November 5, 2004

Mr. James A. Spina
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 05000220/2004004 and 05000410/2004004 AND SUPPLEMENTAL INSPECTION FOR WHITE PERFORMANCE INDICATOR

Dear Mr. Spina:

On September 30, 2004, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Nine Mile Point Nuclear Station (NMPNS), Units 1 and 2. The enclosed integrated inspection report (IR) documents the inspection findings which were discussed on October 8, 2004, with Mr. Tim O'Connor and other members of your staff.

This 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.

The NRC completed a followup inspection to assess activities to address the Unit 2 unplanned scrams performance indicator (PI) crossing the Green-White threshold in the third quarter 2003. The followup inspection was performed to review your actions to address weaknesses identified during the first supplemental inspection that was completed on March 18, 2004. The followup inspection determined that your corrective actions were sufficient to address the causes and prevent recurrence.

This report documents two NRC-identified and four self-revealing findings of very low safety significance (Green). Four of the findings were determined to involve violations of NRC requirements. In addition, three licensee-identified violations which were determined to be of very low safety significance are listed in Section 4OA7 of this report. Because of the very low safety significance and because the violations were entered into your corrective action program, the NRC is treating these violations as non-cited violations (NCVs) consistent with Section VI.A of the NRC Enforcement Policy. If you contest any findings in this report, you should provide a response within 30 days of the date of this IR, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001 with copies to the Regional Administrator Region I, the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at Nine Mile Point.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its

enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publically Available Records (PARS) component of NRC's document management system (ADAMS). ADAMS is accessible from the NRC web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

James M. Trapp, Chief
Projects Branch 1
Division of Reactor Projects

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

Enclosure: Inspection Report 05000220/2004004 and 05000410/2004004
w/Attachment: Supplemental Information

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REGION I

Docket Nos.	50-220, 50-410
License Nos.	DPR-63, NPF-69
Report No.	05000220/2004004 and 05000410/2004004
Licensee:	Nine Mile Point Nuclear Station, LLC (NMPNS)
Facility:	Nine Mile Point, Units 1 and 2
Location:	348 Lake Road Oswego, NY 13126
Dates:	July 1, 2004 - September 30, 2004
Inspectors:	G. Hunegs, Senior Resident Inspector B. Fuller, Resident Inspector E. Knutson, Resident Inspector F. Bower, Senior Reactor Inspector L. Cheung, Senior Reactor Inspector J. Furia, Senior Health Physicist N. McNamara, Emergency Preparedness Inspector
Approved by:	James M. Trapp, Chief Projects Branch 1 Division of Reactor Projects

Enclosure

CONTENTS

SUMMARY OF FINDINGS

IR 05000220/2004-004, 05000410/2004-004; 07/01/2004 - 09/30/2004; Nine Mile Point, Units 1 and 2; Equipment Alignment, Maintenance Risk Assessment, Non-routine Evolutions, ALARA Planning, PI&R Follow-up, Other Activities.

This report covered a 13-week period of inspection by resident inspectors, and announced inspections and an in-office review by four region-based inspectors. Six Green findings were 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). 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 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

? Nine Mile Point Nuclear Station's (NMPNS's) causal evaluation of station scrams and scram precursors appropriately evaluated human performance and the failure to evaluate the recurring trend of Unit 2 unplanned scrams at a precursor level. These causes were related to the problem identification and resolution (PI&R) and human performance cross-cutting areas. NMPNS's reevaluation of the adverse trend of the Unit 2 unplanned reactor scrams PI was appropriately thorough in scope and extent to identify the causes contributing to the corrective actions that were untimely and ineffective to prevent recurrence. (Section 4OA5)

? Although scram prevention corrective actions (CAs) continue to be developed and implemented, the combination of the Scram Prevention Team oversight and the existing CAs provided reasonable assurance that the inspection objective to verify that the licensee's CAs for risk significant performance issues were sufficient to address the causes and prevent recurrence. Assessments performed by NMPNS identified continuing problems related to the problem identification and resolution (PI&R) and human performance cross cutting areas. The implemented and planned performance indicators, quality and performance assessments, and self-assessments developed to quantitatively and qualitatively measure their success, were appropriate means to determine the effectiveness of NMPNS's scram prevention CAs. (Section 4OA5)

Cornerstone: Mitigating Systems

? Green. A self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XII, "Control of Measuring and Test Equipment," was identified when technicians used an out-of-calibration voltmeter to measure and adjust the output voltage of the Unit 2 Division III battery charger. As a result, battery bus voltage was adjusted to less than the minimum required for high pressure core spray system operability, while the reactor core isolation cooling system was also

inoperable. The performance deficiency associated with this finding is that the use of out-of-calibration measuring and test equipment resulted in a safety-class system being made inoperable. The battery bus voltage was restored and the performance deficiencies were addressed by the corrective action program.

The finding is greater than minor because it is associated the pre-event human performance attribute and affects the Mitigating System Cornerstone objective of ensuring the availability, reliability, and capability of a system that responds to initiating events to prevent undesirable consequences. The finding is of very low safety significance because it was not a design or qualification deficiency that had been confirmed to result in a loss of function per Generic Letter 91-18. The use of an out-of-calibration voltmeter to perform maintenance on a safety-class system is an example of a cross-cutting issue in human performance. (Section 1R13)

- Green. The inspectors identified a violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for failure to promptly identify and correct seven deficient Okonite cable splices at Unit 1 that were required to be environmentally qualified (EQ). The cable splices were repaired and EQ program deficiencies were addressed by the corrective action program.

  The finding is greater than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of equipment reliability. The finding is of very low safety significance because the unqualified cable splices had been determined to be operable per Generic Letter 91-18. The failure to promptly identify and correct deficient Okonite cable splices is an example of a cross-cutting issue in problem identification and resolution. (Section 4OA2.1)

Cornerstone: Barrier Integrity

? Green. A self-revealing non-cited violation (NCV) of Unit 1 Technical Specification 6.4.1 was identified, in that the motor operator for a shutdown cooling (SDC) system supply isolation valve was jogged open, contrary to a precaution in the system operating procedure. The performance deficiency associated with this finding is procedural non-compliance, which led to failure of the valve's motor operator and resultant loss of remote isolation capability for this containment isolation valve. The valve was repaired prior to startup and the performance deficiencies were addressed by the corrective action program.

The finding is greater than minor because it is associated with the Barrier Integrity Cornerstone attribute of containment barrier performance and affects the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The finding is of very low safety significance because it did not represent a degradation of the radiological barrier function provided for the control room, spent fuel pool, or standby gas treatment system, did not represent a degradation of the barrier function of the control room against smoke or a toxic atmosphere,

and did not represent an actual open pathway in the physical integrity of reactor containment or involve an actual reduction in defense-in-depth for the atmospheric pressure control or hydrogen control functions of the reactor containment. The procedure violation involving operation of the SDC system supply isolation valve is an example of a cross-cutting issue in human performance. (Section 1R14)

Cornerstone: Emergency Preparedness

? Green. The inspectors identified a non-cited violation (NCV) of 10 CFR 50.47, "Emergency Plans," in that the emergency power supply to the Technical Support Center (TSC) was taken out of service for 16 months. The performance deficiency associated with this finding is that the licensee failed to establish compensatory measures to provide for the continued operability of the TSC in the event of a loss of the normal power supply. The breaker was returned to service and the performance deficiencies were addressed by the corrective action program.

The finding is greater than minor because it is associated with the facilities and equipment attribute of the Emergency Preparedness Cornerstone and affects the cornerstone objective planning standard of 10 CFR 50.47(b)(8). The finding is of very low safety significance because the performance deficiency was failure to comply with a non-risk significant planning standard and no loss of planning standard function occurred. The failure to maintain TSC emergency electrical power is an example of a cross-cutting issue in problem identification and resolution. (Section 1R04)

Cornerstone: Occupational Radiation Safety

• Green. A self-revealing finding having very low safety significance was noted due to a deficiency in "as low as is reasonably achievable" (ALARA) performance. During the 2004 Unit 2 refueling outage, refueling floor activities resulted in collective exposures of 42.9 person-rem against a 24.8 person-rem estimate for the work activities. This work activity was 173 percent of its estimate. The performance deficiency that resulted in the exposure overrun was due to multiple equipment problems and management's failure to reassess the work once the exposure goal had been exceeded. Nine Mile Points' three-year rolling average annual collective exposure (2001-2003) is 205 person-rem, which is below the Significance Determination Process (SDP) criteria of 240 person-rem for boiling water reactors (BWRs); therefore, overall ALARA performance has been effective and this finding is of very low safety significance. (Section 2OS2)

? Green. A self-revealing finding having very low safety significance was noted due to a deficiency in "as low as is reasonably achievable" (ALARA) performance. During the 2004 Unit 2 refueling outage, drywell Anchor Darling valve modification work activities resulted in collective exposures of 21.9 person-rem against a 10.2 person-rem estimate. This work activity was 215 percent of its estimate. The performance deficiency that resulted in the exposure overrun was due to poor

vendor supplied materials, poor workmanship during the valve modifications, and management's failure to reassess the work once the exposure goal had been exceeded. Nine Mile Points' three-year rolling average annual collective exposure (2001-2003) is 205 person-rem, which is below the SDP criteria of 240 person-rem for BWRs; therefore, overall ALARA performance has been effective and this finding is of very low safety significance. (Section 2OS2)

B. Licensee-Identified Violations

Three violations of very low safety significance, which were identified by the licensee, have been reviewed by the inspectors. CAs taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and CAs are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Nine Mile Point Unit 1 (Unit 1) began the inspection period operating on four recirculation loops at 100 percent power. Recirculation pump 15 had been secured due to oil level alarm deficiencies. On August 30, oscillations on 13 feedwater flow control valve were noted and a manual scram was inserted. The reactor was taken critical on five recirculation loops on September 2 and reached 100 percent power on September 5. Reactor power was reduced and recirculation pump 13 was taken out of service on September 21, due to flow oscillations. Power was restored to 100 percent later that day. The inspection period ended with Unit 1 operating on four recirculation loops at 100 percent power.

Nine Mile Point Unit 2 (Unit 2) began the inspection period at 100 percent power. On July 27, an inadvertent single control rod scram during routine surveillance testing caused a power reduction to 94 percent. Power was subsequently reduced to 85 percent to recover the scrammed rod, and the unit was restored to full power the following day. On August 3, a Technical Specification (TS)-required shutdown was commenced due to failure of a safety-related 120 volt alternating current (VAC) uninterruptible power supply (UPS), 2VBA*UPS2B. Repair of the UPS was completed early the following day. The shutdown was terminated at 40 percent power and the unit was returned to full power. On September 4, power was reduced to 93 percent to support feedwater flow control valve testing. On September 18, power was reduced to 57 percent for a planned control rod pattern adjustment. The power reduction was also utilized to support switching the operating and standby main feedwater pumps, repair a main condenser tube leak, and perform single control rod scram time testing. Power was returned to 100 percent the following day. On September 25, power was reduced to 58 percent to support switching the operating and standby main feedwater pumps. During power ascension the following day, an automatic recirculation flow runback occurred due to a trip of the C main feedwater pump on an electrical fault which reduced power from 80 percent to 60 percent. The B main feedwater pump was placed in service, and power was returned to 100 percent on September 28. The unit operated at full power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems and Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope (71111.01 - 1 Sample)

The inspectors examined three Unit 2 risk significant systems, the control room ventilation system, control building chilled water system, and service water system, to verify that design features and operating procedures support operation during periods of hot weather. Documents reviewed included the Updated Safety Analysis Report (USAR), the Individual Plant Examination for External Events (IPEEE), TS, and operating procedures N2-OP-53A, “Control Building Ventilation System,” and N2-OP-11, “Service Water System.” The inspectors also reviewed Deviation/Event Reports (DERs)

concerning the control building ventilation system from the past two years to determine if weather-related problems had been encountered. In addition, the inspectors performed a material condition inspection of portions of the systems.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

a. Inspection Scope

Partial System Walkdown. (71111.04 - 5 Samples)

The inspectors performed partial system walkdowns to verify system and component alignment and to note any discrepancies that would impact system operability.

