

Commonwealth Edison Company
Dresden Generating Station
6500 North Dresden Road
Morris, IL 60450
Tel 815-942-2920

ComEd

March 14, 1995

TPJ Ltr.: 95-0032

Director Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Re: Dresden Nuclear Station Units 2 and 3, Docket Numbers 50-237
and 50-249, Dresden Simulator 4 Year Report

Gentlemen:

The purpose of this letter is to submit the "4 Year Certification Report" of ComEd's Dresden Nuclear Station Simulator Facility, in accordance with 20CFR55.45.

The enclosed report describes performance tests conducted from 1992-1995, and provides a Performance Test Schedule for 1996-1999.

NRC Form 474 is enclosed for a description of new performance tests added to the testing schedule for the next four years.

Sincerely,



Tom Joyce
Site Vice President
Dresden Station

TPJ/cls

cc: Administrator, Region III, USNRC
NRC Resident Inspector, Dresden Station
Randy Weidner
Jake Kluch
Kevin Cox
File: Numerical
File: SIM111

9503170014 950314
PDR ADDCK 05000237
P PDR

A Unicom Company

AD05

SIMULATION FACILITY CERTIFICATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 120 HOURS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0138), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

INSTRUCTIONS: This form is to be filed for initial certification, recertification (if required), and for any change to a simulation facility performance testing plan made after initial submittal of such a plan. Provide the following information and check the appropriate box to indicate reason for submittal.

FACILITY DRESDEN STATION - UNIT 2	DOCKET NUMBER 50- 237
LICENSEE ComEd	DATE 2/27/95

This is to certify that:

- The above named facility licensee is using a simulation facility consisting solely of a plant-referenced simulator that meets the requirements of 10 CFR 55.45.
- Documentation is available for NRC review in accordance with 10 CFR 55.45(b).
- This simulation facility meets the guidance contained in ANSI/ANS 3.5, 1985, as endorsed by NRC Regulatory Guide 1.149.

If there are any EXCEPTIONS to the certification of this item, CHECK HERE [] and describe fully on additional pages as necessary.

NAME (or other identification) AND LOCATION OF SIMULATION FACILITY.

Dresden Station Training Facility
6500 North Dresden Road
Morris, IL, 60450

SIMULATION FACILITY PERFORMANCE TEST ABSTRACTS ATTACHED. (For performance tests conducted in the period ending with the date of this certification.)

DESCRIPTION OF PERFORMANCE TESTING COMPLETED. (Attach additional pages as necessary and identify the item description being continued.)

SIMULATION FACILITY PERFORMANCE TESTING SCHEDULE ATTACHED. (For the conduct of approximately 25% of performance tests per year for the four-year period commencing with the date of this certification.)

DESCRIPTION OF PERFORMANCE TESTING TO BE CONDUCTED. (Attach additional pages as necessary and identify the item description being continued.)


PERFORMANCE TESTING PLAN CHANGE. (For any modification to a performance testing plan submitted on a previous certification.)

DESCRIPTION OF PERFORMANCE TESTING PLAN CHANGE (Attach additional pages as necessary and identify the item description being continued.)

See the attached document for a description of new performance test added to the testing schedule for the next four years.

RECERTIFICATION (Describe corrective actions taken, attach results of completed performance testing in accordance with 10 CFR 55.45(b)(5)(v). (Attach additional pages as necessary and identify the item description being continued.)

Any false statement or omission in this document, including attachments, may be subject to civil and criminal sanctions. I certify under penalty of perjury that the information in this document and attachments is true and correct.

SIGNATURE - AUTHORIZED REPRESENTATIVE 	TITLE Site Vice President	DATE 3/4/95
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In accordance with 10 CFR 55.8, Communications, this form shall be submitted to the NRC as follows:

BY MAIL ADDRESSED TO:	DIRECTOR, OFFICE OF NUCLEAR REACTOR REGULATION U.S. NUCLEAR REGULATORY COMMISSION WASHINGTON, DC 20555-0001	BY DELIVERY IN PERSON TO THE NRC OFFICE AT:	ONE WHITE FLINT NORTH 11555 ROCKVILLE PIKE ROCKVILLE, MD
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NRC Form 474

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Dresden Nuclear Station Simulator
1995 Certification Report

I. INTRODUCTION

This report is a supplemental to the 1995 Simulator Annual Certification Report. This report is submitted in accordance with the requirements of 10 CFR 55.45 (b) (5); Certification of Simulator Facilities. It describes the simulator performance testing completed over the last 4 years, and the performance tests planned for the next 4 years. This report also discusses exceptions to the ANSI/ANS 3.5 1985 standard.

The ComEd Owned General Electric BWR 3, 2527 Mwt power plant simulator, hereafter referred to as the Dresden Simulator or Simulator, is used for training the Dresden Unit 2 and 3 operators. Because of the near exact duplication between the two units, it is considered a plant specific simulator for Dresden Unit 2 and 3. Considered the Reference Plant, the Simulator is modeled after Unit 2.

The Simulator was constructed by Apollo Systems, under contract with General Electric Company and placed into operation in 1968. In 1986, Commonwealth Edison Company and General Electric Company entered into a contract to upgrade and modify the Simulator in preparation for its subsequent purchase by Commonwealth Edison Company. The contract was amended in 1988 to include modifications after the original freeze date of January, 1986 up to October, 1988. The Dresden Simulator was declared "Ready for Training" on March 28 1991, and was then moved to the new Commonwealth Edison Standardized Training Facility located at Dresden Nuclear Power Station, Morris, Illinois. The Dresden Simulator was ready to resume training on May 15, 1991.

