



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I**
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

August 3, 2012

Mr. Kenneth Langdon
Vice President Nine Mile Point
Nine Mile Point Nuclear Station, LLC
P.O. Box 63
Lycoming, NY 13093

**SUBJECT: NINE MILE POINT NUCLEAR STATION - NRC INTEGRATED INSPECTION
REPORT 05000220/2012003 AND 05000410/2012003**

Dear Mr. Langdon:

On June 30, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Nine Mile Point Nuclear Station Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on July 13, 2012, with you and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents three findings of very low safety significance (Green). All of these findings were determined to involve a violation of NRC requirements. However, because of the very low safety significance, and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs), consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest any NCVs noted in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Nine Mile Point Nuclear Station. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Resident Inspector at Nine Mile Point Nuclear Station.

In accordance with 10 CFR Part 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the

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Sincerely,

/RA/

Glenn T. Dentel, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos.: 50-220, 50-410
License Nos.: DPR-63, NPF-69

Enclosure: Inspection Report 05000220/2012003 and 05000410/2012003
w/Attachment: Supplementary Information

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Sincerely,

IRA

Glenn T. Dentel, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos.: 50-220, 50-410
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IR 2012-003.docx
ADAMS ACCESSION NUMBER: **ML12216A247**

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.: 50-220, 50-410

License Nos.: DPR-63, NPF-69

Report No.: 05000220/2012003 and 05000410/2012003

Licensee: Nine Mile Point Nuclear Station, LLC (NMPNS)

Facility: Nine Mile Point, Units 1 and 2

Location: Oswego, NY

Dates: April 1 through June 30, 2012

Inspectors: K. Kolaczyk, Senior Resident Inspector
D. Dempsey, Resident Inspector
E. Miller, Project Engineer
J. Furia, Senior Health Physicist
R. Fuhrmeister, Senior Reactor Engineer
E. Gray, Senior Reactor Inspector
P. Kaufman, Senior Reactor Inspector
B. Dionne, Health Physicist
J. Nicholson, Health Physicist

Approved By: Glenn T. Dentel, Chief
Reactor Projects Branch 1
Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000220/2012003, 05000410/2012003; 04/01/2012 - 06/30/2012; Nine Mile Point Nuclear Station, Units 1 and 2, Maintenance Risk Assessments and Emergent Work Control, Post-Maintenance Testing, and Followup of Events and Notices of Enforcement Discretion.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Inspectors identified three Green findings, all of which were non-cited violations (NCVs). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross-cutting aspects for the findings were determined using IMC 0310, "Components Within Cross-Cutting Areas." Findings for which the SDP does not apply may be Green, or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

Cornerstone: Initiating Events

- Green. A self-revealing NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified for NMPNS' failure to effectively implement corrective actions. Specifically, NMPNS's corrective actions from a differential fill and vent evolution which caused a reactor scram in January 2010 were ineffective in preventing an inadvertent start of the Division I EDG on a Level 1 ECCS initiation (reactor pressure vessel low-low-low level) signal on April 26, 2012, during a similar fill and vent evolution. NMPNS entered this issue into its corrective action program as CR-2012-003778.

The finding is more than minor because it adversely impacted the human performance attribute of the Initiating Events Cornerstone to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The finding was determined to be of very low significance (Green) because of the availability of safety systems and procedures pertaining to core heat removal, inventory control, electrical power, and secondary containment. The finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program, because Nine Mile Point Nuclear Station did not take appropriate corrective actions to address safety issues commensurate with their safety significance and complexity. Specifically, the corrective actions taken as a result of the January 7, 2010 event were ineffective in preventing the April 26, 2012 event. [P.1(d)] (Section 1R19)

Cornerstone: Barrier Integrity

- Green. A self-revealing NCV of TS 5.4.1, "Procedures," was identified for NMPNS' failure to provide an adequate procedure for spent fuel pool (SFP) cooling system restoration. Specifically, procedure N2-PM-082, "RPV Floodup/Draindown," Revision 00600, did not contain adequate guidance for restoring the spent fuel cooling (SFC) system from single to two skimmer surge tank operation during a medium risk configuration for decay heat removal. As a result, on May 17, 2012 SFP cooling was lost when the 'A' SFP pump tripped on low suction pressure. NMPNS restored SFP cooling within 30 minutes and entered this issue into its corrective action program as CR 2012-004850.

This finding is more than minor because it affects the Barrier Integrity Cornerstone attribute of maintaining the functionality of the SFC system to provide reasonable assurance that physical design barriers protect the public from radiological releases caused by accidents or events. The finding was determined to be of very low safety significance (Green), due to it not being associated with a loss of cooling to the SFP that would have precluded restoration prior to boiling, a fuel handling error, or loss of SFP inventory. Specifically, control room operators had a contingency plan in place to restore the loss of SFC if it were to occur.

This finding has a cross-cutting aspect in the area of human performance, resources, because NMPNS did not ensure that procedures were adequate to ensure nuclear safety. Specifically, procedure N2-PM-082 did not provide adequate instructions to establish a valve lineup that would ensure that the SFP cooling pump had sufficient suction pressure. [H.2(c)] (Section 1R13)

- Green. A self-revealing Green NCV of TS 5.4.1, "Procedures," was identified for NMPNS' failure to provide an adequate special operating procedure for loss of SFP cooling. On May 25, 2012, following a loss of SFP cooling, the inadequate procedural guidance delayed restoration of SFP cooling for over two hours during which SFP temperature rose three degrees. NMPNS entered this issue into its corrective action program as CR 2012-004850 to track resolution of this issue.

The finding is more than minor because it was associated with the procedure quality attribute of the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radiological release by maintaining functionality of the SFP cooling system. The finding was determined to be of very low safety significance (Green), due to it not being associated with a loss of cooling to the SFP that would have precluded restoration prior to boiling, a fuel handling error, or loss of SFP inventory.

This finding has a cross-cutting aspect in the area of human performance, resources, because NMPNS did not ensure that procedures were adequate to ensure nuclear safety. Specifically, the special operating procedure for loss of SFP cooling did not contain adequate guidance either for restoration of a two skimmer surge tank lineup or for starting a SFP cooling pump on a single surge tank. [H.2(c)] (Section 4OA3.1)

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at 100 percent power. On June 1, 2012, operators reduced power to approximately 95 percent to remove the 13 recirculation pump from service. Power was returned to 100 percent later that day. On June 9 reactor power was reduced to 90 percent to perform turbine stop valve testing and restore the 13 recirculation pump to service. Power was restored to 100 percent later that day and remained at essentially full power for the remainder of the report period.

Unit 2 began the inspection period at 96 percent power in the coast down period of plant operation. On April 8, a plant shutdown was commenced to begin Unit 2 refueling outage (2R13). On April 9 the turbine was removed from the grid and the plant entered Mode 3. On June 4, following completion of the refueling outage, the unit was restarted and the turbine was synchronized to the grid on June 7, 2012. On June 7 the turbine tripped on two separate occasions with the reactor at less than 20 percent power due to switchyard voltage fluctuations. The turbine was synchronized to the grid on June 9 and reactor power was raised to approximately 87 percent, which equates to the previous 100 percent licensed power limit, on June 19. On June 21, reactor power was decreased to 55 percent when a fire developed on the insulation for 'B' main feedwater pump and operators declared a Notice of Unusual Event. Following the completion of repairs, the pump was restarted and reactor power was increased to approximately 87 percent on June 23. At the end of the report period power was at 89 percent in accordance with extended power uprate test procedures.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 - Four Samples)

.1 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of NMPNS' readiness for the onset of seasonal high temperatures. The review focused on the Unit 1 area coolers and the Unit 2 reactor building closed loop cooling mini-loop. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), technical specifications (TSs), and the corrective action program (CAP) to determine what temperatures or other seasonal weather could challenge these systems, and to ensure NMPNS personnel had adequately prepared for these challenges. The inspectors reviewed station procedures, including NMPNS' seasonal weather readiness procedure and applicable operating procedures. The inspectors performed walkdowns of the selected systems to ensure station personnel identified issues that could challenge the operability of the systems during hot weather conditions. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

.2 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

The inspectors performed a review of NMPNS readiness for the onset of impending adverse weather conditions that involved severe thunderstorms that occurred at the NMPNS site on May 29, 2012. The review focused on the Unit 1 operation department's preparations and response to the adverse weather conditions. The inspectors reviewed the Unit 1 risk management software program, control room logs and interviewed operations department personnel to determine if NMPNS personnel had adequately prepared for the onset of adverse weather.

b. Findings

No findings were identified.

.3 Summer Readiness of Offsite and Alternate Alternating Current (AC) Power Systems

a. Inspection Scope

The inspectors performed a review of plant features and procedures for the operation and continued availability of the offsite and alternate AC power system to evaluate readiness of the systems prior to seasonal high grid loading for Units 1 and 2. The inspectors reviewed Administrative Procedure S-ODP-OPS-0112, "Offsite Power Operations and Interface," Revision 01600 to ensure appropriate communication protocol between the transmission system operator and NMPNS. This review focused on changes to the established program and material condition of the offsite and alternate AC power equipment. The inspectors assessed whether NMPNS established and implemented appropriate procedures and protocols to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system. The inspectors evaluated the material condition of the associated equipment by reviewing condition reports (CRs) and conducting walkdowns of portions of the offsite and AC power systems including the Units 1 and 2 switchyards.

b. Findings

No findings were identified.

.4 External Flooding

a. Inspection Scope

During the week of May 7, 2012, the inspectors performed an inspection of the external flood protection measures for NMPNS. The inspectors reviewed Chapter 2.4.2 of the Unit 2 UFSAR, which depicted the design flood levels and protection areas containing safety-related equipment to identify areas that may be affected by external flooding. The inspectors conducted a general site walkdown of all external areas of the plant, including

the turbine building, reactor building, and flood berms and culverts to ensure that NMPNS erected flood protection measures in accordance with design specifications. The inspectors also reviewed operating procedures for mitigating external flooding during severe weather to determine if NMPNS planned or established adequate measures to protect against external flooding events.

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Partial System Walkdown (71111.04Q - Five samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- Unit 1 fire main system cross-ties between Units 1 and 2 and the associated piping in the Unit 1 screenhouse, while the Unit 1 fire main system was protected by Unit 2 personnel to support core defueling operations on April 18, 2012
- Unit 1 train 12 liquid poison system while train 11 liquid poison system was inoperable for a surveillance test (ST)
- Unit 2 Division I EDG during elevated risk during 2R13 on April 11, 2012
- Unit 2 SFP cooling and cleanup while Division I residual heat removal (RHS) system was out of service for maintenance on April 16, 2012
- Unit 2 Division I RHS while Division II RHS was out of service for maintenance on May 7, 2012

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the UFSAR, TSs, work orders (WOs), CRs, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted system performance of their intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether NMPNS staff had properly identified equipment issues and entered them into the CAP for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

.2 Full System Walkdown (71111.04S - One sample)

a. Inspection Scope

On May 17, the inspectors performed a complete system walkdown of accessible portions of the Unit 2 reactor building closed loop cooling system to verify the existing equipment lineup was correct. The inspectors reviewed operating procedures, drawings, equipment line-up check-off lists, and the UFSAR to verify the system was aligned to perform its required safety functions. The inspectors also verified bearing and pump motor temperatures. The inspectors performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. Additionally, the inspectors reviewed a sample of related CRs and work orders to ensure NMPNS appropriately evaluated and resolved any deficiencies.

b. Findings

No findings were identified.

1R05 Fire Protection

Resident Inspector Quarterly Walkdowns (71111.05Q - Seven samples)

a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that NMPNS controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for out of service, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Unit 1 screenhouse, 261 foot elevation (fire area 13) on April 12, 2012
- Unit 1 torus room, 198 foot elevation (fire area RX-233-3) on April 16, 2012
- Unit 2 high pressure core spray system Division III diesel generator control room, (fire area 30) on April 9, 2012
- Unit 2 steam tunnel, (fire area 50) on April 9, 2012
- Unit 2 drywell,(fire area 234NZ) on April 10, 2012
- Unit 2 feedwater heater bays A, B, C, 250 and 277 foot elevations (fire areas 704NZ, 705NZ, and 706NZ) on April 17, 2012
- Unit 2 turbine building (TB) north condenser area, 277 foot elevation (fire area 730SW) on April 17, 2012

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 - One sample)

.1 Internal Flooding Review

a. Inspection Scope

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to assess susceptibilities involving internal flooding. The inspectors also reviewed the CAP to determine if NMPNS identified and corrected flooding problems and whether operator actions for coping with flooding were adequate. The inspectors also focused on the Unit 1 containment spray and core spray pump rooms, as well as the reactor building (RB) 298 foot elevation to verify the adequacy of equipment seals located below the flood line, floor and water penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, control circuits, and temporary or removable flood barriers.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (711111.07A - Two samples)

a. Inspection Scope

The inspectors reviewed the 122 and 111 containment spray heat exchangers to determine its readiness and availability to perform its safety functions. The inspectors reviewed the design basis for the component and verified NMPNS' commitments to NRC Generic Letter 89-13. The inspectors reviewed the results of previous inspections of the 122 and 111 containment spray and similar heat exchangers. The inspectors discussed the results of the most recent inspection with engineering staff and reviewed pictures of the as-found and as-left conditions. The inspectors verified that NMPNS initiated appropriate corrective actions for identified deficiencies.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08 - One sample)

a. Inspection Scope

A sample of non-destructive evaluation (NDE) activities was inspected during 2R13. This included a review of manual performance demonstration initiative ultrasonic testing (UT) procedures. Included in the sample were the 2CLS-26-05-FW012 and SW019 welds. For these welds the pre-UT examination instrument calibration was observed and the previous UT data, UT work package instructions, and final examination results were reviewed.