- On July 28, the inspectors selected the Unit 1 containment spray system to conduct a partial system walkdown due to increased risk significance during planned maintenance on the 122 containment spray subsystem. The walkdown included control room switch and indication verification, physical inspection, and partial verification of the system lineup. N1-OP-14, “Containment Spray System,” and N1-VLU-01, “Valve Lineup and Valve Operations,” were used for this review.

? On September 2, the inspectors selected the Unit 1 standby liquid control (SLC) system to conduct a partial system walkdown to compare with observations on the Unit 2 SLC system. The walkdown included control room switch and indication verification, physical inspection, and partial verification of the system lineup. N1-OP-12, “Liquid Poison System,” was used for this review.

- On July 14, the inspectors selected the Unit 2 low pressure core spray (LPCS) system to conduct a partial system walkdown due to increased risk significance during planned maintenance on the B residual heat removal (RHR) subsystem. The walkdown included control room switch and indication verification, physical inspection, and partial verification of the system lineup. N2-OP-32, “Low Pressure Core Spray,” N2-VLU-01, “Walkdown Order Valve Lineup and Valve Operations,” Attachment 32, and N2-OP-32, “Walkdown Valve Lineup,” were used for this review.

- On September 15, the inspectors selected the Unit 2 Division I emergency diesel generator (EDG) system to conduct a partial system walkdown based on safety significance. The walkdown included physical inspection and partial verification of the system lineup. N2-OP-100A, “Standby Diesel Generators,” N2-VLU-01, “Walkdown Order Valve Lineup and Valve Operations,” Attachment 100A, and N2-OP-100A, “Walkdown Valve Lineup,” were used for this review.

? On June 24, the inspectors selected the station Technical Support Center (TSC) and Operations Support Center (OSC) to conduct a partial emergency response facilities' walkdown based on the safety significance of these facilities in the area of emergency preparedness (EP). The walkdown included physical inspection of installed and portable equipment, and partial verification of the alignment of electrical power supplies to the facilities. Drawing No. F-45187-C, NUREG 0696, "Functional Criteria for Emergency Response Facilities," and EPIP-EPP-13, "Emergency Response Facilities Activation and Operation" were used for this review.

Complete System Walkdown. (71111.04S - 1 Sample)

The inspectors performed a complete system walkdown of the Unit 2 standby liquid control system to verify that the system was properly aligned. The walkdown included reviews of valve positions, major system components, electrical power availability, and equipment material condition. The inspectors reviewed the system operating procedure, N2-OP-36A, "Standby Liquid Control System," valve lineup procedure N2-VLU-01, Attachment 36A, N2-OP-36A "Walkdown Valve Lineup," the system piping and instrumentation diagram, drawing number PID-36A-19, and the USAR.

b. Findings

Introduction. The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50.47(b)(8), which states that adequate emergency facilities and equipment to support the emergency response are provided and maintained. The performance deficiency was the failure to maintain the emergency power supply to the Technical Support Center (TSC). The emergency power supply breaker was tagged out for approximately 16 months, and no compensatory measures were established by the licensee.

Description. Power to the TSC can be supplied from two alternating current sources, a normal power supply and the emergency power supply. The normal TSC power board is supplied by 115 kilovolts (kV) offsite power. The emergency TSC power board can be powered from either 115kV offsite power or an EDG. Power to TSC loads can be supplied from either of these sources through an automatic bus transfer.

On February 11, 2003, the TSC emergency power supply breaker was taken out of service for electrical maintenance. On March 12, 2003, this breaker failed its preventive maintenance (PM) testing, due to multiple trip device failures. The licensee attempted to resolve the issue by ordering a vendor analysis and refurbishment of the trip devices. Due to inadequate work control the breaker, was not replaced until May 14, 2004, and was not restored to service until June 29, 2004. No compensatory measures were put in place during the time the emergency power source was not available.

Analysis. The performance deficiency associated with this event was the failure to maintain the emergency power supply to the Technical Support Center (TSC). Specifically, the licensee failed to establish compensatory measures to provide backup

power to the TSC, or otherwise ensure continued TSC operability after a loss of normal power, while the TSC emergency power supply breaker was tagged out-of-service for approximately 16 months. The condition represented a modification to the TSC that was not in compliance with the licensee's emergency plan, but the TSC remained functional. This finding is more than minor because it is associated with the facilities and equipment attribute of the EP Cornerstone and affects the EP Cornerstone objective planning standard of 10 CFR 50.47(b)(8). Using the EP Significance Determination flow chart, manual chapter (MC) 609, Appendix B, EP SDP Sheet 1, the finding was determined to be of very low safety significance (Green) because the performance deficiency was a failure to comply with a non-risk significant planning standard, 10 CFR 50.47(b)(8), and no loss of planning standard function occurred. Traditional enforcement does not apply because the issue did not have any actual safety consequences or potential for impacting the NRC's regulatory function and was not the result of any willful violation of NRC requirements or NMPNS procedures. The failure to maintain TSC emergency electrical power was an example of a cross-cutting issue in problem identification and resolution.

Enforcement. 10 CFR 50.54(q) provides, in part, that, "A licensee authorized to posses and operate a nuclear power reactor shall follow and maintain in effect emergency plans which meet the [standard] in 50.47(b). . ." Planning standard 10 CFR 50.47(b)(8) requires that adequate emergency facilities and equipment to support the emergency response are provided and maintained. Contrary to the above, the licensee failed to maintain backup power available to the TSC for approximately 16 months due to the fact that the emergency power supply breaker remained tagged out of service from February 11, 2003, until June 29, 2004. However, because of the very low safety significance and because the CAs taken through DER NM-2004-2961 appeared to be appropriate, the issue is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000220/2004004-01, Failure to Maintain the Emergency Power Supply to the Technical Support Center.

1R05 Fire Protection

1. Routine Area Inspection

a. Inspection Scope (71111.05Q - 8 Samples)

The inspectors walked down accessible portions of fire areas described below to assess the licensee's control of transient combustible material and ignition sources, fire detection and suppression capabilities, and fire barriers and any related compensatory measures. The condition of fire detection devices, and readiness of sprinkler fire suppression systems and fire doors, were also inspected against industry standards. In addition, the fire protection features were inspected, including ventilation system fire dampers, structural steel fire proofing, and electrical penetration seals. Reference material reviewed for installed features included the Unit 1 final safety analysis report (FSAR) and the Unit 2 updated safety analysis report (USAR).

- Unit 1 Reactor Building (RB) 298 ft
- Unit 1 RB 281 ft
- Unit 1 RB 261 ft
- Unit 1 RB 237 ft
? Unit 2 RB 240 ft
? Unit 2 RB 289 ft
? Unit 2 RB 306 ft
? Unit 2 Diesel Fire Pump Room

b. Findings

No findings of significance were identified.

2. Annual Observation of a Fire Brigade Drill

a. Inspection Scope (71111.05A - 1 Sample)

The inspectors observed a fire brigade drill conducted on September 30, involving a simulated fire in the Unit 1 main transformer, and including participation by the Town of Scriba fire department. The drill scenario was incorporated into the emergency plan drill that was being conducted the same day. The inspectors evaluated the readiness of the brigade to prevent and fight fires by observing the following: protective clothing properly donned; self-contained breathing apparatus properly worn; fire hose lines properly laid out and capable of reaching all necessary fire hazard locations; fire area of concern approached in a controlled manner; sufficient firefighting equipment brought to the scene; fire brigade leaders' directions thorough, clear, and effective; and effective coordination with the off-site fire department.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

a. Inspection Scope (71111.07 - 1 Sample)

The inspectors completed one annual review sample by reviewing Unit 2 Division I and II EDG service water heat exchanger performance monitoring. Specifically, the inspectors reviewed jacket water cooling heat exchanger performance trending from January 2003 to the present, discussed performance trending and heat exchanger cleaning and inspection requirements with the EDG system engineer, discussed heat exchanger performance monitoring with the heat exchanger component engineer, and discussed biocide usage and effectiveness monitoring with the chemistry manager.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program

a. Inspection Scope (71111.11Q - 2 Samples and 71114.06 - 1 Sample)

The inspectors reviewed two licensed operator requalification training activities, one of which included procedure 71114.06, “Drill Evaluation,” simulator-based training evolution, to assess the licensee’s training program effectiveness. The inspectors observed both Unit 1 and Unit 2 licensed operator simulator training on August 24. The inspectors reviewed performance in the areas of procedure use, self- and peer-checking, completion of critical tasks, and training performance objectives. Following the simulator training, the inspectors reviewed simulator fidelity through a sampling process. During the Unit 1 training, the inspectors evaluated emergency response organization (ERO) performance regarding initial and subsequent actions by licensed operators.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope (71111.12Q - 2 Samples)

The inspectors reviewed the performance and condition history of two high safety significant systems, the Unit 1 feedwater/high pressure coolant injection (FW/HPCI) system and the Unit 2 high pressure core spray (HPCS) system, to identify degraded or declining system performance or conditions. Reviews focused on: (1) proper Maintenance Rule (MR) scoping in accordance with 10 CFR 50.65(2); (2) characterization of failed structures, systems, and components (SSCs) safety significance classifications; (3) 10 CFR 50.65 (a)(1) and (a)(2) classifications; and, (4) the appropriateness of performance criteria for SSCs classified as (a)(2). The inspectors reviewed the licensee’s system scoping documents, system health reports and corrective action program documents.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope (71111.13 - 7 Samples)

The inspectors reviewed seven risk assessments and emergent work activities during this inspection period. For selected maintenance, work items or work orders the inspectors evaluated: (1) the effectiveness of the risk assessments performed before the maintenance activities were conducted; (2) risk management control activities; (3) the necessary steps taken to plan and control resultant emergent work tasks; and, (4) the overall adequacy of identification and resolution of emergent work and the associated maintenance risk assessments. GAP-OPS-117, "Integrated Risk Management," was used for this review.