II. REFERENCES

- A. Title 10, Code of Federal Regulations, Part 55. "Operator Licenses", Subpart E, Section 45.
- B. U.S. Nuclear Regulatory Guide 1.149 Nuclear Power Plant Simulation Facilities for use in Operator License Examinations.
- C. ANSI 3.5, 1985, 'Nuclear Power Plant Simulators for use in Operating Training.

III. REPORTING REQUIREMENTS

The requirements of this report as outlined in 10CFR55.45 are:

- A. Paragraph 55.45 (b) (5) (ii): Identify any uncorrected performance test failures, and submit a schedule for correction of such performance test failures.

- B. Paragraph 55.45 (b) (5) vi): A description of performance testing completed for the simulation facility.
- C. Paragraph 55.45 (b) (5) (vi): A description of performance test, if different, to be conducted on the simulation facility during the subsequent 4 year period.
- D. Paragraph 55.45 (b) (5) (vi): A schedule for the conduct of approximately 25% of the performance tests per year for the subsequent 4 years.

IV. IMPLEMENTATION

- A. Identify any uncorrected performance test failures, and submit a schedule for correction of such performance test failures.
 - 1. There are NO outstanding uncorrected performance test failures. Several previously certified malfunctions are being modified to enhance their usability in training. NONE of these malfunctions are needed to satisfy ANSI/ANS-3.5. 1985 section 3.1.2, Plant Malfunctions and will not be authorized for training use until the work request has been completed.
- B. A description of Performance Testing Completed for the Simulation Facility.

The Dresden Simulator completed all annual and quadrennial performance tests for the years 1992 through 1995 as scheduled in the initial certification report. Dresden procedures do not allow hot standby operation, so the normal operations tests that require hot standby conditions have been deleted from the new schedule.

- 1. Computer Real Time Testing is done annually, and has been satisfactory each year from 1992 through 1995.
- 2. Steady State Testing is done annually, and has been satisfactory each year from 1992 through 1995.
- 3. Normal Operations Tests are conducted using the Dresden Station Procedures and using only operator actions normal to Dresden Station. The Normal Operations Tests for certification year 1991/1992, consisted of performing all of the Normal Plant Evolutions listed in section 3.1.1 of ANSI/ANS-3.5-1985.

Effective with the 1992/1993 certification year, approximately 25% of the Normal Plant Evolutions listed in section 3.1.1 of ANSI/ANS-3.5-1985 were performed every year.

4. Malfunction testing is done at a rate of 25% per year and has been satisfactory each year from 1992 through 1995, with a few minor exceptions that were or are being corrected by the work request procedure. Work Requests are open on several malfunctions to enhance their usability, and these malfunctions will not be authorized for training until complete. None of these malfunctions are needed to satisfy the requirements of ANSI/ANS-3.5 1985, section 3.1.2, Plant Malfunctions.

C. A description of Performance Tests, if different, to be conducted on the simulation facility during the subsequent 4 year period.

1. The following model changes, both logics and dynamics have been completed on the simulator since the original report of March 18, 1991.

- | | |
|--------------------------|-----------------------------------|
| -LPCI Logic | -Alternate Injection Paths |
| -CCSW | -Reactor Building Ventilation |
| -Feedwater Heater Drains | -Diesel Generator |
| -Offgas System | -Reactor Water Cleanup |
| -Service Water System | -TBCCW/RBCCW Systems |
| -ADS/SRV Logic | -Main Turbine Aux Systems |
| -Main Generator | -Reactor Feed Pumps & Valve Logic |
| -PCIS | -ATS |
| -RPS | -Shutdown Cooling System |
| -Spring System | -Radiation Propagation |
| -Panel 923-4 | -Reactor Recirc |
| -Inst. & Serv. Air Logic | -Circ Water |
| -CRD | -RPIS |
| -Reactor Main Control | -Core Spray |
| -HPCI | -SBCC |

Due to this large number of model changes to the simulator since the original report was submitted, the malfunction testing schedule and original list of malfunctions has changed. Please see attachment A for a complete testing schedule of all currently certified malfunctions for test years 1995/96 - 1998/99.

2. The Performance Test Schedule for 1995/96 - 1998/99 is identical to the original certification report with the exception of the above mentioned malfunction changes. The remainder of the test schedule and changes are as follows:

<u>Description:</u>	<u>Next Test:</u>
a. Real Time Test	Annually
b. Steady State Test @ 50%, 75%, 100%	Annually
c. Transient Test	Annually
(1) Manual Scram	
(2) Loss of all Feedwater	
(3) Closure of all MSIV's	
(4) Trip of one Recirc Pump	
(5) Trip of both Recirc Pumps	
(6) Main Turbine Trip (not resulting in Reactor Scram)	
(7) Ramp power down and then back up	
(8) LOCA with Loss of Power	
(9) Main Steam Line Rupture	
(10) MSIV Closure and with Stuck open SRV	
d. Normal Operation Test	(25% Annually)
(1) Normal Unit Startup DGP 01-01	(1997)
(2) Turbine Startup DGP 01-01	(1997)
(3) Reactor Trip and Recovery DGP 02-03	(1996)
(4) Logo Changes DGP 03-01	(1996)
(5) Startup, Shutdown and Power Operations, with less than full reactor coolant flow DGP 03-01	(see note #1)

- (6) Shutdown and Cooldown DGP 03-03 (1998)
- (7) Operator Conducted Surveillance
on Safety Related Equipment or
Systems (1999)
- (8) Core Performance Testing (see note #2)

NOTE #1: Item C.2.d.5 not performed since reduced flow operation is not a normal evolution at Dresden. Also note the fact that operations at Hot Standby are no longer allowed at Dresden Station, so these normal operations evolutions have been deleted from the schedule.

