranking of issues. Comparisons were then made between issue priorities and schedules to determine recommendations for schedule revisions. A compilation of aggregation results for each pilot is provided in Appendix B

Davis-Besse

FENOC conducted a final aggregation meeting of the Davis-Besse IDP on August 28, 2014. During the aggregation process, existing fleet value rankings (FVRs) were used as a tool to help resolve tie-breakers within the overall final ranking. FVRs are a tool utilized by FENOC management to determine the relative order that issues should be addressed based on their importance to achieving the objectives set in the FENOC Business Plan. The FVR process gives a maximum score to items that are driven by a regulatory requirement or commitment. The final project rankings identified several regulatory driven projects with a high FVR that ranked low in relative priority due to minimal safety impact.

The results of the aggregation process were presented to the Davis-Besse Plant Health Committee (PHC) on September 22, 2014. The PHC found the aggregation findings insightful and helped

validate current priorities on several items such as control rod replacement (DB02) and dry cask storage (DB08).

The PHC evaluated the results and ranking for changes to spent fuel pool instrumentation (DB17). This item ranked 17 out of 18 items within the aggregation process. It was noted during the Plant Health Committee that this item would be a candidate to be delayed. However, as the item has already had significant work completed, actions were not taken to pursue delaying the activity.

Hatch

Southern Nuclear conducted a final aggregation meeting on September 10, 2014. During discussion and review of issue priorities the IDP agreed that the Safety/Relief Valve Upgrade project (HAT04) – a Priority 3 project – should be changed to a Priority 2 project. This decision was made based on the safety impact that leaking SRVs had by requiring a mid-cycle shutdown. The NRC attendee at this meeting commented that the priority change of the SRV Upgrades seemed to be a positive move by the panel based on insights related to plant risk during a mid-cycle shutdown. The allowance for an IDP to change priority determinations has since been removed from the guidance in response to NRC comments/concerns expressed during a November 4 public meeting.

After completion of the project rankings, the IDP reviewed current project schedules and expected completion dates and discussed the potential for project schedule changes based on priority rankings. As a result of the discussion, action was taken by Engineering to have the Plant Health Committee review the grading of the Priority 3 projects and see if the committee wants to re-evaluate and move any Priority 3 (non-NRC commitment) projects around. This action was subsequently completed on 9/24/2014.

A review of the schedule for Priority 4 projects by the committee determined that there was opportunity to reschedule lower level projects. It was noted by the IDP that since the Seismic Monitoring System Improvement project (HAT19) was the lowest Priority 4 project, it could be earmarked to be rescheduled.

The IDP also discussed the Open Phase Protection project item (HAT18) and on-going NEI/NRC discussion relative to a 1E (safety related) or non-safety related solution. Depending on the NEI/NRC discussion later in 2014 or early 2015 the industry as a whole or Hatch as a specific site may have to re-visit the NEI commitment date.

The Degraded Grid Transformers project (HAT17) is Hatch specific. Previous letters between SNC and NRC committed to a March, 2020 date. However, since this project has low safety significance, SNC could potentially ask for an extension for the following reasons:

- Low ranking within NEI Priority 4.
- Very Low Safety Importance.
- Very large commitment of resources: people, equipment, design. (large project team required)
- An approximate $40 million budget directly attributed to addressing this issue.

- The project execution schedule goes all the way up to the 2020 due date with no additional margin in the schedule for implementation issues.

The panel agreed to provide the Plant Health Committee a recommendation to request a NRC commitment date change for the Degraded Grid Transformers project. Action was taken to present this to the PHC and that action was completed on 9/24/2014.

As a result of this pilot process the Hatch station will be following up with the NRC with a request for a change to the commitment date for the Degraded Grid Project. Also the station will be pursuing a change to the NEI commitment date for the Open Phase Project.

Palisades

Entergy conducted a final aggregation for Palisades on September 29, 2014. The IDP confirmed the priority rankings for the 20 projects and performed a pairwise comparison to ensure an accurate relative priority was reflected. Finally the projects were ranked, within a NEI Priority group, based on NEI 14-10 guidance for tie-breakers within a Priority level. For priority groups with more than 5 projects the top three were selected first, then the bottom three and then the projects that remained in the middle of the group were prioritized.

After completion of the Aggregation, the IDP panel determined the target completion dates for each project based on NEI 14-10 guidance. To facilitate scheduling, a four step process was followed that consisted of:

1. Identifying each project as Outage or On-Line
2. Sort each group (Outage and On-Line) per NEI/Palisades priority
3. Based on plant conditions (i.e. Outage train windows) assign target completion dates
4. Based on available resources (Personnel, Budget, etc.) adjust completion dates

For Incipient detection (PAL01), its importance in the reduction of fire risk at Palisades resulted in the pilot schedule completion date being earlier than the current scheduled completion date. Based on this result the fleet project manager will be consulted as to the feasibility of installing the detection earlier than currently scheduled (October 2016).

Comparing the pilot process assigned priorities to the plant health committee (PHC) priorities revealed that risk insights were not consistently used at PHC. Based on this result a procedure change request will be initiated for addition of PRA risk insights to PHC discussions and priority assignments.

Installation of an electrical open phase detection and Isolation circuitry per NRC Bulletin 2012-01, “Design Vulnerability in Electric Power System” (PAL18), was determined to be of very low safety importance when applied to Palisades’ electrical design. It also introduces an added risk from a false isolation signal. Based on these results Palisades will consider the use of the PRA insights as a basis for a NRC exemption from the isolation function of the detection system.

Prairie Island

Xcel Energy conducted a final aggregation meeting at Prairie Island on September 4, 2014.

Based on the overall ranking that came out of the pilot, the station determined that they will revisit both the decision to implement some modifications and the timing of those modifications, if they are done at all. The projects that will be reevaluated are the three lowest ranked issues evaluated under the pilot. These issues are:

- Westinghouse Radiation Monitor Replacement (PI16) – Priority 5
- Replace Traveling Screens (PI15) – Priority 5
- Cooing Tower Refurbishments (PI14) – Priority 4

Robinson

Duke Energy conducted a final aggregation meeting at Robinson on August 7, 2014. Ranking of issues within the same priority level occurred through a consensus process.

Based on the final ranking, it was decided that the Open Phase Byron Event issue (ROB11) should be revisited to evaluate the scope of the change to possibly exclude the automatic disconnection from the offsite power source. The team found that the indication portion of the change provided benefit, but this was off-set by the new failure mechanism of a disconnect from the grid when not required.

Action was also taken to change a commitment to implement TSTF-523 (ROB16). This action was completed via an October 14, 2014 letter to NRC.

Three items will be reviewed for cancellation based on the low impact to nuclear safety and equipment reliability. Those projects are B Battery replacement (ROB22), Isolation Valve in RWST Supply to charging pumps pipe 4-SI-82 (ROB21), and Dam/Reservoir lake Level Indication (ROB19).

Summer

SCANA conducted a reduced scope pilot of only three projects. The final aggregation meeting was held on September 4, 2014 and included five projects from an earlier tabletop exercise of the NEI Prioritization and Scheduling Process.

The Project Prioritization Committee (PPC), equivalent to the NEI 14-10 IDP, conducted a pair wise comparison to validate the final prioritization results. Tie breakers within a prioritization were the number of attributes greater than “None,” the Plant Health Committee (PHC) score and, if necessary, other NEI 14-10 criteria.

The Spent Fuel Pool Level modification (SUM06) is the lowest ranked project. However, since Summer has only a small population of projects that have been evaluated using the NEI 14-10 process and because of the extent of completed work, the station will not initiate actions to delay this project.

The PPC found the process to be robust, repeatable, and to minimize the impact of passion on the results. They plan to incorporate aspects of NEI 14-10 into their procedures.

4.0 REVIEW AND ASSESSMENT OF PILOT RESULTS

4.1 Repeatability and Consistency of Pilot Results

The prioritization and scheduling process should provide consistent and repeatable results when implemented. The uniqueness of plant designs and differences in the manner by which issues are addressed by licensees will always play a part in prioritization results; however, it is expected that these differences can be clearly identified and understood.

To assess the repeatability/consistency of prioritization results, a comparison was performed of importance determinations for similar issues. The issues used for this comparison are changes/modifications associated with NFPA-805, Reactor Coolant Pump seals, Open Phase vulnerability and Spent Fuel Pool Instrumentation.