- EQ Splice repairs, reference DER NM-2004-3294 (Unit 1)
- EDG 103 Fuel Oil leak, reference DER NM-2004-3812 (Unit 1)
- Half-Scram testing, reference DER NM-2004-4297 (Unit 1)
? Failure of the Division II 120 VAC uninterruptable power supply UPS-2B that led to commencement of a TS-required shutdown, reference DER NM-2004-3414 (Unit 2)
? Performance of a Division III battery weekly surveillance while Division III was being treated as protected equipment due to the reactor core isolation cooling (RCIC) system being inoperable and unavailable, reference DER NM-2004-3424 (Unit 2)
? Reviewed the risk assessment for releasing the diesel fire pump for maintenance while the RCIC system was already inoperable. This was a potentially risk significant configuration, since these two pumps would be the only ones available during a station blackout event, reference DER NM-2004-3452 (Unit 2)
? A second failure of UPS-2B, reference DER NM-2004-4104 (Unit 2)

b. Findings

Introduction. A Green NCV of 10 CFR 50 Appendix B, Criterion XII, "Control of Measuring and Test Equipment," was identified when technicians used a voltmeter that had exceeded its calibration date to measure and adjust the output voltage of the Unit 2 Division III battery charger. As a result of the voltmeter functioning outside of acceptable tolerance, battery bus voltage was adjusted to less than the minimum required for HPCS system operability, while the RCIC system was also inoperable for other reasons.

Description. On August 2, the RCIC system was declared inoperable and unavailable due to an emergent equipment problem. As a result of the increased safety significance of the remaining emergency high pressure injection source, operators established the HPCS and supporting systems (Division III equipment) as protected equipment (not to be disturbed without permission from the Operations Department). Due to periodicity requirements specified by TS, operators granted permission to perform the weekly Division III battery surveillance the following day. In accordance with N2-ESP-BYS-W675, "125 Volts DC Weekly Battery Surveillance," technicians measured battery

terminal voltage with a voltmeter and found that the voltage was high (139 VDC) above the specified value of 134-135 VDC. The technicians adjusted the battery charger voltage to lower terminal voltage to 134.5 VDC.

When this action was taken, control room annunciator 852308, “Division III Bus BYS002C 125 VDC System Trouble,” alarmed and Division III battery voltage by control room indication dropped to 125 VDC. Operating procedure OP-74B, “HPCS 125 VDC System,” states that the system shall be considered inoperable at less than 130 VDC. TS 3.8.4 Action B requires that HPCS be declared inoperable if the Division III DC electrical power subsystem is inoperable. TS 3.5.1 Action D requires the plant to be in mode 3 (hot shutdown) within 12 hours if both HPCS and RCIC are inoperable.

Operators directed the technicians to raise the Division III battery charger voltage to restore bus voltage to greater than 130 VDC. The technicians obtained a different voltmeter and adjusted the battery charger to restore voltage to 134.8 VDC. The degraded voltage condition had existed for approximately 20 minutes. The voltmeter (a digital multi-meter) that had initially been used to measure battery terminal voltage was subsequently determined to have exceeded its calibration date, and found to have been functioning outside of acceptable tolerance.

Analysis. The performance deficiency associated with this event was that measuring and test equipment that had exceeded its calibration date was used to measure and adjust the output voltage of the Division III battery charger. As a result of the voltmeter functioning outside of acceptable tolerance, battery bus voltage was adjusted to less than the minimum required for HPCS system operability. The finding was greater than minor because it is associated with the pre-event human performance attribute and affects the Mitigating System Cornerstone objective of ensuring the availability, reliability, and capability of a system that responds to initiating events to prevent undesirable consequences. Additionally, the finding is greater than minor because if the use of out-of-calibration test equipment was not corrected it would become a more significant safety concern. The finding was determined to be of very low safety significance (Green) in accordance with Phase 1 of the Reactor Safety SDP because it was not a design or qualification deficiency that had been confirmed to result in a loss of function per Generic Letter 91-18 and the TS limiting condition for operations allowed outage time was not exceeded. A subsequent engineering evaluation demonstrated that the HPCS system remained available with the degraded bus voltage. The issue was entered NMP’s corrective action program as DER NM-2004-3424. Traditional enforcement does not apply because the issue did not have any actual safety consequences or potential for impacting the NRC’s regulatory function and was not the result of any willful violation of NRC requirements or NMPNS procedures. The use of an out-of-calibration voltmeter to perform maintenance on a safety-class system was an example of a cross-cutting issue in human performance.

Enforcement. 10 CFR 50, Appendix B, Criterion XII, “Control of Measuring and Test Equipment,” states, in part, that, “Measures shall be established to assure that . . . instruments and other test devices used in activities affecting quality are properly

controlled, calibrated, and adjusted at specified periods to maintain accuracy within necessary limits." Contrary to the above, on August 3, 2004, a digital multi-meter that had exceeded its specified calibration period, and which was functioning with accuracy that was less than the necessary limits, was used to measure and adjust the voltage of the Unit 2 safety class 1E Division III DC electrical system. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program (DER NM-2004-3424), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000410/2004004-02, Use of an Out-of-Calibration Voltmeter to Measure and Adjust Division III DC Voltage Rendered HPCS Inoperable.

1R14 Operator Performance During Non-routine Evolutions and Events

a. Inspection Scope (71111.14 - 2 Samples)

On July 27, an inadvertent single rod control rod scram occurred during routine surveillance at Unit 2. The inspectors evaluated the licensee's response by reviewing operating procedures and control room logs, and observing recovery actions. The cause was determined to be a blown fuse for the control rod solenoid. The fuse was replaced and the control rod was recovered. The licensee's corrective actions are documented on DER NM-2004-3321.

On August 30, at 8:35 a.m., Unit 1 operators inserted a manual reactor scram after experiencing a loss of control of the feedwater pump 13 flow control valve (FCV). All control rods fully inserted. The inspectors responded to the control room and observed the plant and operator's response to the event. The inspectors reviewed operating procedures, control room logs, and the licensee's post-transient report which provided an analysis of the event. Prior to the scram, the operators noted oscillations in the position of the 13 feedwater FCV and subsequently attempted to regain positive control of the valve by shifting feedwater control from automatic to manual. The valve position continued to oscillate in manual mode, and the operators inserted a manual scram. The plant was taken to cold shutdown at 8:36 p.m. on August 30. The cause of the FCV failure was attributed to a failed positioner and degraded actuator boosters. The licensee's CAs are documented in DER NM-2004-3920.

b. Findings

Introduction. A green NCV was identified for a procedural noncompliance while attempting to place the Unit 1 shutdown cooling system in operation. Specifically, the motor operator for shutdown cooling supply isolation valve IV-38-02 was jogged open twice within a ten minute period, contrary to the precautions given in N1-OP-4, "Shutdown Cooling System," resulting in failure of the motor operator.

Description. Following a reactor scram on August 30, 2004, the shutdown cooling system was put into service in accordance with N1-OP-4. Shutdown cooling supply outboard isolation valve IV-38-02 was to be opened per step E.3.4 to allow water to

circulate from the reactor through the shutdown cooling heat exchangers and back to the reactor vessel. The operator jogged the isolation valve open twice within ten minutes in an attempt to slowly open the valve and thereby minimize reactor water level changes while placing the system in service. The motor operator failed to open the valve when given a subsequent full open signal. Troubleshooting revealed that the motor had failed. The precautions and limitations section of N1-OP-4 states that jogging the motor may result in damage to the DC motor.

Analysis. The performance deficiency associated with this event was procedural noncompliance, which resulted in or contributed to failure of the valve's motor operator and the resultant loss of remote isolation capability for this containment isolation valve. The finding was greater than minor because it is associated with the Barrier Integrity Cornerstone attribute of containment barrier performance and affects the cornerstone objective of providing reasonable assurance that physical design barriers protect the` public from radionuclide releases caused by accidents or events. The finding was determined to be of very low safety significance (Green) using Phase 1 of the Reactor Safety SDP because it did not represent a degradation of the radiological barrier function provided for the control room, spent fuel pool, or standby gas treatment system, did not represent a degradation of the barrier function of the control room against smoke or a toxic atmosphere, and did not represent an actual open pathway in the physical integrity of reactor containment or involve an actual reduction in defense-in-depth for the atmospheric pressure control or hydrogen control functions of the reactor containment. Traditional enforcement does not apply because the issue did not have any actual safety consequences or potential for impacting the NRC's regulatory function and was not the result of any willful violation of NRC requirements or NMPNS procedures. The procedure violation involving operation of the SDC system supply isolation valve is an example of a cross-cutting issue in human performance.

Enforcement. TS 6.4, "Procedures," states, in part, that, "Written procedures . . . shall be established [and] implemented [that] cover . . . the applicable procedures recommended in Regulatory Guide 1.33, Appendix A, November 3, 1972 . . ." Regulatory Guide 1.33 (then Safety Guide 33), Appendix A, November 3, 1972, Item D, "Procedures for Startup, Operation, and Shutdown of Safety-Related BWR Systems," lists the shutdown cooling system as one of the applicable systems. Contrary to the above, Unit 1 Operating Procedure N1-OP-4, "Shutdown Cooling System," was not correctly implemented on August 30, 2004, in that the motor operator for valve IV-38-02 was jogged in attempting to open the valve, contrary to precaution 19.0, which states, in part, "Utilizing SB control switch to jog . . . [valve] 38-02 . . . may result in damage to the DC motor." Because this procedural noncompliance is of very low safety significance and has been entered into the corrective action program (DER NM-2004-3921), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000220/2004004-03, Procedural Noncompliance Resulted In Failure of Shutdown Cooling Isolation Valve IV-38-02 Motor Operator.

1R15 Operability Evaluations

a. Inspection Scope (71111.15 - 7 Samples)

The inspectors reviewed operability evaluations during this inspection period, which affected risk significant mitigating systems, assessing: (1) the technical adequacy of the evaluation, (2) whether other existing degraded systems adversely impacted the affected system or compensatory measures, and, (3) where compensatory measures were used, whether the measures were appropriate and properly controlled, and that the degraded systems remained operable. S-ODP-OPS-0116, "Operability Determinations," was used for this review. Operability evaluations associated with the following DERs were reviewed:

? DER NM-2004-2962, Battery 14B has 13 cells with low individual cell voltages and specific gravities (Unit 1)
? DER NM-2004-3294, Instrument operability with unqualified EQ splices (Unit 1)
? DER NM-2004-3606, HPCI operability with hotwell volume concerns (Unit 1)
• DER NM-2004-3812, Air in EDG 103 fuel oil return sight glass (Unit 1)
• DER NM-2004-4395, SDC pump seal leakage (Unit 1)
? General Electric Part 21 Notification, Narrow Range Water Level Instrument Level 3 Trip (Unit 2)
? DER NM-2004-4126, 2HVC*ACU1B [Division II, "Control Room Envelope Filtration System (CREF)"] tripped on low air flow following chiller maintenance (Unit 2)

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

a. Inspection Scope (71111.17 - 1 Sample)

The inspectors reviewed one risk-significant plant modification package from Unit 2, Design Change N2-04-167, "Reactor Protection System (RPS) test box." The inspectors reviewed the design inputs and assumptions to determine the design adequacy. The inspectors also reviewed DERs that were issued during the installation to confirm that problems associated with the installation were adequately resolved. In addition, the inspectors reviewed the post-modification testing and functional testing records to determine readiness for operation. Finally, the inspectors reviewed the affected procedures, drawings, design basis documents, and USAR sections to verify that the affected documents were appropriately updated. For the accessible components associated with the modifications, the inspectors also walked-down the systems to detect possible abnormal installation conditions.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope (71111.19 - 6 Samples)