NOTE #2: Item C.2.d.8 only needs to be performed when the simulator core model has been replaced or modified.

ATTACHMENT "A"

CERTIFIED MALFUNCTION TEST SCHEDULE

SYS_NUM	SYNTAX	DESCRIPTION	RECERT DATE
0201	A55	ENABLE FULL CORE OSCILLATION	98/99
	M04	FUEL FAILURE	97/98
	MP5	PERCENTAGE OF FUEL FAILURE	96/97
	RLR	REDUCED LEAK RATE	95/96
0202	F41	LOOP A SUCTION BREAK STATUS	98/99
	F42	LOOP B SUCTION BREAK STATUS	98/99
	F43	LOOP A DISCHARGE BREAK STATUS	98/99
	F44	LOOP B DISCHARGE BREAK STATUS	98/99
	FP1	LOOP A SUCTION BREAK SIZE	98/99
	FP2	LOOP B SUCTION BREAK SIZE	98/99
	FP3	LOOP A DISCHARGE BREAK SIZE	98/99
	FP4	LOOP B DISCHARGE BREAK SIZE	98/99
	RRM004AF	RECIRC PUMP SUCTION VALVE 4A OVERLOAD TRIP	95/96
	RRM004BF	RECIRC PUMP SUCTION VALVE 4B OVERLOAD TRIP	95/96
	RRM005AF	RECIRC PUMP DISCHARGE VALVE 5A OVERLOAD TRIP	95/96
	RRM005BF	RECIRC PUMP DISCHARGE VALVE 5B OVERLOAD TRIP	95/96
	RRM007AF	RECIRC PUMP DISCH B/P VALVE 7A OVERLOAD TRIP	95/96
	RRM007BF	RECIRC PUMP DISCH B/P VALVE 7B OVERLOAD TRIP	95/96
	RRM009AF	RECIRCULATION XTIE B/P VALVE 9A OVERLOAD TRIP	95/96
	RRMAFDBK	MG SET 2A SPEED FEEDBACK SIGNAL (TCH) FAILURE	95/96
	RRMASDND	MASTER CONTROLLER FAIL DOWNSCALE POT 0 - 1.0	95/96
	RRMASDNF	MASTER CONTROLLER FAIL DOWNSCALE FLAG	95/96
	RRMASL1F	RECIRC PUMP 2A SEAL # 1 FAILURE	95/96

SYS_NUM	SYNTAX	DESCRIPTION	RECERT DATE
	RRMASPED	MG SET 2A CONTROLLER TO SCOOP TUBE SIGNAL FAILURE	95/96
	RRMASUPD	MASTER CONTROLLER FAIL UPSCALE POT 0 - 1.0	95/96
	RRMASUPF	MASTER CONTROLLER FAIL UPSCALE FLAG	95/96
	RRMAUNST	MG SET 2A CONTROLLER SIGNAL UNSTABLE	95/96
	RRMBFDBK	MG SET 2B SPEED FEEDBACK SIGNAL (TCH) FAILURE	95/96
	RRMBSL1F	RECIRC PUMP 2B SEAL # 1 FAILURE	95/96
	RRMBSPED	MG SET 2B CONTROLLER TO SCOOP TUBE SIGNAL FAILURE	95/96
	RRMBUNST	MG SET 2B CONTROLLER SIGNAL UNSTABLE	95/96
	RRMDIFFA	MG SET 2A GENERATOR DIFFERENTIAL CURRENT	95/96
	RRMDIFFB	MG SET 2B GENERATOR DIFFERENTIAL CURRENT	95/96
	RRMFAEXH	MG SET 2A VENT EXHAUST HIGH TEMPERATURE	95/96
	RRMFBEXH	MG SET 2B VENT EXHAUST HIGH TEMPERATURE	95/96
	RRMFNALO	MG SET VENT FAN 2A TRIP	95/96
	RRMFNBLO	MG SET VENT FAN 2B TRIP	95/96
	RRMGMAHI	MG SET 2A MOTOR HIGH TEMPERATURE	95/96
	RRMGMAOC	MG SET 2A MOTOR OVERCURRENT	95/96
	RRMGMBOC	MG SET 2B MOTOR OVERCURRENT	95/96
	RRMINCSA	MG SET 2A INCOMPLETE SEQUENCE START	95/96
	RRMINCSB	MG SET 2B INCOMPLETE SEQUENCE START	95/96
	RRR009BF	RECIRCULATION XTIE B/P VALVE 9B ENABLED	95/96
0250	ADS3?BFF	ADS VALVE BELLOWS FAILURE (ADS3ABFF)	95/96
	ADS3?BNF	ADS VALVE BINDING FLAG (ADS3ABNF)	95/96
	ADS3?BNS	ADS VALVE BINDING SETPOINT (ADS3ABNS .50)	95/96
	ADS3?SDF	ADS VALVE SETPOINT DRIFT FLAG (ADS3ASDF)	95/96
	ADS3?SDS	ADS VALVE SETPOINT DRIFT SETPOINT (ADS3ASDS 400)	95/96
	ADS3?SFF	ADS VALVE SOLENOID FAILURE (ADS3ASFF)	95/96
	ADS4?BNF	SAFETY VLV BINDING FLAG	95/96
	ADS4?BNS	SAFETY VLV BINDING SETPOINT	95/96
	ADS4?SDF	SAFETY VLV SET POINT DRIFT FLAG	95/96

