September 13, 2002

Mr. John T. Conway
Site Vice President
Nine Mile Point Nuclear Station, LLC
P.O. Box 63
Lycoming, NY 13093

SUBJECT: NINE MILE POINT NUCLEAR STATION UNIT 1 AND UNIT 2
NRC INSPECTION REPORT 50-220/02-10, 50-410/02-10

Dear Mr. Conway:

On August 2, 2002, the NRC completed a team inspection at the Nine Mile Point Nuclear Station (NMNPS), Units 1 and 2. The enclosed report documents the results of that inspection which were discussed with Mr. M. Peckham, and other members of your staff, on August 2, 2002.

This inspection examined activities conducted under your license as they relate to the safety system design and performance capability of the Unit 1 emergency diesel generators (EDGs) and, the Unit 2 instrument air (IA) system, and compliance with the Commission's rules and regulations. The inspection consisted of a selected examination of components and systems, calculations, drawings, procedures and records, observations of activities and interviews with personnel.

Based on the results of this inspection, the team identified one finding of very low safety significance (Green).

If you have additional information on the Green finding, you may provide a response, within 30 days of the date of this inspection report to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, Region I; and the NRC Resident Inspector at the Nine Mile Point facility.

In accordance with 10 CFR 2.790 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 Publicly Available Records (PARS) component of NRC's document 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/

Lawrence T. Doerflein, Chief
Systems Branch
Division of Reactor Safety

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

Enclosure: NRC Inspection Report 50-220/02-10, 50-410/02-10

Attachments: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos:	50-220 50-410
License No:	DPR-63 NPF-69
Report No:	50-220/02-010, 50-410/02-010
Licensee:	Nine Mile Point Nuclear Station, LLC (NMPNS)
Facility:	Nine Mile Point Nuclear Station, Units 1 and 2
Dates:	July 15-19 and July 29-August 2, 2002
Inspectors:	E. Harold Gray, Senior Reactor Inspector, Team Leader, DRS J. Benjamin, Reactor Inspector, (Trainee) DRS J. Carrasco, Reactor Inspector, DRS M. Ferdas, Reactor Engineer, DRS T Hipschman, Reactor Inspector, DRS F. Jaxheimer, Reactor Inspector, DRS B. Norris, Senior Reactor Inspector, DRS K. Smith, Nuclear Engineering Student K. Young, Reactor Inspector, DRS
Approved by:	Lawrence T. Doerflein, Chief Systems Branch Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000220/02-010 and 05000410/02-010; Nine Mile Point Nuclear Station, LLC; on 7/15-8/2/2002; Nine Mile Point Units 1 and 2; Safety System Design and Performance Capability.

This inspection was conducted by seven region-based inspectors. This inspection identified one Green finding that was not a violation of NRC requirements. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using 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. Inspector Identified Findings

Cornerstones: Initiator and Mitigating Systems

Green. The Inspection team identified a lack of adequate corrective action to address longstanding problems with the Unit 2 instrument air (IA) system. Following an IA system modification in 1993, problems were identified with IA compressor cooling water pump trips and cycling, as well as the need for operator action to restart the IA compressors after a loss of offsite power which could affect the reliability of the IA system. Although the problems were entered in the corrective action program, there was a history of canceled deviation event reports (DERs) and longstanding operator work-arounds associated with the IA system.

The finding was considered to be of very low safety significance (Green) based on a Phase 3 risk evaluation because cycling of the cooling water pumps and the loss of off-site power were infrequent events, cooling water flow to the air compressors could be restored by restarting the redundant cooling water pump, it was very unlikely that both pumps would fail at the same time, procedures existed for manually restarting the compressors following a loss of power, and there were several additional failures that must also occur for a loss of instrument air to result in core damage. There was no violation of NRC regulations since the IA system was not safety-related.

Report Details

1. REACTOR SAFETY
Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R21 Safety System Design and Performance Capability (IP 71111.21)

.1 Unit 1 Emergency Diesel Generators

a. Inspection Scope

The NRC inspection team reviewed the Unit 1 Emergency Diesel Generator (EDG) system design basis document (SDBD-804), Technical Specifications (TS), Updated Final Safety Analysis Report (UFSAR), and design output documents to determine the system and component functional requirements during normal and accident conditions. The design output documents reviewed included piping and instrumentation drawings (P&ID), one-line diagrams, and system calculations.

The team reviewed selected electrical calculations and analysis and instrument setpoint calculations, to verify that the assumptions were appropriate, that proper engineering methods and models were used and there was adequate technical basis to support the conclusions. The reviews were performed to determine if the design basis was in accordance with the licensing commitments, regulatory requirements, and design output documents. The team also reviewed the design capability of major components of the system including the two diesel generators, voltage regulators, diesel load sequencers, feeder breakers, and electrical protective devices including the degraded voltage and under voltage relays.

Selected mechanical calculations and analysis were reviewed to verify that the appropriate assumptions were used and that they agreed with the current plant configuration. The team also verified that proper engineering methods were utilized and that adequate technical bases existed to support conclusions. The team performed independent calculations to evaluate the adequacy of selected design calculations and verified that recent plant modifications would not adversely affect the EDGs. The team also reviewed diesel generator support systems including the raw water cooling system, fuel oil, jacket and lube oil coolers, diesel starting air and diesel room ventilation systems to verify their ability to perform as designed.

The team reviewed normal, abnormal, and emergency procedures to verify that they were consistent with the system's design and licensing basis, risk, and operating assumptions. In addition, the team reviewed the system's interfaces (instruments, controls and alarms) and the alarm response procedures available to operators to support operator decision making.