The inspector reviewed the NDE report ISI-UT-12-027/28, summary 265800, for the UT examination of welds 2MSS-01-14FW021 and FW020 performed per procedure UT-6.23. The NDE UT report ISI UT-12-026, summary 337300, for weld 2RHR 5-66-31-

FW013 and the UT examination preparations for examination of weld 2CSH-25-09-FW009 were also reviewed. For weld 2CSH-25-09, the inspector confirmed that a previously identified UT indication was reexamined during 2R13 as required by Section XI of the American Society of Mechanical Engineers (ASME) Code.

The preparations, parameters and procedure for performance demonstration initiative ultrasonic examination of the nozzle inner radius and reactor pressure vessel (RPV) shell to nozzle welds N4D, N5, N6A and N16 were reviewed.

A sample of in-vessel visual inspection (IVVI) video in-process examination, IVVI procedure and records for the core shroud, jet pump components, core spray components per BWR-VIP-18, and the steam dryer were reviewed. The IVVI evaluation process observed included a comparison of previously identified indications to their current condition. The scope of modifications to the steam dryer was reviewed. The inspector reviewed the preparations and qualifications for underwater welding on the steam dryer and observed video inspection of pre-welded and post-welded areas on the dryer. The scope of the jet pump modifications to increase core flow as part of the plant power uprate per ECP 11-11000833 was reviewed including the upgrade of the jet pump beam material. The replacement components and work in progress were observed.

For the verification of containment boundary integrity, the inspector reviewed the visual testing (VT) examination scope of the containment boundary, including penetrations, per the ASME Code part IWE, reviewed qualifications of the examiners and sampled the results.

The supplemental visual examination results of the Unit 1 crane structure documented in the "U1 RB Crane Visual Examination (VT-1) Report BOP-VT-12-079, 04/18/2012, WO-C91854831" was reviewed.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11 - Four samples)

.1 Quarterly Review of Licensed Operator Requalification Testing and Training

a. Inspection Scope

The inspectors observed Unit 2 licensed operator simulator training on June 14, 2012, which included a loss of SFP cooling, a recirculation pump trip, and a reactor scram that involved a failure of control rods to insert into the core. On June 19, 2012, the inspectors observed licensed operator training for Unit 1. The training involved independent spent fuel storage installation (ISFSI) design and operation. During the simulator event the inspectors verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures (EOPs). The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisors. The inspectors verified the accuracy and timeliness of the emergency classifications made by the shift managers and the TS

action statements entered by the shift technical advisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Room

a. Inspection Scope

The inspectors observed a planned drain down of the Unit 2 refueling cavity following the completion of core maintenance activities during 2R13 and planned STs of the 121 core spray system at Unit 1 on April 8 and May 16, 2012, respectively. The inspectors observed infrequently performed test or evolution, pre-shift briefings, and reactivity control briefings to verify that the briefings met the criteria specified in procedures CNG-OP-1.01-2001, "Communications and Briefings," Revision 00200 and CNG-OP-3.01-1000, "Reactivity Management," Revision 00700. Additionally, the inspectors verified that procedure use, crew communications, and coordination of plant activities among work groups similarly met established expectations and standards.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12 - Three samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structure, system, and component (SSC) performance and reliability. The inspectors reviewed system health reports, CAP documents, maintenance WOs, and maintenance rule basis documents to ensure that NMPNS was identifying and properly evaluating performance problems within the scope of the maintenance rule. For each sample selected, the inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with 10 CFR Part 50.65 and verified that the (a)(2) performance criteria established by NMPNS staff was reasonable. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2). Additionally, the inspectors ensured that NMPNS staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- Unit 1 structural monitoring program 2011 biennial report
- Units 1 and 2 maintenance rule (a)(3) assessment, October 2009 through September 2011
- Units 1 and 2 performance monitoring of molded case circuit breakers

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - Eight samples)a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that NMPNS performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that NMPNS personnel performed risk assessments as required by 10 CFR Part 50.65(a)(4) and that the assessments were accurate and complete. When NMPNS performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the TS requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- Unit 1 emergent work activities to recover the 11 TB exhaust fan and establish temporary ventilation to the steam tunnel following the trip of the 12 TB fan on April 16, 2012
- Unit 2 detensioning and removal of the reactor vessel head conducted on April 11, 2012
- Unit 2 refueling activities conducted on May 7, 2012
- Unit 2 moisture separator movement activities on May 14, 2012
- Unit 2 reactor cavity drain down, an infrequently performed test or evolution, on May 16, 2012
- Unit 2 loss of SFC Pump A following RPV drain down on May 17, 2012
- Unit 2 turbine trip that occurred when closing one of the main generator output breakers on June 7, 2012
- Unit 2 trip of Division I service water unit cooler HVY*UC2A on June 6, 2012

b. Findings

Introduction. A self-revealing Green NCV of TS 5.4.1, "Procedures," was identified for NMPNS' failure to provide an adequate procedure SFP cooling system restoration. Specifically, procedure N2-PM-082, "RPV Floodup/Draindown," Revision 00600, did not contain adequate guidance for restoring the SFC system from single to two skimmer surge tank operation during a medium risk configuration for decay heat removal. As a result, on May 17, 2012 SFP cooling was lost when pump 2SFC*P1A tripped on low suction pressure.

Description. On May 17, 2012, NMPNS was restoring the SFC system lineup from one SFP skimmer surge tank suction to two skimmer surge tank suction following reactor pressure vessel cavity drain down. The cavity draindown lineup uses one SFC pump taking suction from one skimmer surge tank and directing flow through one heat

exchanger before returning water back to the SFP. The normal SFC lineup has one pump taking suction from two skimmer surge tanks and directs flow through one heat exchanger before returning back to the SFP. This evolution was being performed during a medium risk system configuration (Yellow/N) for decay heat removal with both SFC trains protected. At the time of the event, the SFP gates were installed and the SFP was isolated from the reactor cavity. At 1:02 pm while the operators were performing step 6.7.5.2.b of N2-PM-082 to align the SFC system from its cavity drain down lineup to the normal cooling lineup, pump 2SFC*P1A tripped on low suction pressure. Following the trip, operators completed the valve lineup and restored fuel pool cooling at 1:30 pm using N2-OP-38, "Spent Fuel Pool Cooling the Cleanup System." While the SFP cooling was shutdown, SFP temperature increased one degree from 93 degrees °F to 94°F.

Inspector interviews with reactor operators revealed that the risk significance of aligning the SFC system suction from one skimmer surge tank to two skimmer surge tanks had been briefed and understood prior to the evolution. Operators were prepared to continue the system lineup in the event of a pump trip, the potential for which was known due to previous operating experience.

The inspectors identified through a review of procedure N2-PM-082 that the steps which directed the valve manipulations placed the system at risk for tripping the running pump. Specifically, the procedure allowed operators to fully open the return flow path from 2SFC*P1A to both skimmer surge tanks prior to ensuring the pump suction path from both surge tanks was aligned. This increased the probability that the operating pump would trip on low suction pressure. Prior to the event, the pump had been operating in a high flow/low suction pressure condition due to the nature of the system lineup, which used only one skimmer surge tank.

NMPNS immediate corrective actions following the pump trip included restarting pump 2SFC*P1A which restored SFP cooling. Follow-on corrective actions included removing the low pressure pump trip from 2SFC*P1A. This low pressure trip had been removed from 2SFC*P1B prior to the outage. Planned additional corrective actions include revising procedure N2-PM-082 to provide additional guidance on how to maintain adequate pump net positive suction head to the SFP cooling pumps during valve manipulations. NMPNS entered this issue into their CAP as CR 2012-004850 which included the above listed actions.

This finding has a cross-cutting aspect in the area of human performance, resources, because NMPNS did not ensure that procedures were adequate to ensure nuclear safety. Specifically, procedure N2-PM-082 did not provide adequate instructions to establish a valve lineup that would ensure that the SFP cooling pump had sufficient suction pressure. [H.2(c)]

Analysis. The inspectors determined that the failure of procedure N2-PM-082 to provide operators with a valve lineup that would ensure 2SFC*P1A had adequate suction pressure is a performance deficiency that was within NMPNS' ability to foresee and correct, and should have been prevented. This finding is more than minor because it affects the Barrier Integrity Cornerstone attribute of maintaining the functionality of the SFC system to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The inspectors evaluated the finding using Phase 1, "Initial Screening and Characterization" worksheet in Attachment 4 of IMC 0609, "SDP" and determined this finding to be of very low safety

significance (Green), because the performance deficiency was not associated with loss of cooling to the SFC that would have precluded restoration prior to boiling, a fuel handling error, or loss of SFP inventory. Specifically, the control room operators had a contingency plan in place to restore the loss of SFC if it were to occur.

This finding has a cross-cutting aspect in the area of human performance, resources, because NMPNS did not ensure that procedures were adequate to ensure nuclear safety. Specifically, procedure N2-PM-082 did not provide adequate instructions to establish a valve lineup that would ensure that the SFP cooling pump had sufficient suction pressure. [H.2(c)]

Enforcement. Technical Specification 5.4.1, "Procedures," requires written procedures to be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide (RG) 1.33, "Quality Assurance Program Requirements (Operation)," Appendix A, Revision 2 dated February 1978. Procedure N2-PM-082, "RPV Floodup/Draindown" is a procedure recommended by Section 4 of RG 1.33, Appendix A. Contrary to the above, section 6.7.5 of procedure N2-PM-082 did not contain instructions adequate to ensure operation of 2SFC*P1A in accordance with its design while transferring from a single to a dual skimmer surge tank lineup. Because this violation is of very low safety significance (Green) and NMPNS entered this issue into their corrective action program as CR 2012-004850, this finding is being treated as an NCV consistent with the NRC Enforcement Policy. **(NCV 05000410/2012003-01, Loss of SFP Cooling due to Inadequate Procedure)**

1R15 Operability Determinations and Functionality Assessments (71111.15 - Nine samples)

a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions:

- Unit 1, EDG 102 raw water pump motor high inboard bearing temperature on February 15, 2012
- Unit 1, increased drywell leakage on March 19, 2012
- Unit 1, number 15 reactor recirculation pump seal pressure fluctuations on March 23, 2012
- Unit 1, EDG 102 raw water pump: no flow from oil dripper after two drops on May 17, 2012
- Unit 2, foreign material in cell 26 of battery 2BYS*BAT2A on April 10, 2012
- Unit 2, source range monitor B unable to be fully inserted on April 12, 2012
- Unit 2, 2ENS*SWG101 failure to meet seismic acceptance criteria for breaker penetration depth on April 22, 2012
- Unit 2, crud burst from chemically decontaminated piping into the reactor cavity on May 5, 2012
- Unit 2, acceptability of new feedwater pump cable test results on May 10, 2012

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the operability determinations to assess whether TS operability was properly justified and the subject component or system remained available such that no unrecognized

increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TSs and UFSAR to NMPNS evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by NMPNS. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R18 Plant Modifications

Permanent Modifications

a. Inspection Scope (71111.18 - Two samples)

The inspectors evaluated a modification to the reactor recirculation pump runback circuits and replacement of twenty jet pump mixer assemblies implemented by engineering change packages ECP-10-000657 and ECP-11-000833, respectively. The inspectors verified that the design bases, licensing bases, and performance capabilities of the affected systems were not degraded by the modifications. In addition, the inspectors reviewed modification documents associated with the upgrade and design changes. The inspectors also reviewed revisions to the operating and control room alarm response procedures and interviewed engineering and operations personnel to ensure the procedures could be reasonably performed.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 - 13 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests (PMTs) for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedures to verify that the procedures adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedures were consistent with the information in the applicable licensing basis and/or design basis documents, and that the procedures had been properly reviewed and approved. The inspectors also witnessed the tests or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

In addition, the inspectors reviewed PMT activities relating to extended power uprate (EPU) design changes for the reactor pressure control system. The tests included system response to induced transients and takeover capability of the backup pressure regulator via a simulated failure of the controlling pressure regulator.

