

Robinson Nuclear Plant

August 25, 2011



RNP White Finding – Initiating Events (95001)

Event	Cause(s)	Status of Corrective Action(s)
Feedwater Regulating Valve Control Circuit Failure	Vendor design errors with Hagan power supplies resulted in premature part failure	Complete: <ul style="list-style-type: none"> Identified and located all RNP Hagan modules with Rev. 3 Ensign power supplies installed Replaced Ensign Rev. 5 Power Supplies with Ensign 5A power supplies
Plant Trip With 4 KV Fire	<p>Inadequate impact review of problem resulted in wrong priority</p> <p>Behaviors identified previously in training and crew assessment were not corrected and followed-up</p> <p>During the installation of design change MOD 851 in 1986 the cable installed was different from the specification, was inappropriate for the application and was contrary to the manufacturer's data sheet</p>	Complete: <ul style="list-style-type: none"> Revised work management process to provide specific guidance for impact reviews of new Work Requests Operator Fundamentals were fully integrated into the RNP simulator evaluation grading, and students receive immediate feedback for improvement opportunities. The improvement opportunities are included in the 'Crew Notebooks' The Engineering Change process has been modified to include numerous sign-offs and reviews of plant designs to minimize the potential for a similar event to occur under the current process. (Historical)

RNP White Finding – Initiating Events (95001)

Event	Cause(s)	Status of Corrective Action(s)
Electro-hydraulic Control Circuit Board Pins	Circuit board (1A08H) connection in the Electro Hydraulic control cabinet was found to have a degraded connection with the backplane connector. The cause of the poor connection was due to bent pins on the circuit board, but the cause of the bent pins is unknown.	Complete: <ul style="list-style-type: none">• Replaced the 1A08H circuit board• Revised existing PM Model to require testing to validate proper circuit card seating of any EH System circuit cards that are replaced. This PM revision includes checking circuit boards for bent pins prior to installation as well as verifying all installed and surrounding circuit boards are seated properly
Reactor Coolant Pump Winding Shorted	The end-turn insulation in the stator windings degraded and ultimately failed, resulting in a turn to turn short	Complete: <ul style="list-style-type: none">• Implement a Preventive Maintenance task to rewind each of the RCP motors, including the spare, on a 20 year frequency Due 10/01/12: <ul style="list-style-type: none">• Rewind the failed C RCP motor and the motor currently installed on the C RCP using a design that provides for proper securing of all winding end -turns to reduce vibration and improve long-term reliability

RNP White Findings – Mitigating Systems (95002)

Finding	Cause(s)	Status of Corrective Action(s)
Conduct of Operations	<p>Senior Management did not implement a formal program or process to continually monitor, evaluate, and improve Operation crew performance</p> <p>Training did not identify and remediate operator performance deficiencies</p> <p>Site did not maintain an appropriate level of CAP initiation threshold</p> <p>GP-004 did not contain an appropriate level of detail</p>	<p>Complete:</p> <ul style="list-style-type: none"> • Implemented Standards for Operations Shift/Training Crew Performance Improvement to drive consistent operator performance • Implemented Organizational Effectiveness Review Committees to assure Senior Management oversight is maintained • Revised appropriate training processes • Established appropriate Leadership engagement to initiate a culture shift in NCR initiation • Revised procedure references and connections to other procedures

RNP White Findings – Mitigating Systems (95002)

Finding	Cause(s)	Status of Corrective Action(s)
Operations Systematic Approach to Training	Operations, Training, Senior Site Managers, and the Training Advisory Board did not provide the leadership necessary to ensure the integrity of Operations training infrastructure was maintained and monitored	Complete: <ul style="list-style-type: none">• Implemented requirements for Organizational Effectiveness Reviews; specifically addressing Staffing, Supervisor Effectiveness, Training and Qualifications, and Self-Evaluation Overview• Completed Management and Supervisory Leadership Assessments through panel process for all individuals new to positions since August 2010• Established and reinforced management standards within the training workforce

RNP White Findings – Mitigating Systems (95002)

Finding	Cause(s)	Status of Corrective Action(s)
Failure to Document EDG Output Breaker in Corrective Action Program	<p>Employees did not use a systematic method for problem identification and resolution for a safety significant component failure</p> <p>RNP personnel responded differently to a Diesel Generator breaker failure between outage and online conditions</p>	<p>Complete:</p> <ul style="list-style-type: none">• Training Maintenance personnel for work package documentation <p>Complete:</p> <ul style="list-style-type: none">• Revised conduct of Maintenance to clearly establish expectations for “Skill of the Craft” <p>Due 06/20/12:</p> <ul style="list-style-type: none">• Establish and implement methods for Site Leadership engagement to initiate a culture shift in order to change behavior to embrace CAP

RNP White Findings – Mitigating Systems (95002)