NFPA-805: This topic covers plant modifications associated with the transition to performance-based fire protection under 10CFR50.48(c). These modifications ranged from installation of incipient detection systems to the installation of fuses/breaker replacement in electrical panels. Despite the variety of physical changes addressed under NFPA-805, the prioritization results were very consistent.

Desig.	Safety	Security	EP	RP	Reliability	Priority
PAL02	M	N	N	N	N	2
PAL03	M	N	N	N	N	2
ROB02	M	N	N	N	N	2
ROB03	M	N	N	N	N	2
ROB04	M	N	N	N	N	2
PI02	M	N	N	N	N	2
PI03	M	N	N	N	N	2

Desig.	Title
PAL02	Incipient Detection for Cable Spreading, electrical equipment room
PAL03	Electrical Coordination Modifications
ROB02	NFPA 805 - Incipient Detection
ROB03	NFPA 805 - Suppression and detection modification
ROB04	NFPA 805 - Electrical Coordination
PI02	NFPA 805 – Hot Shutdown Panel
PI03	NFPA 805 - Incipient Fire Detection

Reactor Coolant Pump Seal Modifications: Four of the five PWRs in the pilot included projects that involved replacement of reactor coolant pump seals. These modifications varied from “like for like” replacement as a preventive maintenance activity (Palisades) to replacement with improved seal packages (Robinson, Summer, Prairie Island). The priority assignments for these modifications ranged from Priority 4 for the Palisades “like for like” replacement to Priority 2/3 for the improved seal replacements at Robinson, Summer and Prairie Island. The variability in priority assignment is attributable to plant design differences and the specifics of the seal replacement.

Desig.	Safety	Security	EP	RP	Reliability	Priority
PAL09	VL	N	N	N	L	4
ROB01	M	N	N	N	L	2
SUM03	L	N	N	N	M	3
PI06	M	N	N	N	L	2

Desig.	Title
PAL09	Primary Coolant Pump Seal Replacement Aging
ROB01	Loss of RCP Seal Cooling
SUM03	RCP Seal Replacement
PI06	RCP Seal Replacement

Modifications to Address Open Phase Vulnerability: Four of the six pilots addressed actions to resolve any vulnerability to an open phase occurrence on an offsite power source. Each of the pilots identified their actions as priority 4. There was some notable variability in the Reliability importance determinations. However, guidance changes have been made to more clearly identify the nexus to safety for the reliability attribute (Section 4.4).

Desig.	Safety	Security	EP	RP	Reliability	Priority
PAL18	VL	N	N	N	N	4
ROB11	VL	N	N	N	N	4
DB14	VL	N	N	N	VL	4
HAT18	VL	N	N	N	L	4

Desig.	Title
PAL18	Develop and install an electrical open phase detection and isolation
ROB11	Open Phase Byron event
DB14	Byron Station Open Phase Failure
HAT18	Open Phase Protection

Spent Fuel Pool Instrumentation: Four of the six pilot plants included actions to install wide range spent fuel pool level instrumentation. This is necessary to comply with NRC Order EA-12-051. The results show consistent priority assignments with minor variability for RP importance for the BWR pilot plant.

Desig.	Safety	Security	EP	RP	Reliability	Priority
PAL12	VL	N	N	N	N	4
SUM06	VL	N	N	N	N	4
DB17	VL	N	N	N	N	4
HAT11	VL	N	N	M	N	3

Desig.	Title
PAL12	Reliable Spent Fuel Pool Instrumentation Installation
SUM06	SFP Level Indication
DB17	Flex Spent Fuel Pool Level Modification
HAT11	Reliable Spent Fuel Pool Instrumentation

4.2 Pilot Plant Assessments of Process and Results

Each of the pilots provided short summary reports of their pilot efforts, documenting the issues reviewed and a summary of prioritization results and actions taken. As part of these reports, each pilot was requested to provide comments on the prioritization and scheduling process. Selected comments from each of the pilot plants are provided below.

Davis Besse

Overall, the prioritization process was determined to be a useful tool in determining a ranking of various site activities. The prioritization process was determined to have a focus on nuclear safety, which provided an objective ranking system for determining site priorities.

Hatch

The piloted process for Prioritization and Scheduling produced a standardized method for assessing Site Projects based on safety significance. The process was streamline[d] enough so as not to be overly burdensome. The process allowed for decision makers to assess and re-rank where needed based on the IDP's experience and insights. The process relied on PRA insights as input, but was not overly focused on PRA analysis. The piloted process provided the necessary structure to be repeatable independent of the performer. During the process the station IDP members found the tool to provide the station with insights not previously recognized. It is the opinion of the Hatch team involved with the pilot process that the process should be refined and approved for use as a tool for the purpose of Prioritizing and Scheduling work.

Palisades

The IDP importance evaluation reviews and aggregation meetings provided a venue for station senior leadership to align priorities including key members of the plant health committee. The importance evaluations provided a systematic approach using PRA insights to consistently determine the importance of projects with focus on the categories of safety, security, emergency preparedness, radiation protection, and reliability. This information allowed for detailed discussions on the proposed action to resolve the issue and the effectiveness of the proposed action.

The use of site engineers and project managers as subject matter experts introduced them to the use of PRA risk insights when evaluating the benefits of their assigned projects. Importance evaluations completed by SMEs, and reviewed by site senior leadership, provide valuable input used to make risk informed decisions. The project aggregation through pairwise comparison of project benefits aids in maintaining a risk reduction focus when allocating limited resources.

Prairie Island

Xcel Energy found the process to be effective and a good tool for evaluating projects from a safety perspective. Use of this tool removes the emotional attachment that can challenge a stations determination of project priorities. As we expected the process does not work for all things, such as routine facilities items like roofs, roads, etc. We may need more emphasis on this in the guidance. We intentionally selected some items to try to demonstrate the EP, RP and Security aspects of the process. The security project we choose required us to make substantial assumptions to drive it to

a HIGH for security, thus a priority 2. Similarly the vent valve platform installation which would require a detailed cost estimate to justify driving it to a RP HIGH and a priority 2.

Based on the overall ranking that came out of the pilot the station Xcel Energy intends to revisit both the decision to implement some modifications and the timing of those modifications if they are done at all.

Robinson

The pilot process was recognized as a useful tool that placed a greater emphasis on safety when determining the priority for plant projects and tasks. The process will also help inform and justify which projects and tasks should be deferred. Although the pilot process effort is partly an effort to receive NRC endorsement of the prioritization process, the prioritization process can also be used as an independent tool to help inform plant decisions independent of NRC endorsement.

Plant Health scoring should be revised to include screening prior to going to Plant Health Subcommittee. Similarly, when [a] regulation is out for comment, the generic process should be applied by both the industry and NRC.

Overall we found the process beneficial to assure that the mods/changes requested moved the plant toward lower CDF or LERF. Robinson found the process effective by instilling a data driven review of projects. By placing the structure into the review process, the team found that the review provided clarity in what features of a project provided reduction in risk. The review then provided the platform to discuss the implementation schedule and benefit. The aggregation allowed the comparisons to assure the projects that improved the nuclear safety of the plant were appropriately prioritized utilizing the reduction of risk in the planning.

Summer

The table-top and pilot exercises demonstrated that the process and guidance document are workable, robust, repeatable, and not overly burdensome. The process provides an emphasis on nuclear safety, considers other appropriate aspects such as security, health physics, emergency planning, and reliability, and minimizes the impact of passion on the results.

V. C. Summer anticipates using the final guidance document to enhance its existing prioritization process. Senior station management recognize the potential for significant benefit if the NRC allows this process to form the basis for risk informed resource leveling by adjusting commitment implementation schedules. Additional benefits can be derived if the NRC staff incorporates similar prioritization techniques into their regulatory processes.

4.3 Costs Associated with Conduct of Pilot

Each pilot was requested to track costs and person-hours associated with the conduct of the pilot. These costs cover training of SMEs and IDP members, the identification and assessment of issues by SMEs, support and conduct of multiple IDP meetings, and time and travel expenses for each pilot lead.

Excluding the cost results from the shortened Summer pilot, the average costs for the remaining 5 pilot plants was $128,000 and approximately 1000 person-hours.

	Total $	Total Hours
Palisades	100,000	1100
Robinson	200,000	800
Summer	35,000	200
Prairie Island	60,000	600
Davis-Besse	66,000	780
Hatch	215,000	1700

Future prioritization effort costs can reasonably be expected to fluctuate based on factors that may result in reduced costs (for example, greater familiarity with the process, reprioritizing activities that have already been screened, etc.) and factors that may raise costs (for example, additional expertise assigned to the IDP, a larger population of activities taken through the process, etc.)