SYS_NUM	SYNTAX	DESCRIPTION	RECERT DATE
	ADS4?SDS	SAFETY VLV DRIFT SETPOINT	95/96
	I01	MSIV 203-1A FAST CLOSURE	96/97
	I02	MSIV 203-1C SLOW CLOSURE	96/97
	I03	MSIV 203-2B FAST CLOSURE	96/97
	I04	MSIV 203-2C FAST CLOSURE	96/97
	I11	MSIV 203-2B (OUTBOARD) DRIFT CLOSED	95/96
	I12	MSIV 203-1A MECHANICAL BINDING	95/96
	I13	MSIV 203-1B MECHANICAL BINDING	95/96
	I14	MSIV 203-1C MECHANICAL BINDING	95/96
	I15	MSIV 203-1D MECHANICAL BINDING	95/96
	I16	MSIV 203-2A MECHANICAL BINDING	95/96
	I17	MSIV 203-2B MECHANICAL BINDING	95/96
	I18	MSIV 203-2C MECHANICAL BINDING	95/96
	I19	MSIV 203-2D MECHANICAL BINDING	95/96
	I21	STEAM LEAK BEFORE RESTRICTORS STATUS	95/96
	I22	STEAM LEAK AFTER RESTRICTORS STATUS	95/96
	IP1	STEAM LEAK BEFORE RESTRICTORS SIZE	95/96
	IP2	STEAM LEAK AFTER RESTRICTORS SIZE	95/96
0263			
	AT10	DIV I CAB 73A CHANNEL A FUEL ZONE VARIANCE FLAG	96/97
	AT11	DIV I CAB 73A CHANNEL A FUEL ZONE VARIANCE SETPT	96/97
	AT53	CAB 73B DIV II CHANNEL B FUEL ZONE VARIANCE FLAG	96/97
	AT54	CAB 73B DIV II CHANNEL B FUEL ZONE VARIANCE SETPT	96/97
0300			
	RDASUCLG	CRD SUCTION FILTER CLOGGING	97/98
	RDFCFHI	CRD FLOW CONTROLLER FAILED HI	97/98
	RDFCFLO	CRD FLOW CONTROLLER FAILED LOW	97/98
	RDFCVFCL	CRD FLOW CONTROL VALVE FAILED CLOSED	97/98
	RDFHYLK	FULL HYDRAULIC LOCK	97/98
	RDHITEMP	CRD HIGH TEMPERATURE	97/98

SYS_NUM	SYNTAX	DESCRIPTION	RECERT DATE
	RDHLDEGA	WEST SDV HYDRAULIC LOCK DEGRADATION 0 - 100%	97/98
	RDHLDEGB	EAST SDV HYDRAULIC LOCK DEGRADATION 0 - 100%	97/98
	RDHLVFPA	WEST SDV HYDRAULIC LOCK VOLUME FILL 0 - 100%	97/98
	RDHLVFPB	EAST SDV HYDRAULIC LOCK VOLUME FILL 0 - 100%	97/98
	RDPPATRP	CRD PUMP "A" TRIP	97/98
	RDPPBTRP	CRD PUMP "B" TRIP	97/98
	RDRMCSTF	RMCS TIMER MALFUNCTION	97/98
	RDWSLD	WORN SEAL LEAK DEGRADATION POT 0 - 100%	97/98
	ROD???AT	ACCUM TROUBLE FOR ROD (???)	97/98
	ROD???DI	DRIFT IN FOR ROD (???)	97/98
	ROD???DN	DOUBLE NOTCH FOR ROD (???)	97/98
	ROD???DO	DRIFT OUT FOR ROD (???)	97/98
	ROD???ST	STUCK CONTROL ROD (???)	97/98
	ROD???UC	UNCOUPLE CONTROL ROD (???)	97/98
	ROD???WS	WORN SEAL FOR ROD (???)	97/98
0400			
	RDFAILM4	ROD M-04 FAILURE OF RPIS INPUTS TO RWM	97/98
	RDRPISFL	FAILURE OF RPIS INPUTS TO RWM	97/98
0500			
	B01	RPS MG A (BUS B) FAILURE	95/96
	B02	RPS MG B (BUS A) FAILURE	95/96
	B06	RPS SUBCHANNEL A TRIP	95/96
	B07	RPS SUBCHANNEL B TRIP	95/96
	B08	RX SCRAM GR II ISOLATION INST. DRIFT	96/97
	B09	RX SCRAM GR II ISOLATION INST. DRIFT FLAG	96/97
	B12	RPS SYSTEM FAIL TO SCRAM	95/96
0600			
	H41	LOW FLOW CONT. FAIL OPEN	96/97
	H42	LOW FLOW CONT. FAIL CLOSED	96/97
	H51	LOSS OF SIGNAL TO FWRV A	96/97