The inspectors reviewed post-maintenance testing (PMT) procedures and associated testing activities for six selected risk significant mitigating systems assessing whether: (1) the effect of testing on the plant had been adequately addressed by control room and engineering personnel; (2) testing was adequate for the maintenance performed; (3) acceptance criteria were clear and adequately demonstrated operational readiness, consistent with the design and licensing basis documents; (4) test instrumentation had current calibrations, range, and accuracy for the application; (5) tests were performed, as written, with applicable prerequisites satisfied; (6) jumpers installed or leads lifted were properly controlled; and, (7) test equipment was removed following testing and equipment was returned to the status required to perform its safety function. The following PMT activities were reviewed:

- N1-ST-Q6D, “Containment Spray System Loop 122 Quarterly Operability Test,” performed as PMT after planned maintenance and heat exchanger modifications (Unit 1)
- ? N1-ST-Q1A, “CS 111 Pump, Valve, and Shutdown Cooling Water Seal Check Valve Operability Test,” performed as PMT after electrical breaker planned maintenance (Unit 1)
- ? N1-ST-V5, “Secondary Containment Doors, RB Ventilation Isolation Valves, and Penetration Post-Maintenance Test,” performed as PMT for seal replacement on the RB Peele [truck bay] door (Unit 1)
- ? N2-OP-31, “RHR System,” operation of the B-RHR pump in suppression pool cooling mode, performed as PMT for pump motor breaker rack-down to support off-line motor testing (Unit 2)
- ? N2-OP-61B, “Standby GTS,” operation of the Division I GTS system, performed as PMT following maintenance on 2GTS*PV5A to correct continued porting of air from the valve operator while the GTS train was secured (Unit 2)
- ? N2-OSP-HVC-R001, “Control Room Outside Air Special Filter Train Functional Test,” and N2-OSP-HVC-M001, “CREF System,” that were performed as PMT following corrective maintenance on the control room air conditioning unit 1B low flow shutdown function and implementation of Design Change Package N2-04-189, “Change flow setpoint for 2HVC*FS9B and 2HVC*FS23B” (Unit 2)

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope (71111.22 - 5 Samples)

The inspectors witnessed performance of surveillance test procedures and reviewed test data of selected risk significant structures, systems, and components (SSCs) to assess whether the testing satisfied TS, FSAR/USAR, and licensee procedure requirements, and to determine if the testing appropriately demonstrated that the SSC's were operationally ready and capable of performing their intended safety functions. The following surveillance tests were reviewed:

- N1-ISP-036-003, Hi/Lo Reactor Water Level Instrument Trip Channel Test/ Calibration (Unit 1)
- N1-ST-Q8A, Liquid Poison Pump 11 and Check Valve Operability Test (Unit 1)
- N1-ST-Q26, Feedwater and Main Steam Line Power Operated Isolation Valves Partial Exercise Test and Associated Functional Testing of Reactor (Unit 1)
- ? N2-OSP-ICS-Q@002, RCIC Pump and Valve Operability Test and System Integrity Test and ASME XI Functional Test (Unit 2)
- ? N2-OSP-EGS-M@001, Diesel Generator and Diesel Air Start Valve Operability Test - Division I and II (Unit 2)

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope (71111.23 - 1 Sample)

The inspectors reviewed Unit 1 temporary modification N1-04-180, which installed temporary air conditioning for West Instrument Room. The cooling unit for that area had been taken out of service to replace associated service water system piping. The instrument room contains pressure and level instruments which are inputs to the RPS and reactor level control systems. The inspectors reviewed this temporary plant modification to determine whether the temporary change adversely affected system or support system availability, or adversely affected a function important to plant safety. The inspectors reviewed the associated system design bases, including the FSAR and TS, and assessed the adequacy of the safety determination screening and evaluation. The inspectors also assessed configuration control of the temporary change by reviewing selected drawings and procedures to verify whether appropriate updates had been made. The inspectors compared the actual installation to the temporary modification documents to determine whether the implemented change was consistent with the approved documented modification. The inspectors reviewed the post-installation test results to verify whether the actual impact of the temporary change had been adequately demonstrated by the test.

Enclosure

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Testing

a. Inspection Scope (71114.02 - 1 Sample)

An onsite review of the licensee's Public Notification System (PNS) was conducted to ensure prompt notification of the public for taking protective actions. The inspection included a review of Procedure EPMP-EPP-08, "Maintenance, Testing and Operation of the Oswego PNS," Rev. 12. In addition, the inspectors interviewed the siren program manager and reviewed 2003/2004 test records and associated Deviation/Event Reports (DERs) to determine if test failures were being immediately assessed and repaired and sirens were being routinely maintained. The inspectors also visited the Oswego County Emergency Management Office (OCEMO) to observe a biweekly siren activation test and to discuss the licencee's Tone Alert Public Radio Program which is maintained by OCEMO for Nine Mile Point. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 02, and the applicable planning standard, 10 CFR 50.47(b)(5) and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization Augmentation

a. Inspection Scope (71114.03 - 1 Sample)

An onsite review of Nine Mile Point's ERO augmentation staffing requirements and the process for notifying the ERO was conducted to ensure the readiness of key staff for responding to an event and timely facility activation. The inspection included a review of the following procedures: (1) EPIP-EPP-20, "Emergency Notifications," Rev. 17; (2) NTP-TQS-202, "EP Training and Qualification Program," Rev. 21; and (3) EPMP-EPP-06, "ERO Notification Maintenance and Surveillance," Rev. 12. The inspectors reviewed the 2003/2004 communication pager test records and associated DERs. Various lesson plans were reviewed for determining if the training was sufficient for ERO personnel to understand their duties as emergency responders. Finally, the emergency plan qualification records for key ERO positions were reviewed to ensure qualifications were current. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 03, and the applicable planning standard, 10 CFR 50.47(b)(2) and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

Enclosure

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope (71114.04 - 1 Sample)

A regional in-office review was conducted of licensee-submitted revisions to the emergency plan, implementing procedures and emergency action levels (EALs) which were received by the NRC during the period of February through June 2004. A thorough review was conducted of plan aspects related to the risk significant planning standards (RSPS), such as classifications, notifications and protective action recommendations. A cursory review was conducted for non-RSPS portions. During the inspection, the inspectors evaluated the associated 10 CFR 50.54(q) reviews for Plan Revisions 48 and 49 to determine if the changes had decreased the effectiveness of the plan. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 04, and the applicable requirements in 10 CFR 50.54(q) were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies

a. Inspection Scope (71114.05 - 1 Sample)

The inspectors reviewed CAs pertaining to findings from 2003/2004 EP drill/exercise reports and the associated DERs to determine the significance of the issues and to determine if repeat problems were occurring. Interviews were conducted with the EP Director to understand repetitive issues found in exercise reports and to ensure the EP staff is aggressively pursuing actions that will keep these issues from recurring in future drills/exercises. A list of DERs is contained in the attachment to this report. Also, the 2003/2004 quality assurance audit reports were reviewed to assess Nine Mile Point's ability to identify issues, assess repetitive issues, and the effectiveness of CAs through their independent audit process. This inspection was conducted according to NRC Inspection Procedure 71114, Attachment 05, and the applicable planning standard, 10 CFR 50.47(b)(14) and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation

a. Inspection Scope (71114.06 - 1 Sample)

On September 30, the licensee conducted an EP drill. The inspectors reviewed the drill scenario, applicable emergency plan implementing procedures (EPIPs), and EALs. The inspectors observed licensee performance during the drill including event classification, offsite authority notification, and dose assessment activities. Mitigation strategies and communications were observed. The inspectors noted that EP equipment and facilities were satisfactorily maintained in the TSC, OSC, and emergency operations facility.

The inspectors observed the post-exercise critique and also determined that the drill was appropriate in scope to be included in the EP performance indicator (PI) statistics. The site drill report and associated DERs which were generated were reviewed. Overall drill performance was reviewed against criteria contained in the Site Emergency Plan.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control To Radiologically Significant Areas

a. Inspection Scope (71121.01 - 6 Samples)

The inspectors reviewed all licensee PIs for the Occupational Exposure Cornerstone for follow-up.

The inspectors reviewed licensee documentation packages for all PI events occurring since the last inspection. The inspectors determined that none of these PI events involved dose rates >25 R/hr at 30 centimeters or >500 R/hr at 1 meter. For unintended exposures >100 mrem total effective dose equivalent (TEDE) (or >5 rem skin dose equivalent (SDE) or >1.5 rem lens dose equivalent (LDE)), the inspectors determined that there were no overexposures or substantial potential for overexposure.

The inspectors selected jobs being performed in radiation areas, airborne radioactivity areas, or high radiation areas (<1 R/hr) for observation. The inspectors reviewed radiological job requirements, radiation work permit (RWP) requirements and work procedure requirements, observed job performance with respect to these requirements, and determined that radiological conditions in the work area were adequately communicated to workers through briefings and postings.

During job performance observations, the inspectors verified the adequacy of radiological controls, such as: required surveys (including system breach radiation, contamination, and airborne surveys); radiation protection job coverage (including audio and visual surveillance for remote job coverage); and, contamination controls.

For high radiation work areas with significant dose rate gradients (factor of 5 or more), the inspectors reviewed the application of dosimetry to effectively monitor exposure to personnel and verified licensee controls were adequate.

The inspectors verified adequate posting and locking of entrances to high dose rate High Radiation Areas (HRA) and Very High Radiation Areas (VHRA).

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls

a. Inspection Scope (71121-02 - 1 Sample)

The inspectors determined if there have been any declared pregnant workers during the current assessment period, and reviewed the exposure results and monitoring controls employed by the licensee with respect to requirements of 10 CFR 20.

The inspectors reviewed licensee “as low as is reasonably achievable” (ALARA) performance during the 2004 Unit 2 refueling outage. The inspection review criteria utilized for this inspection area was with respect to the ALARA requirements in 10 CFR 20.1101(b).

b. Findings

1. Refuel Floor Work Activities Exceeded ALARA Goal

Introduction. A self-revealing finding having very low safety significance (Green) was identified. During the 2004 Unit 2 refueling outage (2RF09), refueling floor work activities resulted in a collective exposure of 42.9 person-rem against an estimate for the work activities of 24.8 person-rem. The performance deficiency that resulted in the exposure overrun was due to multiple equipment problems and failure of management to stop and reassess work when dose goals were exceeded.

Description. During 2RF09, the refueling floor work exceeded its collective dose estimate by 73 percent. The performance deficiencies identified in the licensee’s ALARA post-job review indicated equipment problems during underwater ultrasonic inspection of the jet pump risers, failure of two of the five reactor head stud tensioners to properly work on multiple occasions, malfunctioning of the refueling bridge on a number of occasions during core offload and reload, and lack of established management stop work and/or

work reassessment criteria based on collective radiation exposures exceeding their goal. While work area dose rates were as expected for ALARA planning purposes, equipment failures led to a significant increase in the number of hours worked on the refueling floor during 2RF09 (12979 hours planned vs. 21825 hours actual). The licensee has documented this issue in DER-NM-2004-2709.

Analysis. The occupational radiation safety significance determination defines a performance deficiency as one in which the licensee fails to meet a standard and the cause was reasonably within the licensee's ability to foresee or correct. The equipment failures experienced during 2RF09 caused an ALARA standard not to be met and could have been averted if appropriate pre-outage testing and maintenance had been accomplished. Exposures could have been reduced if management had reviewed the work in progress once it exceeded its established dose goal and implemented additional dose mitigation techniques. The finding is associated with the ALARA planning attribute of the radiation safety cornerstone, and affects the objective of providing adequate protection of the worker from exposure to radiation. Nine Mile Point's three year rolling average annual collective exposure (2001-2003) is 205 person-rem, which is below the SDP criteria of 240 person-rem for Boiling Water Reactors (BWRs), therefore, this finding is of very low safety significance.

