



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406-1415**

November 2, 2009

Mr. Sam Belcher  
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 05000220/2009004 AND 05000410/2009004**

Dear Mr. Belcher:

On September 30, 2009, 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 October 9, 2009, with you and 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 one NRC-identified finding of very low safety significance (Green). This finding was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because it is entered into your corrective action program (CAP), the NRC is treating the finding as a non-cited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. 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 Senior Resident Inspector at Nine Mile Point Nuclear Station. In addition, if you disagree with the characterization of 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 Senior Resident Inspector at Nine Mile Point Nuclear Station. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

S. Belcher

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Sincerely,

**/RA/**

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

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

Enclosure: Inspection Report 05000220/2009004 and 05000410/2009004  
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S. Belcher

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Sincerely,

**/RA/**

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

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.: 50-220, 50-410

License No.: DPR-63, NPF-69

Report No.: 05000220/2009004; 05000410/2009004

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

Facility: Nine Mile Point, Units 1 and 2

Location: Oswego, NY

Dates: July 1 through September 30, 2009

Inspectors: E. Knutson, Senior Resident Inspector  
D. Dempsey, Resident Inspector  
N. Perry, Senior Project Engineer  
K. Kolaczyk, Senior Resident Inspector  
S. Shaffer, Senior Resident Inspector  
L. Scholl, Senior Reactor Inspector  
J. Furia, Senior Health Physicist  
J. Krafty, Resident Inspector  
B. Haagensen, Resident Inspector  
O. Ayegbusi, Reactor Inspector

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

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## SUMMARY OF FINDINGS

IR 05000220/2009004, 05000410/2009004; 07/01/2009 - 09/30/2009; Nine Mile Point Nuclear Station, Units 1 and 2; Identification and Resolution of Problems.

The report covered a three-month period of inspection by resident inspectors, and announced inspections and an in-office inspection performed by regional inspectors. One Green finding, which was a non-cited violation (NCV), was identified. 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 aspect for the finding was determined using IMC 0305, "Operating Reactor Assessment Program." 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: Mitigating Systems

- Green. An NRC-identified non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified, in that Nine Mile Point Nuclear Station (NMPNS) failed to maintain the Unit 2 high pressure core spray (HPCS) pump power cables in an environment for which they were designed. Although NMPNS had indications that these cables were periodically submerged in water, they could not demonstrate that the cables were designed for submerged conditions. As immediate corrective action, NMPNS dewatered and inspected the HPCS cable run, and changed the frequency of dewatering to monthly. Based on the inspection results, along with the cable design specifications and most recent test results, NMPNS concluded that the HPCS pump power cables would remain operable while they conduct a design change evaluation to examine methods to reduce cable exposure to submerged conditions. The issue was entered into the corrective action program (CAP) as condition report (CR) 2009-2901.

The finding was more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. The finding affected the equipment performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was of very low safety significance because it was a qualification deficiency that did not result in loss of operability. The finding had a cross-cutting aspect in the area of problem identification and resolution, operating experience, because NMPNS did not use operating experience, such as Generic Letter (GL) 2007-01, "Inaccessible or Underground Power Cable Failures That Disable Accident Mitigation Systems or Cause Plant Transients," to evaluate possible adverse effects of periodic submergence of the HPCS pump power cables (P.2.a per IMC 0305). (Section 4OA2)

### Other Findings

None.

## REPORT DETAILS

### Summary of Plant Status

Nine Mile Point Unit 1 began the inspection period at full rated thermal power (RTP). On September 12, power was reduced to 92 percent to secure reactor recirculation pump (RRP) 13 to install new brushes in its associated motor-generator (MG), and later to 85 percent to return the pump to service. Quarterly turbine valve testing was also performed while at reduced power. Power was restored to full RTP later that day. On September 26, power was reduced to 92 percent to secure RRP 12 for work on its associated MG. Power was restored to full RTP later that day and remained there for the rest of the inspection period.

Nine Mile Point Unit 2 began the inspection period at full RTP. On July 13, power was reduced to 60 percent to swap operating reactor feedwater pumps (RFPs) due to through-wall leakage from the 'A' RFP minimum flow valve. Power was restored to full RTP later that day. On September 19, power was reduced to 65 percent for a control rod sequence exchange, control rod stroke timing and adjustment, quarterly turbine valve testing, and to perform a temporary leak repair on the 'A' RFP minimum flow valve. Power was restored to full RTP the following day and remained there for the rest of the inspection period.

### 1. REACTOR SAFETY

#### **Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

#### 1R01 Adverse Weather Protection (71111.01)

##### .1 Occurrences of Adverse Weather (One sample)

##### a. Inspection Scope

On August 20, 2009, the inspectors reviewed NMPNS's actions in response to a short-noticed electrical storm in the vicinity of the station. During this storm, a lightning strike caused a brief loss of Unit 1 off-site 115 kilovolt (KV) supply line 1. Off-site power continued to be supplied to Unit 1 via the other 115 KV supply line (line 4), and line 1 was restored to service by operation of the automatic reclosure feature of the affected circuit breaker (R10), 36 seconds later. The voltage transient caused by the lightning strike caused a loss of the operating control room chilled water pump and associated ventilation chillers, but had no other significant impact on plant operations. Unit 2 was not affected by the lightning strike. The inspectors verified that plant operators responded appropriately to the storm and observed that actions to verify plant status following the lightning strike were thorough.

##### b. Findings

No findings of significance were identified.

.2 Readiness to Cope with External Flooding (One sample)

a. Inspection Scope

The inspectors reviewed the individual plant examinations and updated final safety analysis reports (UFSARs) for Units 1 and 2 concerning external flooding events at the site. The inspection included a walkdown of accessible areas of each unit's perimeter to look for potential susceptibilities to external flooding and to verify the assumptions included in each unit's external flooding analysis. The inspectors also reviewed relevant abnormal and emergency plan (EP) procedures.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

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

a. Inspection Scope

The inspectors performed partial system walkdowns to verify risk-significant systems were properly aligned for operation. The inspectors verified the operability and alignment of these risk-significant systems while their redundant trains or systems were inoperable or out of service for maintenance. The inspectors compared system lineups to system operating procedures, system drawings, and the applicable chapters in the UFSAR. The inspectors verified the operability of critical system components by observing component material condition during the system walkdown.

