



**Constellation
Energy Group**

**Nine Mile Point
Nuclear Station**

December 27, 2002
NMP1L 1706

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Subject: Nine Mile Point Unit 1
Docket No. 50-220; DPR-63

Licensee Event Report 02-001, "115 kilovolt Offsite Power Inoperable Due to
Low Voltage on Line 4 and Line 1 Out of Service"

Gentlemen:

In accordance with 10 CFR 50.73(a)(2)(v)(D), we are submitting Licensee Event Report 02-001,
"115 kilovolt Offsite Power Inoperable Due to Low Voltage on Line 4 and Line 1 Out of
Service."

Very truly yours,

Lawrence A. Hopkins
Plant General Manager

LAH/KLE
Attachment

cc: Mr. H. J. Miller, NRC Regional Administrator, Region I
Mr. G. K. Hunegs, NRC Senior Resident Inspector

JE22

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

FACILITY NAME (1) Nine Mile Point, Unit 1	DOCKET NUMBER (2) 05000220	PAGE (3) 1 OF 4
---	--------------------------------------	---------------------------

TITLE (4)
115 kilovolt Offsite Power Inoperable Due to Low Voltage on Line 4 and Line 1 Out of Service

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	01	2002	2002	001	00	12	27	2002		05000
										DOCKET NUMBER 05000

OPERATING MODE (9) **1** THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) (11)

POWER LEVEL (10)	20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
100	20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)
	20.2203(a)(1)	50.36(c)(1)(i)(A)	50.73(a)(2)(iv)(A)	73.71(a)(4)
	20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)
	20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER
	20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)	
	20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	X 50.73(a)(2)(v)(D)	
	20.2203(a)(2)(v)	50.73(a)(2)(i)(B)	50.73(a)(2)(vii)	
	20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)	
	20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)	

LICENSEE CONTACT FOR THIS LER (12)

NAME R. G. Randall, Manager Engineering	TELEPHONE NUMBER (Include Area Code) 315-349-2445
---	---

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).	X NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

At 1508 hours on November 1, 2002, with 115 kilovolt (kV) Line 1 out of service to support emergency repair activities being performed on Line 2, National Grid Power Control (NGPC) notified the Nine Mile Point Unit 1 (NMP1) control room staff that a low contingency voltage alarm had been received for 115 kV Line 4. When Line 1 was removed from service, NMP1 entered action statement 3.6.3 of the Technical Specifications, requiring restoration of Line 1 within seven days or commence a plant shutdown. Upon notification of the low contingency voltage alarm, NMP1 operators declared Line 4 inoperable and proceeded with Action statement 3.6.3 of the Technical Specifications for both 115 kV lines inoperable. With 115 kV offsite power inoperable, both emergency diesel generators were started and aligned to power emergency buses, as required by procedure. At 2310 hours, Line 1 was restored to service and the low contingency voltage alarm cleared. With both 115 kV lines operable, NMP1 exited 3.6.3 action statement of the Technical Specifications.

The cause of the event was inadequate validation and verification of the administrative process governing the interface between NMP1 and NGPC for maintaining 115 kV voltage. This led to weaknesses in the process. For example, there was no formal administrative process identified for taking Line 1 out of service. Contributing causes include insufficient training, inadequate administrative controls, and the design of Line 4, which can require actions to boost voltage when Line 1 is out of service.

Corrective actions include implementing additional training, procedure modifications, and modifications to provide voltage control when Line 1 is out of service and Line 4 is supporting the 115 kV bus.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2) NUMBER (2)	LER NUMBER (6)			PAGE (3)		
Nine Mile Point, Unit 1	05000220	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2	OF	4
		2002	-- 001	-- 00			

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

I. Description of Event

On November 1, 2002, at 0901 hours, National Grid Power Control (NGPC) notified Nine Mile Point Unit 1 (NMP1) that a fault had occurred on 115 kV Line 2, the fault had been isolated, and the 115 kV grid was stable. At 1208 hours, NGPC notified NMP1 that 115 kV Line 1 needed to be removed from service for approximately 10 hours to allow repair of a damaged insulator on Line 2. The removal from service was needed for personnel safety considerations because of the Line 1 proximity to Line 2. Line 1 and Line 4 provide 115 kV offsite power to NMP1.

At approximately 1430 hours, a NGPC engineer ran the 115 kV grid voltage estimator program to obtain an estimation of the impact of removing Line 1 on the Line 4 voltage. The estimator program is a computer program that is used to predict voltage and other grid parameters given various conditions. One of the outputs of the program is contingency voltage, which is the projected 115 kV system voltage for the specified conditions. A contingency voltage value less than 111.8 kV, the low contingency voltage alarm setpoint on Line 4, is assumed to actuate the Degraded Voltage Relays (DVR) at NMP1 which result in separating the emergency buses from the 115 kV supply. The conditions used for the estimator program run at 1430 were: Line 1 out of service, a plant trip at NMP1 with a Loss of Coolant Accident (LOCA), and Emergency Core Cooling System equipment needed to mitigate the LOCA supplied from the 115 kV system. This generated a contingency voltage below the low contingency voltage alarm setpoint for Line 4.

The engineer informed the NGPC operators that the voltage would likely go low, and reviewed Policy 4.42, Nine Mile Point 1 & 2 and Fitzpatrick Post Contingency Voltage Alarm, with the operators to familiarize them with their required actions. The engineer knew that NMP1 would be required to enter an Action statement requiring a plant shutdown to commence within 24 hours unless either 115 kV Line 1 or 115 kV Line 4 were restored. He also knew that the NMP1 operators had a procedural process that would be followed under those conditions. Furthermore, he believed that Line 1 and Line 4 would likely be restored by 2400 hours on November 1, well before the end of the 24-hour Action statement. The NGPC engineer did not realize the impact on NMP1 station operators, or the overall increased risk. He also did not realize the implications of a planned 115 kV outage versus an unexpected and unplanned outage. As a result, NGPC operators did not inform the NMP1 operators that removing Line 1 from service would likely result in receipt of a low contingency voltage alarm for Line 4. Consequently, NMP1 operators did not realize that removing Line 1 from service for corrective maintenance on Line 2 would result in entry into an unplanned 24-hour Action statement.

