

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) McGuire Nuclear Station, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 7 0	PAGE (3) 1 OF 03
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TITLE (4)
Unexpected Automatic Start of Diesel Generator 2A.

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)																																											
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)																																									
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<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">OPERATING MODE (9) 4</td> <td colspan="11">THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)</td> </tr> <tr> <td rowspan="5">POWER LEVEL (10) 0 0 0</td> <td>20.402(b)</td> <td>20.406(e)</td> <td><input checked="" type="checkbox"/></td> <td>50.73(a)(2)(iv)</td> <td>73.71(b)</td> </tr> <tr> <td>20.405(a)(1)(i)</td> <td>50.36(c)(1)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(v)</td> <td>73.71(e)</td> </tr> <tr> <td>20.405(a)(1)(ii)</td> <td>50.36(c)(2)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(vi)</td> <td rowspan="3">OTHER (Specify in Abstract below and in Text, NRC Form 366A)</td> </tr> <tr> <td>20.405(a)(1)(iii)</td> <td>50.73(a)(2)(i)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(vii)(A)</td> </tr> <tr> <td>20.405(a)(1)(iv)</td> <td>50.73(a)(2)(ii)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(vii)(B)</td> </tr> <tr> <td>20.405(a)(1)(v)</td> <td>50.73(a)(2)(iii)</td> <td><input type="checkbox"/></td> <td>50.3(a)(2)(x)</td> <td></td> </tr> </table>												OPERATING MODE (9) 4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)											POWER LEVEL (10) 0 0 0	20.402(b)	20.406(e)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)	20.405(a)(1)(i)	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	73.71(e)	20.405(a)(1)(ii)	50.36(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)	20.405(a)(1)(iii)	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(vii)(A)	20.405(a)(1)(iv)	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(vii)(B)	20.405(a)(1)(v)	50.73(a)(2)(iii)	<input type="checkbox"/>	50.3(a)(2)(x)	
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LICENSEE CONTACT FOR THIS LER (12)

NAME Phillip B. Nardoci, Licensing Engineer	TELEPHONE NUMBER AREA CODE: 7 0 4 3 7 3 - 7 4 3 2
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15) MONTH: DAY: YEAR:
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On August 19, 1984, Diesel Generator (D/G) 2A unexpectedly started automatically during performance of the "6.9 KV Normal Auxiliary Power Automatic Transfer Test". This test was performed to satisfy Technical Specification 4.8.1.1.1.b and Final Safety Analysis Report Section 8.3.1.1.3.

An automatic fast transfer of power sources for the 6.9 KV bus, 2TA, was being attempted. An automatic slow transfer actually occurred due to open sliding links in the automatic transfer circuitry. A diesel start would have been expected during an automatic slow transfer (which takes about one second), but because an automatic fast transfer was being attempted (which takes about eight cycles), the diesel start was unanticipated. Unit 2 was in Mode 4 at the time of the event.

This event is attributed to Procedural Deficiency, because the preoperational test failed to adequately test the automatic fast transfer circuitry.

D/G 2A was shutdown, the sliding links in the automatic transfer circuitry for Bus 2TA were closed, and the test was successfully performed the same day using an auto fast transfer on 2TA. Even though the automatic fast transfer did not work, the automatic slow transfer circuit was operable and capable of performing the transfer. The emergency equipment would have worked if needed. Health and safety of the public were unaffected.

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		8 4	- 0 1 8	- 0 0	0 2	OF	0 3

TEXT (If more space is required, use additional NRC Form 366A's) (17)

On August 19, 1984, at 1626 hours, Diesel Generator (D/G) (EIIS:GEN) 2A unexpectedly started automatically during performance of the "6.9 KV Normal Auxiliary Power Automatic Transfer Test". This test was performed to satisfy Technical Specification 4.8.1.1.1.b and Final Safety Analysis Report Section 8.3.1.1.3.

An automatic fast transfer of power sources for the 6.9 KV (EIIS:EA) bus, 2TA, was being attempted. An automatic slow transfer actually occurred due to open sliding links (EIIS:BRK) in the automatic transfer circuitry. A diesel start would have been expected during an automatic slow transfer (which takes about one second), but because an automatic fast transfer was being attempted (which takes about eight cycles), the diesel start was unanticipated. The D/G was shutdown at 1649. Unit 2 was in Mode 4 at the time of the event.

This event is attributed to Procedural Deficiency because the preoperational test failed to adequately test the automatic fast transfer circuitry.