Enforcement. The ALARA rule contained in 10 CFR 20.1101(b) Statements of Consideration indicates that compliance with the ALARA requirement will be judged on whether the licensee has incorporated measures to track and, if necessary, to reduce exposures and not whether exposures and doses represent an absolute minimum or whether the licensee has used all possible methods to reduce exposures. The overall exposure performance of the nuclear power plant is used to determine compliance with the ALARA rule. Since Nine Mile Point is below the three-year rolling average annual collective exposure of 240 person-rem, no violation of 10CFR20.1101(b) has occurred. FIN 05000220/2004004-04, Refuel Floor Work Activities during 2RFO9 Exceeded ALARA Goal.

2. Anchor Darling Valve Modification Work Activities Exceeded ALARA Goal

Introduction. A self-revealing finding having very low safety significance (Green) was identified. During 2RF09, drywell Anchor Darling valve modification work activities resulted in collective exposures of 21.9 person-rem against a 10.2 person-rem estimate for the work activities. The performance deficiency that resulted in the exposure overrun was due to poor vendor supplied materials, poor workmanship during the valve modifications, and management's failure to reassess the work once the exposure goal had been exceeded.

Description. During 2RF09, the Anchor Darling valve modification work exceeded its collective dose estimate by 115 percent. The performance deficiencies identified in the licensee's ALARA post-job review indicated poor workmanship in conducting repairs resulting in rework on two of the valves, poor vendor supplied parts on two valves, and lack of established management stop work and/or work reassessment criteria based on

collective radiation exposures exceeding their goal. While work area effective dose rates were above that used for estimating this work activity (15.1 mrem per hour vs. 13.8 mrem per hour), the most significant increase was found in the number of hours required to complete the work (1505 hours vs. 726 hours) due to the workmanship problems onsite and by the valve vendor. The licensee has documented this issue in DER-NM-2004-2708.

Analysis. The occupational radiation safety significance determination defines a performance deficiency as one in which the licensee fails to meet a standard and the cause was reasonably within the licensee's ability to foresee or correct. The valve modification problems experienced during 2RF09 caused an ALARA standard not to be met and could have been averted if appropriate pre-outage inspection of vendor parts had been conducted; if onsite workmanship did not lead to rework; and, exposures could have been reduced if management had reviewed the work in progress once it exceeded its established dose goal and implemented additional dose mitigation techniques. The finding is associated with the ALARA planning attribute of the radiation safety cornerstone, and affects the objective of providing adequate protection of the worker from exposure to radiation. Nine Mile Point's three year rolling average annual collective exposure (2001-2003) is 205 person-rem, which is below the SDP criteria of 240 person-rem for Boiling Water Reactors (BWRs), therefore, this finding is of very low safety significance.

Enforcement. The ALARA rule contained in 10 CFR 20.1101(b) Statements of Consideration indicates that compliance with the ALARA requirement will be judged on whether the licensee has incorporated measures to track and, if necessary, to reduce exposures and not whether exposures and doses represent an absolute minimum or whether the licensee has used all possible methods to reduce exposures. The overall exposure performance of the nuclear power plant is used to determine compliance with the ALARA rule. Since Nine Mile Point is below the three-year rolling average annual collective exposure of 240 person-rem, no violation of 10CFR20.1101(b) has occurred. FIN 05000220/2004004-05, Anchor Darling Valve Modification Work Activities During 2RFO9 Exceeded ALARA Goal.

2OS3 Radiation Monitoring Instrumentation and Protective Equipment

a. Inspection Scope (71121.03 - 1 Sample)

The inspectors reviewed the plant FSAR to identify applicable radiation monitors associated with transient high and VHRAs including those used in remote emergency assessment.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

1. Emergency Preparedness Cornerstone

a. Inspection Scope (71151 - 3 Samples)

The inspectors reviewed the licensee's procedure for developing the data for the EP PIs which are: (1) Drill and Exercise Performance (DEP); (2) ERO Drill Participation; and (3) Alert and Notification System (ANS) reliability. The inspectors reviewed documentation from drills in 2003 and 2004, and ANS testing results to verify the accuracy of the reported data. Data generated since the October 2003 EP PI verification was reviewed during this inspection. The review of these PIs was conducted in accordance with NRC Inspection Procedure 71151. The acceptance criteria used for the review were 10 CFR 50.9 and NEI 99-02, Revision 2, Regulatory Assessment PI Guidelines.

b. Findings

No findings of significance were identified.

2. Occupational Radiation Safety Cornerstone

a. Inspection Scope (71151 - 2 Samples)

The inspectors reviewed all licensee PIs for the Occupational Exposure Cornerstone for follow-up. The inspectors reviewed a listing of deviation/event reports for the period January 1, 2004 through September 20, 2004 for issues related to the occupational radiation safety PI, which measures non-conformances with high radiation areas greater than 1R/hr and unplanned personnel exposures greater than 100 mrem TEDE, 5 rem SDE, 1.5 rem LDE, or 100 mrem to the unborn child.

The inspectors determined if any of these PI events involved dose rates >25 R/hr at 30 centimeters or >500 R/hr at 1 meter. The inspectors determined what barriers had failed and if there were any barriers left to prevent personnel access. For unintended exposures >100 mrem TEDE (or >5 rem SDE or >1.5 rem LDE), the inspectors determined if there were any overexposures or substantial potential for overexposure.

b. Findings

No findings of significance were identified.

3. Public Radiation Safety Cornerstone

a. Inspection Scope (71151 - 1 Sample)

The inspectors reviewed a listing of deviation/event reports for the period January 1, 2004 through September 20, 2004 for issues related to the public radiation safety PI, which measures radiological effluent release occurrences per site that exceed 1.5 mrem/qtr whole body or 5 mrem/qtr organ dose for liquid effluents; or 5 mrads/qtr gamma air dose, 10 mrads/qtr beta air dose; or 7.5 mrems/qtr organ doses from I-131, I-133, H-3 and particulates for gaseous effluents.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

1. Selected Issue Follow-up Inspection - Environmental Qualification (EQ) of Unit 1 Cable Splices, DER NM-2004-2694

a. Inspection Scope (71152 - 4 Samples)

DER NM-2004-2694 documented EQ deficiencies for Okonite splices in the control circuitry of two EQ solenoid-operated valves (SOVs), SOV-39-11C and -12C. The deficient conditions included: tape over wire braiding; bolting hardware protruding through T-95 tape and insufficient T-95 fill; Okonite 35 tape not tightly adhered to and not entirely covering T-95 tape; no interweaving tape between wires; incorrect lug size; and field wires bend beyond minimum bending radius. The deficient splices were replaced with qualified ones and an engineering support analysis (ESA) was completed to justify that the existing splices, though not qualified, were operable, using test results of a Wyle EQ test report (Report No. 17947-01) from Farley Nuclear Generating Station and several other test reports, plus engineering reasoning. The inspectors reviewed the ESA to determine whether the justifications were based on sound engineering principles and the assumptions used were validated. The inspectors also reviewed the EQ file of the Okonite cable splices and the associated EQ test reports to determine whether there were any test anomalies that could affect qualification. The inspectors also observed the deficient condition of a dissected splice that was removed from the cable.

The inspectors noted that from December 2002 to June 2004, the licensee had inspected the cable splices of nine solenoid-operated valves and found that all cable splices were not environmentally qualified. The deficient conditions varied in each case and were documented in three other DERs, NM-2002-5180, NM-2003-1583, NM-2003-1846, and DER NM-2004-2694, which was discussed above. The deficient splices for the other seven SOVs were all replaced with qualified ones and ESAs were also completed to justify that the existing splices were operable.

The inspectors reviewed the CAs associated with these DERs to determine the adequacy and timeliness of licensee CAs.

b. Findings

1. Okonite Cable Splices on Rosemount Transmitters

Introduction. A Green NCV was identified for the licensee failing to promptly identify and correct the unqualified (i.e., environmental qualification has not been demonstrated) Okonite cable splices, which require environmental qualification, for five Rosemount transmitters and two solenoid-operated valves, from December 2002 to July 2004 when the licensee had numerous opportunities to correct the deficient conditions.

Description. The licensee completed a list of devices (SOV, transmitters, and motor operated valves) that could contain unqualified Okonite cable splices. The list showed that there were about 60 such devices outside the drywell. No devices inside the drywell were listed.

During the 18 months from December 2002 to June 2004, the licensee only completed the cable splice inspection of nine SOVs. All cable splices were found unqualified. The inspectors noted that many of the inspected splices were for fail-safe SOVs, therefore, the inspectors questioned the licensee whether the priority for the selected splices for inspection was based on risk. There were two planned outages during this 18-month period and most of the listed devices could be inspected during power operation. The inspectors determined that the licensee's actions before July 2004 for identifying and replacing the unqualified cable splices were untimely. In addition, the NRC had issued a Notice of Violation in 1989 (50-220/89-17-01) citing the same type of cable splices for a SOV and a Rosemount transmitter as not being qualified.

After the inspectors' first week of inspection in July 2004, the licensee's pace in identifying and correcting deficient EQ cable splices improved significantly. From late July to early August 2004, the licensee inspected the cable splices for 10 Rosemount transmitters and five SOVs, and found that many of the inspected cable splices (associated with five Rosemount transmitters and two SOVs) were not environmentally qualified, as documented in DERs NM-2004-3320, -3294, -3312, and -3357. The licensee replaced the unqualified cable splices and completed several ESAs to justify that the unqualified splices were operable (i.e., insignificant leakage currents when subject to accident environment). In addition, the licensee designated a multi-discipline High Impact Team to deal with this unqualified cable splice issue and planned to fully qualify all cable splices by August 2005.

Analysis. The inspectors determined that the untimely CAs to promptly identify and replace multiple unqualified Okonite cable splices before July 2004 were more than minor because they were associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of equipment reliability. The issue was a qualification deficiency that the licensee had evaluated in accordance

with Generic Letter 91-18, and was determined to be of very low safety significance (Green) because the unqualified cable splices were determined to be operable.

Enforcement. 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," states, in part, that, "Measures shall be established to assure that conditions adverse to quality, such as . . . deficiencies . . . defective material and equipments, and nonconformances are promptly identified and corrected." Contrary to the above, before July 2004, the licensee failed to promptly identify and correct the deficient (unqualified) Okonite cable splices, which require environmental qualification, of five Rosemount transmitters and two solenoid-operated valves. Because this finding is of very low safety significance and the deficient cable splices have been replaced, this violation is being treated as an NCV, consistent with Section V1.A of the Enforcement Policy: NCV 05000220/2004004-06, Failure to Promptly Identify and Correct Deficient (Unqualified) Okonite Cable Splices.

