

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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 RECIP. NAME RECIPIENT AFFILIATION
 Document Control Branch (Document Control Desk)

SUBJECT: Part 21 rept re initial notification of lockup of Westronics recorders due to servo amplifier board overrange feature. Problem corrected in fall of 1997 by equipping recorders w/newer servo amplifier boards.

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POWER REACTOR

EVENT NUMBER: 33650

FACILITY: NINE MILE POINT REGION: 1
UNIT: [] [2] [] STATE: NY
RX TYPE: [1] GE-2, [2] GE-5

NOTIFICATION DATE: 02/04/98
NOTIFICATION TIME: 13:50 [ET]
EVENT DATE: 02/04/98
EVENT TIME: 13:50 [EST]
LAST UPDATE DATE: 02/04/98

NRC NOTIFIED BY: KENNO LAMPMAN
HQ OPS OFFICER: JOHN MacKINNON

NOTIFICATIONS

EMERGENCY CLASS: NOT APPLICABLE
10 CFR SECTION:
CCCC 21.21 UNSPECIFIED PARAGRAPH

LAURIE PELUSO RDO
VERN HODGE (PCEB) NRR

UNIT	SCRAM CODE	RX CRIT	INIT PWR	INIT RX MODE	CURR PWR	CURR RX MODE
2	N	Y	95	POWER OPERATION	95	POWER OPERATION

EVENT TEXT

10 CFR PART 21: LOCKUP OF WESTRONICS RECORDERS DUE TO SERVO AMPLIFIER BOARD OVERRANGE FEATURE - THIS PROBLEM WAS CORRECTED IN THE FALL OF 1997.

DESCRIPTION OF CONDITION:

THE DEVIATION DESCRIBED IN THE REFERENCED DEVIATION EVENT REPORTS (DER) AFFECTS THE FIVE SAFETY-RELATED (SR) RECORDERS. RECORDERS 2ISC*LR1623A/B AND 2ISC*PR1623A/B WERE SUPPLIED TO GENERAL ELECTRIC (GE) BY WESTRONICS AS NON-SAFETY-RELATED INSTRUMENTS (NSR) AND WERE UPGRADED TO SR BY GE (PURCHASE ORDER/SPEC. P800A). FUEL ZONE LEVEL RECORDER 2ISC*LR1615 WAS SUPPLIED AS SR EQUIPMENT AND IS FED FROM TRANSMITTER 2ISC*LT13B. THE WIDE RANGE LEVEL RECORDERS 2ISC*LR1623A/B ARE FED FROM TRANSMITTERS 2ISC*LT9A/B. THE LATTER RECORDERS EACH ALSO DISPLAY VESSEL PRESSURE ON A SECOND CHANNEL AND PEN. THE PRESSURE CHANNELS 2ISC*PR1623A/B ARE FED FROM PRESSURE TRANSMITTERS 2ISC*PT16A/B. ALL OF THE AFFECTED RECORDERS ARE ON MAIN CONTROL ROOM PANEL 2CEC*PNL601. ALL OF THESE RECORDERS ARE SR TECHNICAL SPECIFICATIONS POST-ACCIDENT MONITORING INSTRUMENTS. THEY ARE IDENTIFIED ON THE NMP2 MASTER EQUIPMENT LIST AS REGULATORY GUIDE 1.97 MONITORING EQUIPMENT. ALL OF THE ABOVE MENTIONED RECORDERS WERE INSTALLED WHEN THE PLANT WAS INITIALLY LICENSED.

DERs 2-97-1662 AND 2-97-3030 DESCRIBE FAILURES OF THE AFFECTED VESSEL PRESSURE AND LEVEL RECORDERS LISTED ABOVE SUCH THAT THE AFFECTED RECORDER CHANNEL LOCKS UP TEMPORARILY UNDER CONDITIONS WHERE THEY EXPERIENCE A LARGE STEP CHANGE IN THE PROCESS VARIABLE MONITORED OR WHEN THE RECORDERS HAVE THE PEN MANUALLY MOVED FROM THE POSITION TO WHICH IT WAS DRIVEN BY THE SERVO AMPLIFIER BOARD (WESTRONICS PART NUMBER B100124N04).