The operational readiness, configuration control and material condition of the EDGs were assessed by reviewing applicable operating procedures and conducting system walkdowns. In addition, component maintenance records, preventive maintenance procedures, test procedures and system health reports were reviewed. The team reviewed test procedures and recent test results, which included, the EDG monthly

surveillance, the EDG quarterly surveillance, the EDG generator load surveillance and the loss of coolant accident (LOCA) and EDG simulated auto initiation test to verify that the tests met the TS requirements and licensing bases, and that the performance data met the acceptance criteria. The team also reviewed selected in service test data and fuel and lube oil chemistry analysis results to verify that the data was consistent with vendor requirements. Additionally, the team observed the diesel generator 103 EDG monthly and quarterly operability tests performed on July 30, 2002. Plant walkdowns of the system were performed to verify the physical installation of the system and components were consistent with design basis documents and calculations. During these walkdowns the team examined the design, equipment condition and physical line-up of major components, including pumps, valves, piping, heat exchangers, instrumentation and breakers. The team verified that the appropriate procedures and equipment were staged at locations to assist operators in performing the appropriate manual actions when required by station procedures. The team also interviewed Constellation personnel including licensed and non-licensed operators, the system engineer, and maintenance personnel, regarding the operation and performance of the EDGs and support components.

The team reviewed selected design change packages (DCP) and safety evaluations (SE) associated with the EDGs to ensure that these changes did not degrade the functional capability of the system. Additionally, the team performed a walkdown of selected DCPs to ensure the changes were installed per the design package.

b. Findings

No findings of significance were identified.

.2 Unit 2 Instrument Air System

a. Inspection Scope

The NRC inspection team reviewed the design, maintenance, and operational capability of the Unit 2 instrument air (IA) system. The review was to determine if the system was physically consistent with the current design basis, and was being operated in accordance with that design. The review included a verification that the system was able to perform its function to support safety related components. The inspectors walked down the system for consistency with the current design. Documents reviewed included the Unit 2 Updated Safety Analysis Reports (USAR), the Unit 2 Technical Specifications, the piping and instrumentation drawings, modifications and plant change packages, safety evaluations, and system health reports. In addition, the team reviewed the procedures used to operate and test the system during maintenance, surveillance testing, normal operations, and accident conditions. The types of procedures assessed included: normal and special system operating procedures, emergency operating procedures, alarm response procedures, preventive and corrective maintenance procedures. The inspectors also reviewed the operations technology lesson plans for the systems. The team selected a sample of deviation event reports (DERs) associated with the systems to verify the licensee was identifying and correcting design issues at an appropriate threshold, entering them in the corrective action program, and taking

appropriate corrective actions. Documents reviewed and personnel interviewed during the inspection are listed in Attachment A.

b. Findings

Introduction

The inspection team identified a finding regarding the lack of adequate corrective action to address longstanding problems with the Unit 2 IA system. The finding was considered to be of very low safety significance (Green) since there has been no actual loss of the IA system other than the reduction of IA pressure in 1999 and no events initiated by the loss of IA. There was no violation of NRC regulations since the IA system was not safety-related.

Description

During a review of operator work-arounds (OWAs) for Unit 2, the inspection team noted that two of the three OWAs were associated with the IA system. The first OWA was that the closed cooling water mini-loop (CCP) pumps tripped when an IA compressor started automatically; the second OWA was that the IA compressors would not start from the control room on a loss of power. The Unit 2, USAR, Section 9.3.1.1, describes the IA compressors as designed to operate automatically to start/stop and load/unload. In addition, the USAR states that each IA compressor's CCP supply valve (SOV-87A,B,C) opens and closes automatically when the compressor starts and stops. Normal controls for the IA compressors and the CCP mini-loop pumps is from the Control Room; local controls are available for maintenance activities. The IA system was modified in 1993 with larger capacity compressors. Since the modification, there have been at least six DERs initiated to document the recurring problems with the current system; as of this inspection, the problems have not been corrected.

Regarding the first OWA, the inspection team noted that the original system design maintained a constant CCP mini-loop system flow through the after-coolers; when one of the IA compressors started, the respective SOV-87 would automatically open and perturbations of CCP flow and pressure were minimal. With the current design, when an IA compressor started automatically, the rapid opening of the associated SOV-87 valve caused cooling water pressure/flow oscillations which frequently caused the running CCP pump to trip on low suction pressure. The standby pump would then start on low discharge flow; the standby pump would cycle on/off until the CCP pressure and flow oscillations ceased, resulting in additional challenges to the pump. To minimize the CCP mini-loop oscillations, if time permits, the operating procedure (N2-OP-19) requires an operator to locally circumvent the SOV-87 valve using the manual bypass valve (V-520,523,526) before starting the compressor. There were several DERs, starting as early as 1994, documenting the problems with the CCP pumps tripping and the CCP pressure and flow oscillations, yet no action was taken to corrective this risk significant adverse condition.

In addition, because the CCP mini-loop was not redesigned to support the design of the new compressors, the CCP pumps have a potential to run dead-headed. When an IA compressor runs unloaded for greater than fifteen minutes, the system is designed to

stop the compressor and close the SOV-87 valve, which is called the “sleep mode” of operation. If the running compressor were to go into the sleep mode, the SOV-87 would close but the CCP pump would continue to run and could potentially damage the pumps. Although there is a CCP low flow alarm, the inspection team did not identify any specific procedural direction to warn the operators, such that they could protect the pumps.