2. Okonite Splices in the Drywell

In response to the inspectors question whether there were any Okonite cable splices requiring EQ inside the drywell, the licensee initially stated that they did not believe so. Further review by the licensee indicated that there might be Okonite splices in the control circuits of four motor-operated valves. In September 2004, after various reviews of electrical drawings and other documents, the licensee informed the inspectors that there were 123 devices inside the drywell that could contain cable splices. During the three-day unplanned outage starting August 30, 2004, when the inspectors were on-site, the licensee had tried but was unsuccessful due to insufficient time to inspect the cable splices associated with three Fenwel temperature switches inside the drywell. The licensee stated they would conduct some inspections inside the drywell during the next planned outage. Currently, the licensee does not have information to confirm the presence of Okonite splices inside the Drywell. The licensee was able to show that for similar deficient conditions that were identified outside the Drywell, for unqualified Okonite cable splices, there were documents available to justify the operability of the unqualified cable. This item (Okonite cable splices inside drywell) is unresolved pending NRC's review of the licensee's inspection results and subsequent CAs. (URI 05000220/2004-004-07)

A licensee identified NCV for multiple unqualified Okonite splices are documented in Section 4OA7.

2. Selected Issue Follow-up Inspection - Deficient Installation Procedure for Unit 1 EQ Cable Splices, DER NM-2003-2708

a. Inspection Scope

DER NM-2003-2708 documented the deficiencies in Unit 1 cable splice installation procedure N1-EMP-GEN-003, "Insulating Medium and Low Voltage Power Connections Control and Instrumentation Cables," Revision 1. The procedure did not distinguish the

requirements for EQ Okonite tape splices from those for non-EQ tape splices. Also it did not prohibit Okonite splices being used in instrumentation circuits (4-20 ma signal) application for which the splices had not been environmentally qualified. The deficient procedure was subsequently revised (revision 2) to correct the deficiencies. The inspectors reviewed the revised procedure to confirm that the EQ requirements were incorporated into the procedure.

b. Findings

A licensee identified NCV for inadequate procedure for EQ Okonite splices is documented in Section 4OA7.

3. Selected Issue Follow-up Inspection - Environmental Qualification of Unit 2 Safety Relief Valve (SRV) Acoustic Monitors, DER NM-2004-1151

a. Inspection Scope

DERs NM-2004-1151 and NM-2004-1370 documented the EQ deficiencies of the 18 accelerometers (no RTV sealant on the Endevco hardline cable/accelerometer junction) of Unit 2 SRV acoustic monitors. These acoustic monitors were required for post accident monitoring and required EQ per 10 CFR 50.49.b.3. The accelerometers were environmentally qualified in 1981 by Technology for Energy Corporation (TEC) in Knoxville, Tennessee. The EQ test process for this equipment was rather ambiguous. During the EQ test, TEC applies RTV 738 sealant, which had not been previously qualified, on the Endevco hardline cable/accelerometer junction. The RTV sealant was later removed (to measure insulation resistance) and new sealant was applied during the later part of the test. Because no one set of RTV 738 sealant went through the whole testing process, including aging, qualification of the sealant was questionable. In addition, the EQ report and the installation procedure did not mention the RTV sealant requirement. This resulted in many utilities installing the accelerometers without the RTV sealant. TEC issued a preliminary 10 CFR 21 report in 1999, and later retested several sets of acoustic monitors, one with RTV 738 sealant, and one without. The one with the sealant passed the EQ test and the one without the sealant did not.

The licensee identified the deficient condition when responding to an operation experience (OE 17872) in which another utility identified the lack of RTV sealant problem in their acoustic monitor accelerometers in January 2004. Following the identification of the problem in March 2004, the licensee applied RTV 738 sealant to the hardline cable/accelerometers junction to conform to the qualified configuration. The licensee completed an operability determination and concluded that the existing accelerometers were not qualified and inoperable. However, there were other indications in the control room that the operators could use during a postulated accident condition.

The inspectors reviewed engineering service request 03-01547 dated June 13, 2003, which documented maintenance personnel's identification that the existing accelerometers at Unit 2 were installed without the required RTV sealant; and Nuclear

Utility Group for Environmental Qualification position paper in earlier 2000 which indicated that RTV sealant was required for the EQ of the accelerometers. In addition, the inspectors also reviewed other evidence: Indian Point Unit 2 had issued a licensee event report, 1999-004, in 1999, and Susquehanna also issued OE 10079 on April 25, 1999; both documents stated that the TEC accelerometers were not qualified because of lack of RTV sealant. Therefore, despite the ambiguity of the accelerometer qualification process, there was sufficient evidence that the licensee should have known before March 2004 that the 18 accelerometers were not environmentally qualified.

The inspectors also reviewed the drawing showing the installed configuration of Unit 1 SRV accelerometers which used Raychem splices and confirmed that the deficient condition did not apply to Unit 1.

b. Findings

A licensee identified NCV for failure to demonstrate the EQ of the 18 accelerometers of the SRV acoustic monitors is documented in Section 4OA7.

4. Selected Issue Follow-up Inspection - Environmental Qualification Program DER NM-2002-4482

a. Inspection Scope

DER NM-2002-4482 identified various weaknesses in the Nine Mile Point EQ program, including weaknesses in: EQ configuration control; EQ design basis; and EQ documentation. The licensee designated a project manager to resolve these programmatic weaknesses. This DER was still open at the time of this inspection. The project was initially scheduled for completion in January 2005 and was later extended the completion date to September 2006 because of the addition of four more CAs. This completion-date extension was discussed in another DER (NM-2004-2572) and was determined to be acceptable by the Quality Assurance department. The inspectors reviewed the CAs associated with this DER report to determine their impact on NRC regulatory requirements.

b. Findings

No findings of significance were identified.

5. Public Radiation Safety

a. Inspection Scope

The inspectors selected issues associated with occupational radiation safety performance during 2004 which were identified in the licensee's corrective action program for detailed review. The inspectors met with the plant radiation protection manager to discuss these reports. The review focused on assurance that the full extent

of the issues was identified, that an appropriate evaluation was performed, and that appropriate CAs were specified and prioritized.

b. Findings

No findings of significance were identified.

6. Corrective Action Review by Resident Inspectors

a. Inspection Scope

As required 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 the Nine Mile Point corrective action program. This review was accomplished by reviewing paper copies of each DER, attending daily screening meetings and assessing Nine Mile Point’s computerized database.

b. Findings

No findings of significance were identified.

7. Occupational Radiation Safety

a. Inspection Scope (71152 - 4 Samples)

The inspectors reviewed deviation/event reports (DERs) related to access controls. Included in this review were high radiation area radiological incidents (non-PIs, identified by the licensee) in high radiation areas <1R/hr that have occurred since the last inspection in this area.

For repetitive deficiencies or significant individual deficiencies in PI&R identified above, the inspectors determined that the licensee’s self-assessment activities were also identifying and addressing these deficiencies.

The inspectors reviewed DERs since the last inspection which found that the causes of the events were due to radiation worker errors. The inspectors determined that there was no observable pattern traceable to a similar cause, and determined that this perspective matches the corrective action approach taken by the licensee to resolve the reported problems.

The inspectors reviewed DERs since the last inspection which found that the causes of the events were due to radiation protection technician errors. The inspectors determined that there was no observable pattern traceable to a similar cause, and determined that this perspective matches the corrective action approach taken by the licensee to resolve the reported problems.

b. Findings

No findings of significance were identified.

8. Cross-References to PI&R Findings Documented Elsewhere

- Section 1R04 describes a cross-cutting issue in problem identification and resolution. Specifically, actions to complete maintenance on the TSC emergency power supply were not timely and compensatory measures were not established in the interim.

- Section 4OA2.1 describes a cross-cutting issue in problem identification and resolution. Specifically, the licensee failed to promptly identify and correct deficient Okonite cable splices at Unit 1.

- Section 4OA5.1 describes that the licensee had identified that some of the causes contributing to the NMPNS's scrams and scram precursors and NMPNS's failure to evaluate the recurring trend of Unit 2 unplanned scrams at a precursor level was in the cross cutting areas of problem identification and resolution.

4OA4 Cross-Cutting Aspects of Findings

- Section 1R13 describes a cross-cutting issue in the area of human performance. Specifically, an out-of-calibration voltmeter was used to perform maintenance on the Unit 2 high pressure core spray system, which resulted in the system being rendered inoperable.

- Section 1R14 describes a cross-cutting issue in the area of human performance. Specifically, a procedure violation involving operation of the Unit 1 shutdown cooling system caused failure of an isolation valve's motor operator and resultant loss of remote isolation capability.

- Sections 4OA5.1 and 4OA5.2 describe a cross cutting issue in the area of human performance. Specifically, the licensee had identified that some of the causes contributing to NMPNS's scrams and scram precursors and NMPNS's failure to evaluate the recurring trend of Unit 2 unplanned scrams at a precursor level were in the cross cutting area of human performance.

4OA5 Other Activities

1. (Closed) URI 05000410/2004006-01: Adequacy of the Cause Evaluation to Address the Recurring Unit 2 White Unplanned Scrams Performance Indicator (PI).

a. Inspection Scope

During the supplemental inspection (NRC Inspection Report (IR) 05000410/2004006, dated April 30, 2004), the inspector identified an unresolved item regarding the adequacy of the evaluation of the causes for the Unit 2 unplanned scram PI crossing the Green-White threshold in the third quarter of 2003. Specifically, the inspector determined that the cause evaluation did not: (1) fully develop the human performance evaluation; (2) thoroughly evaluate why the recurring trend of Unit 2 unplanned scrams was not identified for evaluation at a precursor level; (3) thoroughly evaluate why the 2002 corrective actions were untimely and ineffective to prevent recurrence of the adverse trend of the Unit 2 unplanned reactor scrams PI; and, (4) thoroughly evaluate the identified causes collectively for indications of higher level problems. NMPNS initiated a new DER (NM-2004-1160) to re-evaluate the causes and corrective actions associated with the Unit 2 White Scram PI. From September 20 to 24, 2004, the inspector reviewed DER NM-2004-1160 and the additional documents listed in the Attachment to this report.

b. Findings

Introduction. NMPNS's causal evaluation of station scrams and scram precursors appropriately evaluated human performance and the failure to evaluate the recurring trend of Unit 2 unplanned scrams at a precursor level. These causes were related to the problem identification and resolution (PI&R) and human performance cross cutting areas. NMPNS's reevaluation of the adverse trend of the Unit 2 unplanned reactor scrams PI was appropriately thorough in scope and extent to identify the causes contributing to the corrective actions that were untimely and ineffective to prevent recurrence of the adverse trend of the Unit 2 unplanned reactor scrams PI. Therefore, this item is closed. FIN 05000410/2004004-08, NMPNS Adequately Addressed the Cause Evaluation Attributes of IP 95001.

Description. During review of DER NM-2004-1160, the inspector noted that the DER disposition confirmed the five predominate causes previously identified and documented in NRC IR 2004-006 and identified the following five new causes requiring corrective action: (1) inappropriate culture for organizational response to scrams and scram precursors; (2) inability to identify and correct human performance deficiencies that result in scrams or scram precursors; (3) inappropriate focus on fixing existing malfunctions vice long term reliability; (4) acceptance of low level material problems, including workarounds; and, (5) troubleshooting activities that were not systematic or thorough. The inspector determined that these causes were related to the problem identification and resolution (PI&R) and human performance cross cutting areas.