SYS_NUM	SYNTAX	DESCRIPTION	RECERT DATE
	H52	LOSS OF SIGNAL TO FWRV B	96/97
	H61	FEEDWATER MASTER FLOW CONT. FAIL OPEN	96/97
	H62	FEEDWATER MASTER FLOW CONT. FAIL CLOSED	96/97
	H71	LOSS OF SUMMED STEAM FLOW SIGNAL	96/97
	H72	LOSS OF FEEDWATER FLOW SIGNAL	96/97
	H73	LOSS OF CHANNEL A LEVEL SIGNAL	96/97
	H74	LOSS OF CHANNEL B LEVEL SIGNAL	96/97
0700	A01	SRM CHANNEL 21 FAIL TO 4.5E4 CPS	98/99
	A02	SRM CHANNEL 21 FAIL TO 10 CPS	98/99
	A03	SRM CHANNEL 21 DETECTOR STUCK	98/99
	A04	SRM CHANNEL 22 FAIL FULLSCALE	98/99
	A05	SRM CHANNEL 22 FAIL TO 350 CPS	98/99
	A06	SRM CHANNEL 22 DETECTOR STUCK	98/99
	A07	SRM CHANNEL 23 FAIL FULLSCALE	98/99
	A08	SRM CHANNEL 23 FAIL DOWNSCALE	98/99
	A09	SRM CHANNEL 23 DETECTOR STUCK	98/99
	A10	SRM CHANNEL 24 FAIL 1.0E5 CPS	98/99
	A11	SRM CHANNEL 24 FAIL DOWNSCALE	98/99
	A12	SRM CHANNEL 24 DETECTOR STUCK	98/99
	A13	IRM CHANNEL 11 FAIL TO 88/125	98/99
	A14	IRM CHANNEL 11 FAIL TO 12/125	98/99
	A15	IRM CHANNEL 11 DETECTOR STUCK	98/99
	A16	IRM CHANNEL 12 FAIL FULLSCALE	98/99
	A17	IRM CHANNEL 12 FAIL DOWNSCALE	98/99
	A18	IRM CHANNEL 12 DETECTOR STUCK	98/99
	A19	IRM CHANNEL 13 FAIL TO 115/125	98/99
	A20	IRM CHANNEL 13 FAIL TO 5/125	98/99
	A21	IRM CHANNEL 13 DETECTOR STUCK	98/99
	A22	IRM CHANNEL 14 FAIL FULLSCALE	98/99
	A23	IRM CHANNEL 14 FAIL TO 10/125	98/99
	A24	IRM CHANNEL 14 DETECTOR STUCK	98/99

SYS_NUM	SYNTAX	DESCRIPTION	RECERT DATE
A25		IRM CHANNEL 15 FAIL TO 113/125	98/99
A26		IRM CHANNEL 15 FAIL DOWNSCALE	98/99
A27		IRM CHANNEL 15 DETECTOR STUCK	98/99
A28		IRM CHANNEL 16 FAIL TO 75/125	98/99
A29		IRM CHANNEL 16 FAIL TO 8/125	98/99
A30		IRM CHANNEL 16 DETECTOR STUCK	98/99
A31		IRM CHANNEL 17 FAIL FULLSCALE	98/99
A32		IRM CHANNEL 17 FAIL TO 3/125	98/99
A33		IRM CHANNEL 17 DETECTOR STUCK	98/99
A34		IRM CHANNEL 18 FAIL TO 100/125	98/99
A35		IRM CHANNEL 18 FAIL DOWNSCALE	98/99
A36		IRM CHANNEL 18 DETECTOR STUCK	98/99
A39		APRM CHANNEL 1 FAIL TO 115%	98/99
A40		APRM CHANNEL 1 FAIL TO 10%	98/99
A41		APRM CHANNEL 2 FAIL TO 75%	98/99
A42		APRM CHANNEL 2 FAIL TO 20%	98/99
A43		APRM CHANNEL 3 FAIL TO 100%	98/99
A44		APRM CHANNEL 3 FAIL DOWNSCALE	98/99
A45		APRM CHANNEL 4 FAIL FULLSCALE	98/99
A46		APRM CHANNEL 4 FAIL TO 5%	98/99
A47		APRM CHANNEL 5 FAIL TO 90%	98/99
A48		APRM CHANNEL 5 FAIL TO 30%	98/99
A49		APRM CHANNEL 6 FAIL FULLSCALE	98/99
A50		APRM CHANNEL 6 FAIL DOWNSCALE	98/99
A51		RBM CHANNEL 7 FAIL TO 115%	98/99
A52		RBM CHANNEL 7 FAIL TO 10%	98/99
A53		RBM CHANNEL 8 FAIL TO 75%	98/99
A54		RBM CHANNEL 8 FAIL TO 20%	98/99
LPXXYYLD		LPRM XXYY AT LEVEL L (A,B,C,D) FAILS DOWNSCALE	98/99
LPXXYYLU		LPRM XXYY AT LEVEL L (A,B,C,D) FAILS UPSCALE	98/99
SDLKACT?		SDC LOOP (?) SYSTEM LEAK FLAG	97/98

1000

SYS_NUM	SYNTAX	DESCRIPTION	RECERT DATE
	SDLKPOT?	SDC SYSTEM LEAK POT SET AT ? (1 - 100%)	97/98
	SDPMPOC?	SDC PUMP (?) MAGNETIC OVERLOAD TRIP - NOT INSTANTANEOUS	96/97
1100	SCPMPOCA	2A SBLC PUMP OVERCURRENT TRIP	97/98
	SCPMPOCB	2B SBLC PUMP OVERCURRENT TRIP	97/98
	SCRLFVAD	2A RELIEF VALVE SETPOINT DRIFT 0 - 1500 PSIG	95/96
	SCRLFVBD	2B RELIEF VALVE SETPOINT DRIFT 0 - 1500 PSIG	97/98
1200	CIRWCUAP	INCOMPLETE RWCU INBOARD ISOLATION	96/97
	CIRWCUBP	INCOMPLETE RWCU OUTBOARD ISOLATION	96/97
	CIRWCUI	SPURIOUS RWCU ISOLATION CIRCUIT FAILURE	96/97
	U11	RWCU PUMP 1205A OVERCURRENT TRIP	95/96
	U12	RWCU PUMP 1205B OVERCURRENT TRIP	95/96
	U13	RWCU PUMP 1206 OVERCURRENT TRIP	95/96
	U21	RWCU PRESSURE CONTROL VLV FAIL OPEN	95/96
	U22	RWCU PRESSURE INSTABILITY	95/96
	U31	STAT OF LEAK DWNSTRM OF RWCU VLV 1	96/97
	U32	LEAK DWNSTRM OF RWCU VLV 1	96/97
	U33	RWCU STAT OF LEAK AT MAIN PUMP SUCTION	95/96
	U34	RWCU LEAK AT MAIN PUMP SUCTION	95/96
1400	CSBRKSEV	CS LOOP A SUCTION BREAK SEVERITY POT	98/99
	CSCHKALK	CS CHECK VLV 1402-9A LEAKAGE	98/99
	CSCHKBLK	CS CHECK VLV 1402-9B LEAKAGE	98/99
	CSPPABRK	CS PP A BREAK AT PIPE TO CASING WELD -FLAG	98/99
	CSPPADEG	2A CS PUMP DEGRADED-POT	98/99
	CSPPAFLG	2A CS PUMP DEGRADED FLAG	98/99
	CSPPAFLT	2A CS PUMP (FAULT) OVERCURRENT TRIP	98/99
	CSPPASEV	CS PP A BREAK SEVERITY - POT	98/99
	CSPPBBRK	CS PP B BREAK AT PIPE TO CASING WELD- FLAG	98/99
	CSPPBDEG	2B CS PUMP DEGRADED -POT	98/99
	CSPPBFLG	2B CS PUMP DEGRADED -FLAG	98/99