At 1501 hours, Line 1 was removed from service and NMP1 entered Action statement 3.6.3 of Technical Specifications, which requires restoration of Line 1 within seven days or commence a plant shutdown. At 1508 hours, NMP1 was notified by NGPC that a low contingency voltage alarm was received for Line 4. NMP1 declared Line 4 inoperable and entered the Action statement 3.6.3 of Technical Specifications requiring restoration of Line 1 or Line 4 within 24 hours or commence a plant shutdown. With 115 kV offsite power inoperable, in accordance with plant procedures, NMP1 started activities to place both emergency diesels on their respective emergency buses and separate from the 115 kV system. At 1639 hours, emergency diesel generator EDG-102 was running and powering its associated emergency bus. At 1757 hours, emergency diesel generator EDG-103 was running and powering its associated emergency bus.

At 2310 hours, Line 1 was returned to service and the low contingency voltage alarm cleared on Line 4. With both 115 kV lines operable, NMP1 exited Action statement 3.6.3 of the Technical Specifications.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2) NUMBER (2)	LER NUMBER (6)			PAGE (3)		
Nine Mile Point, Unit 1	05000220	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3	OF	4
		2002	-- 001	-- 00			

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

II. Cause of Event

The root cause of this event is that the administrative process created to control the interface between NGPC and NMP1 was not adequately validated or verified to identify the shortcomings in procedures and training, and the potential for communications misunderstandings. A contributing cause of this event is insufficient training and inadequate administrative controls for the NMP1 operators, the NGPC operators, and the NMP1 work control 345/115 kV coordinators. Procedures at both NGPC and NMP1 identify the process to be taken when line voltage is not sufficient. However, neither the procedures nor the training specifically address the actions required for intentionally taking Line 1 out of service. The second contributing cause of this event is the Line 4 design, which requires that actions be taken by NGPC and NMP1 operators to boost or ensure adequate voltage whenever Line 1 is unavailable.

III. Analysis of Event

With Line 1 out of service and the voltage on Line 4 below that needed for emergency loads, offsite power was inoperable. As discussed in NUREG-1022, Revision 2, this condition is reportable in accordance with 10CFR50.73(a)(2)(v)(D), "Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to: (D) Mitigate the consequences of an accident."

Because of the low contingency voltage for Line 4, if a unit trip with a LOCA had occurred, the resulting transfer of house loads and ECCS loads to Line 4 could have dropped voltage below the DVR actuation setpoint. DVR actuation would result in the emergency buses separating from offsite power, starting of the emergency diesel generators, and re-powering the emergency buses from the associated emergency diesel generator. However, to prevent this potential scenario, both Emergency Diesel Generators were started and used to power the emergency buses in accordance with operating procedure N1-OP-33A, 115 kV System.

Throughout this event, Line 4 would have supplied the High Pressure Coolant Injection (HPCI) system. In addition, the Emergency Cooling System (emergency condensers) was available, and both emergency diesel generators were running and supplying power to the emergency buses. A Probabilistic Risk Assessment (PRA) review was performed on this event, and the review concluded that the Core Damage Probability resulting from this event is 2.88E-07. As indicated by the PRA review results, this event was of very low risk significance.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2) NUMBER (2)	LER NUMBER (6)			PAGE (3)		
Nine Mile Point, Unit 1	05000220	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4	OF	4
		2002	-- 001	-- 00			

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

IV. Corrective Actions

1. NGPC revised their Policy 4.42, Nine Mile Point 1 & 2 and Fitzpatrick Post Contingency Voltage Alarm, to include NGPC operator actions when it is expected that future system conditions may bring in the low contingency voltage alarm.
2. NMP1 implemented an interim checklist for communication between NMP1 and NGPC, to be used when removing Line 1 from service.
3. Training will be provided for NGPC operators and support engineers on low voltage contingencies for Nine Mile Point Unit 1 and Unit 2, and the impact of line outages to risk.
4. NMPNS procedures will be modified to address communications that are needed with NGPC whenever NGPC notifies NMP1 that a 115 kV line needs to be taken out of service. These procedure changes will be verified and validated by a joint meeting of NMP1 engineering, operations, and work control personnel, and NGPC engineering and operations personnel.
5. Continued training will be established to reinforce the design and communications issues.
6. A modification will be implemented that provides effective voltage control for the 115 kV system when Line 1 is out of service and Line 4 is supporting the 115 kV bus.

V. Additional Information

A. Failed Components:
None

B. Previous similar events:
Licensee Event Report (LER) 01-002, "115 kilovolt Line 4 Inoperable due to Inadequate Analysis of Design Change," describes the event that resulted in creation of the administrative process for interfacing between NMP1 and NGPC, providing training for NMP1 and NGPC personnel, and modification of procedures. These actions should have prevented the event described in LER 02-001.

C. Identification of components referred to in this Licensee Event Report:

<u>Components</u>	<u>IEEE 805 System ID</u>	<u>IEEE 803A Function</u>
115 kV Offsite Power	FK	N/A
Emergency Diesel Generators	EK	DG
Emergency Core Cooling Systems	BM	N/A
Emergency Cooling System	BL	N/A
High Pressure Coolant Injection	BJ	N/A
Relay	EK	27
Alarm	FK	EA
Condenser	BL	COND