- Unit 1 nitrogen tank 12 leak repairs on May 6, 2012
- Unit 1 journal bearing lubricating oil flow to the 102 EDG jacket water pump on May 18, 2012
- Unit 1 core spray motor 111 aging management inspection on June 26, 2012
- Unit 2 replacement of undervoltage time delay relay 2C-2ENSY04 on May 10, 2012
- Unit 2 main steam isolation valve (MSIV) local leak rate testing of 2MSS*AOV7C and 2MSS*AOV7D following valve repacking on May 11, 2012
- Unit 2 packing adjustment of check valve 2ICS*V157 on May 21, 2012
- Unit 2 valve 2RCS*MOV18A body to bonnet leak repair on May 23, 2012
- Unit 2 replacement of the automatic depressurization system (ADS) header low flow supply valve 2IAS*SOVY181 on May 23, 2012
- Unit 2 loss of SFC due to loss of Division I 600 volts alternating current (Vac) on May 25, 2012
- Unit 2 Division I 600 Vac bus supply breaker trip push button repair on May 30, 2012
- Unit 2 rebuild MSIV 2MSS*AOV7C after failing local leak rate test on June 4, 2012
- Unit 2 turbine stop valve closure test on June 10, 14 and 15, 2012 (EPU related)
- Unit 2 pressure regulator transient test on June 13, 14, and 15, 2012 (EPU related)

b. Findings

Introduction. A self-revealing Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified for NMPNS' failure to effectively implement corrective actions. Specifically, NMPNS's corrective actions from a differential fill and vent evolution which caused a reactor scram in January 2010 were ineffective in preventing an inadvertent start of the Division I EDG on a Level 1 ECCS initiation (reactor pressure vessel low-low-low level) signal on April 26, 2012, during a similar fill and vent evolution.

Description. On April 26, 2012, instrument and control technicians were filling and venting various instrument lines, including Division I differential pressure instrument 2RHS*PDT24A in accordance with work order C90964906. During the course of the fill and vent evolution, other instruments that are connected via a common reference line to 2RHS*PDT24A were affected, resulting in a Division I ECCS initiation that automatically started the associated emergency diesel generator, and realigned the 'A' train of RHS to the low pressure coolant injection mode of operation. The 'A' RHS pump was in pull-to-lock at the time which prevented a reactor pressure vessel injection.

The inspectors determined this event was similar to an event that occurred on January 7, 2010 when a reactor scram from full power occurred due to inadvertent actuation of the redundant reactivity control system (ARI/RPT) while filling and venting Division II differential pressure transmitter 2RHS*PDT24C. During this prior event, closing of the high side drain valve for that instrument created a false low pressure signal on the low side of another transmitter that was also connected to the common reference line. The drain valve had been manipulated by technicians according to work order instructions without knowledge of the common connection.

NMPNS' root cause evaluation for the 2010 event found that the function and connection of 2RHS*PDT24C had not been understood or verified, and as a result, the plant impact section of the work order did not address the potential consequences of filling and venting the instrument. Thirty-seven corrective actions were developed from the root-cause evaluation including training and briefings, strengthening the work order planning

process, revising operational impact development and approval guidance, and use of warning labels or signs on common reference lines. The corrective actions had not been fully implemented at the start of the 2R13 refueling outage.

Following the April 2012 event, NMPNS' immediate corrective actions were to disallow further instrumentation fill and vent activities without approval of senior supervision, and to require briefings including first line supervisors and senior reactor operators prior to performing a fill and vent evolution.

This finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program, because NMPNS did not take appropriate corrective actions to address safety issues commensurate with their safety significance and complexity. Specifically, the corrective actions taken as a result of the January 7, 2010 event were ineffective in preventing the April 26, 2012 event. [P.1.d]

Analysis. The failure to effectively implement corrective actions concerning instrument filling and venting following the January 2010 event is a performance deficiency that was within NMPNS' ability to foresee and correct, and should have been prevented. This finding is more than minor because it adversely impacted the human performance attribute of the Initiating Events Cornerstone to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors evaluated the finding using IMC 0609, Appendix G, Shutdown Operations Significance Determination Process Phase 1 Operational Checklists for Both PWRs and BWRs," Checklist 7, "BWR Refueling Operation with RCS Level >23'." Because of the availability of safety systems and procedures pertaining to core heat removal, inventory control, electrical power, and secondary containment, the inspectors determined this finding to be of very low safety significance (Green).

This finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program, because NMPNS did not take appropriate corrective actions to address safety issues commensurate with their safety significance and complexity. Specifically, the corrective actions taken as a result of the January 7, 2010 event were ineffective in preventing the April 26, 2012 event. [P.1.d]

Enforcement. 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires in part that in the case of significant conditions adverse to quality, measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. Contrary to the above, on April 26, 2012, corrective actions taken for a similar previous operational event in 2010 were not effective in precluding repetition, resulting in an inadvertent emergency diesel generator start and partial initiation of one train of ECCS. NMPNS' corrective actions were to initiate an apparent cause evaluation and to bar further instrument filling and venting activities pending review by senior supervision. Because this issue is of very low safety significance (Green) and NMPNS entered this issue into its corrective action program as CR-2012-003778, this finding is being treated as an NCV consistent with the NRC Enforcement Policy. **(NCV 05000410/2012003-02, Inadequate Corrective Action for Instrument Fill and Vent Activities)**

1R20 Refueling and Other Outage Activities (71111.20 - One sample)a. Inspection Scope

The inspectors reviewed the station's work schedule and outage risk plan for 2R13, which was conducted April 8 through June 6, 2012. The inspectors reviewed NMPNS development and implementation of outage plans and schedules to verify that risk, industry experience, previous site-specific problems, and defense-in-depth were considered. During the outage, the inspectors observed portions of the shutdown and cooldown processes and monitored controls associated with the following outage activities:

- Fuel off load operations on April 15 and 16, 2012
- Drywell closeout activities
- Recirculation system pressure test leakage inspection and evaluation
- Configuration management, including maintenance of defense-in-depth, commensurate with the outage plan for the key safety functions and compliance with the applicable technical specifications when taking equipment out of service
- ASME Section XI Class 1 RPV/RCS piping pressure test
- Implementation of clearance activities and confirmation that tags were properly hung and that equipment was appropriately configured to safely support the associated work or testing
- Status and configuration of electrical systems and switchyard activities to ensure that technical specifications were met
- Monitoring of decay heat removal operations
- Impact of outage work on the ability of the operators to operate the SFP cooling system
- Activities that could affect reactivity
- Fuel reload operations on May 7 and 8, 2012
- Fatigue management
- Identification and resolution of problems related to refueling outage activities
- Implementation of the EPU testing plan
- Power ascension activities

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 - 10 samples)a. Inspection Scope

The inspectors observed performance of the following STs and/or reviewed test data of risk-significant SSCs to assess whether test results satisfied TSs, the UFSAR, and NMPNS procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results

supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following STs:

- N1-CSP-D100, "Reactor Coolant Chemistry," Revision 01100, Unit 1 reactor coolant system (RCS) leakage chemistry sample completed on April 25, 2012
- N1-ST-Q13, "Emergency Service Water Pump Operability Test," Revision 01400 completed on May 3, 2012 [in-service test (IST)]
- N2-OSP-ICS-Q001, "RCIC Valve Operability Test," Revision 00600 completed on May 12, 2012 (IST)
- N2-ISP-LRT-R@066, "Type 'C' Containment Isolation Valve Leak Rate Test 2MSS*MOV111, 2MSS*MOV112," Revision 04 completed on May 12, 2012 (LLRT)
- N2-ISP-MSS-R@003, "Main Steam Isolation Valve Leak Rate Test (Inboard Static Head of Water)," Revision 00100 completed on May 15, 2012 (IST)
- N2-OSP-EGS-R002, "Operating Cycle Diesel Generator 24 hour Run and Load Rejection Divisions I and II," Revision 00500 completed on May 19, 2012
- N2-OSP-EGS-M@001, "Diesel Generator and Diesel Air Start Valve Operability Test – Divisions I and II," Revision 00800 completed on May 22, 2012
- N2-OSP-RPV-@003, "Reactor Pressure Vessel and All Class 1 Systems Leakage Test With The RPV Solid," Revision 00801 completed on May 23, 2012
- N2-ISP-MSS-R002, "Main Steam Isolation Valve Leak Rate Test (Reactor Vessel Head Removed)," Revision 00801 completed May 27, 2012 (IST)
- N2-OSP-ICS-R002, "RCIC System Flow Test," Revision 00302 completed on June 5, 2012

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06 - One sample)

a. Inspection Scope

On June 14, 2014, the inspectors observed a Unit 2 licensed operator simulator scenario that included a limited test of the NMPNS emergency response plan. The inspectors verified that emergency classification declarations and notifications were completed in accordance with 10 CFR Part 50.72, 10 CFR Part 50 Appendix E, and NMPNS emergency response procedures.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational/Public Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01 - One sample)

This area was inspected to review and assess NMPNS' performance in assessing the radiological hazards in the workplace associated with licensed activities and the implementation of appropriate radiation monitoring and exposure control measures for both individual and collective exposures.

The inspectors interviewed the radiation protection manager (RPM), radiation protection (RP) supervisors, and radiation workers. The inspectors performed walkdowns of various portions of the plant, performed independent radiation dose rate measurements, observed work activities in radiological control areas and reviewed NMPNS documents during 2R13. The inspectors used the requirements in 10 CFR Part 20 and guidance in RG 8.38, "Control of Access to High and Very High Radiation Areas for Nuclear Plants," the NMPNS Units 1 and 2 TSs, and NMPNS' procedures specified by TSs as criteria for determining compliance.

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the results of RP program audits. The inspectors reviewed reports of operational occurrences related to occupational radiation safety since the last inspection in March 2012.

b. Findings

No findings were identified.

.2 Radiological Hazard Assessment

a. Inspection Scope

The inspectors conducted walkdowns and independent radiation measurements to evaluate material, work and radiological conditions in the facility, including the drywell, RB, refueling floor and TB.

The inspectors selected the following radiologically risk-significant work activities that involved exposure to radiation:

- Refueling floor activities
- Recirculation piping chemical decontamination
- EPU steam dryer modification
- Drywell 249 foot and 261 foot under-vessel work
- Drywell scaffolding

For these work activities, the inspectors assessed whether the pre-work surveys performed were appropriate to identify and quantify the radiological hazard and to establish adequate protective measures. The inspectors evaluated the radiological survey program to determine if radiological hazards were properly identified (e.g. discrete radioactive hot particles, alpha emitters contamination, transuranics and hard to detect nuclides in air samples, transient dose rates and large gradients in radiation dose rate).

The inspectors observed work in potential airborne areas and evaluated whether the air samples from the flange installation for the chemical decontamination in the drywell, tagging of control rod drive (CRD) work under the vessel and entries into the confined space of the B moisture separator, were representative of the breathing air zone and were properly evaluated. The inspectors evaluated whether continuous air monitors (CAMs) on the refueling floor and drywell were located in areas with low background to minimize false alarms and were representative of actual work areas. The inspectors evaluated NMPNS' program for monitoring levels of loose surface contamination in areas of the plant with the potential for the contamination to become airborne.

b. Findings

No findings were identified.

.3 Instructions to Workers

a. Inspection Scope

The inspectors reviewed the following radiation work permits (RWP) used to access high radiation areas (HRA) and evaluated if the specified work control instructions and control barriers were consistent with TS requirements for locked high radiation areas.

- RWP 212891 N2 EPU steam dryer modification
- RWP 212890 N2 R13 refueling floor activities
- RWP 212830 2R13 chemical decontamination
- RWP 212802 Drywell 249 foot, 261 foot and RB 261 foot under-vessel work
- RWP 212810 drywell scaffolding

For these RWPs, the inspectors assessed whether allowable stay times or permissible dose for radiologically significant work under each RWP were clearly identified. The inspectors evaluated whether electronic personal dosimeter alarm setpoints were in conformance with survey indications and plant procedural requirements.

The inspectors reviewed CR 2012-003160 and CR 2012-003315 for occurrences where a worker's electronic personal dosimeter noticeably malfunctioned or alarmed. The inspectors evaluated whether workers responded appropriately to the off-normal condition. The inspectors assessed whether the issue was included in the CAP and whether compensatory dose evaluations were conducted as appropriate.

For work activities that could suddenly and severely increase radiological conditions, i.e., upper elevation of drywell during spent fuel movement and Low Power Range Monitor (LPRM) moves, the inspectors assessed NMPNS' means to inform workers of these changes that could significantly impact their occupational dose.

b. Findings

No findings were identified.

.4 Contamination and Radioactive Material Control

a. Inspection Scope

The inspectors observed the Unit 2 access control point where NMPNS monitors potentially contaminated material leaving the radiological control area and inspected the methods used for control, survey, and release from these areas. The inspectors observed the performance of personnel surveying and releasing material for unrestricted use and evaluated whether the work was performed in accordance with plant procedures.

b. Findings

No findings were identified.

.5 Radiological Hazards Control and Work Coverage

a. Inspection Scope

The inspectors evaluated ambient radiological conditions and performed independent radiation measurements during the walkdown of the facility. The inspectors assessed whether the conditions were consistent with applicable posted surveys, RWPs, and associated worker briefings.

The inspectors assessed whether radiation monitoring devices were placed on the individual's body consistent with NMPNS procedures. The inspectors assessed whether the dosimeter was placed in the location of highest expected dose and that NMPNS properly implemented an NRC-approved method of determining effective dose equivalent.