The following plant system alignments were reviewed:

- Unit 1 containment spray system 11 (111 and 112) due to increased risk significance during maintenance on containment spray system 121;
- Unit 1 core spray system 11 (111 and 112) due to increased risk significance during maintenance on core spray system 122;
- Unit 2 'B' residual heat removal (RHR) system due to increased risk significance during maintenance on the 'A' RHR system; and
- Unit 2 Division 1 standby gas treatment (SBGT) system due to increased risk significance during maintenance on the Division 2 SBGT system.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors performed a complete walkdown of the Unit 1 reactor core isolation cooling  
Enclosure

(RCIC) system to identify discrepancies between the existing equipment configuration and that specified in the design documents. During the walkdown, system drawings and operating procedures were used to determine the proper equipment alignment and operational status. The inspectors reviewed the open maintenance work orders (WOs) that could affect the ability of the system to perform its functions. Documentation associated with temporary modifications, operator workarounds, and items tracked by plant engineering were also reviewed to assess their collective impact on system operation. In addition, the inspectors reviewed the CR database to verify that equipment alignment problems were being identified and appropriately resolved.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

Routine Resident Inspector Tours (71111.05Q - Six samples)

a. Inspection Scope

The inspectors toured areas important to reactor safety to evaluate the station's control of transient combustibles and ignition sources, and to examine the material condition, operational status, and operational lineup of fire protection systems including detection, suppression, and fire barriers. The inspectors evaluated fire protection attributes using the criteria contained in Unit 1 UFSAR Appendix 10A, "Fire Hazards Analysis," and Unit 2 procedure N2-FPI-PFP-0201, "Unit 2 Pre-Fire Plans." The areas inspected included:

- Unit 1 core spray 11 corner room, reactor building (RB) 198, 218, and 237 foot elevations;
- Unit 1 containment spray 11 corner room, RB 198 and 218 foot elevations;
- Unit 1 refueling floor, RB 340 foot elevation;
- Unit 2 north auxiliary bay, RB 196, 215, and 240 foot elevations;
- Unit 2 RB 289 foot elevation; and
- Unit 2 Division 2 switchgear room, control building 261 foot elevation.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06 - Two samples)

.1 Unit 1 Screen Well

a. Inspection Scope

The inspectors examined the susceptibility of the Unit 1 screen well (lake water intake structure) to internal flooding. The inspectors reviewed the individual plant examination and the UFSAR to evaluate potential flooding scenarios and their risk significance. The

inspectors performed a walkdown of the Unit 1 screen well to look for sources of potential flooding that were not analyzed or not adequately maintained.

b. Findings

No findings of significance were identified.

.2 Unit 2 Turbine Building to Reactor Building

a. Inspection Scope

The inspectors reviewed Unit 2 flood analysis and design documents including the UFSAR for licensee commitments, and reviewed drawings to identify areas and equipment that may be affected by internal flooding due to a rupture of the circulating water or service water (SW) systems from the turbine building to the reactor building. The review focused on the maintenance requirements and material condition of silicon rubber seals for pipes that penetrate the reactor building at elevation 208 feet from a turbine building pipe tunnel.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

Quarterly Review (71111.11Q - Two samples)

a. Inspection Scope

The inspectors evaluated two simulator scenarios in the licensed operator requalification training (LORT) program. The inspectors assessed the clarity and effectiveness of communications, the implementation of appropriate actions in response to alarms, the performance of timely control board operation, and the oversight and direction provided by the shift manager. During the scenario, the inspectors also compared simulator performance with actual plant performance in the control room. The following scenarios were observed:

- On August 11, 2009, the inspectors observed Unit 1 LORT to assess operator and instructor performance during a scenario involving a seismic event that resulted in a loss of power board 17A and drywell cooling, a reactor feedwater line break in the turbine building, a reactor water cleanup line break, and failure of a liquid poison pump. The inspectors evaluated the performance of risk significant operator actions including the use of special operating procedures (SOPs) and emergency operating procedures (EOPs).
- On August 18, 2009, the inspectors observed Unit 2 LORT to assess operator and instructor performance during a scenario involving failure of a drywell unit cooler, automatic isolation of the reactor water cleanup and RCIC systems due to a reactor coolant leak detection system failure, loss of a reactor recirculation system pump, and a small-break loss of coolant accident in the drywell coincident with a failure of the

Division 3 electrical system that led operators to perform a reactor pressure vessel (RPV) blowdown. The inspectors evaluated the performance of risk significant operator actions including the use of SOPs and EOPs.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12 - Three samples)

a. Inspection Scope

The inspectors reviewed performance-based problems, and the performance and condition history of selected systems to assess the effectiveness of the maintenance program. The inspectors reviewed the systems to ensure that the station's review focused on proper maintenance rule scoping in accordance with 10 CFR Part 50.65, characterization of reliability issues, tracking system and component unavailability, and 10 CFR Part 50.65(a)(1) and (a)(2) classification. In addition, the inspectors reviewed the site's ability to identify and address common cause failures, and to trend key parameters. The following maintenance rule inspection samples were reviewed:

- Unit 1 automatic depressurization system due to electromatic relief valve 122 seat leakage;
- Unit 2 standby liquid control system due to pump performance issues; and
- Unit 2 reactor feedwater system due to pump recirculation valve issues.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - Six samples)

a. Inspection Scope

The inspectors evaluated the effectiveness of the maintenance risk assessments required by 10 CFR Part 50.65(a)(4). The inspectors reviewed equipment logs, work schedules, and performed plant tours to verify that actual plant configuration matched the assessed configuration. Additionally, the inspectors verified that risk management actions for both planned and emergent work were consistent with those described in station procedures. The inspectors reviewed risk assessments for the activities listed below.

Unit 1

- Week of July 27, that included liquid poison pump 11 and 12 cycle (24 month) surveillances, control rod drive system quarterly surveillance, emergency service water quarterly surveillance, reactor protection system (RPS) uninterruptible power supply (UPS) 172B maintenance, instrument air compressor 12 maintenance, and emergent

maintenance to repair the valve positioner for the feedwater heater 132 level control valve.

- Week of September 14, that included channel 11 recirculation flow loop and flow converter calibrations, a three day maintenance period for the diesel fire pump, maintenance on RPS MG 162B, calibration of anticipated transient without scram/alternate rod insertion (ATWS/ARI) instruments, and emergent maintenance to troubleshoot containment spray raw water inter-tie check valve 93-60 which was not fully seating.
- Week of September 21, that included containment spray system 111 and 121 quarterly surveillances, main steam isolation valve (MSIV) and feedwater isolation valve partial stroke testing, emergency diesel generator (EDG) 102 monthly surveillance, service water system biocide treatment, stator water cooling pump 12 maintenance, and a power reduction to 92 percent to secure RRP 12 for maintenance on its associated MG.