SYS_NUM	SYNTAX	DESCRIPTION	RECERT DATE
	CSPPBFLT	2B CS PUMP (FAULT) OVERCURRENT TRIP	98/99
	CSPPBSEV	CS PP B BREAK SEVERITY - POT	98/99
	CSSUCTBK	CS LOOP A SUCTION BREAK UPSTREAM 1402-3A VLV - FLAG	98/99
1500	CCSWPAOC	PP 2A OVERCURRENT TRIP	97/98
	CCSWPBOC	PP 2B OVERCURRENT TRIP	97/98
	CCSWPCOC	PP 2C OVERCURRENT TRIP	97/98
	CCSWPDOC	PP 2D OVERCURRENT TRIP	97/98
	L13	LPCI PUMP A DEGRADED	95/96
	L14	LPCI PUMP D DEGRADED	95/96
	LPCIPAOC	PP 2A OVERCURRENT TRIP	97/98
	LPCIPBOC	PP 2B OVERCURRENT TRIP	97/98
	LPCIPCOC	PP 2C OVERCURRENT TRIP	97/98
	LPCIPDOC	PP 2D OVERCURRENT TRIP	97/98
1600	CIGP1I	SPURIOUS GROUP I ISOLATION	96/97
	CIGP2I	SPURIOUS GROUP II ISOLATION	96/97
	CIGP5AP	INCOMPLETE GROUP V INBOARD ISOLATION	96/97
	CIGP5BP	INCOMPLETE GROUP V OUTBOARD ISOLATION	96/97
	P00	TORUS/DW VAC BRKR FAIL 20% OPEN AGGREGATE	96/97
	P01	PURGE DAMPER FAIL ON HI FLOW	96/97
2300	HP4VLBNF	2301-4 VALVE BINDING-FLAG	98/99
	HP4VLBNP	2301-4 VALVE BINDING -POT	98/99
	HP4VLPWR	LOSS OF 120 VAC CONTROL POWER TO 2301-4 VALVE	98/99
	HPAOPASF	HPCI AUX OIL PUMP FAILS TO AUTO.START	98/99
	HPAOPOC	HPCI AUX OIL PUMP OVERCURRENT	98/99
	HPDWBRKF	STEAM BREAK IN DW DOWNSTREAM OF 2301-4	98/99
	HPDWBRKP	STEAM BREAK IN DW DOWNSTREAM OF 2301-4	98/99
	HPESSMGU	LOSS OF ESS POWER TO MGU	98/99
	HPINIT	SPURIOUS HPCI INITIATION	98/99

SYS_NUM	SYNTAX	DESCRIPTION	RECERT DATE
	HPMGUFBK	LOSS OF MGU POSITION FEEDBACK - MGU WILL GO TO THE HSS	98/99
	HPPMPDGF	HPCI MAIN PUMP IMPELLER DEGRADATION FLAG	98/99
	HPPMPDGP	HPCI MAIN PUMP IMPELLER DEGRADATION POT	98/99
	HPRBBRKF	STM BREAK IN RX BLDG (TORUS AREA) UPSTREAM OF 2301-5 VALVE	98/99
	HPRBBRKP	STM BREAK IN RX BLDG (TORUS AREA) UPSTREAM OF 5 VALVE	98/99
	HPRMBRKF	STM BREAK IN HPCI ROOM UPSTREAM OF 2301-3 VALVE	98/99
	HPRMBRKP	STM BREAK IN HPCI ROOM UPSTREAM OF 2301-3 VALVE	98/99
	HPRUPDSK	HPCI TURBINE EXHAUST RUPTURE DISK FAILS	98/99
	HPTBTRIP	SPURIOUS HPCI TURBINE TRIP	98/99
	HPTGFAIL	TURB TURNING GEAR FAILS TO AUTO ENGAGE	98/99
3200			
	H31	REACTOR FEEDWATER PUMP 2A TRIP	97/98
	H32	REACTOR FEEDWATER PUMP 2B TRIP	97/98
	H33	REACTOR FEEDWATER PUMP 2C-21 TRIP	97/98
	H34	REACTOR FEEDWATER PUMP 2C-22 TRIP	97/98
	HP3	FEEDWATER SYSTEM LEAK	96/97
	HP4	FEEDWATER SYSTEM LEAK IN DRWLL	97/98
3300			
	H21	CONDEN/ BOOSTER PUMP 2A TRIP	97/98
	H22	CONDEN/ BOOSTER PUMP 2B TRIP	97/98
	H23	CONDEN/ BOOSTER PUMP 2C TRIP	97/98
	H24	CONDEN/ BOOSTER PUMP 2D TRIP	97/98
	H43	LOSS OF AIR TO LOW FLOW VALVE	96/97
	H53	LOSS OF AIR TO FWRV A	96/97
	H54	2B FWRV LOSS OF HYDRAULIC OIL PRESSURE	96/97
	HP1	CONDENSER TUBE LEAK	97/98
	HP2	COND DEMIN CLOGGING PERCENTAGE	97/98
	HP5	INCREASED AIR IN-LEAKAGE	97/98