The inspectors reviewed the application of dosimetry to effectively monitor exposure to personnel in high-radiation work areas with significant dose rate gradients; e.g., divers in equipment storage pit and workers under vessel in the CRD pit.

The inspectors reviewed the following RWPs for work within airborne radioactivity areas with the potential for individual worker internal exposures.

- RWP 212802 drywell 249 foot, 261 foot and RB 261 foot under-vessel work
- RWP 212830 RFO 13 chemical decontamination

For these RWPs, the inspectors evaluated airborne radioactive controls and monitoring, including potential for significant airborne levels. The inspectors assessed applicable containment barriers integrity and the operation of a temporary high efficiency particulate air ventilation system.

b. Findings

No findings were identified.

.6 Risk-Significant High Radiation Area and Very High Radiation Area Controls

a. Inspection Scope

The inspectors discussed with the NMPNS RPM the controls and procedures for high-risk HRAs and very high radiation areas (VHRAs.) The inspectors reviewed a letter that described specific work that would be allowed in the upper elevation of the drywell during spent fuel and LPRM moves.

The inspectors discussed with first-line health physics supervisors the controls in place for special areas that have the potential to become VHRAs during refueling outages. The inspectors evaluated NMPNS' controls for VHRAs and areas with the potential to become a VHRA to ensure that an individual was not able to gain unauthorized access to these VHRAs.

b. Findings

No findings were identified.

.7 Radiation Worker Performance

a. Inspection Scope

The inspectors observed the performance of radiation workers during 2R13 with respect to RP work requirements. The inspectors assessed whether workers were aware of the radiological conditions in their workplace and the RWP controls/limits in place, and whether their behavior reflected the level of radiological hazards present.

b. Findings

No findings were identified.

.8 Radiation Protection Technician Proficiency

a. Inspection Scope

The inspectors observed the performance of the RP technicians during 2R13 with respect to RP work coverage. The inspectors evaluated whether technicians were aware of the radiological conditions in their workplace and the RWP controls/limits, and whether their behavior was consistent with their training and qualifications with respect to the radiological hazards and work activities.

b. Findings

No findings were identified.

9 Problem Identification and Resolution

a. Inspection Scope

The inspectors evaluated whether problems associated with radiation monitoring and exposure control were being identified by NMPNS at an appropriate threshold and were properly addressed for resolution in NMPNS' CAP. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by NMPNS that involve radiation monitoring and exposure controls. The inspectors assessed NMPNS' process for applying operating experience to their plant.

b. Findings

No findings were identified.

2RS2 Occupational ALARA Planning and Controls (71124.02)

This area was inspected from April 23 to 26, 2012, to assess performance with respect to maintaining occupational individual and collective radiation exposures as low as is reasonably achievable (ALARA) during 2R13. The inspectors used the requirements in 10 CFR Part 20, the guidance in RG 8.8, "Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Plants will be As Low As Reasonably Achievable;" RG 8.10, "Operating Philosophy for Maintaining Occupational Radiation Exposure As Low as Reasonably Achievable;" the NMPNS TSs; and NMPNS' procedures required by TSs as criteria for determining compliance.

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed pertinent information regarding NMPNS' collective dose history, current exposure trends, and ongoing or planned activities in order to assess current performance and exposure challenges.

The inspectors reviewed changes in the radioactive source term by reviewing the trend in average contact dose rate with reactor recirculation piping. The inspectors reviewed site-specific procedures associated with maintaining occupational exposures ALARA, which included a review of processes used to estimate and track exposures from specific work activities.

b. Findings

No findings were identified.

.2 Radiological Work Planning

a. Inspection Scope

The inspectors selected the following work activities that had the highest exposure significance.

- ALARA review (AR) #212890 refuel floor activities
- AR 212830 NMP-2 chemical decontamination
- AR 212891 2R13 EPU steam dryer modification
- AR 212802 Drywell 249 foot and 261 foot under-vessel work
- AR 212810 drywell scaffold

The inspectors reviewed the ALARA work activity evaluations, exposure estimates, and exposure reduction requirements. The inspectors determined whether NMPNS reasonably grouped the radiological work into work activities, based on historical precedence, industry norms, and/or special circumstances.

The inspectors assessed whether NMPNS' planning identified appropriate dose reduction techniques, considered alternate dose reduction features, and estimated reasonable dose goals. The inspectors evaluated whether NMPNS' ALARA assessment had taken into account decreased worker efficiency from use of respiratory protective devices and/or heat stress mitigation equipment. The inspectors determined whether NMPNS' work planning considered the use of remote technologies as a means to reduce dose and the use of dose reduction insights from industry operating experience and plant-specific lessons learned. The inspectors assessed the integration of ALARA requirements into work procedure and RWP documents.

b. Findings

No findings were identified.

.3 Verification of Dose Estimates and Exposure Tracking Systems

a. Inspection Scope

The inspectors reviewed the assumptions and basis for the current annual collective exposure estimate for accuracy. The inspectors reviewed applicable procedures to determine the methodology for estimating exposures from specific work activities and for department and station dose goals.

The inspectors evaluated whether NMPNS had established measures to track, trend, and if necessary, to reduce occupational doses for ongoing work activities. The inspectors assessed whether dose threshold criteria were established to prompt additional reviews and/or additional ALARA planning and controls.

The inspectors evaluated NMPNS' method of adjusting exposure estimates or re-planning work when unexpected changes in scope or emergent work were encountered. The inspectors assessed whether adjustments to exposure estimates were based on sound RP and ALARA principles or if they were just adjusted to account for failures to plan/control the work.

b. Findings

No findings were identified.

.4 Source Term Reduction and Control

a. Inspection Scope

The inspectors used NMPNS' records to determine the historical trends and current status of plant source term known to contribute to elevated facility collective exposure. The inspectors assessed whether NMPNS had made allowances or developed contingency plans for expected changes in the source term as the result of changes in plant fuel performance issues or changes in plant primary chemistry. During 2R13, NMPNS, performed a chemical decontamination to remove radioactive material that had built up on the reactor recirculation system piping, reactor water cleanup system (RWCS) and the RHS. Preliminary results from the pre-decontamination and post-decontamination surveys indicated dose rate reductions by factors of 2 to 10.

b. Findings

No findings were identified.

.5 Radiation Worker Performance

a. Inspection Scope

The inspectors observed the performance of radiation workers and RP technicians during 2R13 activities in radiation areas, airborne radioactivity areas, and HRAs. The inspectors evaluated whether workers demonstrated the ALARA philosophy in practice (e.g., workers are familiar with the work activity scope and tools to be used, workers used ALARA low-dose waiting areas) and whether there were any procedure compliance issues.

b. Findings

No findings were identified.

.6 Problem Identification and Resolution

a. Inspection Scope

The inspectors evaluated whether problems associated with ALARA planning and controls are being identified by NMPNS at an appropriate threshold and were properly addressed for resolution in NMPNS' CAP.

b. Findings

No findings were identified.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

This area was inspected between April 23 and 26, 2012, to verify in-plant airborne concentrations are being controlled consistent with ALARA principles and that the use of respiratory protection devices on-site does not pose an undue risk to the wearer. The inspectors used the requirements in 10 CFR Part 20, the guidance in RG 8.15,

“Acceptable Programs for Respiratory Protection,” RG 8.25, “Air Sampling in the Workplace,” NUREG-0041, “Manual of Respiratory Protection Against Airborne Radioactive Material,” TSs, and NMPNS’ procedures required by TSs as criteria for determining compliance.

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the UFSAR to identify areas of the plant designed as potential airborne radiation areas and any associated ventilation systems or airborne monitoring instrumentation. This review included instruments used to identify changing airborne radiological conditions such that actions to prevent an overexposure may be taken. The review included an overview of the respiratory protection program and a description of the types of devices used. The inspectors reviewed NMPNS’ procedures for maintenance, inspection, and use of respiratory protection equipment including self-contained breathing apparatus, as well as, procedures for air quality maintenance.

b. Findings

No findings were identified.

.2 Engineering Controls

a. Inspection Scope

The inspectors reviewed NMPNS’ use of permanent and temporary ventilation to determine whether NMPNS uses ventilation systems as part of its engineering controls to control airborne radioactivity. The inspectors reviewed procedural guidance for use of installed plant systems to reduce dose and assessed whether the systems are used to the extent practicable during high-risk activities.

The inspectors selected two temporary ventilation system setups on the refuel floor used to support work in contaminated areas. The inspectors assessed whether the use of these systems is consistent with NMPNS procedural guidance and ALARA concept.

The inspectors reviewed airborne monitoring protocols for the drywell and refueling floor CAMs used to monitor and warn of changing airborne concentrations in the plant and evaluating whether the alarms and setpoints are sufficient to prompt NMPNS/worker action to ensure that doses are maintained within the limits of 10 CFR Part 20 and the ALARA concept.

The inspectors assessed whether NMPNS had established threshold criteria for evaluating levels of airborne beta-emitting and alpha-emitting radionuclides.

b. Findings

No findings were identified.

.3 Use of Respiratory Protection Devices

a. Inspection Scope

The inspectors selected chemical decontamination and under-vessel work activities where respiratory protection devices were used to limit the intake of radioactive materials, and assessed whether NMPNS performed an evaluation concluding that further engineering controls were not practical and that the use of respirators is ALARA. The inspectors also evaluated whether NMPNS had established means (such as routine bioassay) to determine if the level of protection (protection factor) provided by the respiratory protection devices during use was at least as good as that assumed in NMPNS' work controls and dose assessment.

The inspectors reviewed records of air testing for supplied-air devices and self-contained breathing apparatus bottles to assess whether the air used in these devices meets or exceeds Grade D quality.

The inspectors reviewed plant breathing air supply systems to determine whether they meet the minimum pressure and airflow requirements for the devices in use.

b. Findings

No findings were identified.

.4 Self-Contained Breathing Apparatus for Emergency Use

a. Inspection Scope

The inspectors determined whether appropriate mask sizes and types are available for use. The inspectors determined whether radiation workers had no facial hair that would interfere with the sealing of the mask to the face and whether vision correction mask inserts were available as appropriate.

b. Findings

No findings were identified.

.5 Problem Identification and Resolution

a. Inspection Scope

The inspectors evaluated whether problems associated with the control and mitigation of in-plant airborne radioactivity were being identified by NMPNS at an appropriate threshold and were properly addressed for resolution in NMPNS' CAP. The inspectors assessed whether the corrective actions were appropriate for a selected sample of problems involving airborne radioactivity and were appropriately documented by NMPNS.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04)

This area was inspected during April 23 to 26, 2012, to ensure occupational dose is appropriately monitored and assessed. The inspectors used the requirements in 10 CFR Part 20, the guidance in RG 8.13, "Instructions Concerning Prenatal Radiation Exposures," RG 8.36, "Radiation Dose to Embryo Fetus," RG 8.40, "Methods for Measuring Effective Dose Equivalent from External Exposure," TSs, and NMPNS' procedures required by TSs as criteria for determining compliance.

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the results of NMPNS' RP program audits related to internal and external dosimetry. The inspectors reviewed the most recent National Voluntary Laboratory Accreditation Program (NVLAP) accreditation report for the NMPNS vendor's most recent results to determine the status of the accreditation.

A review was conducted of NMPNS procedures associated with dosimetry operations, including issuance/use of external dosimetry, assessment of internal dose, and evaluation of and dose assessment for radiological incidents. The inspectors evaluated whether NMPNS had established procedural requirements for determining when external dosimetry and internal dose assessments are required.

b. Findings

No findings were identified.

.2 External Dosimetry

a. Inspection Scope

The inspectors evaluated whether NMPNS' dosimetry vendor is NVLAP accredited and if the approved irradiation test categories for each type of personnel dosimeter used are consistent with the types and energies of the radiation present and the way the dosimeter is being used. NMPNS does not use non-NVLAP accredited passive dosimeters.

The inspectors evaluated the onsite storage of dosimeters before issuance, during use, and before processing/reading. The inspectors also reviewed the guidance provided to radiation-workers with respect to care and storage of dosimeters.

The inspectors assessed the use of electronic personal dosimeters to determine if NMPNS uses a "correction factor" to address the response of the electronic personal dosimeter as compared to the dosimeter of legal record for situations when the electronic personal dosimeter is used to assign dose and whether the correction factor is based on sound technical principles.

The inspectors reviewed five CAP documents for adverse trends related to electronic personal dosimeters. The inspectors assessed whether NMPNS had identified any adverse trends and implemented appropriate corrective actions.

b. Findings

No findings were identified.

.3 Internal Dosimetry

.3.01 Routine Bioassay (In Vivo)

a. Inspection Scope

The inspectors reviewed procedures used to assess the dose from internally deposited radionuclides using whole body counting equipment. The inspectors evaluated whether the procedures addressed methods for differentiating between internal and external contamination, the release of contaminated individuals, determining the route of intake and the assignment of dose.

The inspectors reviewed NMPNS' evaluation for use of its portal radiation monitors as a passive monitoring system. The inspectors assessed if instrument minimum detectable activities were adequate to determine the potential for internally deposited radionuclides sufficient to prompt an investigation.

b. Findings

No findings were identified.