(Continued on next page)

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PDR ADOCK 05000410
S PDR

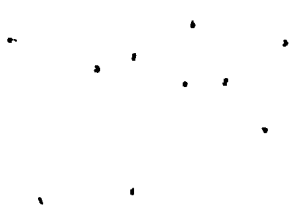


JE190/



ALL OF THE POTENTIALLY AFFECTED RECORDERS NOW ARE (AS OF THE FALL OF 1997) NOW EQUIPPED WITH THE NEWER SERVO AMPLIFIER BOARDS. THESE BOARDS HAVE AN INHERENT TIME DELAY THAT ALLOWS THE BOARD TO FUNCTION UNDER TRANSIENT CONDITIONS WITHOUT LOCKING UP. THERE HAVE BEEN NO FURTHER FAILURES (OF THE TYPE DESCRIBED) EXPERIENCED SINCE THE INSTALLATION OF THE NEW BOARDS. THEREFORE, NO FURTHER MAINTENANCE ACTION IS REQUIRED WITH RESPECT TO THESE RECORDERS.

PROCUREMENT PERSONNEL HAVE VERIFIED THAT NONE OF THE OLDER MODEL BOARDS ARE BEING UTILIZED AT NINE MILE POINT UNIT 1 OR ARE BEING MAINTAINED AS SPARES.



NM NIAGARA MOHAWK

2/4/98

1356

NINE MILE POINT NUCLEAR STATION
P.O. BOX 63, LYCOMING, NEW YORK 13093

FAX COVER LETTER

NINE MILE POINT UNIT 2

FROM:

FAX TELEPHONE NUMBER: (315) 349-1400

NAME: Keeno LAMPMAN

DEPARTMENT: LICENSING/ENVIRONMENTAL

TELEPHONE NUMBER: (315) 349-4799

FAX #

TO: NRC OPERATIONS CENTER (301) 816-5151

TOTAL NUMBER OF PAGES FAXED (INCLUDING COVER LETTER): 3

DATE: 2/4/98 TIME: _____

MESSAGE: This is the initial notification of a deviation determined by NMPC to be reportable in accordance with 10 CFR 21 requirements.



INITIAL PART 21 NOTIFICATION

PLANT: Nine Mile Point Unit 2

TITLE: Lockup of Westronics Recorders due to Servo Amplifier Board Overrange Feature

*Pen initial beam of plow
replace in the fall
fall of 1997*

DESCRIPTION OF CONDITION:

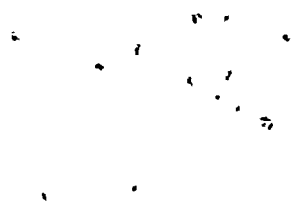
New Servo Amplifier Board

The deviation described in the referenced DERs affects the five safety related (SR) recorders. Recorders 2ISC*LR1623A/B and 2ISC*PR1623A/B were supplied to GE by Westronics as non-safety related instruments (NSR), and were upgraded to SR by GE (Purchase Order/Spec. P800A). Fuel zone level recorder 2ISC*LR1615 was supplied as SR equipment and is fed from transmitter 2ISC*LT13B. The wide range level recorders 2ISC*LR1623A/B are fed from transmitters 2ISC*LT9A/B. The latter recorders each also display vessel pressure on a second channel and pen. The pressure channels 2ISC*PR1623A/B are fed from pressure transmitters 2ISC*PT6A/B. All the affected recorders are on main control room panel 2CEC*PNL601. All of these recorders are SR Technical Specifications post-accident monitoring instruments. They are identified on the NMP2 master equipment list as RG 1.97 monitoring equipment.

DERs 2-97-1662 and 2-97-3030 describe failures of the affected vessel pressure and level recorders listed above such that the affected recorder channel locks up temporarily under conditions where they experience a large step change in the process variable monitored, or when the recorders have the pen manually moved from the position to which it was driven by the servo amplifier board (Westronics part number CB100124N04). These failures have been identified several times by I&C, and have been temporarily resolved by resetting the power to the recorder or recalibrating the recorder. A newer revision of the same servo amplifier board from Westronics, part no. CB100124N04 (symbol # 93-23-345) has eliminated the problem. Although the newer boards have the same part number, they may be recognized by different potentiometer identification numbers. NMP2 has now installed the newer boards in the potentially affected recorders (see table below; AFFECTED EQUIPMENT). However, with the older servo amplifier boards, the affected recorders could give readings that are grossly inaccurate due to the pens locking up.