Finding	Cause(s)	Status of Corrective Action(s)
White Finding Common Cause	<p>Site and Corporate Senior Leadership allowed behavioral standards of performance to deteriorate while focusing on the attainment of other business planning objectives.</p> <p>As a result of declining / poor standards, Leadership did not ensure organizational capacity was sufficient to execute core processes.</p> <p>RNP has exhibited behavioral shortfalls in Safety Culture. These shortfalls have impacted organizational decisions and actions at all levels.</p>	<p>Complete:</p> <ul style="list-style-type: none"> • Implemented Performance Planning and Monitoring requirements for Organizational Effectiveness Reviews; specifically addressing Staffing, Supervisor Effectiveness, Training and Qualifications, and Self-Evaluation Program Overview <p>Complete:</p> <ul style="list-style-type: none"> • Develop and implement a Safety Culture Improvement Plan to address behavioral shortfalls <p>Complete:</p> <ul style="list-style-type: none"> • Complete Supervisor Leadership Assessments and make changes <p>Complete:</p> <ul style="list-style-type: none"> • Initiate and begin execution of Procedure Upgrade Project <p>Due 11/15/11:</p> <ul style="list-style-type: none"> • Revise the annual budget process at RNP and incorporate into Fleet or Site procedures to develop the budget in a risk-informed manner incorporating identification of the gap between resources available and workload requirements and incorporate the revised process into a site or fleet procedure <p>(Continued on next page)</p>

RNP White Findings – Mitigating Systems (95002)

Finding	Cause(s)	Status of Corrective Action(s)
White Finding Common Cause (Continued)		Due 10/05/11: <ul style="list-style-type: none">• Perform a comprehensive organizational capacity review Due 12/15/12: <ul style="list-style-type: none">• Complete a material upgrade project tying a solid task list to objectives in material

Procedure Upgrade Project Scope

Type	Number
Operations Single Column Procedures	626
Operations Emergency Operating Procedures	43
Operations Abnormal Operating Procedures	72
Maintenance Procedures	858
Chemistry Procedures	133
Radiation Protection Procedures	60
Total *	1792

Procedure Upgrade Project Milestone Schedule

Execution Phase	Complete all Path 1/2 EOPs	September 2011
	Complete all Remaining EOPs	April 2012
	Complete all Radiation Protection Procedures	October 2013
	Complete all Chemistry Procedures	July 2014
	Complete all Electrical Maintenance Procedures	August 2014
	Complete all Mechanical Maintenance Procedures	July 2015
	Complete all AOPs	August 2016
	Complete all Operations Single Column Procedures	August 2016
	Complete all I&C Maintenance Procedures	November 2016
Closeout Phase	Lessons Learned Report	September 2016

Safety Culture Improvement Action Plan

- Inputs:
 - ◆ 95002 Root Causes/Common Cause
 - ◆ USA Safety Culture Assessment Conducted March/April
 - ◆ Safety Culture Surveys
 - ◆ NRC 95002 Inspection Feedback
- Key Focus Areas/Actions:
 - ◆ Significantly Enhanced Leadership and Employer-Employee Communications
 - ◆ Monthly Organizational Effectiveness Challenge Meetings
 - ◆ Corrective Action Program Improvements in identification and quality of investigation
 - ◆ Work Management Effectiveness
 - ◆ Nuclear Electric Institute 09-07 Implementation – on going Safety Culture assessment