.3.02 Special Bioassay (In Vitro)

a. Inspection Scope

There were no internal dose assessments obtained using whole body count results for the inspectors to review. There were no internal dose assessments obtained using urinalysis or fecal sample results for the inspectors to review.

The inspectors reviewed the vendor laboratory quality assurance (QA) program and assessed whether the laboratory participated in an industry recognized cross-check program including whether out-of-tolerance results were reviewed, evaluated and resolved appropriately.

b. Findings

No findings were identified.

.3.03 Internal Dose Assessment - Airborne Monitoring

a. Inspection Scope

The inspectors reviewed NMPNS' program for dose assessment based on airborne monitoring and calculations of derived air concentration calculations. The inspectors determined whether flow rates and collection times for air sampling equipment were adequate to allow appropriate lower limits of detection to be obtained. NMPNS had not performed any internal dose assessments using airborne/derived air concentration monitoring during the period reviewed.

b. Findings

No findings were identified.

.3.04 Internal Dose Assessment - Whole Body Count Analyses

a. Inspection Scope

NMPNS has not documented any internal dose assessments using whole body count results during the period reviewed.

b. Findings

No findings were identified.

.4 Special Dosimetric Situations

.4.01 Declared Pregnant Workers

a. Inspection Scope

The inspectors assessed whether NMPNS informs workers, as appropriate, of the risks of radiation exposure to the embryo/fetus, the regulatory aspects of declaring a pregnancy, and the specific process to be used for (voluntarily) declaring a pregnancy.

NMPNS has not documented any internal dose assessments for declared pregnant workers during this inspection period.

b. Findings

No findings were identified.

.4.02 Dosimeter Placement and Assessment of Effective Dose Equivalent for External Exposures

a. Inspection Scope

The inspectors reviewed NMPNS' methodology for monitoring external dose in non-uniform radiation fields or where large dose gradients exist. The inspectors evaluated NMPNS' criteria for determining when alternate monitoring, such as use of multi-badging, is to be implemented.

The inspectors reviewed dose assessments performed for workers performing under-vessel work and divers working on the steam dryer in the equipment storage pool. These workers used multi-badging to evaluate effective dose equivalent and the dose assessment was performed consistent with NMPNS procedures and dosimetric standards.

b. Findings

No findings were identified.

.4.03 Shallow Dose Equivalent

a. Inspection Scope

The inspectors reviewed a dose assessment for shallow dose equivalent (COR #2-12-NO-002) for adequacy. The inspectors evaluated NMPNS' method (VARSKIN 4) for calculating shallow dose equivalent from distributed skin contamination or discrete radioactive particles.

b. Findings

No findings were identified.

.4.04 Neutron Dose Assessment

a. Inspection Scope

The inspectors evaluated NMPNS' neutron dosimetry program, including dosimeter types and/or radiation survey instrumentation.

The inspectors also assessed whether interference by gamma radiation had been accounted for in the calibration and whether time and motion evaluations were representative of actual neutron exposure events, as applicable.

b. Findings

No findings were identified.

.4.05 Assigning Dose of Record

a. Inspection Scope

For the special dosimetric situations reviewed in this section, the inspectors assessed how NMPNS assigns dose of record for total effective dose equivalent, shallow dose equivalent, and lens dose equivalent. This included an assessment of external and internal monitoring results, supplementary information on individual exposures, and radiation surveys when dose assignment was based on these techniques.

b. Findings

No findings were identified.

.5 Problem Identification and Resolution

a. Inspection Scope

The inspectors assessed whether problems associated with occupational dose assessment are being identified by NMPNS at an appropriate threshold and are properly addressed for resolution in NMPNS' CAP. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by NMPNS involving occupational dose assessment.

b. Findings

No findings were identified.

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation (71124.08 - One sample)

a. Inspection Scope

This area was inspected to verify the effectiveness of NMPNS' programs for processing, handling, storage, and transportation of radioactive material. The inspector used the requirements of 10 CFR Parts 20, 61, and 71, and 10 CFR Part 50, Appendix A, Criterion 63-Monitoring Fuel and Waste Storage, and NMPNS procedures required by the Technical Specifications/Process Control Program as criteria for determining compliance.

The inspector reviewed the solid radioactive waste system description in the UFSAR, the Process Control Program (PCP), and the recent radiological effluent release report for information on the types, amounts, and processing of radioactive waste disposed.

The inspector reviewed the scope of any QA audits in this area since the last inspection.

The inspector selected areas where containers of radioactive waste were stored, and verified that the containers were labeled in accordance with 10 CFR 20.1904, "Labeling Containers," or controlled in accordance with 10 CFR 20.1905, "Exemptions to Labeling Requirements," as appropriate.

The inspector verified that the radioactive materials storage areas were controlled and posted in accordance with the requirements of 10 CFR Part 20, "Standards for Protection Against Radiation." For materials stored or used in the controlled or unrestricted areas, the inspector verified that they were secured against unauthorized removal and controlled in accordance with 10 CFR 20.1801, "Security of Stored Material," and 10 CFR 20.1802, "Control of Material not in Storage," as appropriate.

The inspector verified that NMPNS had established a process for monitoring the impact of long-term storage (e.g., buildup of any gases produced by waste decomposition, chemical reactions, container deformation, loss of container integrity, or re-release of free-flowing water) sufficient to identify potential unmonitored, unplanned releases, or nonconformance with waste disposal requirements. The inspector selected containers of stored radioactive materials, and verified that there were no signs of swelling, leakage, and deformation.

The inspector walked down accessible portions of liquid and solid radioactive waste processing systems to verify and assess that the current system configuration and operation agree with the descriptions in the UFSAR, offsite dose calculation manual (ODCM), and PCP.

The inspector identified radioactive waste processing equipment that was not operational and/or was abandoned in place, and verified that NMPNS had established administrative and/or physical controls to ensure that the equipment would not contribute to an unmonitored release path and/or affect operating systems or be a source of

unnecessary personnel exposure. Recently, NMPNS had stopped utilizing the Unit 1 thickener tanks (2 tanks) used in the processing of spent filter sludge. Currently the two tanks contain contents which are creating significant dose rates around the tanks (ranging from 100-150 R/hr).

The inspector reviewed the adequacy of any changes made to the radioactive waste processing systems since the last inspection. The inspector verified that changes from what was described in the FSAR were reviewed and documented in accordance with 10 CFR 50.59, as appropriate.

The inspector identified processes for transferring radioactive waste resin and/or sludge discharges into shipping/disposal containers. The inspector verified that the waste stream mixing, sampling procedures, and methodology for waste concentration averaging were consistent with the PCP, and provided representative samples of the waste product for the purposes of waste classification as described in 10 CFR 61.55, "Waste Classification."

For those systems that provide tank recirculation, the inspector verified that the tank recirculation procedure provided sufficient mixing.

The inspector verified that NMPNS PCP correctly described the current methods and procedures for dewatering waste.

The inspector identified radioactive waste streams, and verified that NMPNS radiochemical sample analysis results were sufficient to support radioactive waste characterization as required by 10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste." The inspector verified that NMPNS' use of scaling factors and calculations to account for difficult-to-measure radionuclides was technically sound and based on current 10 CFR Part 61 analysis.

For the waste streams identified above, the inspector verified that changes to plant operational parameters were taken into account to (1) maintain the validity of the waste stream composition data between the annual or biennial sample analysis update, and (2) verified that waste shipments continued to meet the requirements of 10 CFR Part 61.

The inspector verified that NMPNS had established and maintained an adequate QA program to ensure compliance with the waste classification and characterization requirements of 10 CFR 61.55, "Waste Classification" and 10 CFR 61.56, "Waste Characteristics."

The inspector observed shipment packaging, surveying, labeling, marking, placarding, vehicle checks, emergency instructions, disposal manifest, shipping papers provided to the driver, and NMPNS verification of shipment readiness. The inspector verified that the requirements of any applicable transport cask certificate of compliance had been met. The inspector verified that the receiving licensee was authorized to receive the shipment packages.

The inspector determined that the shippers were knowledgeable of the shipping regulations and that shipping personnel demonstrated adequate skills to accomplish the package preparation requirements for public transport with respect to NMPNS' response to NRC Bulletin 79-19, "Packaging of Low-Level Radioactive Waste for Transport and

Burial," dated August 10, 1979, and 49 CFR Part 172, "Hazardous Materials Table, Special Provisions, Hazardous Materials Communication, Emergency Response Information, Training Requirements, and Security Plans," Subpart H, "Training." The inspector verified that NMPNS' training program provided training to personnel responsible for the conduct of radioactive waste processing and radioactive material shipment preparation activities.

The inspector selected non-excepted package shipment records and verified that the shipping documents indicate the proper shipper name; emergency response information and a 24-hour contact telephone number; accurate curie content and volume of material; and appropriate waste classification, transport index, and UN number. The inspector verified that the shipment placarding was consistent with the information in the shipping documentation.

The inspector verified that problems associated with radioactive waste processing, handling, storage, and transportation, were being identified by NMPNS at an appropriate threshold, were properly characterized, and were properly addressed for resolution in NMPNS corrective action program. The inspector verified the appropriateness of the corrective actions for a selected sample of problems documented by NMPNS that involve radioactive waste processing, handling, storage, and transportation.

The inspector reviewed the results of selected audits performed since the last inspection of this program and evaluated the adequacy of NMPNS' corrective actions for issues identified during those audits.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

40A1 Performance Indicator Verification (71151)

Barrier Integrity (Four samples)

a. Inspection Scope

The inspectors reviewed NMPNS submittals for the RCS specific activity and RCS leak rate PIs for Units 1 and 2 for the period of April 2011 to March 2012. To determine the accuracy of the PI data reported during that period, the inspectors used definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Revision 6. The inspectors also reviewed RCS sample analysis and control room logs of daily measurements for RCS leakage, and compared that information to the data reported for the PIs.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 - Four samples).1 Routine Review of Problem Identification and Resolution Activitiesa. Inspection Scope

As required by Inspection Procedure (IP) 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that NMPNS entered issues into the CAP at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the CAP.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Reviewa. Inspection Scope

The inspectors performed a semi-annual review of site issues, as required by IP 71152, "Problem Identification and Resolution," to identify trends that might indicate the existence of more significant safety issues. In this review, the inspectors included repetitive or closely-related issues that may have been documented by NMPNS outside of the CAP, such as trend reports, PIs, major equipment problem lists, system health reports, maintenance rule assessments, and maintenance or CAP backlogs. The inspectors also reviewed NMPNS' CAP database for the first and portions of the second quarters of 2012 to assess CRs written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRCs daily CR review (Section 4OA2.1). The inspectors reviewed NMPNS' quarterly trend report for the fourth quarter of 2011, conducted under CNG-CA-1.01-1 007, "Performance Improvement Program Trending and Analysis," to verify that NMPNS personnel were appropriately evaluating and trending adverse conditions in accordance with applicable procedures.

b. Findings

No findings were identified.

The inspectors identified an increased trend in the number of issues involving torque requirements/application. During the sample period, six different CRs were noted to have issues ranging from the wrong torque value being referenced in a procedure to failing to include a torque value from a vendor manual. There were also a number of instances where bolts were not tightened to the required torque values. A failure to ensure adequate bolt-torque requirements led to an unplanned shutdown on Unit 1 in February 2012 which was documented in NRC Integrated Inspection Report 05000220/2012002 and 05000410/2012002. The issues related to the incorrect torque values during the February shutdown was documented in CR 2012-071441. The

inspectors noted that the increased number of issues regarding incorrect torque values had not been specifically recognized by NMPNS as a specific emerging or adverse trend. This observation was discussed with NMP Quality Assurance personnel who indicated this issue was symptomatic of a larger issue regarding work package quality at NMP that was documented as a QA finding in CR 2012-005880.

.3 Annual Sample: Readiness of Alternate Cooling Water Injection Pathways

a. Inspections Scope

NMPNS Unit 1 has the ability to align the Unit 1 fire main system to supply water to the emergency service water, and diesel generator jacket water cooling systems for certain beyond design basis events. This is accomplished, in part, by removing flanged joints, installing spool pieces that connect both systems, and opening normally closed valves in the fire main system. Recent NMPNS aging management inspections have identified the buildup of Microbiological Induced Corrosion (MIC) in the Unit 1 fire main piping. Specifically, NMPNS initiated CR 2010-012317 in December 2010 to document the evidence of tubercles and minor pitting on the internal surface of the Unit 1 fire system strainer piping. This issue was documented again in CR-2011-008519 by NMPNS during the next annual inspection on September 20, 2011. Given the buildup of MIC that has appeared in the fire main system, this problem identification and resolution sample evaluated what actions NMP implemented to ensure the alternate Unit 1 fire main cooling water injection lines to the emergency service water, and diesel generator jacket water cooling systems were functional.

The inspectors reviewed NMPNS Unit 1 UFSAR to determine the design requirements of the Unit 1 diesel fire pump crossties. The inspectors reviewed operating procedures N1-OP-18, "Service Water System" Revision 02900 and N1-OP-45, "Emergency Diesel Generators" Revision 03200 for adequacy. In addition, the inspectors interviewed operators and engineers, and performed walkdowns of the manual fire crossties located in the Unit 1 screenhouse.

b. Findings and Observations

No findings were identified.