Costs not included are those associated with the actions as a result of the IDP aggregation and scheduling meeting. An example would be the costs associated with drafting, submitting, and NRC review of a schedule change request.

Savings attributable to changes resulting from actions taken on the pilot results (schedule changes, scope changes, project cancellations) were not tabulated. However, there were notable instances of changes that would result in substantial cost savings (e.g., Robinson battery change (ROB22), Robinson TSTF-523 (ROB 16)).

The cost to implement this process at a non-pilot site would most likely be similar to the pilot with savings associated with materials and lessons learned from the pilot plants balanced by an increased training population and a larger number of projects to evaluate.

Once implemented at a site, continued annual costs associated with administrative record keeping, recurring evaluations on a periodic basis, personnel training due to station turnover, and costs associated with regulatory actions from IDP aggregation and scheduling meetings would be incurred.

4.4 Guidance Revisions

The pilot activities were conducted using a draft version of the guidelines. The results from the pilot activities clearly demonstrated the strength and value of a scheduling process that prioritizes plant safety. The guidance document was issued as NEI 14-10, Revision 0 on November 14, 2014. While there were no significant changes to the organization of the prioritization process as a result of the pilot, a number specific changes were made to incorporate lessons learned and to incorporate NRC comments received during a November 4, 2014 public meeting.

Revision to Security, EP and RP Flowcharts – Process flowcharts for Security, EP and RP were modified to incorporate comments received during the pilot and during a tabletop exercise conducted during a September 8 public meeting with NRC.

Reliability category nexus to safety – Step 1 screening for the reliability category guidance was changed to require establishment of a nexus to safety as a precursor to further consideration of the reliability category. The reliability importance determination (Step 2) was revised to establish importance based solely on the strength of the tie between reliability and safety.

Changes to issue prioritization by Integrated Decision-Making Panel (IDP) – A paragraph in Section 5.0 that would allow an IDP to change the Priority determination for an issue based on other considerations was deleted. This change addresses a concern regarding changes that could be made outside of the established prioritization process.

Treatment of plant actions necessary to address inspection findings – The scope of issues to be considered in the prioritization process was modified to limit treatment of corrective actions for inspection finding to those for which a schedule has been established by commitment with NRC. This change will avoid potential conflicts between the prioritization process and current corrective action program guidance.

APPENDIX A – PILOT ISSUES

Table A-1
Palisades Pilot Issues

Issue			Cat.
Designator	**Title**	**Description**	
PAL01	Additional Diesel Driven Auxiliary Feedwater Pump	This project will install a diesel driven auxiliary feedwater pump that will be located in a new enclosure in the "yard" area to provide physical separation from the other three AFW pumps.	Reg.
PAL02	Incipient Detection in Cable Spreading and Electrical Equipment Room	This project will install a Very Early Warning Fire Detection System (VEWFDS), Incipient Detection, in the Main Control Room, Cable Spreading Room, 1C & 1D Switchgear Rooms, Electrical Equipment Room, and both Station Battery Rooms. It is an air aspirating type incipient fire detection system that will continually sample air from the area and is designed to detect pre-combustion particles at the earliest stage of a fire (incipient stage) prior to visible/smoldering smoke.	Reg.
PAL03	Electrical Coordination Modifications	This project will install fuses or replace breakers in the Palisades DC system electrical panels to ensure breaker coordination such that load isolation is limited to only those components assumed damaged by the fire.	Reg.
PAL04	Cooling Tower E-30B Replacement due to Aging	This project is to replace "B" Cooling Tower that has been in service for 37 years. The standard life expectancy for a Redwood Cooling Tower Structure is 20 years.	Plant
PAL05	Mechanical System Structure and Component (SSC) Modifications (Fukushima)	This project is a NRC regulatory activity as a result of EA-12-049, "Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," with NRC-endorsed guidance provided by NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide." This order is considered adequate protection and per the NEI guidance would be assigned a priority level 1 and will not be evaluated. For the purposes of Palisades' pilot this project was evaluated as if it was not classified as adequate protection to determine its relative importance to the station.	Reg.
PAL06	Seismic System Structure and Component (SSC) Evaluations (Fukushima)	This project is a NRC regulatory activity as a result of a 50.54(f) letter dated 3/12/12, RFI # 2.1 and EPRI Reports 1025287 and 3002000704 which provided the requirements and guidance for the industry to perform seismic evaluations in the wake of the Fukushima events. The initial product of this	Reg.

Issue Designator	Title	Description	Cat.
		effort is development of the ESEP (Expedited Seismic Evaluation Process) report, which is due 12/31/14.	
PAL07	Combine Emergency Operating Procedures and Severe Accident Management Guidelines into one Procedure (Fukushima)	This project is a regulatory activity as a result of Proposed Rule notice 78 FR 68774, Nov. 15, 2013, Severe Accident Mitigation Guidelines (SAMG) and Emergency Operating Procedure (EOP) Integration.	Reg.
PAL08	Replace Refueling Machine Control Consoles due to Aging	This project replaces the reactor side refueling machine console which includes up-to-date software that is supported by the vendor.	Plant
PAL09	Primary Coolant Pump Seal Replacement Aging	This project replaces primary coolant pump (PCP) Flowserve N-9000 seals using rebuild kits. This is a preventive maintenance activity with a frequency of 15 years.	Plant
PAL10	Safety Related Motor Control Center (MCC) 1,2,7 & 8 Breaker Replacement Aging	This project will replace 119 Motor Control Center (MCC) 480 V breaker's combination starter and feeder tap units on MCCs 1, 2, 7, and 8. An adverse trend in 480V breaker and starter failures was identified based on 10 failures of non-critical motor starters from 2006 to 2009. The failures were primarily due to the effects of aging.	Plant
PAL11	Permanent Personnel Fall Protection Install at Rx Cavity Tilt Pit	This project will replace the installation and removal each outage of an OSHA approved temporary reactor cavity tilt pit fall protection railing with a permanent OSHA approved railing. This will reduce the industrial safety risk of an individual falling into the reactor cavity during temporary railing installation and removal each outage.	Plant
PAL12	Reliable Spent Fuel Pool Instrumentation Installation	This project is a NRC regulatory activity as a result of NRC Order EA-12-051, interim staff guidance JLD-ISG-2013-03, and NEI 12-02, Rev. 1 which provided requirements for installing reliable, redundant, wide range spent fuel pool level instrumentation.	Reg.
PAL13	ISI ASME Code Case N-770-1 Alloy 82/182/600 inspections	This project is to perform volumetric examinations of nine (9) Alloy 82/182 full penetration branch welds that have not been inspected in accordance with ASME Code Case N-770-1.	Reg.
PAL14	Feedwater Controller Replacement Aging	This project replaces 7 Main Feedwater (MFW) controllers in the Control Room during a refueling outage and 4 Auxiliary Feedwater (AFW) Controllers online. The existing Yokogawa controllers are obsolete and aging. Currently there are no replacement parts available for the existing	Plant

Issue Designator	Title	Description	Cat.
		controllers due to the manufacturer no longer supporting replacement parts.	
PAL15	Digital Electro-Hydraulic Control and Governor Valve Position Replacement (Obsolescence)	This project replaces the digital electro-hydraulic (DEH) turbine control system that was installed in 1990 and is obsolete.	Plant
PAL16	Resolution of Potential DC Shorts on Primary Coolant Pump Oil Lift Pumps and Public Address System Operations Compensatory Measure	This project installs current limiting fuses for the four primary coolant pump DC lift oil pumps and the public address motor-generator.	Plant
PAL17	Install Turbine Building Buried Piping Cathodic Protection Buried Piping Program	This project involves installation of deep well cathodic protection (CP) impressed current anodes beneath the turbine building. The currently installed Palisades CP system covers much of the protected area, though piping beneath the turbine building is not sufficiently protected. This project is being pursued in order to improve the cathodic protection of piping beneath the turbine building.	Plant
PAL18	Install Electrical Open Phase Detection and Isolation	This project is a regulatory issue based on the January 30, 2012, Byron Station, Unit 2 Event. It will install on Start Up Transformer 1-2 & Safeguards Transformer 1-1 a PCS200 Solutions' systems. The system is designed to detect an open phase condition on the transformers' high side bushings. Installation of the PCS2000 Solutions' Open Phase Detection & Isolation system (OPDI) will accomplish the required automatic detection, isolation and trip annunciation functions necessary for the various open phase conditions.	Reg.
PAL19	Replace Pressurizer Heater Breakers Aging	This project replaces two channels of pressurizer heater breakers powered from two separate motor control centers in containment. Each breaker powers a group of heaters and is experiencing an elevated number of failures. Failures are attributed to the age of the breakers and the time spent in environmental conditions that are beyond their designed limits.	Plant
PAL20	Computer Network Security Intrusion Monitoring Cyber Security	This project is a regulatory issue per 10 CFR 73.54, Protection of digital computer and communication systems and networks, and SECY 10-0153. It is specific to Milestone 8 requirement for installation of a security intrusion monitoring (SIM) system. This activity provides cyber monitoring for post attack forensics.	Reg.