For an automatic fast transfer from normal to standby breaker (EIIS:BRK) feeding 2TA to occur, the automatic transfer circuitry must sense that reactor coolant (NC) (EIIS:AB) pumps (EIIS:P) 2A and 2C are operating. Investigation found that four sliding links were open, blocking the NC pumps operating signal. When the auto transfer was made, an automatic slow transfer occurred. During the automatic slow transfer on 2TA, D/G 2A started (as designed) due to the one second time delay between the opening of the normal breaker and closing of the standby breaker. However, had an automatic fast transfer occurred, D/G 2A may have started anyway. An automatic start of the diesel is expected during an automatic slow transfer; but an automatic start of the diesel may occur during an automatic fast transfer. Whether a diesel will start on an automatic fast transfer depends on the loads on its associated 4160V bus (EIIS:EF) (pulling down voltage). Prior to retesting the automatic fast transfer, the "6.9 KV Normal Auxiliary Power Auto Transfer Test" procedure was revised. This change warned the operator that an automatic fast transfer on 2TA or 2TD could cause an automatic start of D/G 2A or 2B. The procedure previously only warned that an automatic slow transfer would cause a diesel start. The Unit 1 procedure will also be similarly revised.

The open sliding links in the automatic transfer circuitry for bus 2TA were closed, and the "6.9 KV normal auxiliary power automatic transfer test" was successfully performed at 1859 the same day using an auto fast transfer on 2TA.

An automatic fast transfer on 2TA had not been previously tested with NC pumps 2A and 2C operating. The "6.9 KV Normal Auxiliary Power Automatic Transfer Test", required to be performed at least once per 18 months during shutdown in accordance with T.S.4.8.1.1.1.b, had been performed on February 7, 1983. During this test, the automatic transfer was tested using a slow transfer (the test allows using either the fast or slow automatic transfer). The "6.9 KV Normal Auxiliary Power System Preoperational Test", performed on February 11, 1982, tested the automatic fast transfer on 2TA by simulating that NC pumps 2A and 2C were running. To simulate NC pumps running, a jumper was placed across two contacts (EIIS:CON). This jumper bypassed the open sliding links.

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		8 4	- 0 1 8	- 0 0	0 3	OF 0 3

TEXT (If more space is required, use additional NRC Form 366A's) (17)

All sliding links in safety related circuitry were verified to be closed by construction Quality Assurance personnel prior to turnover to Nuclear Production. This circuitry was rechecked by preoperational testing, and was also checked by loop checking of instruments and equipment. The only program that existed to ensure sliding links in non-safety related circuitry were closed was preoperational testing and loop checking of instruments and equipment. Not every circuit was tested, and some open sliding links were not detected (as was the case in this incident).

Duke Power Company will evaluate the possibility of checking all electrical panels that contain sliding links to ensure they are in the correct position.

The D/G 27H (undervoltage) relays (EIIS:RLY) will be replaced with 27D relays. The 27D relays operate on a 12 cycle (0.2 sec.) time delay. This modification will prevent automatic start of a D/G during an automatic fast transfer on its associated 6.9 KV bus.

A means to automatically transfer from normal to alternate power source for 2TA was available as required by Technical Specification 4.8.1.1.1.b. Even though the automatic fast transfer did not work, the automatic slow transfer circuit was operable and capable of performing the transfer. D/G 2A started as designed in response to low voltage on 4160V bus 2ETA. Power to 2TA and 2ETA was maintained throughout the event, except for about one second. The emergency equipment would have worked if needed. The health and safety of the public were not affected by this incident.

DUKE POWER COMPANY

P.O. BOX 33189
CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

September 18, 1984

TELEPHONE
(704) 373-4531

Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Subject: McGuire Nuclear Station, Unit 2
Docket No. 50-370
LER 370/84-18

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a)(1) and (d), attached is Licensee Event Report 370/84-18 concerning an unexpected automatic start of diesel generator 2A which is submitted in accordance with §50.73 (a)(2)(iv). Initial notification of this event was made (pursuant to §50.72 Section (b)(2)(ii)) with the NRC Operations Center via the ENS on August 19, 1984. This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

H.B. Tucker
Hal B. Tucker

PBN:mjf

Attachment

cc: Mr. James P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
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New York, New York 10020

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September 18, 1984
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cc: Mr. W. T. Orders
NRC Resident Inspector
McGuire Nuclear Station

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