### Unit 2

- Week of July 27, that included 'C' instrument air compressor overhaul, 'B' RHR quarterly surveillance, 'B' standby liquid control (SLC) maintenance and quarterly surveillance, Division 2 EDG monthly surveillance, a two day maintenance period for the Division 2 SBT system, 'B' reactor building closed loop cooling booster pump mechanical seal replacement and troubleshooting for high vibrations, and emergent maintenance to correct the cause of a loss of the 'B' RPS MG and to replace a broken shear pin for the 'F' SW pump discharge strainer.
- Week of August 3, that included RCIC system quarterly surveillance, overhaul of the 'C' instrument air compressor, repair of the 'F' SW pump outboard pump bearing housing, replacement of transponder cards in the reactor manual control system, and emergent maintenance to replace the supply breaker for the 'A' RPS MG.
- Week of September 14, that included low pressure core spray system maintenance and quarterly surveillance, 'A' SLC system quarterly surveillance, 'A' SBT system maintenance, and a power reduction to 65 percent for a control rod pattern exchange, turbine valve testing, and temporary repair of a through-wall leak from the 'A' RFP minimum flow valve.

#### b. Findings

No findings of significance were identified.

#### 1R15 Operability Evaluations (71111.15 - Seven samples)

##### a. Inspection Scope

The inspectors evaluated the acceptability of operability evaluations, the use and control of compensatory measures, and compliance with technical specifications (TSs). The evaluations were reviewed using criteria specified in NRC Regulatory Issue Summary

Enclosure

2005-20, "Revision to Guidance Formerly Contained in NRC Generic Letter (GL) 91-18, 'Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability'," and Inspection Manual Part 9900, "Operability Determinations and Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety." The inspectors' review included verification that the operability determinations were made as specified by Procedure CNG-OP-1.01-1002, "Conduct of Operability Determinations / Functionality Assessments." The technical adequacy of the determinations was reviewed and compared to the TSs, UFSAR, and associated design basis documents (DBDs). The following evaluations were reviewed:

- CR 2009-4100 concerning the effect of non-conservative test methodology used for Unit 1 diesel fire pump flow testing on the pump's ability to provide design basis flow;
- CR 2009-4137 concerning Unit 2 emergency core cooling system suction strainer operability in light of vendor testing that indicated higher than expected post-accident head loss due to debris loading;
- CR 2009-4230 concerning the operability of numerous Unit 1 safety related motor operated valves pending inspection for a generic issue with a breaker opening coil electrical lead becoming disconnected;
- CR 2009-4537 concerning the operability of four Unit 2 safety relief valves that had exceeded their six year lift test surveillance interval;
- CR 2009-5179 concerning the acceptability of degraded insulation resistance to ground in the Unit 1 electrical circuit breaker that allows safety class 1E power board 17B to be tied to non-safety class power board 17A;
- CR 2009-5421 concerning the effect of increased seat leakage through Unit 1 core spray keep fill system check valve CKV-40-22 on the valve's ability to perform its containment isolation function; and
- CR 2009-6026 concerning Unit 2 containment operability in light of the vendor's determination that post-accident peak containment pressure was higher than the current licensing basis value, based on use of a more precise analytical code.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

.1 Temporary Modifications (Two samples)

a. Inspection Scope

The inspectors reviewed Unit 2 temporary plant modification, Engineering Change Package (ECP) 09-000053, "Provide Alternate Power to Instrument Air Dryer 2AIS-DRY3B." The purpose of this change was to provide an equivalent replacement for the malfunctioning normal power supply to allow 2AIS-DRY3B to remain available for service. The inspectors reviewed the 10 CFR Part 50.59 screening against the system design bases documentation to verify that the modification did not affect system operability. The inspectors verified the adequacy of acceptance testing and performed a walkdown of the installed modification.

Enclosure

The inspectors reviewed Unit 2 temporary plant modification N2-07-002, "Install Strain Gauges for EPU [extended power uprate] Vibration Monitoring." The strain gages will measure main steam line pressure pulsations that will be used to assess steam dryer performance during implementation of the EPU. The inspectors reviewed the 10 CFR Part 50.59 screening against the system design basis documentation to verify that the modification will not affect system operability.

b. Findings

No findings of significance were identified.

.2 Permanent Modifications (One sample)

a. Inspection Scope

The inspectors reviewed one Unit 1 permanent plant modification, Design Change N1-08-051, "Replace ASCO Scram Solenoid Pilot Valves [SSPVs] with Eugen Seitz SOVs [solenoid operated valves]." Replacement of the SSPVs was required during this year's refueling outage because the SSPVs were approaching their environmental qualification (EQ) service life limitation. Installation of the modification satisfied the replacement requirement, while also transitioning to components that have a significantly longer EQ service life. The inspectors reviewed the associated 10 CFR Part 50.59 screening against control rod drive system design basis information, including the UFSAR and TS. The inspectors verified that post installation tests were adequate and that NMPNS controlled the modification in accordance with station procedures.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

- Unit 1, WO C90623054 that performed resistance checks on non-vital power board 17A to vital power board 17B tie breaker R1052. The PMT consisted of cycling the breaker closed and open in accordance with N1-OP-30, "4.16KV, 600V, and 480V House Service," Revision 02100.

- Unit 1, WO 09-07571-00 that overhauled containment spray system 111 raw water pump 93-02. The PMT consisted of performing N1-ST-Q6A, "Containment Spray Loop 111 Quarterly Operability Test," Revision 00801, and N1-PM-V2, "Pump Curve Validation Test," Revision 06.
- Unit 1, WO C080174900 that repaired instrument air drier 12. The PMT consisted of performing N1-MPM-094-021, "Instrument Air Drier #12 Inspection and Cleaning," Revision 02, and a confidence run in accordance with N1-OP-20, "Service, Instrument, and Breathing Air," Revision 02900.
- Unit 1, WO C081332800 that installed a new rotating element in diesel fire pump 100-02. The PMT consisted of performing N1-PM-C3, "Electric and Diesel Fire Pump Performance Tests," Revision 08.
- Unit 2, WO C081515700 that changed the hydraulic fluid backup filter for the 'B' electro-hydraulic control (EHC) system pump. The PMT consisted of placing the 'B' EHC pump in service in accordance with N2-MPM-TMB-Q@451, "Main Turbine Electro-Hydraulic Control System Quarterly Inspection," Revision 03.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - Four samples)

a. Inspection Scope

The inspectors witnessed performance of and/or reviewed test data for risk-significant surveillance tests (STs) to assess whether the components and systems tested satisfied design and licensing basis requirements. The inspectors verified that test acceptance criteria were clear, demonstrated operational readiness and were consistent with the DBDs; that test instrumentation had current calibrations and the range and accuracy for the application; and that tests were performed, as written, with applicable prerequisites satisfied. Upon test completion, the inspectors verified that equipment was returned to the status specified to perform its safety function.

The following STs were reviewed:

- N1-ISP-036-006, "Emergency Cooling System - High Steam Flow Instrument Trip Channel Test/Calibration," Revision 00501;
- N1-ST-Q1A, "CS [core spray] 111 Pump, Valve and SDC [shutdown cooling] Check Valve Operability Test," Revision 00901;
- N1-ST-SA6, "Drywell/Torus and Torus/Reactor Building Vacuum Reliefs Test," Revision 00; and
- N2-OSP-RHS-Q@006, "RHR System Loop C Pump and Valve Operability Test and System Integrity Test," Revision 00.