The normally closed valves in the fire main system cross-ties between the fire main, emergency service and raw water systems are exercised at least once every operating cycle. This included valves 100-41 and 100-507 which supply cooling water to the Unit 1 diesel generators via a four inch line, and valve 100-508 which is located in the ten inch emergency service water cross-tie header. In addition, the aforementioned upstream fire system strainer is inspected on an annual basis as part of NMPNS aging management program. However, NMPNS has not verified through inspection, or testing that the cross-tie piping between the fire main system and the emergency service and raw water cooling systems, which is over 100 feet long, was not obstructed by the buildup of MIC products.

NMPNS has performed some inspections of similar cross-ties between other systems. For example, in 2001, in response to industry operating experience that indicated infrequently used alternate injection systems may foul due to the buildup of MIC, NMPNS performed limited inspections on certain fire system cross-ties between systems

to ensure the piping was not affected by sediment or corrosion products. These actions were documented in CR 2001-000299. However, these inspections were only performed on piping less than four inches in diameter. As a result, the four and ten inch diameter cross-tie piping in the Unit 1 screenhouse from valves 100-507, and 100-508, to their respective blank flanges, was not tested or inspected.

The inspectors discussed NMPNS MIC inspection program for infrequently used sections of fire main pipe with engineering personnel. Based on those discussions and industry operating experience, NMPNS determined the fire protection piping inspection program may need to be revised to include an examination of the fire main cross-tie piping located in the screenhouse. This conclusion was documented in CRs 2012-006028 and 2012-006029. NMPNS plans to complete this inspection before calendar year 2014.

The inspectors concluded that based upon the amount of MIC that has been identified in the upstream fire main system piping, the planned NMPNS inspection schedule was commensurate with the safety significance and included appropriate corrective actions.

.4 Annual Sample: Diesel Generator Starting Time Adverse Trend

a. Inspection Scope

The inspectors performed an in-depth review of NMPNS' apparent cause analysis and corrective actions associated with condition report CR-2011-007922, Potential Adverse Trend Associated with Engine Start Times. Specifically, based on a review of diesel generators monthly trending data, the Division I diesel start time exceeded the alert level of 8.5 seconds in August, and the Division II diesel start time exceeded the alert level of 8.5 seconds in May, June, July, and August.

The inspectors assessed NMPNS' problem identification threshold, cause analyses, extent of condition reviews, compensatory actions, and the prioritization and timeliness of NMPNS' corrective actions to determine whether NMPNS was appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned or completed corrective actions were appropriate. The inspectors compared the actions taken to the requirements of NMPNS' CAP and 10 CFR Part 50, Appendix B.

b. Findings

No findings were identified.

NMPNS determined the most probable cause was aging related degradation of pneumatic components in the engine control system. NMPNS also determined that degraded pneumatic components in the engine control system had caused the Division I diesel to fail to start within 10 seconds in December of 2008. NMPNS determined that the 2008 failure was caused, in part, by dried lubricant on control valve internals, resulting in the valve being stuck in place.

NMPNS conducted a thorough technical review of the pneumatic component problems, including a comprehensive failure analysis performed by an independent third party laboratory. NMPNS' extent of condition review identified that both Divisions I and II

diesels used the same components, and that the Division III diesel was experiencing a slowly degrading start time over the past 6 years due to aging related degradation of an air line pressure control valve. Corrective actions included replacing the degraded components on the Divisions I and II diesels, and refurbishing the air line pressure control valve for the Division III diesel. NMPNS additionally revised the preventive maintenance program to require replacement of the pneumatic components on the Divisions I and II diesels every 2 years, and revised the refurbishment interval for the Division III diesel pressure control valve from 6 years to 4 years.

The inspectors determined NMPNS' overall response to the issue was commensurate with the safety significance, was timely, and included appropriate corrective actions. The inspectors determined that the actions taken were reasonable to resolve both the initial issue and the impact from component aging.

.5 Annual Sample: Assessment of Supplemental Work Force – Outage Support Services Personnel Training and Qualifications

a. Inspection Scope

This inspection focused on reviewing the technical training and qualifications of supplemental work force (SWF) personnel at NMPNS supporting the Unit 2 Spring 2012 refueling outage 2R13 to verify that these contract individuals were appropriately trained and qualified for the work task activities assigned.

To assess the effectiveness of NMPNS technical training and qualification process and program, the inspectors interviewed training personnel and reviewed the following documents: training and qualification directives and NMPNS and Constellation Energy procedures; contractor training and qualification records; qualification matrices; equivalency determination records; QA audit reports; mechanical maintenance curriculum review committee meeting agenda/minutes; CRs related to technical training issues; and a sample of WOs completed during 2R13 refueling outage.

b. Findings and Observations

No findings were identified.

The inspector did not identify any performance deficiencies associated with training and qualification of SWF personnel employed at NMPNS during the Unit 2 2R13 refueling outage. The inspector determined that procedures, policies, audits, and self-assessments adequately control and assess implementation of the accredited nuclear training and qualification programs at NMPNS. Another tool implemented during this outage to help mitigate SWF errors was for the supplemental supervisors to provide hold points for critical steps in WOs per NAI-MAI-12, "Designation of SWF Supervisory Verification Points." NMPNS has also issued action item AI-2011-000962-001 to evaluate the use of the Nuclear Mechanics Apprenticeship Program for supplemental workers at NMPNS and AI-2012-000461-001 to compare local union trade training content to NMPNS training content.

However, the inspector did note that NMPNS QA audit report TQS-12-01-N, training and qualification program conducted in February 2012, prior to the Unit 2 2R13 refueling outage, identified several members of the mechanical maintenance organization that

were performing new fuel receipt activities that were not task qualified per the training matrix and CR 2012-000739 was issued to correct this deficiency.

The inspector concluded that NMPNS was adequately monitoring the training and qualification of SWF personnel employed at NMPNS during refueling outage 2R13 to ensure that contract personnel were adequately trained and qualified in compliance with the activities described in QA topical report for the work activities assigned and accomplished.

4OA3 Followup of Events and Notices of Enforcement Discretion (71153 - Three samples)

.1 Plant Events

a. Inspection Scope

For the plant events listed below, the inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant events to appropriate regional personnel, and compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of potential reactive inspection activities. As applicable, the inspectors verified that NMPNS made appropriate emergency classification assessments and properly reported the event in accordance with 10 CFR Parts 50.72 and 50.73. The inspectors responded to the control room and observed NMPNS' immediate responses to the events. The inspectors reviewed NMPNS' follow-up actions related to the events to assure that NMPNS implemented appropriate corrective actions commensurate with their safety significance. Specifically, the inspectors observed and assessed operations and maintenance activities concerning restoration of the Division 1 600 volt bus and SFP cooling, and fire brigade activities during and following the reactor feedwater pump fire.

- Unit 2 loss of Division I 600 volt bus and SFP cooling on May 25, 2012
- Unit 2 notification of an unusual event for a fire lasting greater than 15 minutes at the B reactor feedwater pump on June 21, 2012

b. Findings

Introduction. A self-revealing Green NCV of TS 5.4.1, "Procedures," was identified for NMPNS' failure to provide an adequate special operating procedure for loss of SFP cooling. On May 25, 2012, following a loss of SFP cooling the inadequate procedural guidance delayed restoration of SFP cooling for over two hours during which SFP temperature rose three degrees.

Description. On May 25, 2012, Division I 600 Vac emergency bus 2EJS*US1 inadvertently lost power during a remote shutdown disconnect switch surveillance test. Loss of 600 Vac power resulted in the loss of the operating SFP cooling pump SFC*P1A and closure of the pump suction cross-connect air-operated valves. Operators responded by entering procedure N2-SOP-38, "Loss of Spent Fuel Pool Cooling," in an attempt to restore a pump. Due to closure of the cross-connect valves, only a single surge tank was available to supply a cooling pump. Pump SFC*P1B was started, but had to be stopped when surge tank level lowered close to the low pump suction pressure trip point. A second attempt to start the pump failed when the pump tripped on

low discharge flow. After two hours, the operators locally opened the pump suction cross-connect valves restoring the normal two surge tank lineup and successfully re-establishing SFP cooling.

The inspectors determined that NMPNS' operators restored SFP cooling before pool operating limits were challenged. However, the inspectors also concluded that guidance provided in procedure N2-SOP-38 was inadequate to the situation in that it did not contain information provided in normal system operating procedure N2-OP-38, "Spent Fuel Pool Cooling and Cleanup System," pertaining to single surge tank operation. The inspectors determined that if N2-SOP-38 had the information contained in N2-OP-38, spent fuel pool cooling would have been restored in a more timely manner.

NMPNS' immediate corrective actions included establishing a night order to provide appropriate guidance for single surge tank operation pending revision of N2-SOP-38. Additional corrective actions are outlined in CR 2012-004850.

This finding has a cross-cutting aspect in the area of human performance, resources, because NMPNS did not ensure that procedures were adequate to ensure nuclear safety. Specifically, the special operating procedure for loss of SFP cooling did not contain adequate guidance either for restoration of a two skimmer surge tank lineup or for starting a SFP cooling pump on a single surge tank. [H.2(c)]

Analysis. The inspectors determined that NMPNS' failure to provide adequate procedural guidance for restoration of SFP cooling on May 25, 2012, was a performance deficiency. Specifically, procedure N2-SOP-38 did not contain guidance concerning starting a SFP cooling pump from a single surge tank or restoration to normal two surge tank configuration. The finding is more than minor because it was associated with the procedure quality attribute of the barrier integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radiological release by maintaining functionality of the SFP cooling system. The inspectors evaluated the finding using Phase 1, "Initial Screening and Characterization" worksheet in Attachment 4 of IMC 0609, "SDP." The finding was determined to be of very low safety significance (Green) because the finding only represented a loss of SFP cooling that would not preclude restoration of cooling to the SFP prior to pool boiling, a fuel handling error, or loss of SFP inventory.

This finding has a cross-cutting aspect in the area of human performance, resources, because NMPNS did not ensure that procedures were adequate to ensure nuclear safety. Specifically, the special operating procedure for loss of SFP cooling did not contain adequate guidance either for restoration of a two skimmer surge tank lineup or for starting a SFP cooling pump on a single surge tank. [H.2(c)]

Enforcement. Technical Specification 5.4.1, "Procedures," requires written procedures to be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide (RG) 1.33, "Quality Assurance Program Requirements (Operation)," Appendix A, Revision 2 dated February 1978. Procedure N2-SOP-38, "Loss of Spent Fuel Pool Cooling," is a procedure recommended by sections 2 and 5 of RG 1.33, Appendix A. Contrary to the above, Attachment 1 of procedure N2-SOP-38 to not contain instructions adequate to promptly re-establish a two skimmer surge tank lineup or to start a SFP cooling pump on a single skimmer surge tank. Because this violation is of very low safety significance (Green) and NMPNS

entered this issue into its corrective action program as CR 2012-004850, this finding is being treated as an NCV consistent with the NRC Enforcement Policy. **(NCV 05000410/2012003-03, Inadequate Special Operating Procedure for Loss of Spent Fuel Pool Cooling)**

.2 (Closed) Licensee Event Report (LER) 05000410/2011-004-00:

At Nine Mile Point Unit 2 on October 23, 2011, the Division I RWCU differential flow - high channel was declared inoperable due to failing its channel check. While performing their troubleshooting plan, at three separate times (October 24, 2011 at 01:52, 02:58, and 05:19), both the Division I and Division II RWCU differential flow timers were placed in bypass, and TS 3.3.6.1, condition B was entered for one or more automatic functions with isolation capability not maintained. In each of the three instances, one channel of the RWCU differential flow – high function was restored to operable status within 1 hour as required by TS 3.3.6.1 action B.1. During shift turnover, the oncoming crew recognized that bypassing both RWCU differential flow timers in this manner could have prevented the fulfillment of a safety function. A violation of TS 3.0.2 was also identified due to the operating crew removing the component from service intentionally for operational convenience. The inspectors identified a Green finding associated with the violation which is discussed in more detail in IR 05000220/2011005 and 05000410/2011005. The inspectors did not identify any additional issues their review of LER 2011-004-00. This LER is closed.

4OA5 Other Activities

.1 Unit 1 Reactor Building Crane Preparations for use during the Independent Spent Fuel Storage Installation (ISFSI) Activities (60854, 60854.1)

a. Inspection Scope

The ISFSI dry run demonstration activities to support the initial dry fuel storage transfer process will be conducted during the summer of 2012. NMPNS staff with contractor engineering support has upgraded the Unit 1 reactor building crane (RBC) to confirm its load lifting capability and compliance to the single failure proof criteria of NUREGs 0544 and 0612. Inspection of the crane and review of the upgrade documentation including related engineering analyses was performed during the week of April 9, 2012 at NMPNS. The inspection reviewed revisions and upgrades to the RBC, including the remote radio control system, the design basis development for the RBC, a line by line comparison of the single failure proof criteria of NUREGs 0544 and 0612 to the crane configuration and controls, and the scope of testing of the current crane configuration. Additionally, the inspectors observed the crane in position in the RB, using binoculars. The recent service history of the RBC includes its use during the 2011 Unit 1 refueling outage to lift and move the reactor upper head assembly and reactor upper internals. The next major crane use will be to move dry storage cask components during the dry run sequences, and later to lift and move ISFSI components.