TABLE: AFFECTED EQUIPMENT	
2ISC*LR1615	Vessel level, Fuel Zone, -165 to 35 in. (single pen)
2ISC*LR1623A	Vessel level, Wide Range, -5 to 205 in. (pen 1/red)
2ISC*LR1623B	Vessel level, Wide Range; -5 to 205 in. (pen 1/red)
2ISC*PR1623A	Vessel pressure 0-1500 psi. (pen 2/blue)
2ISC*PR1623B	Vessel pressure 0-1500 psi. (pen 2/blue)

Although originally supplied SR with an upgraded servo amplifier board, recorder 2ISC*LR1615 could have at one time been refitted with the old servo amplifier board during subsequent maintenance activities. The remainder of the subject recorders were originally supplied with the old model boards already installed.



EVALUATION:

Each recorder has one servo amplifier board per channel. Any single servo amplifier board may lock-up the affected channel (pressure or level) under a large step change condition. There are no alarms or interlocks generated by the recorders or the internal auxiliary switches. 2ISC*LR1615 uses no internal adjustable auxiliary switches with setpoints. The other recorders listed above have internal switches with high pressure/low level setpoints, but they are only used to switch the recorder to high speed during the abnormal condition. They generate no interlocks or alarms.

The subject recorders are primary monitoring devices for the operators for post-accident monitoring of the vessel level and pressure, and the instruments are used by them in the conduct of EOP actions. These are SR QA Cat I instruments. The fuel zone level loop has an alternate SR indicator on 2CEC*PNL601, which is 2ISC*LI13A (Div. I). There is an analog computer point ISCLA101 covering the same fuel zone vessel water level which would operate independent of the recorder, but it is NSR. The subject wide range level loops have no associated analog computer points. Alternate wide range level indications fed from the same loops are available on the trip unit indicators on control room panels 2CEC*PNL629 and 2CEC*PNL618. The trip units are SR, but the indicators are smaller and the location is less convenient for operator reference. The subject vessel pressure loops have associated analog computer points ISCPA100 and ISCPA101 which are independent of the recorder problems, but they are NSR. All of the above pressure and level ranges are also available on the Safety Parameter Display System.

Recorder 2ISC*LR1615 is a RG 1.97 Category 1 Type A instrument. It is the only RG 1.97 fuel zone water level instrument on Division II. Recorders 2ISC*LR1623A (Division I) and 2ISC*LR1623B (Division II) are the only RG 1.97 Category 1 Type A & B instruments monitoring wide range reactor vessel water level. Recorders 2ISC*PR1623A (Division I) and 2ISC*PR1623B (Division II) are the only RG 1.97 Category 1 Type A, B, & C instruments monitoring reactor vessel pressure.

As Technical Specification RG 1.97 (Category 1 Type A) post-accident monitoring equipment, the affected recorders are extensively relied upon by operators during an accident condition. The defect described in DER 2-97-3030 is caused by an internal manufacturer's servo amplifier board design which may lock up any affected channel (pressure or level) under conditions involving a large step change. For this reason, the possibility of failure of any of these recorders due to lockup of the indication could present a significant safety hazard as described by 10CFR21.

RECOMMENDED CORRECTIVE ACTION (IF REPORTABLE):

All of the potentially affected recorders now are equipped with the newer servo amplifier boards. These boards have an inherent time delay that allows the board to function under transient conditions without locking up. No further failures of the type described have been experienced since the installation of the new boards. Therefore, no further maintenance action is required with respect to these recorders.

Procurement has verified that none of the older model boards are being utilized at Nine Mile Point Unit 1 or maintained as spares.

Since the older model boards have been replaced, the affected instruments are operable at this time. GE Company (Mr. Richard Bodily) has been informed of NMPC's intent to report this defect under 10CFR21.



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