The inspector also noted that the DER NM-2004-1160 disposition evaluated the unacceptable performance that was experienced in 2001 and that led to the recurrence of the adverse PI trend of Unit 2 unplanned reactor scrams. Two new causes were identified related to ineffective organizational review, monitoring and follow-up action of: (1) specification of proposed corrective actions and closure of actual corrective actions; and, (2) scram precursors. Specifically, the organization did not require actions to

correct or prevent causes, but accepted corrective actions based on the initiation programs and plans; and the organization allowed corrective action items to be closed without the intent of the action being met. The extent of cause review appeared to review the applicability of the causes across departments, disciplines and site-wide programmatic activities and procedures.

2. (Closed) URI 05000410/2004006-02: Adequacy of the Corrective Actions to Address the Recurring Unit 2 White Unplanned Scrams Performance Indicator (PI).

a. Inspection Scope

During the supplemental inspection (NRC Inspection Report 05000410/2004006, dated April 30, 2004), the inspector identified an unresolved item regarding the adequacy of the corrective actions for the causes for the Unit 2 unplanned scram PI crossing the Green-White threshold in the third quarter of 2003. Specifically, the inspector concluded that the corrective actions were not fully developed or implemented and the adequacy of corrective action implementation could not be fully assessed. The inspector concluded that methods had not been established to measure and validate the effectiveness of the corrective actions or the overall corrective action plan required to address the causal factors of the recurring adverse trend of the Unit 2 unplanned reactor scrams PI. From September 20 to 24, 2004, the inspector reviewed DER NM-2004-1160 and the additional documents listed in the Attachment to this report. The inspector verified that the corrective actions in DER NM-2004-1160 were assigned to appropriate individuals or organizations with due dates assigned to ensure timely completion.

b. Findings

Introduction. Although scram prevention corrective actions (CAs) continue to be developed and implemented, the combination of the Scram Prevention Team oversight and the existing CAs provided reasonable assurance that the inspection objective to verify that the licensee's corrective actions for risk significant performance issues were sufficient to address the causes and prevent recurrence. Assessments performed by NMPNS identified continued problems related to the PI&R and human performance cross cutting areas. The implemented and planned performance indicators, quality and performance assessments and self-assessments developed to quantitatively and qualitatively measure the success were appropriate means to determine the effectiveness of NMPNS's scram prevention corrective actions. Therefore, this item is closed. FIN 05000410/2004004-09, NMPNS Adequately Addressed the Corrective Action Attributes of IP 95001.

Description. The inspector observed that DER NM-2004-1160 was a "living" document and new corrective actions were being added to the DER to document revisions of existing actions or as a result of lessons learned during implementation, self-assessments and effectiveness reviews. When the DER disposition was completed in June 2004, 72 corrective actions (CAs) had been developed to address the 13 causes identified. During the inspection (September 23, 2004), 98 corrective actions

were

identified in DER NM-2004-1160, 19 were under development and 53 had been closed. The inspector judged this to be reasonable progress.

The inspector noted improvement in the quality of corrective actions specified. In most cases, the actions were measurable against a desired outcome and specific requirements for acceptable closure were identified. Actions (CAs 17, 18, 20, 22-26, 48, 59, 74, 87 & 95) were developed to risk inform the prioritization of processes external to work orders and maintenance. A multi-disciplined group of NMPNS personnel, the Scram Prevention Team (SPT), was formed to provide oversight of the continued development and implementation of the corrective actions in DER NM-2004-1160. The SPT is being institutionalized in a station procedure (CA#93).

Through discussions with NMPNS personnel and review of DER NM-2004-1160, the inspector determined that the following measures of success were developed to determine the effectiveness of the corrective actions to prevent recurrence: performance indicators; quality and performance assessments; and self-assessments. NMPNS has interim and long-term actions (CAs 19 & 76) to strengthen the process to review and monitor the NRC performance indicators. NMPNS also identified the need for an action (CA 94) to monitor scram precursors.

The inspector reviewed the first (CA 27) quarterly assessment (Q&PA Report 04-111) that reviewed 39 closed CAs from DER NM-2004-1160. The assessment identified that the implementation of 10 closed actions were weak or ineffective and were related to the PIR cross cutting area. The inspector observed that this was the first example of NMPNS's efforts to identify problems and pursue scram prevention corrective actions. The inspector noted that the assessment was appropriately critical in identifying these problems. New actions (CAs 80 to 92) were identified to address these problems.

The inspector also reviewed a focused self-assessment report (FSA-2004-73 - draft) that reviewed collective significance of three scrams and three scram precursors that had occurred since DER NM-2004-1160 was developed. The assessment identified the following two causes that were related to the human performance cause previously (Report Section 4OA5.1) identified in DER NM-2004-1160: appropriate standards and rigor have not been applied nor enforced when using existing station processes; and, decisions and courses of action are sometimes based on assumptions and not on fact. The identified issues were related to the human performance cross cutting area. The self-assessment also identified the following two new broad-based causes that were not previously recognized in DER NM-2004-1160: level of technical and system knowledge has been inadequate to support some maintenance planning and work release decisions; and, necessary operational factors have not been considered in decision making and maintenance planning and approval. The other identified deficiencies were closely aligned with the causes previously identified in DER NM-2004-1160. The issues identified were entered into the corrective action program (DER NM-2004-4212). The inspector observed that this was the second example of NMPNS's aggressive efforts to

identify problems and pursue scram prevention corrective actions. The inspector noted that the self-assessment appeared thorough and was appropriately self-critical in identifying these issues.

4OA6 Meetings, Including Exit

On October 8, 2004, the inspectors presented the inspection results to Mr. Tim O'Connor, and other members of licensee management. The licensee acknowledged the findings and confirmed that proprietary information was not provided during the inspection.

On October 8, 2004, a Regulatory Performance Meeting was held concerning the supplemental inspection that was conducted to review, "The White Unplanned Scrams Performance Indicator." The licensee handout from the meeting is included in the Attachment section of this report.

4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are in violation of NRC requirements, which meet the criteria of with Section V1 of the Enforcement Policy NUREG-1600, for being dispositioned as NCVs.

- 10 CFR 50.49 requires that each item of equipment important to safety must be qualified by one of several qualification methods as described in section (f) of 10 CFR 50.49. The licensee demonstrated the qualification of the Okonite cable splices at Unit 1 by testing specific configurations of the Okonite splices and specified method for applying the Okonite insulation tapes as documented in their EQ files 521 and 235. Contrary to the above, from December 2002 to June 2004, the Okonite splices for nine SOVs which required EQ (SOV-39-11C & -12C, SOV-39-06G & -06H, SOV-80-15C & -15D, SOV-68-08C & -09C, SOV-39-05E), whose configurations and applying method did not conform to the tested samples, and their qualification could not be demonstrated. These were identified in the licensee's DERs NM-2004-2694, NM-2003-1846, NM-2003-1583 and NM-2002-5180. This finding is of very low safety significance because the unqualified cable splices had been evaluated in accordance with GL 91-18 and were determined to be operable.

- 10 CFR 50 Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires that activities affecting quality shall be prescribed by documented instructions or procedures of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions or procedures. Contrary to the above, as of September 2003, Unit 1 station procedure for installing Okonite Splices, N1-EMP-GEN-003, "Insulating Medium and Low Voltage Power Connections Control and Instrumentation Cables," Revision 1, were not appropriate to the circumstances because it did not prohibit the use of such splices for the cables of EQ Rosemount transmitters. Okonite splices were not

qualified for the use in the transmitter circuitry. The cable for at least five transmitters were found to contain Okonite splices in August 2004. This EQ procedure deficiency was identified in the licensee's DER NM-2003-2708. This finding is of very low safety significance because all of the affected cable splices had been evaluated and were determined to be operable.

- 10 CFR 50.49 (d) requires the licensee to prepare a list of equipment important to safety (EQ Master List) and qualify each equipment in accordance with 10 CFR 50.49 (f). The accelerometers of 18 SRV acoustic monitors at Unit 2 (2SW*NBE 220 thru 237) were on the EQ Master List. Contrary to the above, as of April 2004, these accelerometers were not environmentally qualified because the accelerometers were installed without the required RTV 738 sealant. Despite the ambiguity of the qualification process, there was sufficient evidence that the licensee should have known that, before March 2004, RTV sealant was required for the EQ of the accelerometers and that the existing accelerometers at Unit 2 were installed without the required sealant. This EQ deficiency was identified in the licensee's DER NM-2004-1151. This finding is of very low safety significance because the finding did not represent an actual loss of safety function of a system, and the acoustic accelerometers were non-Tech Spec items and not risk significant due to a seismic, fire or severe weather initiating event.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

T. DeSanto, Radiation Specialist
G. Detter, Manager, Support Services
P. Doran, General Supervisor, System Engineering
T. Evan, CEG, Training Manager
C. Fisher, Maintenance Rule Coordinator
J. Gerber, ALARA Supervisor
R. Godley, Manager, Operations
T. Hogan, Radiation Protection Supervisor
B. Holston, Manager, Engineering Services
J. Jones, Director, Emergency Preparedness
A. Julka, CEG, Director, Q&PA
T. Kulczycky, Reliability Engineering
S. Leonard, CEG, GS Licensing
T. O'Connor, Plant General Manager
W. Paulhardt, Manager, Radiation Protection
G. Perkins, General Supervisor, Engineering Programs
J. Raby, Engineering Programs
J. Spina, Site Vice President
T. Syrell, Nuclear Regulatory Matters
D. Williams, Engineering Programs

Oswego County Emergency Management Center

P. Egan, Director

Long Island Power Authority

J. Evans

NRC Personnel

W. Schmidt, Sr. Reactor Analyst

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000220/2004004-07	URI	Potential of Unqualified Okonite Cable Splices in Drywell

Opened and Closed

05000220/2004004-01	NCV	Failure to Maintain the Emergency Power Supply to the Technical Support Center
05000410/2004004-02	NCV	Use of an Out-of-Calibration Voltmeter to Measure and Adjust Division III DC Voltage Rendered HPCS Inoperable
05000220/2004004-03	NCV	Procedural Noncompliance Resulted in Failure of Shutdown Cooling Isolation Valve IV-38-02 Motor Operator
05000410/2004004-04	FIN	Refuel Floor Work Activities during 2RFO9 Exceeded ALARA Goal
05000410/2004004-05	FIN	Anchor Darling Valve Modification Work Activities During 2RFO9 Exceeded ALARA Goal
05000220/2004004-06	NCV	Failure to Promptly Identify and Correct Deficient (unqualified) Okonite Cable Splices
05000410/2004004-08	FIN	NMPNS Adequately Addressed the Cause Evaluation Attributes of IP 95001
05000410/2004004-09	FIN	NMPNS Adequately Addressed the Corrective Action Attributes of IP 95001

Closed

05000410/2004006-01	URI	Adequacy of the Cause Evaluation to Address the Recurring Unit 2 White Unplanned Scrams Performance Indicator (PI)
05000410/2004006-02	URI	Adequacy of the Corrective Actions to Address the Recurring Unit 2 White Unplanned Scrams Performance Indicator (PI)