Regarding the second OWA, the inspection team noted the original IA compressors required DC control power while the current compressors require AC control power. With the original compressors, control power was not lost if power were lost to the compressors and, when power returned, the IA compressors started automatically. Similarly, if the current compressors had an un-interruptible AC source for control power, the IA compressors would restart upon restoration of power. However, when the compressors were replaced in 1993, the modification did not appear to consider the ramifications of using normal 120 VAC versus an un-interruptible source of AC. The issue was identified in October 1999, when during a loss of power to the IA compressors and a slow transfer recovering power, the compressors did not restart. By the time the control room personnel recognized that the compressors were not running, and sent an operator to the compressors to locally reset the start circuitry, IA pressure had decreased to 40 psig. The Unit 2 operations department initiated DER-1999-3477 to document what they considered to be a “high priority operator work around.” The DER was classified as a condition warranting correction, trending, and possible investigation. The current compressors, on any loss of power, other than a fast transfer, must be locally reset before they can be started. The 1993 modification negated the system ability to automatically start after a loss of power. This condition could have been alleviated in 1999 following an IA system pressure reduction, a self revealing problem, if DER 3477 corrective action for the local reset problem had been implemented.

The inspection team observed that although identified problems discussed above were placed in the corrective action system, there was a history of canceled DERs without appropriate action or effective resolution for this risk significant system. Prior to the NRC inspection, the licensee did not have a documented evaluation of the extent of condition or a documented evaluation of risk significance for the equipment issues. The inspection team determined that the lack of evaluations, the canceled DERs, and the longstanding operator work-arounds represented ineffective problem resolution.

Analysis

The lack of adequate corrective action for the longstanding operator work-arounds associated with the IA system was considered to be more than minor because the cycling of the CCP mini-loop pumps whenever a compressor started automatically and the necessity for an operator to locally reset the control power of the compressors following a loss of power could affect the reliability of the IA system. A loss of instrument air (LOIA) event causes a reactor scram, loss of feedwater, and the closure of the main steam isolation valves which affects the Initiating Event cornerstone objective to limit the likelihood of those events. In addition, preventing the automatic restart of the compressors upon restoration of power unnecessarily extends the time before the IA system can be used for plant recovery, in particular the availability and reliability of containment venting function, which affects the Mitigating Systems

cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

Therefore, the findings could concurrently result in the initiation of an event and influence the availability of mitigating equipment. In accordance with the guidance in MC 0609, Appendix A, because two cornerstones were degraded, the Phase 1 Significance Determination Process (SDP) screening process goes directly to Phase 2. Using the Nine Mile Point Unit 2 Risk-Informed Notebook, Table 3.9 for a LOIA, the Phase 2 evaluation resulted in a greater-than-green safety significance determination. The
Phase 2 sequence of greatest significance was a LOIA and the loss of containment heat removal (following a LOIA all the decay heat is directed to the suppression pool). The Nine Mile Unit 2 Phase 2 worksheets have not been benchmarked and have historically resulted in conservative safety significance determinations for findings impacting the reliability of the instrument air system. Therefore, a Phase 3 SDP risk assessment was performed to more accurately reflect the safety significance of these findings.

Summary of Phase 3 Risk Evaluation

The Phase 3 SDP evaluated the safety significance associated with: (1) the increased unreliability of the IA compressor cooling water pumps caused by the cycling of the standby pump following a compressor automatic start and (2) the 1993 modification which resulted in operator action replacing an automatic start of the compressor following a loss of offsite power.

A Phase 3 SDP risk evaluation was performed to estimate the change in core damage frequency caused by periodically cycling the instrument air cooling water pumps. The risk evaluation calculated the increased frequency of a loss of instrument air caused by the cycling pumps. The increase in loss of instrument air frequency was then multiplied by the conditional core damage probability for a loss of instrument air to determine the change in core damage frequency. The conditional core damage probability for a loss of instrument air was calculated by using a modified Phase 2 SDP worksheet for the loss of instrument air. The worksheet was modified to reflect the ability to manually open the containment vent valves, to remove energy from containment, if the containment cooling system was lost. The calculated change in core damage frequency is used to establish the safety significance and color of inspection findings. The change in large early release frequency was also estimated in accordance with the guidance provided in Inspection Manual Chapter 0609, Appendix H. Conservative estimates were used for the frequency and number of pump cycles. Notwithstanding these conservative estimates, this finding was determined to be very low safety significance (Green). The safety significance was very low because cycling of the cooling water pumps is an infrequent event, cooling water flow to the air compressors could be restored by restarting the redundant cooling water pump, and it's very unlikely that both pumps would fail at the same time. Additionally, even if the non-safety related instrument air system failed, there are several additional systems that are available to prevent core damage. This condition has existed for many years and has never resulted in the loss of instrument air cooling water or abnormally high failure rate for the cooling water pumps .

A Phase 3 risk evaluation was performed to assess the significance of a design change that resulted in operator action replacing an automatic restart of the IA compressors after a loss of offsite power. A change in the loss of instrument air frequency was calculated by multiplying the frequency of a loss of offsite power by the change in failure probability for a manual versus an automatic start of the compressors. The change in loss of instrument air frequency was then multiplied by the conditional core damage probability for core damage following a loss of instrument air to determine the delta core damage frequency. The delta core damage frequency is used to determine the safety significance of inspection findings. This evaluation determined that this finding was of very low safety significance (Green). The safety significance was very low because losses of offsite power are infrequent events, procedures exist for manually restarting the compressors following a loss of power, and there are several additional failures that must also occur for a loss of instrument air to result in core damage.

Enforcement

Since the instrument air system is not safety-related, there were no violations of NRC requirements. Although the IA system is not a safety-related system but is risk significant, the NRC concluded there were corrective action problems associated with the instrument air system. The related inspection issues were entered into the Nine Mile corrective action program as DER 2002-3423.

.3 (Closed) Unresolved Item 05000220/00-07-01: Potential Unanalyzed Leak Path From Containment Spray

During a September 2000, NRC safety system design and performance capability (SSD&PC) inspection for the containment spray and containment spray raw water (CSRW) systems, the inspectors identified that: 1) the raw water to containment spray crosstie valve sets (FCV-93-72 and CKV-93-62) did not receive quantitative leakage testing; and 2) there was no retrievable radiological assessment for the consequences of the leakage.