3500

SYS_NUM	SYNTAX	DESCRIPTION	RECERT DATE
	FWHDSHLS	FW HEATER LEAK VALUE FOR STRING-S,HEATER H,ie FWHD1ALS 30.0	97/98
	FWHDSHTL	FW HEATER LEAK FLAG FOR STRING-S,HEATER H,ie FWHD1ATL	97/98
3700	Q01	RBCCW PUMP 2A TRIP	96/97
	Q02	RBCCW PUMP 2B TRIP	96/97
	Q03	RBCCW PUMP 2/3 (24-1) TRIP	96/97
	Q04	RBCCW PUMP 2/3 (34-1) TRIP	96/97
3800	Q11	TBCCW PUMP 2A TRIP	96/97
	Q12	TBCCW PUMP 2B TRIP	96/97
3900	Q21	SW PUMP 2A TRIP	97/98
	Q22	SW PUMP 2B TRIP	97/98
	Q23	SW PUMP 2/3 (24) TRIP	97/98
	Q31	SW STRAINER DISCHARGE LEAK STATUS	96/97
	Q33	SW PUMP 2/3 (34) TRIP	97/98
	Q41	SW PUMP 3A TRIP	97/98
	Q42	SW PUMP 3B TRIP	97/98
	QP1	SW STRAINER DISCHARGE LEAK	96/97
4400	HQ1	CONDENSER TUBE LEAK FLAG	97/98
	HQ2	CONDENSER PIT FLOODING - POT	97/98
	HQ3	CONDENSER PIT FLOODING - FLAG	97/98
	HQ4	TRAVELING SCREENS FOULING UP	97/98
4600	N01	SERV AIR COMP 2 TRIP	97/98
	N02	SERV AIR COMP 3 TRIP	97/98
	NP1	SERV AIR LEAK SIZE	97/98
4700	N21	INST AIR COMP 2A TRIP	97/98
	N22	INST AIR COMP 2B TRIP	97/98
	N31	INST AIR COMP 3A TRIP	97/98

SYS_NUM	SYNTAX	DESCRIPTION	RECERT DATE
	N32	INST AIR COMP 3B TRIP	97/98
	N33	INST AIR COMP 3C TRIP	97/98
	NP2	INST AIR LEAK SIZE	97/98
5350			
	K07	H2 EMERG SEAL OIL PUMP BRK TRIP	96/97
	K50	H2 MAIN SEAL OIL PUMP BRK TRIP	96/97
	T25	H2 SEAL OIL VACUUM PUMP BRK TRIP	96/97
5400			
	H11	OFFGAS EXPLOSION AT HOLDUP ENTRANCE	97/98
	H12	SJAE PRESSURE CONTROL VALVE FAILED CLOSE	97/98
5600			
	J22	TURBINE TRIP	96/97
	J24	TURB GOVERNOR FAILS LOW	96/97
	J41	HPT JOURNAL #2 HIGH VIBRATION	96/97
	J42	LPT-B JOURNAL #5 HIGH VIBRATION	96/97
	J43	GEN JOURNAL #9 HIGH VIBRATION	96/97
	J66	CV 1 FAILS FULL OPEN	96/97
5650			
	J01	EHC PRESSURE REGULATOR OSCILLATION	96/97
	J02	PRESSURE FEEDBACK SIGNAL FAILURE	96/97
	J03	B PRESS REGULATOR FAILS HIGH VALVES OPEN	96/97
	J04	PRESSURE REGULATOR B FAILURE LOW	96/97
	J11	TURBINE ACCEL. CONTROL FAILURE	96/97
	J14	PRESSURE REGULATOR A FAILURE LOW	96/97
	J21	MASTER TRIP RELAY FAILURE	96/97
	J33	EHC OIL PUMP 2A OVERCURRENT TRIP	96/97
	J34	EHC OIL PUMP 2B OVERCURRENT TRIP	96/97
	J51	CV 1 SERVO FAILURE	96/97
	J52	CV 2 SERVO FAILURE	96/97
	J53	CV 3 SERVO FAILURE	96/97
	J54	CV 4 SERVO FAILURE	96/97
	J61	BYPASS VALVE 1 FAILS AS IS	95/96
	J62	BYPASS VALVE 2 FAILS AS IS	95/96