This represented a total of four inspection samples, of which three were In-Service Testing and one was a Reactor Coolant System Leakage Detection Surveillance as defined by Inspection Procedure 71111.22.

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

1EP6 Drill Evaluation (71114.06 - One sample)

a. Inspection Scope

The inspectors observed control room operator EP response actions during the Unit 2 evaluated LORT scenario on August 18, 2009. 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 emergency plan implementing procedures.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety**

2OS1 Access Control to Radiologically Significant Areas (71121.01 - Six samples)

a. Inspection Scope

The inspectors reviewed radiation work permits (RWP) for airborne radioactivity areas with the potential for individual worker internal exposures of greater than 50 millirem committed effective dose equivalent (20 derived air concentration-hours (DAC-hrs)). For these selected airborne radioactive material areas, the inspectors verified barrier integrity and engineering controls performance (e.g., high efficiency particulate air (HEPA) ventilation system operation).

The inspectors reviewed and assessed the adequacy of the licensee's internal dose assessment for any actual internal exposure greater than 50 mrem committed effective dose equivalent. For 2008 and 2009 (year-to-date), no internal exposures of this magnitude have occurred.

The inspectors examined the licensee's physical and programmatic controls for highly activated or contaminated materials (non-fuel) stored within the spent fuel pools.

The inspectors discussed with the radiation protection manager high dose rate-high radiation area, and very high radiation area controls and procedures. The inspectors

focused on any procedural changes since the last inspection. The inspectors verified that any changes to licensee procedures did not substantially reduce the effectiveness and level of worker protection.

The inspectors discussed with health physics supervisors the controls in place for special areas that have the potential to become very high radiation areas during certain plant operations. The inspectors determined if these plant operations required communication beforehand with the health physics group, so as to allow corresponding timely actions to properly post and control the radiation hazards.

The inspectors verified adequate posting and locking of entrances to high dose rate-high radiation areas, and very high radiation areas.

The inspectors evaluated licensee performance against the requirements contained in 10 CFR Part 20, and Unit 1 TS 6.7 and Unit 2 TS 6.12.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02 - Six samples)

a. Inspection Scope

The inspectors reviewed the integration of as low as reasonably achievable (ALARA) requirements into work procedure and RWP documents.

The inspectors compared the person-hour estimates provided by maintenance planning and other groups to the radiation protection group with the actual work activity time requirements and evaluated the accuracy of these time estimates.

The inspectors determined if post-job (work activity) reviews were conducted and if identified problems were entered into the licensee's CAP.

The inspectors reviewed the licensee's exposure tracking system. The inspectors determined whether the level of exposure tracking detail, exposure report timeliness and exposure report distribution was sufficient to support control of collective exposures. During the conduct of exposure significant maintenance work, the inspectors looked for evidence that licensee management was aware of the exposure status of the work and would intervene if exposure trends increased beyond exposure estimates.

The inspectors obtained from the licensee a list of work activities ranked by actual/estimated exposure that were in progress or that had been completed during the last outage and selected the two work activities of highest exposure significance (drywell in-service inspection and drywell permanent shielding).

The inspectors reviewed the ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements. The inspectors verified that the licensee had established procedures, and engineering and work controls, based on sound radiation

protection principles to achieve occupational exposures that were ALARA. The inspectors verified that the licensee had reasonably grouped the radiological work into work activities, based on historical precedence, industry norms, and/or special circumstances:

The inspectors compared the results achieved (dose rate reductions, person-rem used) with the intended dose established in the licensee's ALARA planning for these work activities. The inspectors reviewed, where applicable, inconsistencies between intended and actual work activity doses.

The inspectors evaluated licensee performance against the requirements contained in 10 CFR Part 20.1101.

b. Findings

No findings of significance were identified.

20S3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03 - One sample)

a. Inspection Scope

The inspectors reviewed licensee self-assessments, audits and licensee event reports, and focused on radiological incidents that involved personnel contamination monitor alarms due to personnel internal exposures. For internal exposures greater than 50 mrem committed effective dose equivalent, the inspectors determined if the affected personnel were properly monitored utilizing calibrated equipment and if the data was analyzed and internal exposures properly assessed in accordance with licensee procedures. The inspectors determined if identified problems were entered into the CAP for resolution.

The inspectors evaluated licensee performance against the requirements contained in 10 CFR Part 20.1501, 10 CFR Part 20.1703, and 10 CFR Part 20.1704.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151 - 10 samples)

a. Inspection Scope

The inspectors sampled NMPNS submittals for the performance indicators (PIs) listed below. The PI definition guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Revision 5, was used to verify the basis in reporting for each data element and the accuracy of the PI data reported.

Cornerstone: Mitigating Systems

The inspectors reviewed NMPNS's submittals for the Mitigating System Performance Index

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(MSPI) listed below to determine the accuracy and completeness of the reported data. The review was accomplished by comparing the reported PI data to plant records and information available in plant logs, CRs, system health reports, the respective MSPI Basis Documents, and NRC inspection reports. Operating data for the period of October 2008 through June 2009 were reviewed to complete this inspection.

- Unit 1 emergency alternating current (AC) power system;
- Unit 1 high pressure injection system;
- Unit 1 heat removal system;
- Unit 1 RHR system;
- Unit 1 cooling water systems;
- Unit 2 emergency AC power system;
- Unit 2 high pressure injection system;
- Unit 2 heat removal system;
- Unit 2 RHR system; and
- Unit 2 cooling water systems.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152 - Two samples)

.1 Review of Items Entered into the CAP

a. Inspection Scope

As specified by Inspection Procedure 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into NMPNS's CAP. In accordance with the baseline inspection procedures, the inspectors also identified selected CAP items across the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones for additional follow-up and review. The inspectors assessed the threshold for problem identification, the adequacy of the cause analyses, extent of condition review, operability determinations, and the timeliness of the specified corrective actions.

b. Findings

No findings of significance were identified.

.2 Annual Sample - Review of Silent Half Scram Events Resulting From Electrical Protection Assembly Overvoltage Trips While Aligned to Their Alternate Power Source

a. Inspection Scope

The inspectors selected CRs 2007-5394, 2008-4880, and 2008-4884, concerning silent (unalarmed) half scrams at Unit 2, as a problem identification and resolution (PI&R) sample

for detailed follow-up review.

Electrical power to the solenoid-operated scram pilot valves is normally provided by two MG sets. One MG set powers the 'A' solenoid valves for all of the scram valves and the other MG set powers all the 'B' solenoid valves. When an MG set is out of service for maintenance or repairs its associated solenoid valves can be powered from an alternate AC power source. The power from the MG set or alternate source is monitored and controlled by electrical protective assemblies (EPAs) to ensure the power quality to the solenoid valves is adequate to prevent damage to the valves due to a high voltage, low voltage, or low frequency condition.