The Constellation site engineering staff determined that in addition to the quarterly simple reverse flow check valve test (N1-ST-Q28) that was reviewed during the inspection, the integrated leak rate test (ILRT) surveillance procedure (N1-TSP-201-001) includes valves FCV-93-73 and CKV-93-62 and exposes them to ILRT pressure, with the boundary valves vented upstream to the atmosphere. The ILRT determines a quantifiable leak rate for the set of valves being tested, including valves FCV-93-73 and CKV-93-62. At the time of the inspection, Constellation did not identify that the ILRT was included in the containment spray equipment to surveillance test procedure acceptance criteria. Design Change Document 1M010170 subsequently added the ILRT surveillance procedure (N1-TSP-201-001) to the acceptance criteria in its design basis documentation. Constellation determined that quarterly reverse flow check valve testing in conjunction with the ILRT meets UFSAR requirements to minimize boundary valve leakage.

The site engineering staff also determined that there was no requirement in the Nine Mile Point Unit 1 licensing basis to evaluate leakage past the crosstie valves into the lake. The basis for engineering's determination was that the NRC approved the

licensee's radiological assessment approach in a safety evaluation dated May 6, 1988, and March 20, 1990, and that there was no requirement to evaluate this additional leak path. However, as a conservative action, the engineering staff performed a radiological evaluation and determined that satisfactory integrated leak rate testing ensured that 10 CFR 100 dose limits would not be exceeded in the event that the crosstie valves did exhibit leakage (within allowable leak test limits). Additionally, engineering and chemistry analysis determined that 10 CFR 20 limits were not exceed during routine surveillance testing.

The team reviewed Constellation's evaluation of a potential unanalyzed leak path between the CSRW and the containment spray and core spray systems that could result in the release of radiologically contaminated torus water to the ultimate heat sink. The team also reviewed DER 1-2000-3154, DER 1-2000-3323, Constellation's engineering technical analysis of the event, the UFSAR and plant TSs. The team concluded that containment spray, core spray and associated raw water crosstie valves were adequately tested to demonstrate leak containment integrity. The team reviewed Constellation's assessment of the radiological consequences and determined that the current test program was adequate for these components and that the systems performed as designed. This unresolved item was closed and no violation of NRC requirements was identified.

.4 (Closed) Unresolved Item 05000410/00-07-03: Service Water Model Accuracy

The original service water model lacked the use of instrument uncertainty within the calculation and the extent of the model validation against the as-built conditions was limited to an informal and qualitative comparison of flows. During the follow up inspection for this unresolved item, the inspection team verified that the revised model properly determines the system hydraulic condition and that pump test acceptance criteria were properly established to demonstrate the required system design capacity. The team noted that during implementation of corrective actions for this open item, service water pump performance was found more degraded at the higher pump flowrates. This resulted in changes to more appropriate pump test conditions and to the surveillance acceptance criteria. The actions taken for this URI are documented in detail in DER NM-2001-3356 and DER NM-2001-3380. Following the actions to resolve the open item, the "A" Service water pump was refurbished to increase the system flow capacity above the design requirements. Pump performance is trended and future pump refurbishment activities are planned. The inspectors found that the revised calculation, the new pump test conditions and acceptance criteria, and other actions including the scheduled and completed pump refurbishment assure that the system did and will continue to fulfill the intended mitigating functions. The inspectors determined the corrective actions were adequate to close the unresolved item, and no violation of NRC requirements was identified.

.5 (Closed) Unresolved Item 05000220/00-07-05: Containment Spray Heat Exchanger Fouling Factors

The September 2000 NRC SSD&PC inspection team questioned the validity of the containment spray (CS) system heat exchanger fouling factor used in design basis calculations. As a result, Constellation performed an operability evaluation for the heat

exchangers and concluded that they were degraded but operable provided that lake water temperature remained below 74°F. The item was unresolved pending the results of Constellation's evaluation of past CS system operability. During this inspection, the team reviewed the results of heat exchanger calculations and performance testing; including assumptions, methodology, and conclusions. The team also discussed specific portions of the calculations, testing and DER 1-2000-3142, "Heat Exchanger Tube Fouling Factors Non-Standard," with Constellation personnel. The team determined that the CS heat exchanger fouling factor utilized in design basis calculations was appropriate and that the CS heat exchangers were operable at the maximum allowable lake water temperature (81°F) and capable of performing their safety function. This unresolved item is closed and no violation of NRC requirements was identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (IP 71111.21)

a. Inspection Scope

The team reviewed selected deviation event reports (DERs) associated with Unit 1EDGs and Unit 2 instrument air system (IAS) to determine if Constellation was identifying design issues at an appropriate threshold, entering them into their corrective action program for timely resolution, and taking appropriate corrective action for identified issues. In addition, the team reviewed the DERs issued as a result of this inspection.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

.1 Management Meeting

The team presented the inspection results to Mr. M. Peckham, and other members of licensee management at an exit meeting on August 2, 2002. The team verified that the inspection report does not contain proprietary information.