The inspection observations and reviews provided a basis to support that NMPNS' modification and analysis for the crane to perform ISFSI lifts meets the criteria of NUREGs 0544 and 0612.

b. Findings

No findings were identified.

.2 Unit 1 Torus Thickness Measurement and Condition Monitoring

a. Inspection Scope

NMPNS Unit 1 torus has been monitored for its condition by VT and UT methods since 1995 with the most recent UT measurements taken in April 2012. The inspectors reviewed procedure CPR-N1-T-001, "Torus Corrosion Monitoring Program," Revision 5, Report NER-1S-016, "Torus External Structure Walkdown Results Documentation," Revision 06, and UT NDE Report 1-6.05-12-0002, dated April 6, 2012, for the thickness measurements made in torus bays 6, 7, and 8.

Additionally, the inspectors performed an examination of the inner and outer radii of the torus and the locations where UT thickness measurements are periodically made.

b. Findings

No findings were identified.

.3 EPU and Mitigating System Startup Testing (71004)

a. Inspection Scope

Section 5.0 of the December 22, 2011 license amendment regarding the Nine Mile Unit 2 EPU request contained the three following areas for consideration as inspection activities:

- Spent fuel criticality analysis
- Long term stability and anticipated transient without scram
- Power ascension testing activities (License Condition 3.4.1)

Given the amount of review that was provided by the technical staff on spent fuel criticality analysis, long term stability and anticipated transient without scram, the inspectors focused their effort on observing power ascension testing activities. The inspectors observed portions and reviewed the following major plant tests. The details of this inspection sample are described in Section 1R19 of this report. The tests are considered inspection samples that meet the requirements of IP 71004, 02.03c.

- Unit 2, N2-EPUPA-22A, "Pressure Regulator Transient Test," Revision 00000
- Unit 2, N2-OSP-RPS-Q001, "RPS-Turbine Stop Valve Closure Logic Control Valve Fast Closure Scram Functional Test and Turbine Valve Cycling," Revision 00302

b. Findings

No findings were identified.

.4 EPU Power Ascension (Integrated Plant Evolutions) (71004)

a. Inspection Scope

The inspectors observed power ascension following the Unit 2 refueling outage, and observed portions of the reactivity changes made to achieve specific EPU test conditions. The inspectors reviewed operator actions, procedure adherence, and plant response during these integrated plant maneuvers. Power ascension was still in progress at the close of this inspection period. This is an inspection sample that meets the requirements of IP 71004, 02.03.d.

b. Findings

No findings were identified.

.5 Temporary Instruction 2515/182, Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks, Phase I

a. Inspection Scope

NMPNS buried piping, underground piping, and tanks program was inspected in accordance with paragraphs 03.01.a through 03.01.c of the Temporary Instruction (TI) and was found to meet all applicable aspects of the Nuclear Energy Institute document 09-14, Revision 1, as set forth Table 1 of the TI.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On July 13, 2012, the inspectors presented the inspection results to Mr. Kenneth Langdon, Site Vice President, and other members of NMPNS staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

NMPNS Personnel

K. Langdon, Vice President
M. Philippon, Plant General Manager
P. Bartolini, Supervisor, Design Engineering
J. Dean, Supervisor, Quality Assurance
R. Dean, Training Manager
S. Dhar, Design Engineering
J. Dosa, Director, Licensing
J. Holton, Supervisor, Systems Engineering
G. Inch, Principle Engineer, EPU Project Manager
M. Kunzwiler, Security Supervisor and Fatigue Rule Program Coordinator
J. Leonard, Supervisor Design Engineering
C. McClay, Senior Engineer
F. Payne, Manager, Operations
J. Reid, Design Engineer
M. Shanbhag, Licensing Engineer
T. Syrell, Manager, Nuclear Safety and Security
J. Thompson, Unit 2 General Supervisor Operations

LIST OF ITEMS OPENED, CLOSED, DISCUSSED AND UPDATEDOpened

None

Opened and Closed

05000410/2012003-01	NCV	Loss of Spent Fuel Pool Cooling due to Inadequate Procedure (Section 1R13)
05000410/2012003-02	NCV	Inadequate Corrective Action for Instrument Fill and Vent Activities (Section 1R19)
05000410/2012003-03	NCV	Inadequate Special Operating Procedure for Loss of Spent Fuel Pool Cooling (Section 4OA3)

Closed

05000410/2011004	LER	Reactor Water Cleanup System Automatic Isolation Function Disabled During Troubleshooting (Section 4OA3)
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Discussed

05000220/410/2515/182	TI	Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks, Phase 1 (Section 4OA5)
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LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

N1-OP-64, Meteorological Monitoring, Revision 00601
 N2-OP-102, Meteorological Monitoring, Revision 01101
 NAI-PSH-11, Seasonal Readiness Program, Revision 00700
 EPIP-EPP-26, Natural Hazard Preparation and Recovery, Revision 00301
 S-ODP-OPS-0112, Offsite Power Operations and Interface, Revision 01600
 EPIP-EPP-26, Natural Hazard Preparation and Recovery, Revision 00301
 N2-MPM-GEN-A016, Probable Maximum Precipitation (PMP) Flood Berm and 10,000 Year
 Culvert Inspection, Revision 00301

Condition Reports

2012-005331	2012-004490	2012-003773
2011-005375	2012-003419	

Section 1R04: Equipment Alignment

Procedures

N2-OP-100A, Standby Diesel Generators, Revision 01101
 S-ODP-OPS-0122, Posting and Control of Protected Equipment During Online and Outage
 Operations, Revision 00200
 N2-VLU-01, Attachment 38, Walkdown Order Valve Lineup for Spent Fuel Pool Cooling and
 Clean Up System, Revision 00
 N1-OP-21A, Fire Protection System- Water, Revision 01500
 N1-OP-12, Liquid Poison System, Revision 02900

Documents

Unit 1 UFSAR, VII, Liquid Poison Injection System, Revision 21
 RBCLC System Health Report January – March 2012
 RBCLC System Health Report October – December 2011
 RBCLC System Health Report July – September 2011
 RBCLC System Health Report April – June 2011
 RBCLC System Health Report January – March 2011

Condition Reports

2011-005223	2012-004722	2011-011374
2012-002570	2012-004338	2012-002331
2012-001886	2012-005311	2012-002287
2012-000925	2010-010608	2012-004769
2011-008986	2012-004437	

Drawings

C-18030-C, Fire Protection Water System, Revision 38
 PID-48, Piping and Instrument Diagram Fire Protection-Water, Revision 25
 C-18019-C, Reactor Liquid Poison System, Revision 32
 PID-38A-13, Fuel Pool Cooling and Cleanup, Revision 13

12177-PID-38B-10, Fuel Pool Cooling and Cleanup, Revision 10
PID-38C, Fuel Pool Cooling and Cleanup, Revision 14
PID-38D, Fuel Pool Cooling and Cleanup, Revision 12
PID-13A, Reactor Building Closed Loop Cooling, Revision 18
PID-13B-14, Reactor Building Closed Loop Cooling, Revision 12
PID-13C-11, Reactor Building Closed Loop Cooling, Revision 10
PID-13A, Reactor Building Closed Loop Cooling, Revision 18
PID-13E-16, Reactor Building Closed Loop Cooling, Revision 14
PID-13D-12, Reactor Building Closed Loop Cooling, Revision 10
PID-13F-8, Reactor Building Closed Loop Cooling, Revision 7
PID-13G, Reactor Building Closed Loop Cooling, Revision 12

Section 1R05: Fire Protection

Procedures

N1-PFP-0101, Unit 1 Pre-fire Plans, Revision 00100
N2-FPI-PFP-0201, Unit 2 Pre-fire Plans, Revision 02

Documents

Unit 1 UFSAR, Appendix 10A, Fire Hazards Analysis, Revision 22
Unit 2 UFSAR, Section 9.5.1, Revision 18, October 2008
Unit 2 UFSAR, Section 9A.3, Revision 18, October 2008

Condition Reports

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Work Orders

C90970659

Section 1R06: Flood Protection Measures

Procedures

N1-CTP-V200, Sump Inspections, Revision 00100
Inspector Guide 1103-291000C02

Documents

Nine Mile Point Nuclear Station – Unit 1 Internal Flooding Hazards Analysis, January 10, 1990

Condition Reports

2005-002169
2010-009802

Section 1R07: Heat Sink Performance

Procedures

N1-ST-Q6D, Containment Spray System Loop 122 Quarterly Operability Test, Revision 00902
N1-TTP-CTNSP-V001A, Containment Spray Heat Exchanger HTX 80-34 (#111) Heat Removal Capacity Test, Revision 00301
S-TDP-REL-0103, GL 89-13 Service Water System Problems Affecting Safety-Related Equipment Program Plan, Revision 00
S-TDP-REL-0102 Attachment 1, Heat Exchanger/Component Inspection Data Sheet, Revision 3

Documents

PGT-2004-1207, Heat Exchanger Test Data Reduction and Uncertainty Analysis Procedure for
Nine Mile Point Nuclear Station Using Excel Workbooks and PROTO-HX, TIN 2004-
1207, Revision 0

Unit 1 UFSAR Section VII – Containment Spray System, Revision 22

NMP1-AMP-OCCWS, Open Cycle Cooling Water System Aging Management Program,
Revision 01

NMPNS-HTX-001, Generic Letter 89-13 Heat Exchanger Program Plan

Condition Reports

2012-002689	2007-004244	2011-011264
2007-003991	2011-009199	2012-001906
2007-004351	2011-009649	

Section 1R08: Inservice Inspection ActivitiesDocuments

FCN-MODS-NMP2-11, NMP2 Steam Dryer Modifications and Repairs, Revision 3

Section 1R11: Licensed Operator Regualification Program and Licensed Operator PerformanceProcedures

N2-EOP-RPV, RPV Control - Flowchart, Revision 01400

N2-EOP-PC, Primary Containment Control - Flowchart, Revision 01300

N2-EOP-C4, RPV Flooding - Flowchart, Revision 01400

Section 1R12: Maintenance EffectivenessDocuments

System Health Report January - March 2012

Circuit Breakers Component Health Report, 1st quarter 2012

Condition Reports

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2012-004395	2012-001012	2012-000994
2012-004423	2012-003093	2012-003855
2012-003721	2012-003096	2011-011045
2011-011000	2012-000388	2012-003014

Procedures

CNG-FES-039, Preventive Maintenance template Development, Review, Analysis and
Application, Revision 00001

CNG-AM-1.01-1023, Maintenance Rule Program, Revision 00100

Section 1R13: Maintenance Risk Assessments and Emergent Work ControlProcedures

NIP-OUT-01, Shutdown Safety, Revision 03600

CNG-FES-039, Preventive Maintenance template Development, Review, Analysis and
Application, Revision 00001

CNG-AM-1.01-1023, Maintenance Rule Program, Revision 00100
 N2-PM-082, RPV Flood Up/Draindown, Revision 00600
 CNG-CA-1.01-1000, Corrective Action Program, Revision 00600

Condition Reports

2012-004850	2012-007227	2012-006024
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C90782154
 C90929458

Drawings

C-19409-C, AC Station Power Distribution One-Line Diagram, Revision 14
 PID-38A-13, Fuel Pool Cooling and Cleanup, Revision 13
 12177-PID-38B-10, Fuel Pool Cooling and Cleanup, Revision 10
 PID-38C, Fuel Pool Cooling and Cleanup, Revision 14
 PID-38D, Fuel Pool Cooling and Cleanup, Revision 12

Section 1R15: Operability Determinations and Functionality Assessments

Procedures

N2-EPM-Gen-550, GE 4.16KV Magne-Blast Breaker P.M., Revision 00300
 CNG-PR-1.01-1011, Station-Specific Procedure Process, Revision 00501
 N1-SO-12-01, Reactor Recirculation Pump 15 Seal Indications, Revision 1
 N1-SOP-1.2, Reactor Recirculation Pump Seal Failure, Revision 00100

Condition Reports

2012-001348	2012-003971	2012-003008
2012-002240	2012-003956	2012-002798
2012-003516	2012-003516	2012-004851

Documents

General Electric Service Advice Letter (SAL) 323.1
 General Electric Company, Medium Voltage Switchgear, Business Section, Certified Seismic Report on Requisition 320-68150 for Stone & Webster engineering Corp. Job Order No. 12177, Revision 1, November 4, 1983
 In-Situ Vibration Report for Seismic Qualification, General Electric Switchgear 2ENS*SWG 101 & 103, December 1985

Work Orders

C91889539

Section 1R18: Plant Modifications

Procedures

N2-SOP-29, Sudden Reduction in Core Flow, Revision 01301
 N2-OP-3, Condensate and Feedwater System, Revision 03200
 N2-SOP-6, Feedwater Failures, Revision 01000
 N2-OSP-RCS-R@001, Recirculation System Performance, Revision 01
 GAI-REL-09, Jet Pump Performance Monitoring and Cleaning/Maintenance Determination, Revision 05