Unit 2 has experienced a number of silent half scrams due to over voltage conditions that tripped the EPAs while the alternate power supply was in service. The inspectors assessed NMPNS's problem identification threshold, cause analyses, extent of condition reviews, operability determinations, and the prioritization and timeliness of corrective actions to determine whether NMPNS was appropriately identifying and correcting problems associated with this issue.

b. Assessment and Observations

No findings of significance were identified. The inspectors determined that NMPNS properly implemented their corrective action process regarding the initial discovery of the above issues. The CR packages were complete and included cause evaluations, operability determinations, extent of condition reviews, corrective actions completed, and planned corrective actions. Corrective actions addressed immediate operational concerns, and plant procedures provided directions for resetting the EPAs and clearing the half scrams.

However, the inspectors noted that these events have occurred over the life of the plant with the most recent events occurring in September 2007 and June 2008. Following the 2007 event, changes were made to the operating procedure for the AC power distribution system and a proposed plant modification to replace the existing transformers in the alternate supply with voltage regulating transformers was presented to the plant technical review board. Additional licensee reviews and approvals remain before the modification is fully approved and scheduled for implementation.

The inspectors also noted that, although the operating procedure improvements should reduce the likelihood of an EPA trip when aligned to the alternate power supply, those changes have not eliminated the vulnerability as indicated by the occurrence of the subsequent 2008 event. The inspectors determined that long term corrective actions such as the implementation of the proposed modification to add the regulating transformers was appropriate to resolve the issue and further reduce the potential for inadvertent plant scrams.

.3 Annual Sample - Review of Corrective Actions for Plugging of Small Bore Piping in Raw Water Applications

a. Inspection Scope

In May 2008, Unit 1 experienced reduced seal water flow to both SW system pumps. This resulted in reduced SW system supply pressure due to air in-leakage through the operating pump's seal. The air intrusion was stopped by applying seal water from an external source and normal SW supply pressure was restored. Although the plant was able to operate at full power throughout this event, NMPNS recognized that, in the worst case, the condition could have resulted in a scram with complications. The issue was entered into the CAP as CR 2008-4256, through which a category 1 root cause analysis was performed.

The cause of the degraded seal water flow was that the small bore (3/4-inch diameter) carbon steel piping in the system was extensively fouled with sand/silt, corrosion products, and other debris. As part of the long term corrective actions, the small bore piping in the seal water system was replaced with stainless steel piping.

In light of the generic implications of this event, the inspectors examined NMPNS's actions to address small bore piping degradation in other raw water applications.

b. Assessment and Observations

No findings of significance were identified. Several earlier CRs have documented flow restriction issues, primarily due to corrosion and silting, that Unit 1 has experienced with small bore piping in raw water systems. As a result of a 2001 adverse trend CR, NMPNS contracted to have a study performed to evaluate options for addressing raw water piping degradation at Unit 1. The study was completed in 2004 and recommended replacement of the small bore piping with upgraded materials, and installation of isolation valves to facilitate periodic cleaning and flushing of the piping. NMPNS also discussed the issue with other licensees and found that several were performing no planned replacements of small bore SW piping. NMPNS subsequently concluded that they would continue to repair/replace small bore raw water piping only on an as-needed basis.

There is currently no regularly scheduled preventive maintenance performed on the small bore piping in the SW system. Procedure NMPNS-SBI-001, "Small Bore Piping Corrosion Monitoring Program," Revision 02, specifies periodic ultrasonic examinations of emergency SW piping at Unit 1, and closed loop cooling system piping at both units; however, it does not include small bore SW piping in either unit. Procedure GAP-HSC-02, "System Aging Inspection and Cleanliness Controls," Revision 18, has steps to visually inspect fluid systems for evidence of corrosion and fouling whenever the system is open for maintenance. This type of inspection has value, but is of limited scope, as it does not address small bore piping on a planned and systematic basis.

The lack of preventive/predictive maintenance on the SW system small bore piping, combined with the current practice of repairing/replacing the piping on an as needed basis, increases the potential for equipment malfunctions that could affect plant operations. Subsequent to the May 2008 Unit 1 SW event, CR 2008-5126 was written to address small bore piping issues. It has a corrective action to validate the assumptions/conclusions in the

2004 report and to develop a plan for potential solutions to the issues with Unit 1 small bore piping exposed to raw water. As of this inspection, development of this plan was in its initial stages.

The inspectors concluded that NMPNS's response to the May 2008 Unit 1 SW seal water system failure, to replace the small bore carbon steel piping with stainless steel piping, was prompt and effective. However, the inspectors concluded that NMPNS has not acted aggressively to globally address degradation of small bore piping in raw water applications. This observation does not constitute a violation of NRC requirements in that all associated systems have remained operable.

.4 (Closed) URI 05000410/2008005-02, Qualification of HPCS Pump Power Cables for Submergence

a. Inspection Scope

In the fourth quarter of 2008, the inspectors examined potential degradation of power cables for the Unit 2 high pressure core spray (HPCS) system pump due to periodic submergence in water. The inspectors opened an unresolved item (URI) for this issue pending NMPNS's assembly of information concerning the basis for qualification of these cables for submerged conditions. This inspection was conducted to evaluate that information.

b. Findings

Introduction. An NRC-identified Green NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified, in that NMPNS failed to maintain the Unit 2 HPCS pump power cables in an environment for which they were designed. Although NMPNS had indications that these cables were periodically submerged in water, they could not demonstrate that the cables were designed for submerged conditions.

Description. Condition Report (CR) 2007-1977 described a condition that occurred on April 1, 2007, where water had leaked through the HPCS pump power cable penetrations into both the control and reactor buildings. This indicated that some, if not all, of the underground cable run was submerged in water. The inspectors reviewed several other CRs that documented similar occurrences of water leakage through these penetrations. This indicated that the HPCS pump power cables were periodically being subjected to submergence in water.

NRC Generic Letter (GL) 2007-01, "Inaccessible or Underground Power Cable Failures That Disable Accident Mitigation Systems or Cause Plant Transients," informed licensees of power cable failures due to moisture-induced degradation. The GL discussed that periodic draining of the area around power cables may decrease the rate of cable insulation degradation, but would not prevent cable failures. In addition, the GL discussed that some licensees have detected cable degradation prior to failure through techniques for measuring and trending the condition of cable insulation.

NMPNS had a program to dewater the underground HPCS cable run every six months, and also monitored the condition of the power cable insulation through periodic HPCS pump

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motor insulation testing. NMPNS did not consider that additional action (such as more frequent dewatering of the cable run and increased cable insulation monitoring) was necessary because the HPCS power cables had been procured to be suitable for use in submerged applications.