KEY POINTS OF CONTACT

Constellation

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R. Sanaker	Station Shift Supervisor Unit 1 Operations
S. Savar	Fire Protection Engineer

Nuclear Regulatory Commission

L. Doerflein	Chief, Systems Branch
G. Hunegs	Senior Resident Inspector
B. Fuller	Resident Inspector
J. Trapp	Senior Reactor Analyst (Phase 3 Analysis)

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened/Closed None

Opened None

Closed

05000220/00-07-01	URI	Potential Unanalyzed Leak Path From Containment Spray (U1) (Section1R21.3)
05000410/00-07-03	URI	Service Water Model Accuracy (U2) (Section 1R21.4)
05000220/00-07-05	URI	Containment Spray Heat Exchanger Fouling Factors (U1) (Section 1R21.5)

LIST OF DOCUMENTS REVIEWED

Procedures, Surveillance Tests, and Calibrations:

ARP A5/3-5	A5/3-5,Diesel Generator 103 Start-Run Off Normal
ARP A5/4-5	Diesel Generator 103 Stand By Off Normal
GAP-PSH-03	Control of On-line Work Activities, Revision 5
N2-IPM-MSS-R001	Instrument Preventive Maintenance, Revision 2
N1-CSP-Q504	Quarterly Diesel Fuel Oil Sampling and Analysis, Revision 03
N1-CTP-M500	Monthly Diesel Fuel Oil Sampling and Analysis, Revision 02
N1-CTP-Q550	Diesel Jacket Cooling Water - Sampling and Analysis, Revision 00
N1-CTP-V502	Incoming Diesel Fuel Oil Sampling and Analysis, Revision 04
N1-CTP-V520	Lube Oil Sampling, Revision 02
N1-DRP-GEN-001	Fire Zones T2A and T2D Turbine Building Elevation 250' Detectors DA-2013, DA-2013N, and DA-2031, Revision 3
N1-DRP-GEN-004	Emergency Damage Repair for Fire Zones C2 and C3, Revision 6
N1-EOP-xxx	Unit 1 Emergency Operating Procedures
N1-EPM-080-001	Diesel Generator 102 & 103 Load Sequencing Timer Relay Calibration, Revision 04,
N1-EPM-GEN-150	4.16KV Breaker and Motor Inspection, Revision 5
N1-EPM-GEN-182	Motor Control Center (7700 Line) Inspection, Revision 5
N1-EPM-GEN-318	HFA Armature Test & Calibration, Revision 02
N1-IPM-082-002	Diesel Generator 102 Day Tank Level
N1-IPM-082-003	Diesel Generator 103 Day Tank Level
N1-MPM-079-412	Diesel Generator Cooling Water Heat Exchanger and Temperature Control Valve Maintenance, Revision 02
N1-MPM-080-410	Containment Spray Heat Exchanger Preventive Maintenance, Revision 03
N1-ODP-PRO-0305	EOP/SAP Technical Bases
N1-OP-18	Service Water System
N1-OP-45	Emergency Diesel Generators, Revision 26
N1-PM-Q9	Procedure for Operations Lubrication
N1-PM-S1 Ext Att 2	EDG Operator Rounds
N1-PM-V23	Emergency Diesel Generator 103 Limit Switch Adjustment
N1-PM-V27	Diesel Fuel Oil Ordering and Delivery
N1-RCPM-GEN-070	Protective Auxiliary Relays and Timers, Revision 01
N1-RCSP-GEN-333	Emergency Bus Under Voltage Relay Surveillance Test, Revision 01
N1-SOP-10	High Winds
N1-SOP-7	Service Water Failure/Low Intake Level, Revision 05
N1-SOP-9.1	Control Room Evacuation
N1-ST-M4A	Emergency Diesel Generator 102 and PB 102 Operability Test, Revision 00
N1-ST-M4B	Emergency Diesel Generator 103 and PB 103 Operability Test, Revision 00
N1-ST-Q16	Emergency Diesel Generator Quarterly Test, Revision 05
N1-ST-Q25	Emergency Diesel Generator Cooling Water Quarterly Test, Revision 08
N1-ST-R2	LOCA and EDG Simulated Auto Initiation Test, Revision 24

N1-ST-R2	Internal Correspondence, Niagra Mohawk, Test Results Engineering Review RF016, dated April 12, 2001
N1-TDP-REL-0101	Emergency Diesel Generator Reliability Program, Revision 01
N1-TTP-CTNSP-V001A	Containment Heat Exchanger HTX-80-34 (#111) Heat Removal Capacity Test, Revision 00
N1-TTP-DGE-R01	Diesel Generator Load Testing, Revision 1
N2-ARP-01, Att 21	2CES*PNL851 Series 200 Alarm Response Procedures, Revision 0
N2-ARP-01, Att 5	2CES*PNL601 Series 500 Alarm Response Procedures
N2-ARP-01	2CEC*PNL851-259: Inst Air Compressor Clg Wtr Flow Low, Revision 0
N2-CTP-IAS-Q633	Instrument Air Sampling and Analysis, Revision 4
N2-ELU-01	Walkdown Order Electric Lineup and Breaker Operations, Revision 0, Attachments 19 & 61A
N2-EOP-xxx	Unit 2 Emergency Operating Procedures
N2-ISP-MSS-R108	MSIV Instrument Air Check Valve Reverse Flow Exercise Test & MSIV Accumulator Air Tanks & Associated Piping ASME XI Inspection Period Pressure Test, Revision 4
N2-MPM-IAS-SA012	Instrument Air Dryer P.M. 2IAS-DRY1A & 2IAS-DRY1B, Revision 2
N2-MPM-IAS-V606	Instrument Air Compressor P.M. 2IAS-C3A, 2IAS-C3B, & 2IAS-C3C, Revision 6
N2-OP-13	Reactor Building Closed Loop Cooling System, Revision 6
N2-OP-19	Instrument & Service Air System, Revision 6
N2-OP-34	Nuclear Boiler, Automatic Depressurization and Safety Relief Valves, Revision 8
N2-OP-61A	Primary Containment Ventilation, Purge, and Nitrogen System, Revision 10
N2-OSP-GSN-0001	Nitrogen Operability Test, Revision 1
N2-OSP-IAS-CS001	Instrument Air System Check Valve Reverse Flow Exercise Tests, Revision 1
N2-OSP-IAS-Q001	Instrument Air System Valve Operability Test, Revision 3
N2-OSP-IAS-R001	Instrument Air System Valve Position Indication Test, Revision 2
N2-OSP-SWP-2001	Service Water Pump Curve Validation Test, Revision 3
N2-OSP-SWP-Q2001	Division 1 Service Water Operability Test, Revision 2
N2-OSP-SWP-Q002	Service Water Pump and Valve Operability Test, Revision 6
N2-SOP-101C	Reactor Scram, Revision 0
N2-SOP-11	Loss of Service Water, Revision 0
N2-SOP-13	Total Loss of CCP System, Revision 0
N2-SOP-19	Loss of Instrument Air, Revision 0
N2-TDP-IIT-0105	Establishment of IST Pump and Valve Acceptance Criteria, Revision 10
N2-TDP-REL-104	GL 89-13 Service Water System Problems Affecting Safety Related Equipment Program Plan, Revision 0
N2-VLU-01	Walkdown Order Valve Lineup and Valve Operations, Revision 0, Attachment 19
NEP-REL-01	Evaluations, Analyses, and Update of the Probabilistic Risk Assessment Program, Revision 1
NER-2M-039	NMP2 EOP Basis Document, Revision 3
NIP-ECA-06	Operating Experience Program, Revision 0
S18.9-EDG-HV02	EDG Rooms 102 & 103 and High Temperatures, Revision 1
TS-209-03A	Diesel Generator 102 Temperature Switch