Discussed

NONE

LIST OF DOCUMENTS REVIEWED

Section 1EP: Emergency Preparedness

Nine Mile Point Emergency Plan
Nine Mile Point Emergency Implementation Procedures
Nine Mile Point Emergency Administrative Procedures
NIP-ECA-05, Self Assessment & Benchmarking Procedure, Rev. 9
EPMP-EPP-05, EP Program Self Assessment Procedure, Rev. 10
NIP-EPP-01, ERO Expectations and Responsibilities, Rev. 17
EPMP-EPP-01, Maintenance of Emergency Preparedness, Rev. 16
2003 Unit 1 Mini Drill Report, dated 11/12/2003
2003 Unit 2 Mini Drill Report, dated 11/12/2003
12/11/03 Unit 2 Site Drill Report/ERO Team 3
5/12/04 Off-hours Notification Drill
3/9/04 ERO Notification Drill Report
2004 Unit 1 Mini Drill(s)
6/9/04 Unit 2 Site Drill Report/ ERO Team 2, Rev. 1
10/6/03 Off-hours ERO Notification & Response Drill Report
10/30/03 Remedial Off-hours ERO Notification & Response Drill Report
10/2/03, Unit 1 Site Mini Drill Report
1/29/03, Unit 2 Site Drill Report
6/19/03, Unit 1 Site Exercise Report
Surveillance Report No. 03-0073-C, 10 CFR 50.54(t) audit
Quality Assurance Audit Report No. 2003-3Quarter
Quality Assurance Audit Report No. 2003-4Quarter
Quality Assurance Audit Report No. 2004-1Quarter
Quality Assurance Audit Report No. 2004-2Quarter (draft)
Memo date 1/29/04, 2004 Final Report - Tone Alert Radio
Oswego County's PNS Public Bulletin for Tone Alert Radios
Oswego County's PNS Annual Tone Alert Radio Maintenance Card
Memo dated 8/14/03, East Coast Blackout Related to EP Activities
DER NM-2004-3308
DER NM-2004-3309
DER-NM-2004-387
DER-NM-2003-3004
DER-NM-2003-420
DER-NM-2004-580
DER-NM-2003-5067
DER-NM-2003-4436
DER-NM-2003-5019
DER-NM-2003-5070
DER-NM-2004-2775
DER-NM-2004-387
DER-NM-2004-2503

Section 20S1: Access Control to Radiologically Significant Areas

RWP 104033

Section 20S2: ALARA Planning and Controls

Post Job ALARA Review 04-2-35
Post Job ALARA Review 04-2-38
Pre-Job ALARA Review 04-1-06
High Risk Activity Plan: “Dive in Unit 1 Spent Fuel Pool”

Section 40A5: Other Activities

DER NM-2004-1160
DER NM-2004-1126
DER NM-2004-1708
DER NM-2004-2151
DER NM-2004-1298
DER NM-2002-5123
DER NM-2004-959
DER NM-2004-4212
DER NM-2004-4213
DER NM-2004-4354
DER NM-2004-4320

NMPNS Procedures (Technical Specifications Required)

Generation Administrative Procedure (GAP), GAP-MAI-01, “Conduct of Maintenance, “ Revision 05
GAP-MAI-05, “Preventive Maintenance Program,” Revision 11
GAP-PSH-05, “Action Request Initiation and Processing,” Revision 12
Nuclear Interface Procedure (NIP), NIP-CON-01, “Design and Configuration Control Process,” Revision 08
NIP-ECA-01, “Deviation/Event Report,” Revision 34
NIP-PRO-03, “Preparation and Review of Technical Procedures,” Revision 16

NMPNS Instructions and Guidelines

GAI-REL-08, “System, Component and Engineering Program Health Reports,” Revision 00,
Nuclear Administrative Instruction (NAI), NAI-ECA-04, “Management Review Committee,” Revision 13
NAI-ECA-05, “Corrective Action Review Board,” Revision 11
NAI-ECA-16, “Symptom Based Tool for Assisting in Categorization of ACRs and DERs and Preparing Operability Determinations and Engineering Supporting Analyses,” Revision 00
NAI-PMT-02, “Change Screening Committee,” Revision 03
NAI-PSH-05, “Work Control Action Request Screening Evaluation Process,” Revision 06,
NAI-REL-02, “Workaround Program,” Revision 02
NAI-REL-03, “Plant Review Committee,” Revision 00
NAI-REL-05, “Technical Review Board,” Revision 00

Performance Indicators

NMP Unit 2 NRC Performance Indicator for Unplanned Scrams, August 2004
NMP Unit 2 NRC Performance Indicator for Unplanned Power Changes per 7000 Critical Hours, August 2004
NRC Performance Indicator Summary, NMPNS and BWR Quarterly Average, September 2004, Projection
Scram Precursors Performance Indicator, January 2001 - September 2004

Miscellaneous NMPNS Documents

Internal Correspondence, T. O'Connor to Managers, General Supervisors & Directors, Charter for Scram Prevention Team, dated July 15, 2004
Scram Prevention Team, Change Agent Training Slides, Core-SCRM-PVT-04-3-01, Rev. 0, dated August 2004
Signups for the Change Agent Training Sessions
Scram Prevention Team, Road Show Training Slides, dated June 2004
NMP Engineering Services Performance Improvement Plan, dated September 20, 2004
NMP Challenge Board Meeting Slides, NRC Re-inspection of White PI Reactor Scrams
Life Cycle Management, Slides for Training Session to Technical Review Board, Plant Health Committee and Plant Review Committee

Assessment Reports

Functional Self-Assessment (FSA)-2004-73, Follow-on Assessment to Causes and Corrective Actions for DER 2004-1160, [draft]; Attachment, Self Assessment Team Members; Attachment, Analysis Results; Attachment, Recommended Corrective Actions.
Quality & Performance Assessment, Assessment Report Number 04-111, dated September 16, 2004

NRC Documents

NRC IR 05000410/2004006, “Supplemental Inspection for White Performance Indicator,” April 30, 2004
IP 95001, “Inspection For One or Two White Inputs in a Strategic Performance Area,” May 23, 2003

LIST OF ACRONYMS

ADAMS	agencywide documents access and management system
ALARA	as low as is reasonably achievable
ANS	alert and notification system
BWR	boiling water reactor
CFR	Code of Federal Regulations
CREF	control room envelope filtration
DER	deviation event report
EAL	emergency action level
EDG	emergency diesel generator
EP	emergency preparedness
EPIP	emergency plan implementing procedures
EQ	environmental qualification
ERO	emergency response organization
ESA	engineering support analysis
FCV	flow control valve
FSA	focused self-assessment
FSAR	final safety analysis report
GAP	general administrative procedure
GTS	gas treatment system
HPCI	high pressure coolant injection
HPCS	high pressure core spray
HRA	high radiation area
IMC	inspection manual chapter
IP	inspection procedure
IPEEE	individual plant examination for external events
IR	inspection report
kV	kilovolt
LDE	lens dose equivalent
LPCS	low pressure core spray
MC	manual chapter
MR	maintenance rule
NCV	non-cited violation
NAI	nuclear administrative instruction
NEI	Nuclear Energy Institute
NIP	nuclear interface procedure
NMPNS	Nine Mile Point Nuclear Station
NRC	U.S. Nuclear Regulatory Commission
OCEMO	Oswego County Emergency Management Office
OE	operating experience
OSC	Operations Support Center
PARS	publically available records
PI	performance indicator
PI&R	problem identification and resolution
PM	preventive maintenance
PMT	post-maintenance testing
PNS	public notification system
Q&PA	quality and performance assessment
RB	reactor building
RCIC	reactor core isolation cooling

RHR	residual heat removal
RPS	reactor protection system
RSPS	risk significant planning standards
RWP	radiation work permit
SDC	shutdown cooling
SDE	skin dose equivalent
SDP	significance determination process
SLC	standby liquid control
SOV	solenoid operated valve
SPT	scram prevention team
SRV	safety relief valve
SSCs	structures, systems, and components
TEC	Technology for Energy Corporation
TEDE	total effective dose equivalent
TS	technical specification
TSC	technical support center
UPS	uninterruptable power supply
URI	unresolved item
USAR	updated safety analysis report
VAC	volts alternating current
VDC	volts direct current
VHRA	very high radiation area

Regulatory Performance Meeting

Unplanned Scram White PI Overview of Scram Prevention Actions

Presented by: W. Holston, Engineering Manager
October 8, 2004

Background

- In August 2003, the PI for Unplanned Scrams at Unit 2 crossed the “Green-White” threshold.
- Recent history:
  - 5/04 Scram at Unit 1 from ERV-123 opening
  - 9/04 Scram at Unit 1 from Feedwater Flow Control valve positioner failure

DER 2004-1160

- Single DER that captured the causes and corrective actions to address the Reactor Scrams
- Provided clear linkage to causes and corrective actions
- Provided compensatory measures, where needed, for those longer term corrective actions
- Five broad areas of causes and corrective actions
  - Human Performance
  - Problem Solving
  - Risk Management
  - Equipment Reliability
  - Single Point Vulnerability

DER 2004-1160

- Causes for previous actions being ineffective in preventing recurrence of the white indicator identified as:
  - Ineffective corrective actions that were poorly written and closed without achieving desired result
  - Ineffective Management monitoring of Corrective Action Progress and closure of the 2001 Scram Related DER
  - Failure of Management to take action when clearly warranted as the precursor Scrams occurred leading up to a repeat white indicator

DER 2004-1160

- 98 Corrective Actions developed to address identified causes. These include short term compensatory actions and corrective actions to prevent recurrence (CASPRs). Actions are distributed as follows:

Engineering - 31	Maintenance - 8
Work Control - 8	Operations - 5
Training - 7	ACAT - 24
Other - 15	

- 56 Actions complete as of 9/29/04

- Quarterly effectiveness reviews required. First review completed by Assessment and Corrective Action and QA team on 9/10/04

Recent Scram and Events

- Evaluation of Recent Scrams and Plant events conducted by Scram Prevention Team
- Four additional causes identified (see next slide)
- Captured identified weaknesses and new causes in DERs 2004-4212 and 2004-4213
- Remainder of Causes identified closely aligned with those in DER 2004-1160

New Causes Identified

- Necessary Operational factors not considered in decision making in maintenance planning
- Level of technical/system knowledge to support maintenance planning is weak
- Standards/Rigor not applied nor enforced when using station processes
- Decisions sometimes based on assumptions and not on fact.

CAP Improvement Actions

- The corrective action program process has been improved to ensure corrective actions for the most significant issues ***define End State and closure statements***. This improvement allows the management team to assess effectiveness of actions before they are implemented.

- ***Implemented the Management Review Committee (MRC)*** modeled after the Exelon process. This committee of senior managers provides oversight and assessment of CAP implementation, including collegial review of Category 1 and 2 DER dispositions, closures, Corrective Action Effectiveness reviews, and monitor progress of open Category 1 DERs quarterly.

CAP Improvement Actions

- ***Implemented a graded approach to OE*** based on risk (probability and consequence). This approach ensures high and medium risk/consequence items are escalated through the organization with corrective actions or compensatory measures established in a timeframe consistent with industry best practices.
- Revised the Corrective Action and OE programs to insert ***SCRAM Prevention team reviews of in-house and industry issues*** relating to plant scrams or scram precursors.

Other Initiatives to Reduce Scrams and Precursors

- Development of System Notebooks
- Improved System Health Reports and Plant Health Committee
- Corporate Oversight e.g., morning corporate phone call
- INPO Assist visit on Corrective Action Program and recommendation implementation
- Enhanced Fleet Troubleshooting Procedure
- Enhancements implemented following Instrument Room Cooler tagout e.g., readiness for work checklist