In response to the URI, NMPNS provided the inspectors procurement, design, test, and evaluation documents for the HPCS pump power cables. Based on review of this additional information, the inspectors, assisted by the Electrical Engineering Branch of the NRC Office of Nuclear Reactor Regulation, determined that NMPNS had not demonstrated that the subject safety-related cables were qualified for submerged conditions for the life of the plant. In response to this conclusion, NMPNS entered the issue into the CAP as CR 2009-2901. As immediate corrective action, NMPNS dewatered and inspected the HPCS cable run, and changed the frequency of dewatering to monthly. Based on the inspection results, along with the cable design specifications and most recent test results, NMPNS concluded that the HPCS pump power cables would remain operable while they conduct a design change evaluation to examine methods to reduce cable exposure to submerged conditions.

Analysis. The inspectors determined that NMPNS's failure to ensure that the HPCS pump power cables were maintained in an environment for which they were designed was a performance deficiency. The finding was more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. The finding affected the equipment performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the significance of this finding using Inspection Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings." The finding was of very low safety significance because it was a qualification deficiency that did not result in loss of operability. The finding had a cross-cutting aspect in the area of problem identification and resolution, operating experience, because NMPNS did not use operating experience, such as GL 2007-01, to evaluate possible adverse effects of periodic submergence of the HPCS pump power cables (P.2.a per IMC 0305).

Enforcement. 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to ensure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, since April 1, 2007, NMPNS did not maintain the Unit 2 HPCS pump power cables in an environment for which they were designed. Specifically, NMPNS had indication that the HPCS pump power cables were periodically submerged, but did not take action to preclude the HPCS pump power cables from being submerged. However, because of the very low safety significance and because the issue was entered into the CAP as CR 2009-2901, this violation is being treated as an NCV consistent with the NRC Enforcement Policy. **(NCV 05000410/2009004-01, Unqualified HPCS Pump Power Cables Used in Submerged Conditions)**

40A5 Other Activities

- .1 (Closed) VIO 05000220/2009003-02, Operator Failure to Obtain Senior Reactor Operator Permission Prior to Changing Reactor Power (92702)

This violation (VIO) identified that on January 5, 2008, contrary to TS required procedures, a reactor operator (RO) deliberately manipulated controls at Unit 1 to increase power without the approval or direction of a senior reactor operator (SRO); and the chief reactor operator (CRO) and RO manipulated the controls to decrease power without the approval or direction of an SRO when power exceeded the megawatt-thermal license limit; and, the CRO deliberately failed to immediately report the overpower and downpower events to Operations management. This violation was documented in a March 16, 2009, NRC letter to NMPNS. In an April 15, 2009, letter to the NRC, NMNPS outlined the reasons why the violation occurred, and corrective actions implemented in response to the January 5, 2008, overpower event. NMNPS determined that the event occurred because of two reasons: (1) Operations management did not ensure that high standards of performance were being implemented on shift, which resulted in a flawed mental model associated with compliance with standards; and (2) less than clear standards, expectations, and practices existed for maintaining power at or below the licensed thermal power limit. To correct these performance deficiencies, several corrective actions were implemented including conducting a stand down with operations management to share lessons learned, briefing each operating crew on the event, and developing guidelines to ensure power is maintained at or below rated core thermal power. New expectations for the RO at the controls were established through the Operations Night Orders, which reiterated the requirement to obtain approval of the control room SRO prior to performing reactivity manipulations. Additionally, a case study was developed and presented to operations and training department personnel that highlighted how erosion of standards associated with command and control and reactivity management led to the event. Finally, disciplinary action was taken against the two ROs who were directly involved in the event.

The inspectors reviewed the corrective actions outlined in the April 15, 2009, NMPNS letter to the NRC, and the corrective actions implemented as a result of a root cause analysis (CR 2008-0162) that was completed as a result of this event. The root cause analysis determined that a contributing cause of the event was that Operations management failed to minimize and manage an increasing administrative burden on crews to ensure there were no adverse impacts on existing fundamental roles and responsibilities of operating crews. Specifically, during the January 2008 event, the control room SROs were engaged in administrative duties such as preparing a procedure change and overseeing plant testing activities. As a result, the SROs were not able to provide proper oversight of plant activities and failed to identify the power manipulations by the ROs. This increased administrative workload occurred because of planned and unplanned staffing reductions in the operations support area. To address these contributory causes, staffing levels were increased in the operations department for Units 1 and 2. Further, procedures at Units 1 and 2 for power maintenance and control were strengthened, and management expectations regarding command and control and reactivity manipulations were reinforced through briefings and training sessions.

The inspectors concluded that the root cause analysis was thorough and complete. Additionally, corrective actions taken were appropriate and timely. This violation is closed.

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.2 Temporary Instruction (TI) 2515/173, Review of the Implementation of the Industry Ground Water Protection Voluntary Initiative

a. Inspection Scope

On August 24-28, 2009, the inspectors assessed the licensee's ground water protection program to determine whether the licensee had implemented the voluntary industry Ground Water Protection Initiative (GPI). The GPI was unanimously approved by a formal vote of the NEI member utility chief nuclear officers, which established the industry's commitment to implement the initiative. The GPI identifies the actions the industry deems necessary for implementation of a timely and effective ground water protection program.

The inspectors verified that the following objectives for the GPI were contained in the licensee's program:

- 1.1 Site Hydrology and Geology
- 1.2 Site Risk Management
- 1.3 On-Site Ground Water Monitoring
- 1.4 Remediation Process
- 1.5 Record Keeping
- 2.1 Stakeholder Briefing
- 2.2 Voluntary Communication
- 2.3 Thirty-Day Reports
- 2.4 Annual Reporting
- 3.1 Perform a Self-Assessment
- 3.2 Review the Program Under the Auspices of NEI

The inspectors determined that all of the above referenced attributes were contained in the Nine Mile Point Radiological Ground Water Protection Program, with the exception of objective 3.2. Specifically, objective 3.2.a requires the performance of an independent initial review within one year of the performance of the initial self-assessment performed for objective 3.1.a. The self-assessment was performed in 2006, and while an initial review was performed in 2007, the licensee has subsequently questioned whether the initial review was independent. As a result, the licensee is undergoing an additional initial review, by personnel from outside the company, which was still in progress at the end of the inspection.

b. Findings

No findings of significance were identified.