SYS_NUM	SYNTAX	DESCRIPTION	RECERT DATE
	J63	BYPASS VALVE 3 FAILS AS IS	95/96
	J64	BYPASS VALVE 4 FAILS AS IS	95/96
	J81	BYPASS VALVE 5 FAILS AS IS	95/96
	J82	BYPASS VALVE 6 FAILS AS IS	95/96
	J83	BYPASS VALVE 7 FAILS AS IS	95/96
	J84	BYPASS VALVE 8 FAILS AS IS	95/96
	J91	BYPASS VALVE 9 FAILS AS IS	95/96
5750	DW1	2A DW COOLER TRIP	95/96
	DW2	2B DW COOLER TRIP	95/96
	DW3	2C DW COOLER TRIP	95/96
	DW4	2D DW COOLER TRIP	95/96
	DW5	2E DW COOLER TRIP	95/96
	DW6	2F DW COOLER TRIP	95/96
	DW7	2G DW COOLER TRIP	95/96
	X04	RBVS 2A VENT FAN LOW FLOW TRIP	96/97
	X05	RBVS 2B VENT FAN LOW FLOW TRIP	96/97
	X06	RBVS 2C VENT FAN LOW FLOW TRIP	96/97
	X07	RBVS 2A EXH FAN LOW FLOW TRIP	96/97
	X08	RBVS 2B EXH FAN LOW FLOW TRIP	96/97
	X09	RBVS 2C EXH FAN LOW FLOW TRIP	96/97
6000	K00	AMPLIDYNE CONTACTOR RELAY 6 TRIPPED	96/97
	K01	MAIN GEN DIFFERENTIAL CURRENT TRIP	96/97
	K03	VOLT REG UNDER EXC AMP LIMITER #1 FAILED	96/97
	K05	XFMR-2 SUDDEN PRESSURE TRIP	96/97
	K35	EXC FLD VARIAC FAILED HIGH	96/97
	K36	EXC FLD VARIAC FAILED LOW	96/97
	K38	BACKUP LOCKOUT RELAY 86-G2B FAILED	96/97
	K39	PRIME LOCKOUT RELAY 86-G2 FAILED	96/97
	L70	XFMR-2 OR XFMR-21 DIFF CURRENT TRIP	96/97
	L71	BUS DUCT BLOWER MOTOR TRIP	96/97

SYS_NUM	SYNTAX	DESCRIPTION	RECERT DATE
	T45	REVERSE POWER RELAYS 32-G2 & 92-G2 FAILED	96/97
	T48	VOLTAGE ADJUSTER FAILED LOW	96/97
	T76	VOLTAGE ADJUSTER FAILED HIGH	96/97
6400	K09	XFMR-21 SUDDEN PRESSURE TRIP	96/97
	K51	UNIT 1 BUS 1 OVERCURRENT	98/99
	K52	UNIT 1 BUS 2 OVERCURRENT	98/99
	K53	UNIT 1 BUS 3 OVERCURRENT	98/99
	K61	UNIT 2 BUS 2 OVERCURRENT	98/99
	K62	UNIT 2 BUS 3 OVERCURRENT	98/99
	K63	UNIT 2 BUS 4 OVERCURRENT	98/99
	K64	UNIT 2 BUS 5 OVERCURRENT	98/99
	K71	UNIT 2 BUS 6 OVERCURRENT	98/99
	K72	UNIT 2 BUS 7 OVERCURRENT	98/99
	K81	LINE 302 TRANSFER TRIP	98/99
	K82	LINE 1220 TRANSFER TRIP	98/99
	K83	LINE 1221 TRANSFER TRIP	98/99
	K91	NETWORK LOAD LOSS	96/97
	K99	NETWORK LOAD LOSS TIMER 0-5 MINUTES	96/97
	L72	XFMR-22 DIFFERENTIAL CURRENT	96/97
	T69	XFMR-22 SUDDEN PRESSURE TRIP	96/97
6500	K20	BUS 21 OVERCURRENT	98/99
	K21	BUS 22 OVERCURRENT	98/99
	K22	BUS 23 OVERCURRENT	98/99
	K23	BUS 23-1 OVERCURRENT	98/99
	K24	BUS 24 OVERCURRENT	98/99
	K25	BUS 24-1 OVERCURRENT	98/99
	M97	BUS 23 BUS TIE DIFFERENTIAL	98/99
	M98	BUS 24 BUS TIE DIFFERENTIAL	98/99
	M99	BUS 24-1/34-1 BUS TIE DIFFERENTIAL	98/99
6600	K33	DG2 COMP AIR S/U SOL VALVE FAILED CLOSED	96/97

SYS_NUM	SYNTAX	DESCRIPTION	RECERT DATE
	T11	DG2/3 COMP AIR S/U SOL VALVE FAILED CLOSED	96/97
	T12	DG2 AUTO START RELAY-2 FAILURE	96/97
	T13	DG2/3 AUTO START RELAY-2/3-2 FAILURE	96/97
	T14	DG2 TRBL LOW WTR PRESS LO BRG LO PR CRKCASE HI PR	96/97
	T15	DG2/3 TRBL LOW WTR PRESS LO BRG LO PR CRKCASE HI PR	96/97
	T16	DG2 DIFF CURRENT RELAY TRIP	96/97
	T17	DG2/3 DIFF CURRENT RELAY TRIP	96/97
	T18	DG2 COOLING WATER PUMP TRIP	96/97
	T19	DG2/3 COOLING WATER PUMP TRIP	96/97
6700	K26	BUS 20 OVERCURRENT	98/99
	K27	BUS 25 OVERCURRENT	98/99
	K28	BUS 26 OVERCURRENT	98/99
	K29	BUS 27 OVERCURRENT	98/99
	K40	BUS 28 OVERCURRENT	98/99
	K41	BUS 29 OVERCURRENT	98/99
6900	T61	LOSS OF 125V DC RESERVE BUS 2B	98/99
7400	K11	STATOR COOLING PUMP 2A BRK TRIP	96/97
	T47	STATOR COOLING PUMP 2B BRK TRIP	96/97
	T49	STATOR COOLING PANEL TROUBLE MALFUNCTION	96/97
	T80	ALTERREX PANEL TROUBLE MALFUNCTION	96/97