Section 1R19: Post-Maintenance TestingDocuments

N2-ESP-ENS-Q731, Quarterly Channel Functional Test of LPCS/LPCI Pumps A, B, and C

(Normal and Emergency Power) Auto Start Time Delay Relays, Revision 00600

CNG-PR-1.01-1011, Station-Specific Procedure Process, Revision 00501, PCR

N1-ST-Q25, Emergency Diesel Generator Cooling Water Quarterly Test, Revision 02000

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N1-ST-Q1A, CS 11 Pump, Valve and SDC Water Seal Check Valve Operability Test, Revision 01200

N2-ISP-MSS-R002, Main Steam Isolation Valve Leak Rate Test (Reactor Vessel Head Removed), Revision 00801

N2-OSP-RPV-@003, Reactor Pressure Vessel and all Class 1 Systems Leakage Test with the RPV Solid, Revision 00801

N2-OP-31, Residual Heat Removal System, Revision 02300

N2-OP-72, Standby and Emergency AC Bus Distribution System, Revision 1300

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C91896589

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Drawings

00531100105, Discharge Valve Anchor Darling Valve Company, 2RCS*MOV18AB, Revision 001

Section 1R20 Refueling and Other Outage ActivitiesProcedures

N2-PM-082, RPV Flood Up/Draindown, Revision 00503

S-RAP-RPP-801, High Locked High and Very High Radiation Area Monitoring and Control, Revision 03000

N2-FHP-13.1, Full Core Offload, Revision 00700

N2-FHP-003, Refueling Manual, Revision 01101

S-ODP-NFM-0101, Refueling Operations, Revision 00200

S-RAP-RPP-0801, High Locked High and Very High Radiation Area Monitoring and Control, Revision 03000

Documents

M2-0002, ASME Section XI System Pressure Testing Acceptance Criteria, Revision 9

Condition Reports

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Section 1R22: Surveillance TestingProcedures

N1-CSP-D100, Reactor Coolant Chemistry, Revision 01100 and associated test results

GAP-CHE-01, BWR Water Chemistry Operating Limits, Revision 01800

N1-ST-Q13, Emergency Service Water Pump Operability Test, Revision 01400

N2-OSP-EGS-R002, Operating Cycle Diesel Generator 24 hour Run and Load Rejection
Divisions I and II, Revision 00500

N2-OSP-EGS-M@001, Diesel Generator and Diesel Air Start Valve Operability Test – Divisions
I and II, Revision 00800

N2-OSP-ICS-Q001, RCIC Valve Operability Test, Revision 00600

N2-ISP-MSS-R@003, Main Steam Isolation Valve Leak Rate Test (Inboard Static Head of
Water), Revision 00100

N2-ISP-MSS-R002, Main Steam Isolation Valve Leak Rate Test (Reactor Vessel Head
Removed), Revision 00801

N2-OSP-ISC-R002, RCIC System Flow Test, Revision 00302

Drawings

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Documents

Unit 2 UFSAR Chapter 8.3 Revision 19

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Nine Mile Point 10 CFR Part 50 Appendix J Testing Program

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Section 1EP6: Drill EvaluationProcedures

EPIP-EPP-01, Classification of Emergency Conditions at Unit 2, Revision 01900

Section 2RS1: Radiological Hazard Assessment and Exposure ControlsProcedures

S-RAP-RPP-201, Radiation Work Permit Initiation, Preparation, Control and Use, Revision 23

S-RPIP-5.1, Dosimetry Use, Placement and Dose Tracking, Revision 9

S-RPIP-3.0, Radiological Surveys, Revision 17

N2-FHP-13.1, Full Core Offload, Revision 7

S-RAP-RPP-0801, High, Locked High and Very High Radiation Area Monitoring and Control,
Revision 30

GAP-RPP-08, Control of High, Locked and Very High Radiation Areas, Revision 16

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Miscellaneous

J. R. Cole to Distribution RE: Upper Elevation U-2 Drywell Work Approved per S-RAP-RPP-0801 for 2R13 Refueling Outage, dated April 6, 2012

NMP Calc No. 2-95-01 Upper Drywell Access During Fuel Movement, dated December 15, 1995

RWP 212890, Refuel Floor Activities

RWP 212830, NMP-2 Chemical Decontamination

RWP 212891, 2R13 EPU Steam Dryer Modification

RWP 212802, Drywell 249' & 261" Under-vessel Work

RWP 212810, Drywell Scaffold

Section 2RS2: Occupational ALARA Planning and ControlsProcedures

GAP-RPP-02, Radiation Work Permit, Revision 14

S-MAP-MAI-0110, Control of RCA Diving Activities, Revision 9

S-RAP-ALA-0102, ALARA Reviews, Revision 15

S-RAP-ALA-0101, Temporary Shielding, Revision 10

NEP-DES-20, Radiation Shielding Review of Shielding Requests, Revision 8

S-RAP-RPP-0201, Radiation Work Permit Initiation Preparation Control and Use, Revision 23

Condition Reports

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Miscellaneous

2011 Collective Dose Goals and Actual Dose by Department

NMP 1 Outage ALARA Report

AR#212890, Refuel Floor Activities

AR#212830, NMP-2 Chemical Decontamination

AR#212891, 2R13 EPU Steam Dryer Modification

AR#212802 Drywell 249 foot & 261 foot Under-vessel Work

AR#212810 Drywell Scaffold

S-RAP-ALA-0102, Attachment 1, On-Going ALARA Review for DW Snubbers, dated April 19, 2012

S-RAP-ALA-0102, Attachment 1, On-Going ALARA Review for Unit 2 Chem Decon Project ECP-11-000490, dated April 23, 2012

S-RAP-ALA-0102, Attachment 1, On-Going ALARA Review for Three Major EPU Projects, Dated April 22, 2012

S-RAP-ALA-0102, Attachment 1, On-Going ALARA Review for 2R13 Refuel Floor Disassembly Activities, dated April 13, 2012

S-RAP-ALA-0102, Attachment 1, On-Going ALARA Review for Refueling Activities, Underwater Work in Reactor Cavity, SFP and ESP, dated April 14, 2012

Section 2RS3: In-Plant Airborne Radioactivity Control and MitigationProcedures

GAP-RPP-04, Respiratory Protection Program, Revision 11

N1-RTP-76, Operation and Calibration of the Eberline PING-1A PING-1AMT Particulate Iodine Noble Gas Monitor, Revision 02

N1-RTP-156, Drywell CAM, Revision 00201

- S-RAP-RPP-0402, Selection and Issuance of Radiological Respiratory Protection Equipment, Revision 12
- S-RPIP-4.2, Respiratory Protection Quality Assurance Control Program, Revision 00200
- S-RPIP-4.4, Maintenance Inspection and Testing of Respiratory Protection Equipment, Revision 00700
- S-RPIP-4.5, Use of Respiratory Protection Equipment, Revision 09
- S-RPIP-4.9, Quantitative Respiratory Fit Test TSI-Portacount Plus, Revision 00600

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 Scott PosiChek3, Visual Functional Test Results, September 13, 2011

Section 2RS4: Occupational Dose Assessment

Procedures

- CNG-RP-1.01-2001, Dosimetry, Revision 00000
- CNG-RP-1.01-2002 Effective Dose Equivalent EDEX, Revision 00000
- CNG-RP-1.01-3002, Sampling and Analysis for 10 CFR 61 Waste Classification, Revision 00000
- GAP-RPP-07, Internal and External Dosimetry Program, Revision 02100
- S-RAP-ALA-0103, Dosimetry and Radiological Engineering Evaluations, Revision 00900
- S-RAP-RPP-0703, Authorization to Exceed Administrative Dose Limits, Revision 06
- S-RAP-RPP-0704, Personnel Dosimetry Issue and Processing, Revision 01801
- S-RPIP-5.1, Dosimetry Use, Placement and Dose Tracking, Revision 01000
- S-RPIP-5.7, Bioassay and Internal Dose Assessment, Revision 00900
- S-RPIP-5.20, Dosimetry Program Quality Assurance, Revision 00801
- S-RPIP-5.25, Exposure Evaluation Reports, Revision 01002
- S-RPIP-5.26, Return of Dosimeters for Processing and Receipt of Results, Revision 00400

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S-RAR-ALA-0103 Attachment 2 - Radiological Engineering Evaluation Coversheet 2-12-003 Skin Dose Calculation – COR #2-12-NO-002, dated March 29, 2012

Section 2RS8: Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

Procedures

Procedure S-RPIP-7.13, Rev 2, Sampling and Analysis for 10 CFR 61 Waste Classification

Documents

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10 CFR 61 waste stream analysis for U-1: dry active waste; condensate resins; clean-up resins; carbon; and, filter sludge
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Condition Reports

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Section 4OA2: Problem Identification and Resolution

Procedures

CNG-CA-1.01-1010, Use of Operating Experience, Revision 00500
N1-OP-18, Service Water System, Revision 02900
N1-OP-45, Emergency Diesel Generators, Revision 03200

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CNG-TR-1.01-1008, Maintenance Training Programs, Revision 00400
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SA-2011-000207, Focused Self-Assessment of NMP Maintenance Training Programs, October 21, 2011
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Drawings

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12 Nitrogen System, System Health Reports January-March 2012
 Power Labs Report NIN-34590, Failure Analysis of EDG Air Start Components for Nine Mile
 Point Unit 2, dated March 13, 2009
 Nine Mile Point Nuclear Station Amended License Renewal Application – July 2005, Sections
 2.3.3.B.1 and 3.3.2.B.1, dated July 14, 2005

Section 40A3: Followup of Events and Notices of Enforcement Discretion

Procedures

CNG-MN-1.01-1002, Troubleshooting, Revision 00100
 N2-OP-37, Reactor Water Cleanup System, Revision 02400
 CNG-CA-1.01-1005, Apparent Cause Evaluation, Revision 00500
 N2-SOP-38, Loss of Spent Fuel Pool Cooling, Revision 00901
 N2-SOP-6, Feedwater Failures, Revision 01000
 N2-SOP-29, Sudden Reduction in Core Flow, Revision 01301
 N2-SOP-101D, Rapid Power Reduction, Revision 00800
 N2-OP-38, Spent Fuel Pool Cooling and Cleanup System, Revision 01700

Documents

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Condition Reports

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Procedures

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CNG-MN-1.01-103, Load Handling, Revision 00400
Procedure N1-MPM-GEN-807, Inspection of Turbine Building and Reactor Building Cranes,
Revision 00600
Procedure N1-MMP-GEN-800, Maintenance of Reactor Building Cranes, Revision 00300
Procedure N1-MFT-110, Modification Functional Test of Reactor Building Crane 9335, Revision
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ECP Supp No ECP-09-000483, Purpose, Revision 0000
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Procedures SI-UT-126 and 130 for Ultrasonic Examination of Overlaid and Dissimilar Metal
Welds
Procedure WDI-SSP-1229 for manual UT of Inner Radius Areas per ASME Section XI,
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Modification Functional Test Records of Reactor Building Crane 9335 per N1-MFT-110,
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LIST OF ACRONYMS

2R13	Nine Mile Point Nuclear Station Unit 2 Refueling Outage 13
AC	alternating current
ADAMS	Agencywide Documents Access and Management System
ADS	Automatic Depressurization System
ALARA	as low as is reasonably achievable
AR	ALARA review
ASME	American Society of Mechanical Engineers
CAM	continuous air monitor
CAP	corrective action program
CFR	Code of Federal Regulations
CR	condition report
CRD	control rod drive
ECCS	emergency core cooling system
EDG	emergency diesel generator
EOP	emergency operating procedure
EPU	extended power uprate
HRA	high radiation area
IMC	Inspection Manual Chapter
IP	inspection procedure
ISFSI	independent spent fuel storage installation
IST	in-service test
IVVI	in-vessel visual inspection
LER	licensee event report
LPRM	Low Power Range Monitor
MIC	microbiological induced corrosion
MSIV	main steam isolation valve
NCV	non-cited violation
NDE	nondestructive evaluation
NMPNS	Nine Mile Point Nuclear Station, LLC
NRC	Nuclear Regulatory Commission
NVLAP	National Voluntary Laboratory Accreditation Program
PARS	Publicly Available Records
PI	performance indicator
PMT	post-maintenance test
QA	quality assurance
RB	reactor building
RBC	reactor building crane
RCS	reactor coolant system
RG	Regulatory Guide
RHS	residual heat removal system
RP	radiation protection
RPM	radiation protection manager
RPV	reactor pressure vessel
RWCS	reactor water cleanup system
RWP	radiation work permit
SDP	significance determination process
SFC	spent fuel cooling
SFP	spent fuel pool

SSC	structure, system, and component
ST	surveillance test
SWF	supplemental work force
TB	turbine building
TS	technical specification
UFSAR	updated final safety analysis report
UT	ultrasonic testing
Vac	volts alternating current
VHRA	very high radiation area
VT	visual testing
WO	work order