.3 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with NMPNS's security procedures and regulatory requirements relating to nuclear plant security. These

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observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. Sam Belcher and other members of licensee management at the conclusion of the inspection on October 9, 2009. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

**ATTACHMENT: SUPPLEMENTAL INFORMATION**

**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

Licensee Personnel

S. Belcher, Vice President  
J. Yoe, Acting Plant General Manager  
T. Lynch, Plant General Manager  
W. Byrne, Manager, Nuclear Safety and Security  
J. Kaminski, Director, Emergency Preparedness  
J. Krakuszeski, Manager, Operations  
F. Payne, Unit 1 General Supervisor Operations  
H. Strahley, Unit 2 General Supervisor Operations  
T. Syrell, Director, Licensing

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened

None.

Opened and Closed

05000410/2009004-01	NCV	Unqualified HPCS Pump Power Cables Used in Submerged Conditions (Section 4OA2)
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Closed

05000410/2008005-02	URI	Qualification of HPCS Power Cables for Submergence (Section 4OA2)
05000220/2009003-02	VIO	Operator Failure to Obtain Senior Reactor Operator Permission Prior to Changing Reactor Power (Section 4OA5)

Discussed

None.

## LIST OF DOCUMENTS REVIEWED

### **Section 1R01: Adverse Weather Protection**

EPIP-EPP-26, "Natural Hazard Preparation and Recovery," Revision 02  
N1-OP-64, "Meteorological Monitoring," Revision 01  
N1-SOP-64, "High Winds," Revision 00  
N2-MPM-GEN-A016, "Probable Maximum Precipitation (PMP) Flood Berm and 10,000 Year Culvert Inspection," Revision 03  
N2-MPM-GEN-017, "Diesel Generator Building Missile Protection Stop Logs Dymeric Caulk Inspection/Repair," Revision 01  
N2-MSP-GEN-V001, "Revetment Ditch Structure Inspection," Revision 05  
N2-OP-102, "Meteorological Monitoring," Revision 04  
N2-SOP-90, "Natural Events," Revision 00300

### **Section 1R04: Equipment Alignment**

N1-OP-14, "Containment Spray System," Revision 04301  
N1-OP-2, "Core Spray System," Revision 03101  
N2-OP-31, "Residual Heat Removal System," Revision 01900  
N2-VLU-01, "Walkdown Order Valve Lineup and Valve Operations," Revision 00, Attachment 31, "N2-OP-31 Walkdown Valve Lineup"  
N2-OP-61B, "Standby Gas Treatment System," Revision 09  
N2-VLU-01, "Walkdown Order Valve Lineup and Valve Operations," Revision 00, Attachment 61B, "N2-OP-61B Walkdown Valve Lineup"  
N2-VLU-01, "Walkdown Order Valve Lineup and Valve Operations," Revision 00, Attachment 35, "N2-OP-35 Walkdown Valve Lineup"  
PID-35A-15, PID-35B-13, PID-35C, PID-35D-12, "RCIC"  
PID-35-4-SH1, "RCIC Fundamental"

### **Section 1R05: Fire Protection**

NMPNS Unit 1 UFSAR, Appendix 10A, "Fire Hazards Analysis"  
NMPNS Unit 2 UFSAR, Appendix 9B, "Safe Shutdown Evaluation"  
N1-FPI-PFP-0101, "Unit-1 Pre-Fire Plans," Revision 0  
N2-FPI-PFP-0201, "Unit 2 Pre-Fire Plans," Revision 0

### **Section 1R06: Flood Protection Measures**

Nine Mile Point Unit 1, Individual Plant Examination, dated July 1993  
NUREG-1047-SUP-N4, "SER Related to Operation of Nine Mile Point Nuclear Station Unit No. 2, Docket No. 410," dated September 1986  
N2-FSP-FPP-R001, "Fire Rated Assemblies and Watertight Penetration Visual Inspection," Revision 03

**Section 1R11: Licensed Operator Requalification Program**

N1-SOP-28, "Seismic Event," Revision 02  
 N1-SOP-1, "Reactor Scram," Revision 0200  
 N1-EOP-2, "RPV Control," Revision 01700  
 N1-EOP-4, "Primary Containment Control," Revision 01400  
 N1-EOP-5, "Secondary Containment Control," Revision 01400  
 N1-EOP-8, "RPV Blowdown," Revision 01000  
 N2-OP-60, "Drywell Cooling," Revision 04  
 N2-EOP-SC, "Secondary Containment Control," Revision 10  
 N2-SOP-29, "Sudden Reduction in Core Flow," Revision 00800  
 N2-SOP-101D, "Rapid Power Reduction," Revision 00700  
 N2-SOP-101C, "Reactor Scram," Revision 03  
 N2-EOP-RPV, "RPV Control," Revision 01200  
 N2-EOP-C2, "RPV Blowdown," Revision 11

**Section 1R12: Maintenance Effectiveness**

S-MRM-REL-0101, "Maintenance Rule," Revision 18  
 S-MRM-REL-0104, "Maintenance Rule Scope," Revision 01  
 S-MRM-REL-0105, "Maintenance Rule Performance Criteria," Revision 01  
 NDD-REL, "Maintenance Rule," Revision 09  
 NIP-REL-01, "Maintenance Rule," Revision 10  
 1010PFM-3E, "Controlotron Field Manual System 1010P Uniflow Universal Portable Flowmeter"  
 A10.1-D-011, "Provide Pump Margin to Account for Instrument Uncertainties," Revision 3, Disp.  
 03A  
 Calibration Certificate for Controlotron Flowmeter, dated 4/11/07  
 IST Pump References and Acceptance Criteria Datasheets for 2SLS\*P1A, dated March 18,  
 2008 and September 19, 2008  
 IST Pump References and Acceptance Criteria Datasheets for 2SLS\*P1B, dated December 7,  
 2007 and August 27, 2008  
 N2-OSP-SLS-Q001, "Standby Liquid Control Pump, Check Valve, Relief Valve Operability Test  
 and ASME XI Pressure Test," Revision 00900  
 Standby Liquid Control System Health Report, 1<sup>st</sup> and 2<sup>nd</sup> Quarter 2009, 1<sup>st</sup> Quarter 2008  
 Union Power Pump Test Reports for 2SLS\*P1A and 2SLS\*P1B  
 Maintenance Rule Scoping for 1-MS-F09  
 Maintenance Rule Scoping for 1-MS-F12  
 Maintenance Rule Scoping for 1-RPS-ATS-F08  
 Main Steam System Health Reports, 3<sup>rd</sup> Quarter 2007 through 2<sup>nd</sup> Quarter 2009  
 Reactor Protection System Health Reports, 3<sup>rd</sup> Quarter 2007 through 2<sup>nd</sup> Quarter 2009  
 O2-OPS-001-259-2-01, "Feedwater System" Revision 6  
 Feedwater System Health Report, 3<sup>rd</sup> Quarter 2009  
 Maintenance Rule Manager Report for Reactor Feedwater Systems, dated August 27, 2009