Table A-2
Robinson Pilot Issues

Issue			Cat.
Designation	**Title**	**Description**	
ROB01	Loss of RCP Seal Cooling	Replace all RCP No. 1 seal inserts with West. SHIELD thermal shutdown seals.	Plant
ROB02	NFPA 805 Incipient Detection	Install Very Early Warning Fire Detection in electrical cabinets	Reg.
ROB03	NFPA 805 Suppression and detection modification	Install multiple classical fire protection mods.	Reg.
ROB04	NFPA 805 Electrical Coordination	Provide electrical coordination of existing protective devices (fuse and breaker) and/or modify to meet requirements of NFPA-805	Reg.
ROB05	Fukushima Electrical	During a Beyond Design Basis External Event, the flexible links connecting the E1 bus to Emergency Diesel Generator (EDG) "A" located in the Current Transformer (CT) cabinet will be removed and a copper intermediary adapter will be connected to the terminals leading to the Emergency Switchgear E1.	Reg.
ROB06	Fukushima Mechanical	This project provides an alternate source of cooling water for a beyond design basis event concurrent with an extended loss of AC power. This project will provide storing and staging of portable FLEX equipment and install permanent standard mechanical connections at the intake block and at the suction side of the steam driven auxiliary feedwater pump.	Reg.
ROB07	Implementation of Cyber security	The current state of Robinson cyber security is that the site has implemented Milestones 1 through 7 of the interim implementation schedule. This activity would seek to complete full implementation of the Cyber Security Program. Numerous program aspects must be further developed to ensure the program is robust and will be maintained going forward.	Reg.
ROB08	LCV-1417A fail open to fail closed	Hotwell Level Control Valve (LCV)-1417A fails open on a loss of air. This failure could potentially divert the Condensate Storage Tank (CST) inventory from the Auxiliary Feedwater (AFW) system in the event of a plant transient. The proposed change will change out LCV-1417A with a fail closed valve.	Plant
ROB09	Local Operator Action to Reset Breaker to IAC	This project will replace the manual operator actions to reload the instrument air compressor with automatic actions after safeguard loads are loaded on the diesels. Local operator actions are required during emergency	Plant

Issue Designation	Title	Description	Cat.
		operating procedures to reset and close the instrument air compressor, IA-CMP-A/B, breakers following a loss of power to emergency busses. The Instrument Air System (IA) is classified as a non-safety-related system. It uses air compressors and air dryers to supply air at a nominal 100 psig to instrument air headers located in Turbine Building, Reactor Containment Building, Reactor Auxiliary Building, Corridor, Fuel Handling Areas, and Radwaste Facility. Instrument air is also used for breathing inside the Reactor Containment Building. This deficiency impacts operator actions important to safety and impedes operator actions modeled in the Probabilistic Risk Assessment	
ROB10	Operator Burden-Inhibiting Fire Suppression	This activity is to eliminate an operator burden during emergency diesel generator runs. During surveillance testing of the Emergency Diesel Generator (EDG) A and B exhaust can be drawn into the Auxiliary Building through the HVS-1 air supply inlet. Inadvertent actuation of the system has occurred when the EDG has been operated for an extended period of time at low loads resulting in the accumulation of lubricating oil in the exhaust.	Plant
ROB11	Open Phase Byron event	Robinson Nuclear Plant, Unit No. 2 (RNP) is susceptible to an open phase fault of the offsite power circuits. This project will install equipment to detect open phase fault conditions and isolate the faulted line.	Reg.
ROB12	Replace existing vacuum switches	The existing condenser air removal vacuum switches repeatedly fail the set-point calibration. The incorrect set-point can cause the vacuum pump to operate in the wrong mode or switch modes, thereby changing condenser backpressure and modestly impacting power generation.	Plant
ROB13	Replace System 6175 Cable Vault CO2 system	This project will replace the current CO2 suppression system covering the North and South vaults with an upgraded system that is more dependable and with significantly less maintenance required.	Plant
ROB14	Install Repeater in Containment	This project will install radio repeaters in Containment such that timely fire status can be provided to the Fire Brigade chain of command	Plant

Issue Designation	Title	Description	Cat.
		and to the Control Room Shift Manager for emergency event actions.	
ROB15	MRP-227A Holddown Spring	This project is designed to meet the requirements of the Materials Reliability Program MRP-227 for the inspection and evaluation guideline for Reactor Internals per the NEI-03-08 protocols for plant specific regulatory agreements regarding life extension. This project is to replace the core barrel hold-down spring.	Reg.
ROB16	Implement TSTF 523 - Generic Letter 08-01 Periodic Testing	The proposed change revises or adds Surveillance Requirements to verify that the system locations susceptible to gas accumulation are sufficiently filled with water and to provide allowances which permit performance of the verification. The changes are being made to address the concerns discussed in NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems	Reg.
ROB17	GSI 191 insulation	Installation of replacement insulation or other remediation expected to be conducted in the fall 2016 outage.	Reg.
ROB18	Diaphragm Valve replacement	Replace twelve diaphragm isolation valves that have a body-to-bonnet gasket that can meet Chemical Volume and Control system (CVCS) heat, chemical and operating design requirements.	Plant
ROB19	Dam/Reservoir lake Level Indication	This project will replace the lake level and temperature indication for Lake Robinson.	Reg.
ROB20	Loose Parts Monitoring Upgrade	This project is to replace the existing Loose Parts Monitoring system with a new system.	Plant
ROB21	Isolation valve in RWST Supply to charging pumps pipe 4-SI-82	The project scope is to design and install a 4" manually operated butt welded gate valve in line 4-SI-151R-82 located in the SI pump room near the RWST to RHR Suction header connection.	Plant
ROB22	Replace B-Battery with Larger Battery	Station Battery B (STATION-B) has minimal margin for increased loading. Station Battery B does not currently meet the sizing requirements of IEEE 485, including recommended margins. A larger battery should be selected to meet the sizing requirements of IEEE 485.	Plant

Table A-3
Summer Pilot Issues

Issue			Cat.
Designator	**Title**	**Description**	
SUM01	7KV Reroute	The VCSNS Fire PRA circuit analysis identified a failure mode on the common 7 KV cable feeding both XSW1DA and XSW1DB from XSW1DX that could potentially lock out all power sources to both busses. This project will separate the common 7 KV feed to the two busses to eliminate this failure.	Plant
SUM02	ISFSI	Implement modifications required to support dry cask spent fuel storage.	Plant
SUM03	RCP Seal Replacement	The current Westinghouse RCP seals are susceptible to leakage if seal cooling is lost, must be replaced every 3 or 4 cycles, and sometimes exhibit unstable leak off flow rates that result in operator distraction/burden. They will be replaced with the Flow Serve N9000 seal design which is more tolerant of loss of seal cooling events, can be run for more than 10 operating cycles, and are more stable under varying operating conditions.	Plant
SUM04	EP Project (PAR Update)	Supplement 3, "Guidance for Protective Action Strategies," to NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," updates the previous version of Supplement 3, "Criteria for Protective Action Recommendations for Severe Accidents," issued July 1996. The guidance of Supplement 3 provides an acceptable method to comply with Appendix E to Part 50, Title 10 of the *Code of Federal Regulations* (10 CFR) Section IV, paragraph 3 in the use of evacuation time estimates (ETEs) in the formulation of protective action recommendations (PARs). The project being evaluated is the development of PARs that utilize the ETEs.	Plant
SUM05	Fatigue Rule	Implement work hour controls imposed by 10CFR26.	Reg.
SUM06	SFP Level Indication	NRC Order EA-12-051, interim staff guidance JLD-ISG-2013-03, and NEI 12-02 Rev. 1 provide requirements and guidance on installing reliable, redundant, wide range spent fuel pool level	Reg.

		instrumentation. The purpose of this instrumentation is to provide additional information to the plant staff to ensure that resources are properly allocated in response to a beyond design basis event.	
SUM07	Cyber Security Project (SIEM installation)	The proposed activity being evaluated is the implementation of a Security Information and Event Management system (SIEM) for all networked systems in scope of 10 CFR 73.54. The SIEM is needed to comply with the new regulation.	Reg.
SUM08	Physical Security Project (perimeter detection power upgrade)	(No description provided)	Reg.