TS-209-05A	Diesel Generator 103 Temperature Switch
TS-209-06A	Diesel Generator 103 Temperature Switch

Unit 1 Emergency Diesel Generator Design Basis Documents:

Nine Mile Point Unit 1 UFSAR, Section 9.4.1, Emergency Power, Diesel Generator System
Nine Mile Point Unit 1 UFSAR, Section 9.5.1, Testing and Inspection, Diesel Generator
Nine Mile Point Unit 1 Technical Specification
SDBD-804, Emergency Diesel Generator System Design Basis Document, Revision 07

Engineering Analyses, Calculations, and Data Sheets:

4.16KV-DG102-FLD CKT	DG 102 and DG 103 Field Breakers, Revision 1
4.16KV-DG103-FLD CKT	DG 102 and DG 103 Field Breakers, Revision 1
4.16KVAC-PB102/103-SETPT/27	Degraded Voltage Relay Set-point, Revision 5
4.16KVAC-SYSTEM-FS	Nine Mile Point 1 4.16KV Switchgear Short Circuit Calculation, Revision 0
4.16KVACDGES	Diesel Generator Loading, Revision 5
4160 VAC-PB103 & 103	Coordination and Protection Study for PB102 & 103, Revision 0
Calc 12177 A10.22I-14	ADS Valve Accumulator Air Receiver Tanks Sizing Calc
Calc A10.1-N-341	Three SWP Pump LOCA Analysis
Calc A10.1-N-341, Disposition 00H	Revision of IST Performance Flow Criteria from 9,000 to 10,000 GPM
DG-RELAY-SP	Diesel Generator 102 and 103 Relay Settings, Revision 1
MISC-LS-82-56/57/58/59	Nine Mile Point 1 DG Fuel Oil Day Tank, Revision 0
NER 2M-051	Service Water System Hydraulic Model Evaluation, Rev. 0
S0-TORUS-M009	Maximum Torus Temperature Based on As Tested Containment Spray Heat Exchanger Performance
S13.1-100F007	Hydraulic Analysis of Diesel Fire Pump Supply to ESW #11 and Emergency Diesel Cooling Water Systems
S14-93-HX09	Containment Spray Heat Exchanger #111 and #121 Heat Removal Capacity Test Evaluation
S15-72-F003	IST Approved Pump Curves Emergency Diesel Generator Cooling Water
S15-79-F002	Replacement EDG HX Flow Resistance Effect on RAW Water Pump
S15-79-HTX01	Emergency Diesel Generator Cooling Water (EDGWC) Heat Exchanger Thermal Performance Evaluation
S15-79-HTX03	Replacement EDG RAW Water Heat Exchanger Design
S15-82-M001	Emergency Diesel Generator Fuel Consumption
S15-96-M001	Minimum EDG Air Start Receiver Pressure
S18.9-EDG-HV02	EDG Rooms 102 & 103 Low and High Temps
SP-DG-LS02-56/57	Diesel Generator Day Tank H/L Set-points, Revision 0
SP-DG-LS82-58/59	Diesel Generator Day Tank HH/LL Level Set-points, Revision 0
SP-DG-PS79.1-17	DG-102 Main BRG Pressure Switch Instrument Error, Revision 2
SP-DG-PS79.1-36	DG-103 Main BRG Pressure Switch Instrument Error, Revision 2

SP-DG-TIMER 2-1/2/3	DG Load Sequencing Timers, Revision 2
SP-TS-203-301/302	Diesel Generator Room Temperature Switch, Revision 0

Design Change Packages, Safety Evaluations, and Applicability Reviews:

AR 24484	Replacement of EDG Differential Protective Relays - 87DG, Revision 1
AR 36021	Emergency Diesel Generator Control Circuit Timer Relay Replacement, Revision 0
CT # N2-00-036	Replacement for 2IAS*SOV185 (Equivalency Evaluation 00046)
DC NM1-79-18	Electrically Supervise Three Doors Between DG Rooms and Adjacent Power Board Rooms, dated September 8, 1979
DC N1-55-455	Update Spec 394M Lubrication to DG Cooling Water Pumps
DC N1-55-660	Replace 3D Timers for EDG 102 and 103
DC N1-55-827	Replace Diesel Fuel Level Switch LS-82-58
DC N1-01-160	EDG Control Circuit Relays Replacement, Revision 1
DC N1-01-160	Diesel Fire Pump Intertie to Emergency Service Water and Emergency Diesel Cooling Water Systems, Revision 0
DC N1-02-009	EDG Raw Water Cooling Pressure Gauge Installation, Revision 0
LDCR 2-93-UFS-012	Instrument Air System Upgrade
LDCR 2-97-UFS-063	Instrument Air System Dewpoint
LDCR 2-99-UFS-208	Clarification of IAS Fabrication and Installation requirements
N2-01-011	IAS Isolation valves
N2-55-760	Instrument Restart on Slow Transfer, dated June 3, 1999
PC 2-0170-99	IAS Restart on Slow Transfer
PC 2-0208-00	Correct CCP Mini-Loop Flow and Pressure perturbation/Pump Cycling
SE 1993-023	NMP2 Instrument Air System (IAS) Upgrade, Revision 0
SE 2000-028	NMP2 Nitrogen System (GSN) Upgrade, Revision 1
SE 83-22	Fire Protection Intertie