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

CNG-OP-4.01-1000, "Integrated Risk Management," Revision 00300  
CNG-MN-4.01-1004, "On-Line T-Week Process," Revision 00000  
CNG-MN-4.01-1006, "Online Schedule Management," Revision 00001

**Section 1R15: Operability Evaluations**

CNG-OP-1.01-1002, "Conduct of Operability Determinations / Functionality Assessments,"  
Revision 00100

**Section 1R18: Plant Modifications**

CNG-CM-1.01-1003, "Design Engineering and Configuration Control," Revision 00001  
N1-ST-R1, "Control Rod Scram Insertion Time Test," Revision 01700  
N1-08-051, "Replace ASCO Scram Solenoid Pilot Valves with Eugen Seitz Solenoid Valves,"  
Revision 00  
EC20080035-000-0001, "Replace ASCO Scram Solenoid Pilot Valves with Eugen Seitz SOVs,"  
Revision 00  
EC20080035-000-0002, "Justification for use of Grayboot connectors on oversized SSPV Field  
Wires," Revision 00  
EC20080035-000-0003, "Justification for minimum number of #12 AWG field wire strands for  
use in SSPV Grayboot Connectors," Revision 00

**Section 1R19: Post-Maintenance Testing**

GAP-SAT-02, "Pre/Post-Maintenance Test Requirements," Revision 28

**Section 1R22: Surveillance Testing**

GAP-SAT-01, "Surveillance Test Program," Revision 16  
CNG-HU-1.01-1000, "Human Performance," Revision 00300  
CNG-HU-1.01-1001, "Human Performance Tools and Verification Practices," Revision 00400  
CNG-HU-1.01-1002, "Pre-Job Briefings and Post-Job Critiques," Revision 00300  
CNG-OP-4.01-1000, "Integrated Risk Management," Revision 00300

**Section 2OS2: ALARA Planning and Controls**

Nine Mile Point Unit 1 Radiation Protection RFO20 Post Outage Report

**Section 4OA1: Performance Indicator Verification**

2008/2009 MSPI Submittal Data for Unit 1  
Nine Mile Point Unit 1 MSPI Basis Document, Revision 03  
NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5  
NRC MSPI Report for Nine Mile Point Unit 1

**Section 40A2: Identification and Resolution of Problems**

CR 2008-4256 Category I Root Cause Analysis, "Unit 1 Service Water Pump Performance Degradation," Revision 1  
 GAP-HSC-02, "System Aging Inspection and Cleanliness Controls," Revision 18  
 SL-11237-017, "Evaluation of Alternatives for Addressing Raw Water Piping Degradation at Nine Mile Point Unit 1," Revision 1  
 Service Water System Health Report, 2<sup>nd</sup> Quarter 2009  
 N2-OP-71A, "13.8KV AC Power Distribution," Revision 03  
 N2-OP-97, "Reactor Protection System," Revision 00801  
 N2-ESP-RPS-SA745, "EPA Breaker Relay Channel Functional Test," Revision 00300, Completed May 1, 2009  
 2E12233, "Revise Overvoltage Trip Values for Electrical Protection Assemblies," Revision B  
 FSAR Figure 8.3-1, "Plant Master One Line Diagram - Normal Power Distribution," Revision 18  
 FSAR Figure 8.3-3, Sht. 1, "Plant Master One Line Diagram - Normal 600V and 120V AC," Revision 8  
 FSAR Figure 8.3-1, Sht. 2, "Plant Master One Line Diagram - Normal Power Distribution," Revision 16  
 SIL No. 143, "Reduction of Unplanned Scrams," dated July 31, 1975  
 SIL No. 508, "Scram Contactor Coil Life and Maintenance," dated February 23, 1990  
 EM 223, "Determining Temperature 'Rating' of High Temperature Kerite Insulated Cables for Operation in Wet and Alternate Wet/Dry Locations," dated May 4, 1977  
 EPRI TR-103834-P1-2, "Effects of Moisture on the Life of Power Plant Cables"  
 NEI 06-05, "Medium Voltage Underground Cable White Paper"  
 NER-1E-026, "Identification of NMP1 Non-EQ Inaccessible Medium Voltage Cables in the Scope of the License Renewal Program," Revision 0  
 NER-2E-032, "Identification of NMP2 Non-EQ Inaccessible Medium Voltage Cables in the Scope of the License Renewal Program," Revision 2  
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2008-2204	2006-5305	2009-5241
2008-4612	2008-4265	2009-4537
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2008-9249	2009-3776	2007-6607
2008-9257	2009-3082	2007-6868
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2007-7135	2009-3111	2007-1977
2008-3471	2009-2901	2006-3342
2008-4104	2009-2133	2009-3876
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### **Section 40A5: Other Activities**

NRC Letter to Constellation Energy Regarding Notice of Violation, dated March 16, 2009  
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 Technical Input to COLA FSAR section 2.4.12 for NMP Unit 3

**LIST OF ACRONYMS**

AC	alternating current
ADAMS	Agencywide Documents Access and Management System
ALARA	as low as reasonably achievable
ARI	alternate rod insertion
ATWS	anticipated transient without scram
CAP	corrective action program
CFR	Code of Federal Regulations
CR	condition report
CRO	chief reactor operator
CS	core spray
DAC	derived air concentration
DBD	design basis document
ECP	engineering change package
EDG	emergency diesel generator
EHC	electro-hydraulic control
EOP	emergency operating procedure
EP	emergency plan
EPA	electrical protective assembly
EPU	extended power uprate
EQ	environmental qualification
GL	generic letter
GPI	Ground Water Protection Initiative
HEPA	high efficiency particulate air
HPCS	high pressure core spray
hr	hour
IMC	inspection manual chapter
IN	Information Notice
KV	kilovolt
LORT	licensed operator requalification training
MG	motor-generator
mrem	millirem
MSIV	main steam isolation valve
MSPI	mitigating system performance index
NCV	non-cited violation
NEI	Nuclear Energy Institute
NMPNS	Nine Mile Point Nuclear Station, LLC
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
PARS	Publicly Available Records
PI	performance indicator
PI&R	problem identification and resolution
PMT	post maintenance test
RB	reactor building
RCIC	reactor core isolation cooling
RFP	reactor feedwater pump

RHR	residual heat removal
RO	reactor operator
RPS	reactor protection system
RPV	reactor pressure vessel
RRP	reactor recirculation pump
RTP	rated thermal power
RWP	radiation work permit
SBGT	standby gas treatment
SDC	shutdown cooling
SDP	significance determination process
SLC	standby liquid control
SOP	special operating procedure
SOV	solenoid operated valve
SRO	senior reactor operator
SSPV	scram solenoid pilot valve
ST	surveillance test
SW	service water
TI	temporary instruction
TS	technical specification
UFSAR	updated final safety analysis report
UPS	uninterruptable power supply
URI	unresolved item
VIO	violation
WO	work order