Table A-4
Prairie Island Pilot Issues

Issue			Cat.
Designator	**Title**	**Description**	
PI01	Fukushima FLEX Implementation	Implement modifications that are required to address the Beyond-Design-Basis-External-Events (BDBEE) as outlined in NRC Orders EA-12-049, Mitigation Strategies for Beyond-Design-Basis External Events, and EA-12-051, Reliable Spent Fuel Indications.	Reg.
PI02	NFPA 805 – Hot Shutdown Panel	The proposed activity is to modify the location of the PINGP Hot Shutdown Panel controls for the Aux Feedwater Pumps (AFWP) and their associated Motor Control Centers (MCC 1A2 and MCC 2A1) to ensure one train of AFW remains unaffected by a fire in Fire Area 31 or 32.	Reg.
PI03	NFPA 805 Incipient Fire Detection	The proposed activity is to install a Very Early Warning Fire Detection System (VEWFDS also known as Incipient Detection) in electrical cabinets in the PINGP Relay and Cable Spreading Room.	Reg.
PI04	Foxboro RCS Phase 3	Replace the original Foxboro H-Line equipment in the Reactor Control (NSSS) and Balance of Plant (BOP) systems with new process controls as determined by the study completed by Altran in June, 2014.	Plant
PI05	Unit 1 Vent Valve Platforms GL 08-01	This project was initiated under EC 16381 for GL 08-01 Vent Valve Project during 1R27 refueling outage but it was not completed and it continued during 1R28 under EC 17610 for completion	Plant
PI06	RCP Seal Replacement	Replace the original Westinghouse 3-stage RCP shaft seals and housings with 3-stage Flowserve cartridge seals, 4th stage “abeyance seal”, and housings.	Plant
PI07	ISFISI Security Mods-Proposed Rulemaking	Rule revision which changes Design Basis Threat specific to the ISFSI which will require: evaluation of current vehicle standoff, modification to immediate area if necessary based on evaluation, addition of Security Ballistic Resistant enclosures, addition of Security Staff and revised LLEA agreement.	Reg.
PI08	Fan Coil Unit Motor Rewinds	The FCU motors must be rewound due to the risk of failure resulting from age related degradation. The motors have been in continuous operation for	Plant

Issue Designator	Title	Description	Cat.
		42 years. Rewinding shall support reliable operation and regulatory compliance through 2034.	
PI09	IR Transformer Replacement	1R transformer replacement is proposed due to the age of the transformer; it was manufactured in 1970. Based on EPRI recommendation and other industry publications, Large Power transformers have 40 year life expectancy.	Plant
PI10	Cooling Water Header Replacement	Cooling water heading piping in the plant screen house requires replacement due to microbiologically induced corrosion. This has previously resulted in piping segment replacement and emergent modifications to address identified wall thinning and pinhole leaks.	Plant
PI11	10CFR Part 26 Fitness for Duty	10 CFR Part 26 Subpart I, Managing Fatigue, provision implementation, including: a. Work hour controls • Online versus outage • Hard individual limits (e.g. 16/24, 26/48, 72/168) • Minimum Day Off limits • Averaging hours worked limitations b. Limited scope waivers c. Fatigue assessments	Reg.
PI12	Cyber Security 08-09 Program	The Interim milestones 1 thru 7 activities were completed in 2012; there is now a high degree of protection against cyber security related attacks via seven milestone actions. For example, • Portable Media/Mobile Device (PMMD) Control Program • Defense Architecture with Diodes between Level 3-Level 2 • Target Set protection and ongoing monitoring. Based on current state of the nuclear cyber security program, the industry along with Xcel Energy nuclear plants have a minimal cyber security risk. The cyber risks in most cases will be identified as Low/ Very Low Priority. There are some cases that can illustrate a condition of Medium or High Priority based on the CDA being affected. The flow chart below can illustrate the	Reg.

Issue			Cat.
Designator	**Title**	**Description**	
		risk with potential impact based on the CDA function.	
PI13	Tornado Missile RIS	On April 4, 2014, the NRC released draft Regulatory Issue Summary (RIS) 2014-XX, "Tornado Missile Protection," for comment. The RIS requires no actions or written response on the part of an addressee. While much of the RIS is a restatement of previous staff positions on tornado missile protection, at least one aspect of the RIS would appear to present a new position or interpretation. This is related to the use of pre-GDC licensing basis language. The RIS suggests that "... in the absence of specific descriptions of protective features for tornado missile protection... the staff relies on NRC regulations and guidance provided in regulatory guides and the standard review plans to interpret any generalities in a plant's licensing basis." This statement could be used by the inspectors to reinterpret the meaning of the current licensing basis and relate it to current day standards.	Reg.
PI14	Cooling Tower Refurbishments	Multiple Projects addressing end of service life of SSC with the Cooling Tower system.	Plant
PI15	Replace Traveling Screens	The eight intake traveling screens have reached end of life. The eight intake traveling screens have severe corrosion damage to the support structure, the chain rollers are severely worn, and the screen design uses a spring loaded tension system to compensate for the "sail" action of the screens on the back side during fine screen mode of operation resulting in excessive bearing and roller wear.	Plant
PI16	Westinghouse Radiation Monitor Replacement	Replacement of Radiation Monitors currently installed in the plant that were manufactured by Westinghouse.	Plant
PI17	OBN AFW Pump Room Cooling	Proposed activity is to install New Safety Related Chillers and Air Handling Units.	Reg.

Table A-5
Davis-Besse Pilot Issues

Issue			Cat.
Designator	**Title**	**Description**	
DB01	EFW and RCS Modifications	This modification would install an emergency water storage tank and facility, a diesel driven emergency feedwater pump and auxiliary equipment, and additional reactor coolant system charging pumps and connections. These modifications support the transition of the fire protection program to NFPA 805 as well as implement aspects of NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide."	Reg.
DB02	End of life Control Rod Replacement	Control Rods need to be replaced due to material neutron absorption swelling concerns. Operation past the design lifetime would require an assessment for operability and compliance with technical specifications related to control rod integrity.	Plant
DB03	Reactor Coolant Pump 2-1 and 2-2 Replacements	Reactor coolant pump motors are periodically replaced with refurbished motors as well as the rewinding of the motors.	Plant
DB04	Control Rod Drive System Replacement	The modification replaces the current Control Rod Drive (CRD) system with a digital control rod drive control system. The new system will eliminate transfer switches and motor fuses to reduce the risk of dropped rods or ratchet trips, allows for online maintenance, reduces the time required for surveillance testing and other plant activities, automatically maintains regulating control rods in sequence, computerized absolute position indication to relative position indication, automatic control rod latching, and eliminates numerous single point vulnerabilities.	Plant
DB05	Cyber Security Rule Implementation	Cyber security implementation has eight milestones. Davis-Besse has completed the first seven milestones. The remaining milestone will expand the scope to cover all critical digital components and systems with a safety, security, emergency preparedness function, and select balance of plant equipment.	Reg.
DB06	Replace the Integrated Control System	The modification replaces analog modules with a digital system. The ICS coordinates the reactor, steam generator feedwater control, and turbine-generator to produce the best load response to the	Plant