Configuration Changes:

1M01033	Revise Vendor Manual for Minimum Oil Temperature for Fast Start of EDG
1F01024	Replace Emergency Diesel Generator Fuel Oil Tank HI/LO Contact Switch Assembly
1M00568	Update Lubrication Schedule

Deviation Event Reports: (* Denotes DER generated as a result of this inspection)

1991-Q-1024	1999-3477	2000-3352	2001-1092	2001-1472	2001-3356
1994-0941	1999-4002	2000-3380	2001-1181	2001-1504	2001-3997
1994-2443	1999-4070	2000-3586	2001-1221	2001-1563	2001-4529
1995-1101	1999-4174	2000-3587	2001-1236	2001-1618	2001-4570
1995-1101	2000-0254	2001-0248	2001-1266	2001-1678	2001-5177
1997-0120	2000-0881	2001-0299	2001-1291	2001-1727	2001-5495
1998-1073	2000-0885	2001-0660	2001-1338	2001-2456	2002-0353
1999-1267	2000-0911	2001-0758	2001-1342	2001-2845	2002-0366
1999-2880	2000-3142	2001-1078	2001-1370	2001-2919	2002-0521

2002-0711	2002-1384	2002-1766	2002-2692	2002-3413*	2002-3443*
2002-0883	2002-1408	2002-2012	2002-2705	2002-3418*	2002-3444*
2002-1221	2002-1472	2002-2406	2002-3289*	2002-3423*	2002-3451*
2002-1256	2002-1613	2002-2420	2002-3362*	2002-3426*	2002-3452*
2002-1334	2002-1674	2002-2691	2002-3386*	2002-3432*	

Work Orders:

1996-01447-00	1996-01506-00	1998-02367-00	1999-08847-00	2000-05923-00
1996-01448-00	1996-01507-00	1998-02368-00	2000-01556-00	2001-06737-00
1996-01456-00	1996-01513-00	1998-07809-15	2000-01557-00	2001-06738-00
1996-01460-00	1996-01514-00	1998-07809-70	2000-02877-00	2002-02107-00
1996-01499-00	1996-01515-00	1999-08845-00	2000-02878-00	2002-05011-00
1996-01500-00	1998-01109-00	1999-08846-00	2000-05922-00	

DRAWINGS:

12177-TL2CCP-076	RBCLCW Expansion Tank 2 Level-Test Loop Diagram
81-0299-6D	Instrument Nitrogen, Revision 3
B-18040-C, Sht. 2	Fuel Oil Handling System For Emergency Diesel Fire Pump P&ID
B-18040-C, Sht. 1	Fuel Oil Handling System For Emergency Diesel Fire Pump P&ID
B-19015-C	Turbine Building Diesel Generator Room Protection Panels at Doors D34 and D35
C-18026-C, Sht. 1	Emergency Diesel Generator #102 Starting Air, Cooling Water, Lube Oil, and Fuel
C-18030-C, Sht. 3	Fire Protection Water System P&ID
C-18800-C, Sht. 1	Turbine Building Diesel Generator Room Elevation 261"- 0"
C-19409-C, Sh. 1	NMP1 Nuclear Station One line Diagram Auxiliary System (Power Boards), Revision 8
C-19409-C, Sh. 3	One Line Diagram 4160 Volt Emergency System Power Boards 102 and 103, Revision 23
C-19409-C, Sh. 1B	AC Station Power Distribution One-Line Diagram, Revision 10
C-19410-C, Shts. 1-10A	Elementary Wiring Diagrams 4.16KV Emergency Power Boards and Diesel Generators (No. 102 & 103 Power Circuits)
C-19410-C, Shts. 11&12	4160 Emergency Power Board and Diesel Generator (No. 102 & 103 Under Voltage Relay Circuits)
C-19839, Shts. 7 & 8	One Line Diagram 125 VDC Control Bus (Power Board #102 and 103 & DG #102 and 103)
EE-1CZ	600V One Line Diagram Normal Bus 2NJS-US10 Turbine Building EL 250’0", Revision 9
EE-1X	600V One Line Diagram Normal Bus 2NJS-US5 Normal Switchgear Bldg. EL 261'0”, Revision 15
EE-1Y	600V One Line Diagram Normal Bus 2NJS-US6 Normal Switchgear Bldg. EL 261'0", Revision 16
ESK-6IAS01	DC Elementary Diagram 600 V Switchgear Circuit Instrument Air Compressor A, Revision 12
ESK-6IAS02	DC Elementary Diagram 600 V Switchgear Circuit Instrument Air Compressor B, Revision 11
ESK-6IAS03	DC Elementary Diagram 600V Switchgear Circuit Instrument Air Compressor C, Revision 12