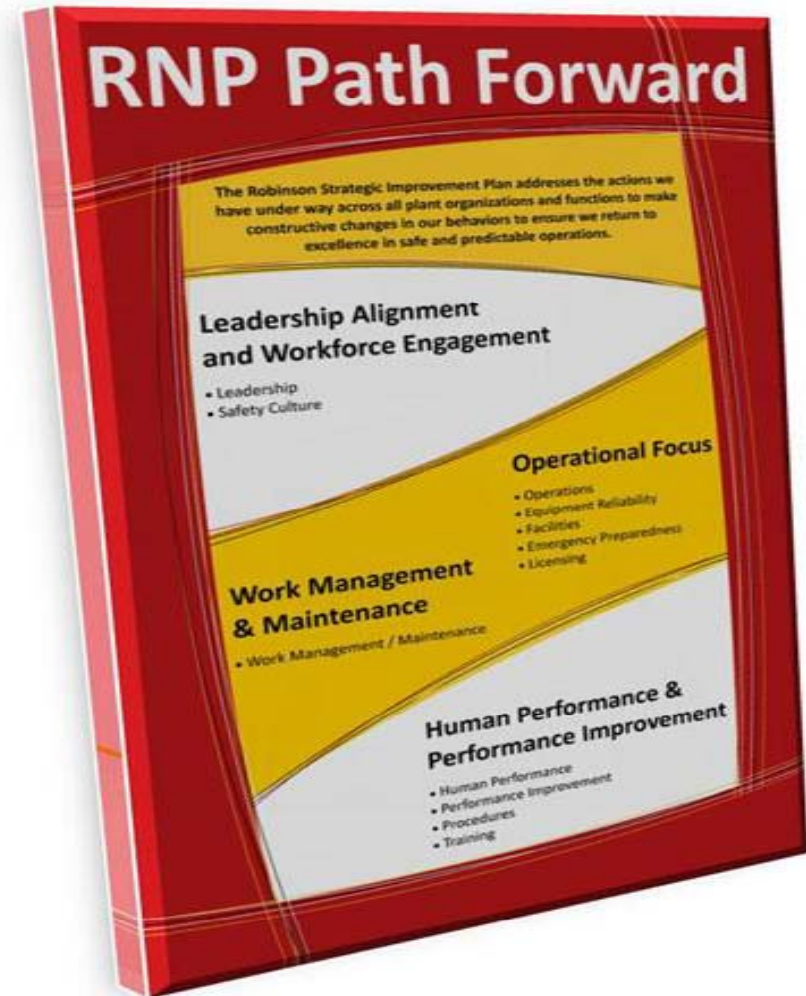
Strategic Improvement Plan Objectives

- Address Performance and Historical Issues
- Address and Change Behaviors

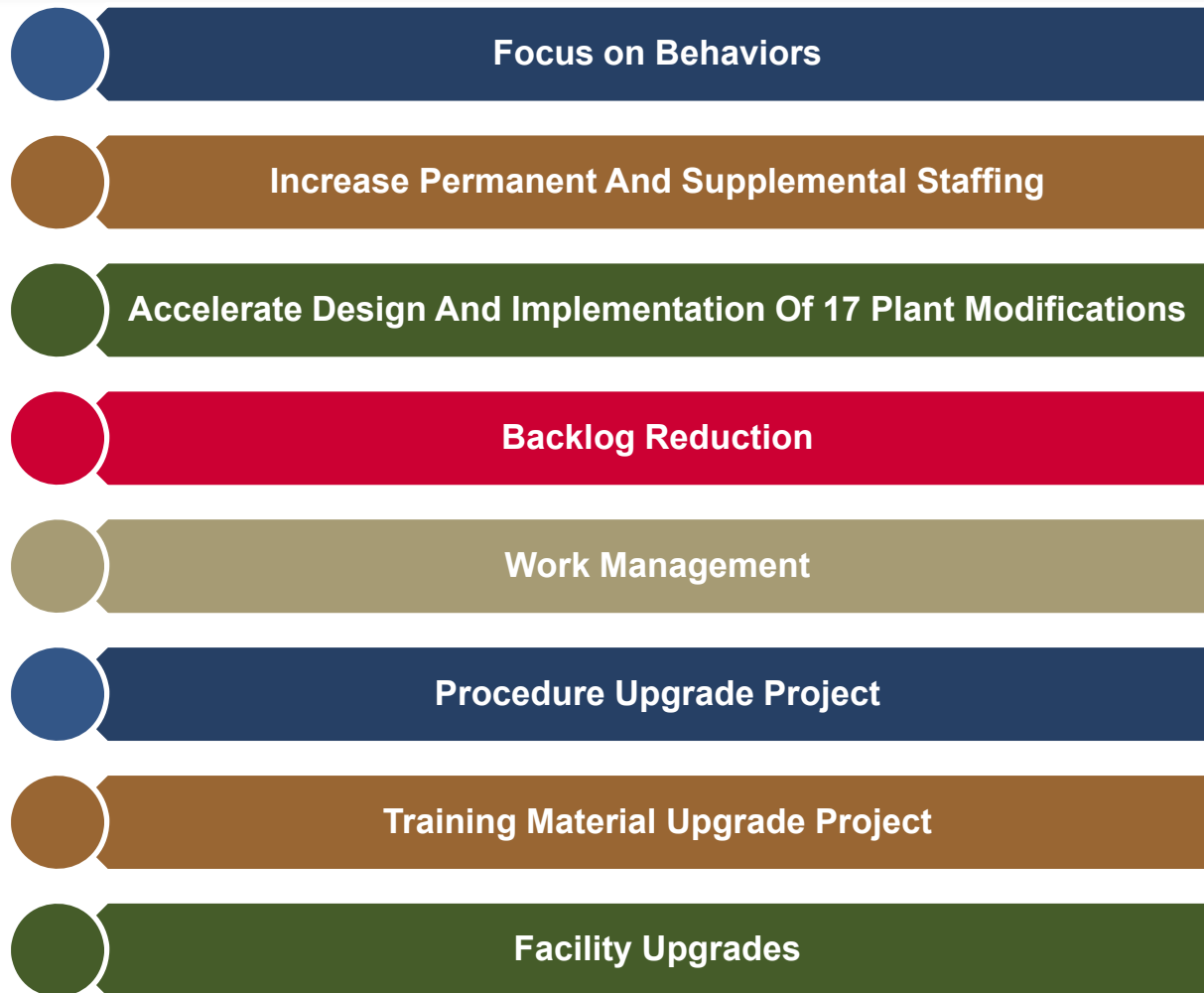
- Correct Programmatic Deficiencies
- Establish a Continuous Learning Organization

- Ensure Culture of Sustainability
- Maintain Strong Nuclear Safety Culture

- Serve as a Station Communications Alignment Tool



Key Strategic Improvements



RNP Mission

**Value Continuous Improvement
and a Bias for the Right Action
to Achieve Safe, Predictable,
and Reliable Plant Operations**