Issue			Cat.
Designator	**Title**	**Description**	
		unit load demand while recognizing the capabilities and limitations of the reactor, steam generator feedwater system, and turbine-generator.	
DB07	Station Air Compressors Replacement	The present condition of the main station air compressors creates operator and maintenance burdens and challenges. The existing station air compressors will be replaced with new units to eliminate reliance on the temporary air compressor as well as inefficiency and inconsistency with the existing units.	Plant
DB08	Dry Fuel Storage	Currently, discharged fuel assemblies are stored in the spent fuel pool. Dry fuel storage will need to be implemented to ensure sufficient space remains in the spent fuel pool to maintain full core offload capability.	Plant
DB09	Replace the Seismic Monitoring System	The modification replaces the seismic monitoring system with a newer system to address obsolescence issues and failures. There is no vendor support for the installed system. Due to component failures, the current system is no longer capable of providing spectral data for portions of an operating basis earthquake. Additionally, there is no prompt capability of comparing the event to the industry standard cumulative absolute velocity.	Plant
DB10	Alloy 600 Mitigation	Alloy 600 and its associated weld materials, Alloys 82 and 182, are susceptible to primary water stress corrosion cracking. Modification addresses impacted welds by installing Alloy 690 material.	Reg.
DB11	Replace Normal Ventilation Control Room Ventilation Chiller Units 1 and 2	Plant modifications have increased the loads serviced by the control room normal ventilation system such that during significant portions of the year, operation of both chillers is required to maintain control room temperatures. This condition limits maintenance flexibility and leaves the plant vulnerable to equipment failures.	Plant
DB12	Install New Non-Essential Batteries and Chargers (DC System Margin)	Installs new non-essential battery building, two new sets of non-essential 250V batteries, battery chargers, and associated changes to the DC busses. This change would remove the non-essential DC loads from being supplied by the essential DC system. Additionally, this change minimizes the potential of non-essential DC load faults from impacting the essential DC system.	Plant

Issue			Cat.
Designator	**Title**	**Description**	
DB13	Replace Vibration and Loose Parts Monitoring System	The modification replaces the vibration and loose parts monitoring system, which is currently obsolete. The system is designed to identify loose material, which could indicate failures of components, or other loose objects, which could cause damage to the fuel assemblies or steam generator tubes.	Plant
DB14	Byron Station Open Phase Failure	Implements a modification to detect an open phase in the switchyard that may cause the unidentified loss of one of the two offsite power sources required by Technical Specification Limiting Condition for Operation 3.8.1 item a.	Reg.
DB15	Electrical Power System Modification	The modification changes the alternating current (AC) electric power system. Current system margin may not support future load additions. In addition, the limited margin creates operational restrictions and burdens.	Plant
DB16	Non-Safety Related Heater Installation in Battery Rooms	Recorded temperatures indicate there is low margin between the minimum room temperature and actual room temperature. The change will install permanent heaters to maintain temperatures at acceptable levels to preclude the use of temporary heating during winter months.	Plant
DB17	Flex Spent Fuel Pool Level Modification	NRC Order EA-12-051, interim staff guidance JLD-ISG-2013-03, and NEI 12-02, Rev. 1 provide requirements and guidance on installing reliable, redundant, wide range spent fuel pool level instrumentation. This instrumentation would provide additional information to the plant staff to ensure resources are properly allocated in response to a beyond design basis event.	Reg.
DB18	Physical Security Modifications	Modifications include securing unattended openings, security computer upgrades, intruder detection system upgrades, and early warning system upgrades. The need for physical security modifications does not present a security vulnerability since compensatory measures are established. Additional resources are often required to support necessary compensatory actions. Component and system obsolescence is an ongoing issue.	Reg.

Table A-6
Hatch Pilot Issues

Issue			Cat.
Designator	**Title**	**Description**	
HAT01	NFPA-805	NFPA 805 is a PRA based Fire protection program. The project involves transitioning the station from an Appendix R (deterministic process) to NFPA 805 (PRA based) program. Hatch is in the circuit analysis phase of the NFPA-805 process. The LAR for NFPA-805 is required to be submitted by October 2016.	Reg.
HAT02	License Renewal	As part of the process of obtaining renewed operating licenses, Hatch was required to demonstrate that certain aging effects would be adequately managed for the term of the renewed operating licenses. Aging management reviews revealed that some existing programs or activities required some degree of enhancement to adequately manage aging. Also, a number of new inspections were developed to provide additional objective evidence that aging was, in fact, being adequately managed by the credited programs and activities.	Reg.
HAT03	Weld Overlay	This Project will apply a weld overlay on Hatch Unit 2 Feedwater Nozzle safe end extension-to-transition piece weld, 2B21-1FW-12AA-8 (weld 8). Weld 9 (2B21-1FW-12AA-9) which is located approximately 4.5” from weld 8, has been repaired/reinforced with a Full Structural Weld Overlay (FSWOL), similar to the design solution presented in this design change. Due to the proximity of the weld 9 Weld Overlay to weld 8, a complete and qualified weld inspection of weld 8 is not currently possible. Therefore, Southern Nuclear Operating Company (SNC) has submitted and received NRC approval for an alternative, ISI-ALT-08-02, in accordance with provisions of 10 CFR 50.55a(a)(3)(i) to apply the overlay in lieu of an inspection. The required inspection has not exceeded the required inspection interval period. However, the 2015 Outage is the last opportunity to perform an inspection (or alternative weld overlay) before the end of the inspection period. This is a NRC required inspection.	Reg.
HAT04	Safety Relief Valve Upgrades	The Safety Relief Valve Upgrade Project replaces existing Hatch U1 and U2 two-stage pilot operated Main Steam Safety/Relief Valves (SRVs) with 3-stage	Plant

Issue Designator	Title	Description	Cat.
		pilot operated SRVs. The 3-stage SRVs have a modified pilot that helps reduce the possibility of an inadvertent lift and leak by.	
HAT05	Cyber Security	The proposed activity is completion of the implementation of the Cyber Security Plan, Milestone 8 activities. Milestone 8 covers the completion of assessments, remediation, procedure updates, and administrative activities to fully comply with all CSP requirements.	Reg.
HAT06	Emergency Diesel Generator Excitation Panel Upgrade	This Project will replace obsolete parts in the Unit 1 and Unit 2 Emergency Diesel Generator system. The specific components to be replaced in the EDG system are the Excitation Panels. The panels are obsolete and can no longer be purchased from the vendor (Basler). The DCPs upgrade the EDG Excitation Panels to maintain EDG system availability. EDG is a MSPI system and a system required by Technical Specifications.	Plant
HAT07	Emergency Diesel Generator Improvements	The Emergency Diesel Generator (EDG) Improvements Project replaces the cylinder liner O-rings and exhaust belts on the EDGs. As recommended by Fairbanks Morse, the cylinder O-rings for the EDGs should be replaced every 20 years. This activity will be implemented with respective EDG cylinder liner replacements and will reduce oil leakage on the engine.	Plant
HAT08	HPCI Controls Replacement	This Project will replace obsolete parts in the Unit 1 and Unit 2 HPCI control system. These DCPs upgrade the HPCI control system to maintain HPCI system reliability. The specific components to be replaced in the control system are the EGR (Electric Governor Remote) and the Ramp Generator. Both of these parts are obsolete and can no longer be purchased from the vendor (General Electric). The vendor does still perform refurbishment and repair of the existing EGR and Ramp Generators. The bridging strategy is to continue to have the refurbished replacement parts in the warehouse until 2018/2019 when new design components will be installed.	Plant
HAT09	RCIC Controls Replacement	This Project will replace obsolete parts in the Unit 1 and Unit 2 RCIC control system. These DCPs upgrade the RCIC control system to maintain RCIC system	Plant

Issue			Cat.
Designator	**Title**	**Description**	
		reliability. The specific components to be replaced in the control system are the EGR (Electric Governor Remote) and the Ramp Generator. Both of these parts are obsolete and can no longer be purchased from the vendor (General Electric). The vendor does still perform refurbishment and repair of the existing EGR and Ramp Generators. The bridging strategy is to continue to have the refurbished replacement parts in the warehouse until 2016/2017 when new design components will be installed.	
HAT10	Diagonal Room Cooler Replacement	This Project will replace degraded diagonal room cooler cooling coils in Unit 1 and Unit 2. The material condition of each diagonal room cooler cooling coil has been evaluated for replacement and ranked according to severity of degradation. The room coolers currently installed in the plant are functioning reliably as designed. The diagonal coolers provide cooling to MSPI equipment in the following systems: RCIC and RHR. The diagonal coolers provide cooling to ECCS equipment which is required by Technical Specifications.	Plant
HAT11	Reliable Spent Fuel Pool Instrumentation	The proposed activity is to implement the wide range spent fuel pool level instrumentation (SFPLI) upgrades in response to the lessons learned from the Fukushima Daiichi accident.	Reg.
HAT12	Diesel Generator LOCA/LOSP Timer Card Replacement	This Project will replace the LOCA/LOSP timer cards on the 2A, 1B, and 2C Emergency Diesel Generator. Diesel Generator LOCA/LOSP Timer Cards are used to perform Loss of Coolant Accident (LOCA) and Loss of Offsite Power (LOSP) load shedding reset and load sequencing of the emergency busses on Hatch Emergency Diesel Generators (EDGs) 2A, 2C, and 1B. This DCP replaces the existing RIS digital microprocessor based timing modules Model CS-1601 with digital field programmable gate array (FPGA) based timing modules. The current RIS model cards are no longer being manufactured.	Plant
HAT13	MSIV Conversion	This project replaces all eight Unit 2 Main Steam Isolation Valve (MSIV) internals, valve cover and valve stem with a modification kit for the purpose of improving leak rate testing results. This is an equipment reliability improvement issue. The purpose	Plant