ESK-6IAS04	DC Elementary Diagram 600 V Switchgear Circuit Instrument Air Compressor A, Revision 8
ESK-6IAS05	DC Elementary Diagram 600 V Switchgear Circuit Instrument Air Compressor B, Revision 8
ESK-6IAS06	DC Elementary Diagram 600 V Switchgear Circuit Instrument Air Compressor C, Revision 9
ESK-7IAS10 Shts. 1-3	AC Elementary Diagram MISC 120 VAC CKTS Instrument Air Compressor A
FE-M01A	Plant Master One Line Diagram Normal Power Distribution, Rev. 16
P&ID-001	Main Steam, Revision 6
P&ID-019	Instrument & Service Air Systems, Revision 20
P&ID-105	Instrument Nitrogen Gas System, Revision 1
PID-011	Service Water System
PID-013	Reactor Building Closed Loop Cooling Water

VENDOR MANUALS:

N1E14700ENGINE001	Maintenance Instructions Engine Coolant
N1E14700ENGINE002	Maintenance Instruction Diesel Fuel Recommendations
N1E14700ENGINE005	Maintenance Instruction Lube Oil For EMD Engines
N1E14700GENERA001	Scheduled Maintenance Program Domestic Stationary Power Units With Turbocharged Engines
N1W29000MECFUN001	Oils For Hydraulic Controls
645E4	Turbo Charged Diesel Engine Maintenance Manual

OTHER DOCUMENTS:

Action Plan for Unit 2, Long Term Issue # 2, 2SWP*P1A thru P1F, Degraded Pumps, Unavailability of Replacement Parts
DER-NM-2002-1674, QA Audit - Adverse Trend, Ongoing Examples of Poor Foreign Material Exclusion (FME) Program Implementation, 4/2/02
eCAP Report Number 2000-90, SOER 99-01, Loss of Grid
eCAP Report Number 2001-823, SOER 99-01, Loss of Grid
Evaluation of Component Mini-Loop Cooling (CCP) on Instrument Air System (IAS), dated July 30, 2002
Fire Protection Self Assessment Report 2001-001
Lesson Plan O1-OPS-001-264-1-01, Emergency AC Distribution System
Licensee Event Report 50-410/99-05-01, Reactor Trip due to a Main Generator Protection Volts/Hertz Relay Failure
NMP Unit 2 USAR, Section 9.3.1, “Compressed Air Systems,” Revision 14
NMP Unit 2 USAR, Figure 9.3-1, “Instrument & Service Air,” Revision 14
NMP Unit 2 USAR, Figure 9.3-2, Compressed Air Systems Logic Diagram,” Revision 14
NMP Unit 2 USAR, Section 15.0.5, “Accident Analysis - Loss of Instrument Air,” Revision 14
NMP Unit 2 USAR, Section 9.2.1, “Service Water System”
NMP Unit 2 USAR, Figure 9.2-3b, “Reactor Building Closed Loop Cooling Water”
NMP Unit 2 USAR, Table 9.4.1, “Environmental and System Design Parameters for HVAC”
NRC Inspection Report 50/220/91-80, Electrical Distribution System Functional Inspection (EDSFI) of Nine Mile Point Unit 1
Nuclear Engineering Report (NER-1M-084), Evaluation of NRC Comments Regarding Performance Monitoring Plan Emergency Diesel Generator System

Portions of the Letter to the NRC from Niagara Mohawk, dated February 18, 1997, Regarding NMP's Response to the 10CFR50.54(f) Request; specifically, the section on the Instrument Air System at Unit 2
Pre-Operational Test No. 33, Functional Test of EDG 102 & 103 (Initial 5 start validation capability)
Service Water Pump IST Test Data Graphs and Trends
Stone & Webster Specification NM2-P101Q, Installation, Operation and Maintenance Instructions for Primary Containment Nitrogen System
System Health Reports for IAS, SAS, AAS - 3rd & 4th Quarters 2000; 2nd, 3rd & 4th Quarters 2001, 1st Quarter 2002
Total Non-Outage Corrective Maintenance Backlog, dated July 26, 2002
Unit 2 Operations Technology Lesson Plan O2-OPS-001-279-2-00, Attachment 1, "Instrument, Service & Breathing Air Systems," Revision 5
Unit 2 Operations Technology Lesson Plan O2-OPS-001-223-2-03, Attachment 1, "Primary Containment Ventilation, Purge and Nitrogen System," Revision 4
Unit 2 Operations Technology Lesson Plan O2-OPS-001-218-2-01, Attachment 1, "Automatic Depressurization System," Revision 4
Unit 1Containment Spray Heat Exchanger Fouling Factors
Unit 1EDG System Health Reports, First & Second Quarter 2001
Unit 1EDG System Health Reports, First Quarter 2002
Unit 1Emergency Diesel Generator System Safety Classification Basis (94-003, Revision 1)

LIST OF ACRONYMS

AC	Alternating Current
ARP	Alarm Response Procedure
CCP	Closed Loop Cooling
CFR	Code of Federal Regulations
CS	Containment Spray
CSRW	Containment Spray Raw Water
DC	Direct Current
DCP	Design Change Package
DER	Deviation Event Report
EDG	Emergency Diesel Generator
EOP	Emergency Operating Procedure
GSN	Instrument Nitrogen System
IA	Instrument Air
IAS	Instrument Air System
ILRT	Integrated Leak Rate Test
IP	Inspection Procedure
LDCR	Licensing Document Change Request
LOCA	Loss of Coolant Accident
LOIA	Loss of Instrument AIr
NMP	Nine Mile Point
NRC	Nuclear Regulatory Commission
OP	Operating Procedure
QWA	Operator Work-Around
P&IDs	Piping & Instrumentation Drawings
PSIG	Pounds per Square Inch Gage
SDBD	System Design Basis Document
SE	Safety Evaluation
SOP	Special Operating Procedure
SOV	Solenoid-operated Valve
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report (Unit 1)
URI	Unresolved Item
USAR	Updated Safety Analysis Report (Unit 2)
°F	Degrees Fahrenheit