Issue Designator	Title	Description	Cat.
		of the DCP is to improve the closing seating capability of the MSIVs and thereby improve the Local Leak Rate Testing results.	
HAT14	600V Breaker Replacement	This Project will replace the Unit 1 and Unit 2 Safety Related 600 volt AC breakers. The reason for the replacement is due to breaker parts obsolescence Each Safety Related 600V AC Motor Control Center has old Allis Chalmers type breakers which have obsolete parts. As breakers are replaced additional spare parts are retained, refurbished and restored to inventory as a parts bridging strategy.	Plant
HAT15	Battery Charger Replacement	This Project will replace the Unit 1 and Unit 2 125/250VDC Station Service Battery Chargers. The Unit 1 and Unit 2 125/250VDC Battery Chargers are being replaced due to parts obsolescence. A parts bridging strategy is to use the spare parts from replaced Unit 1 battery chargers from the 2013 and 2014 design projects. Presently enough spare parts are expected to remain available thru 2015.	Plant
HAT16	Motor Control Center Pan Assemblies	The Motor Control Center Pan Assembly Replacement Project replaces obsolete Allis Chalmers Pan Assemblies found in Unit 1 & Unit 2 Motor Control Centers with Cutler-Hammer Pan Assemblies provided by Nuclear Logistics Inc. (NLI). The replaced pans are for a variety of loads including room heaters, vent fans, PSW strainer, traveling water screen, trash rake, and motor operated valves (MOV's).	Plant
HAT17	Degraded Grid Transformer	This Project will protect Hatch Unit 1 and Unit 2 emergency buses from degraded voltage conditions. With the current transformer configuration, if grid voltage were to decrease to a degraded condition, manual action would be required to tie power to the diesel generator. During a postulated loss of coolant accident (LOCA) it is possible that voltage margins would be too low to allow the required valve motors needed to mitigate the consequences of a LOCA. Increasing the size rating of transformers and the number of transformers is required to avoid this situation.	Reg.
HAT18	Open Phase Protection	This project will install additional components to detect and prevent undetected open phase conditions on the Hatch Startup Transformers (Unit1 and Unit 2).	Reg.

Issue			Cat.
Designator	**Title**	**Description**	
HAT19	Seismic Monitoring System Improvement	The Seismic Monitoring System Project replaces the current Seismic Monitoring System with a Condor Digital System made by Kinemetrics. Seismic Instrumentation (Kinemetrics) SMA-3 and SMP-1 Playback units are obsolete and becoming more difficult to maintain. This activity also addresses a gap identified while developing a response to IER L2, 12-12, Greater Than Design Basis Earthquake Results in a Loss of Off-Site Power and Reactor Scram. Replacing the current Seismic System is the long-term asset management plan to address the gap.	Plant
HAT20	Reactor Building Roof Project	The Hatch Reactor Building Roof Replacement Project replaces the roofs of the U1 & U2 Reactor Buildings. Roofing inspection walk downs conducted in 2003 found multiple roofing assemblies in need of roofing repair or replacement at Plant Hatch.	Plant

APPENDIX B – COMPILATION OF ISSUE ASSESSMENT

Issue		Cat.	Importance Ranking					NEI Priority	Plant Relative Priority	Comments
Desig.	Title		Safety	Security	EP	RP	Reliability			
PAL01	Additional Diesel Driven Auxiliary Feedwater Pump	Reg.	M	VL	N	N	N	2	1	
PAL02	Incipient Detection in Cable Spreading and Electrical Equipment Room	Reg.	M	N	N	N	N	2	2	
PAL03	Electrical Coordination Modifications	Reg.	M	N	N	N	N	2	3	
PAL04	Cooling Tower E-30B Replacement due to Aging	Plant	VL	N	N	N	H	2	4	
PAL05	Mechanical SSC Modification (Fukushima)	Reg.	L	N	N	N	N	3	5	Consider additional FLEX benefit to these modifications.
PAL06	Seismic SSC Evaluations (Fukushima)	Reg.	L	N	N	N	N	3	6	Re-evaluate following completion of seismic evaluation.
PAL07	Combine EOPs and SAMGs into one Procedure (Fukushima)	Reg.	L	N	VL	N	N	3	7	
PAL08	Replace Refueling Machine Control Consoles due to Aging	Plant	N	N	N	N	L	4	8	
PAL09	Primary Coolant Pump Seal Replacement Aging	Plant	VL	N	N	N	L	4	9	
PAL10	Safety Related MCC 1,2,7 & 8 Breaker Replacement Aging	Plant	VL	L	N	N	VL	4	10	
PAL11	Permanent Personnel Fall Protection Install at Rx Cavity Tilt Pit	Plant	N	N	N	M	N	4	11	This is a personnel safety issue. Draft guidance does not address personnel safety. Aggregation review downgraded to a 4 due to minimal cost benefit for radiation protection.

APPENDIX B – COMPILATION OF ISSUE ASSESSMENT

Issue		Cat.	Importance Ranking					NEI Priority	Plant Relative Priority	Comments
Desig.	Title		Safety	Security	EP	RP	Reliability			
PAL12	Reliable Spent Fuel Pool Instrumentation Installation	Reg.	VL	N	N	N	N	4	12	
PAL13	ISI ASME Code Case N-770-1 Alloy 82/182/600 inspections	Reg.	VL	N	N	N	N	4	13	Note: Difference of opinion between company and NRC regarding assumptions with this issue.
PAL14	Feedwater Controller Replacement Aging	Plant	VL	N	N	N	L	4	14	
PAL15	Digital Electro-Hydraulic Control and Governor Valve Position Replacement (Obsolescence)	Plant	VL	N	N	N	VL	4	15	
PAL16	Resolution of Potential DC Shorts on Primary Coolant Pump Oil Lift Pumps and Public Address System Operations Compensatory Measure	Plant	VL	N	N	N	L	4	16	
PAL17	Install Turbine Building Buried Piping Cathodic Protection Buried Piping Program	Plant	VL	N	N	N	L	4	17	
PAL18	Install Electrical Open Phase Detection and Isolation	Reg.	VL	N	N	N	N	4	18	
PAL19	Replace Pressurizer Heater Breakers Aging	Plant	N	N	N	N	N	5	19	
PAL20	Computer Network Security Intrusion Monitoring Cyber Security	Reg.	N	VL	N	N	N	5	20	
ROB01	Loss of RCP Seal Cooling	Plant	M	N	N	N	L	2	1	
ROB02	NFPA 805 Incipient Detection	Reg.	M	N	N	N	N	2	2	
ROB03	NFPA 805 Suppression and detection modification	Reg.	M	N	N	N	N	2	3	

APPENDIX B – COMPILATION OF ISSUE ASSESSMENT

Issue		Cat.	Importance Ranking					NEI Priority	Plant Relative Priority	Comments
Desig.	Title		Safety	Security	EP	RP	Reliability			
ROB04	NFPA 805 Electrical Coordination	Reg.	M	N	N	N	N	2	4	
ROB05	Fukushima Electrical	Reg.	M	N	N	N	N	2	5	
ROB06	Fukushima Mechanical	Reg.	L	N	N	N	N	3	6	
ROB07	Implementation of Cyber security	Reg.	L	N	N	N	N	3	7	
ROB08	LCV-1417A fail open to fail closed	Plant	VL	N	N	N	N	4	8	
ROB09	Local Operator Action to Reset Breaker to IAC	Plant	VL	N	N	N	N	4	9	
ROB10	Operator Burden- Inhibiting Fire Suppression	Plant	VL	N	N	N	N	4	10	
ROB11	Open Phase Byron event	Reg.	VL	N	N	N	N	4	11	
ROB12	Replace existing vacuum switches	Plant	N	N	N	N	L	4	12	
ROB13	Replace System 6175 Cable Vault CO2 system	Plant	N	N	N	N	L	4	13	
ROB14	Install Repeater in Containment	Plant	N	N	N	N	N	5	14	
ROB15	MRP-227A Holddown Spring	Reg.	N	N	N	L	N	5	15	Dose Savings
ROB16	Implement TSTF 523 - Generic Letter 08-01 Periodic Testing	Reg.	N	N	N	N	N	5	16	RP Neg. Impact
ROB17	GSI 191 insulation	Reg.	N	N	N	N	N	5	17	RP Neg. Impact
ROB18	Diaphragm Valve replacement	Plant	N	N	N	N	L	5	18	
ROB19	Dam/Reservoir lake Level Indication	Reg.	N	N	N	N	VL	5	19	
ROB20	Loose Parts Monitoring Upgrade	Plant	N	N	N	N	VL	5	20	
ROB21	Isolation valve in RWST Supply to charging pumps pipe 4-SI-82	Plant	N	N	N	N	VL	5	21	
ROB22	Replace B-Battery with Larger Battery	Plant	N	N	N	N	L	5	22	
SUM01	7KV Reroute	Plant	M	N	N	N	N	2	1	
SUM02	ISFSI	Plant	N	N	N	N	H	2	2	
SUM03	RCP Seal Replacement	Plant	L	N	N	N	M	3	3	
SUM04	EP Project (PAR Update)	Reg.	VL	N	M	N	N	3	4	

APPENDIX B – COMPILATION OF ISSUE ASSESSMENT

Issue		Cat.	Importance Ranking					NEI Priority	Plant Relative Priority	Comments
Desig.	Title		Safety	Security	EP	RP	Reliability			
SUM05	Fatigue Rule	Reg.	VL	VL	N	N	N	4	6	
SUM06	SFP Level Indication	Reg.	VL	N	N	N	N	4	7	
SUM07	Cyber Security Project (SIEM installation)	Reg.	VL	L	N	N	N	4	5	
SUM08	Physical Security Project (perimeter detection power upgrade)	–	–	–	–	–	–	–	–	Results of Assessment are SGI
PI01	Fukushima FLEX Implementation	Reg.	VL	VL	VL	N	N	1	1	Defined as Adequate Protection
PI02	NFPA 805 – Hot Shutdown Panel	Reg.	M	N	N	N	N	2	2	
PI03	NFPA 805 Incipient Fire Detection	Reg.	M	N	N	N	N	2	3	
PI04	Foxboro RCS Phase 3	Plant	VL	N	N	N	H	2	4	
PI05	Unit 1 Vent Valve Platforms GL 08-01	Plant	N	N	N	H	VL	2	5	Need plant specific cost/benefit evaluation. May be artificially high as a result fo assumed radiological benefit.
PI06	RCP Seal Replacement	Plant	M	N	N	N	L	2	6	
PI07	ISFISI Security Mods- Proposed Rulemaking	Reg.	N	M	N	N	N	3	7	Several security related assumptions were used to drive this to a higher security ranking. This may be artificially high.
PI08	Fan Coil Unit Motor Rewinds	Plant	VL	N	N	N	M	3	8	
PI09	IR Transformer Replacement	Plant	VL	N	N	N	M	3	9	
PI10	Cooling Water Header Replacement	Plant	VL	N	N	N	M	3	10	
PI11	10CFR Part 26 Fitness for Duty	Reg.	VL	VL	N	N	N	4	11	

APPENDIX B – COMPILATION OF ISSUE ASSESSMENT

Issue		Cat.	Importance Ranking					NEI Priority	Plant Relative Priority	Comments
Desig.	Title		Safety	Security	EP	RP	Reliability			
PI12	Cyber Security 08-09 Program	Reg.	VL	VL	N	N	N	4	12	
PI13	Tornado Missile RIS	Reg.	VL	N	N	N	N	4	13	
PI14	Cooling Tower Refurbishments	Plant	N	N	N	N	L	4	14	
PI15	Replace Traveling Screens	Plant	N	N	N	N	VL	5	15	
PI16	Westinghouse Radiation Monitor Replacement	Plant	N	N	VL	N	VL	5	16	
PI17	OBN AFW Pump Room Cooling	Reg.							17	
DB01	EFW and RCS Modifications	Reg.	H	N	N	N	N	1	1	
DB02	End of life Control Rod Replacement	Plant	VL	N	N	N	H	2	2	
DB03	Reactor Coolant Pump 2-1 and 2-2 Replacements	Plant	L	N	N	N	M	3	3	
DB04	Control Rod Drive System Replacement	Plant	VL	N	N	N	M	3	4	
DB05	Cyber Security Rule Implementation	Reg.	VL	L	VL	N	M	3	5	
DB06	Replace the Integrated Control System	Plant	VL	N	N	N	M	3	6	
DB07	Station Air Compressors Replacement	Plant	VL	N	N	N	L	4	7	
DB08	Dry Fuel Storage	Plant	VL	N	N	N	M	3	8	
DB09	Replace the Seismic Monitoring System	Plant	N	N	H	N	M	2	9	
DB10	Alloy 600 Mitigation	Reg.	VL	N	N	N	L	4	10	
DB11	Replace Normal Ventilation Control Room Ventilation Chiller Units 1 and 2	Plant	VL	N	N	N	L	4	11	
DB12	Install New Non-Essential Batteries and Chargers (DC System Margin)	Plant	VL	N	N	N	N	4	12	
DB13	Replace Vibration and Loose Parts Monitoring System	Plant	VL	N	N	N	L	4	13	
DB14	Byron Station Open Phase Failure	Reg.	VL	N	N	N	VL	4	14	
DB15	Electrical Power System Modification	Plant	VL	N	N	N	VL	4	15	
DB16	Non-Safety Related Heater Installation in Battery Rooms	Plant	VL	N	N	N	VL	4	16	
DB17	Flex Spent Fuel Pool Level Modification	Reg.	VL	N	N	N	N	4	17	
DB18	Physical Security Modifications	Reg.	VL	N	N	N	VL	4	18	

APPENDIX B – COMPILATION OF ISSUE ASSESSMENT

Issue		Cat.	Importance Ranking					NEI Priority	Plant Relative Priority	Comments
Desig.	Title		Safety	Security	EP	RP	Reliability			
HAT01	NFPA-805	Reg.	-	-	-	-	-	-	0	Issue too broad in scope. Process unable to address issue.
HAT02	License Renewal	Reg.	-	-	-	-		-	0	Issue too broad in scope. Process unable to address issue.
HAT03	Weld Overlay	Reg.	VL	N	N	N	H	2	1	
HAT04	Safety Relief Valve Upgrades	Plant	L	N	N	N	L	3	2	IRP increased priority to 2 from 3
HAT05	Cyber Security	Reg.	VL	M	VL	N	M	2	3	
HAT06	Emergency Diesel Generator Excitation Panel Upgrade	Plant	VL	N	N	N	M	3	4	
HAT07	Emergency Diesel Generator Improvements	Plant	VL	N	N	N	M	3	5	
HAT08	HPCI Controls Replacement	Plant	VL	N	N	N	M	3	6	
HAT09	RCIC Controls Replacement	Plant	VL	N	N	N	M	3	7	
HAT10	Diagonal Room Cooler Replacement	Plant	VL	N	N	N	M	3	8	
HAT11	Reliable Spent Fuel Pool Instrumentation	Reg.	VL	N	N	M	N	3	9	
HAT12	Diesel Generator LOCA/LOSP Timer Card Replacement	Plant	VL	N	N	N	L	4	10	

APPENDIX B – COMPILATION OF ISSUE ASSESSMENT

Issue		Cat.	Importance Ranking					NEI Priority	Plant Relative Priority	Comments
Desig.	Title		Safety	Security	EP	RP	Reliability			
HAT13	MSIV Conversion	Plant	VL	N	N	N	L	4	11	
HAT14	600V Breaker Replacement	Plant	VL	N	N	N	L	4	12	
HAT15	Battery Charger Replacement	Plant	VL	N	N	N	L	4	13	
HAT16	Motor Control Center Pan Assemblies	Plant	VL	N	N	N	L	4	14	
HAT17	Degraded Grid Transformer	Reg.	VL	N	N	N	L	4	15	
HAT18	Open Phase Protection	Reg.	VL	N	N	N	L	4	16	
HAT19	Seismic Monitoring System Improvement	Plant	VL	N	N	N	L	4	17	
HAT20	Reactor Building Roof Project	Plant	N	N	N	N	N/A	5	18	