GEORGIA POWER COMPANY	DOCUMENT TYPE:	
PLANT E.I. HATCH	ENGINEERING SERVICE PROCEDURE	PAGE 1 OF 24

DOCUMENT TITLE:	DOCUMENT NUMBER:	REVISION NO:
SCRAM/TRANSIENT REPORTING	42EN-ENG-011-0S	0

EXPIRATION DATE:	APPROVALS:	EFFECTIVE DATE:
N/A	DEPT. MGR. C Jones DATE 8/9/85	8/23/85
	GEN. MGR. Harvey Nix DATE 8/20/85	

1.0 OBJECTIVE

The objective of this procedure is to collect and document all pertinent information concerning a scram or significant transient and to analyze plant response at all levels to determine if corrective action is needed prior to returning the unit to service.

2.0 APPLICABILITY

This procedure applies to commitments associated with scram and significant transient data collection and subsequent reporting requirements.

3.0 REFERENCES

3.1 40AC-REG-02-0

3.2 30AC-OPS-003-0S

3.3 Instrument Setpoint Indexes -A-16397 and A-26497

3.4 Units 1 and 2 Technical Specifications - Limiting Safety System Settings and Instrument Setpoints.

3.5 Units 1 and 2 FSAR - Systems design basis and analysis for accidents and transients.

4.0 REQUIREMENTS

4.1 PERSONNEL REQUIREMENTS

N/A - Not applicable to this procedure.

4.2 MATERIAL AND EQUIPMENT

N/A - Not applicable to this procedure.

4.3 SPECIAL REQUIREMENTS

A report shall be completed as soon as possible whenever control rods are scrammed in with more than one rod withdrawn and fuel in the vessel. (Does not include scram time testing.)

5.0 PRECAUTIONS AND LIMITATIONS

5.1 PRECAUTIONS

N/A - Not applicable to this procedure.

5.2 LIMITATIONS

N/A - Not applicable to this procedure.

6.0 PREREQUISITES

N/A - Not applicable to this procedure.

7.0 PROCEDURE

7.1 DATA COLLECTION

7.1.1 During any significant transient, control room personnel, normally the Shift Technical Advisor, should complete to the extent possible, the Scram/Transient Checklist shown as Attachment 1. The checklist is used to collect important system information to be used in the subsequent analysis. Any abnormality should be recorded. Its significance can be determined during the analysis. Initial conditions should be recorded on a Conditions Prior to Event Form, similar to Attachment 3.

7.1.2 Attachments 4 through 9 contain items to be checked which confirm both logic system operations and integrated system response to a transient. In the first section of the analysis package, the reviewer will initially determine the range of values for each parameter during the transient and then confirm that all intended actions did indeed occur. Any problems discovered should be recorded on a Deficiency Report. The Operations Supervisor On Shift should be immediately notified of any safety related action that did not occur when the appropriate setpoint was reached. For items that cannot be verified, indicate so on the data sheet.

7.1.3 The second part of the analysis involves comparing the system response to predicted or historical response. Where available, the parameters indicating the system response sections should be reviewed to determine if plant response was significantly different from the expected. Any abnormalities will be recorded on a Deficiency Report.

7.1.4 Any abnormalities discovered that might be a generic industry problem should be considered for posting on the NUCLEAR NETWORK system.

7.2 ANALYSIS

7.2.1 Once a transient has been brought under control, an analysis needs to be completed to determine if all systems performed as intended.

7.2.2 To perform an effective analysis, as much information as possible should be collected concerning plant response and system operation. This should include the Scram/Transient Checklist, Process Computer Print-Outs, items brought forward in a Personnel Observations Section, similar to that shown as Attachment 7, and the Control Room recorded traces. If deemed necessary by Management, a Post Event Debriefing should be held as soon as involved persons can be relieved from duty in the Control Room.

7.2.3 In this meeting, the event will be discussed to ensure that the collected information is correct, and to see if any abnormalities are readily discernable. A decision should be made at the end of the debriefing to either recommend a re-start of the unit or initiate specific investigation or corrective actions that are to be completed prior to re-start. For significant matters it may be necessary to initiate LCOs or take clearances on equipment to ensure compliance. The minutes of the debriefing meeting should be recorded on a Debriefing Report, similar to that shown as Attachment 8.

7.2.4 In addition to the debriefing review, an in-depth analysis of plant response will be conducted per Attachments 1 and 3 through 8. The STA group has primary responsibility for performing the analysis; however, any department may be requested to perform specific reviews or initiate investigation into system response or operation. For any item that cannot be effectively analyzed by on-site personnel, offsite support is to be requested.

7.3 CORRECTIVE ACTION

7.3.1 If any abnormalities are discovered during the debriefing or analysis, a Deficiency Report is to be used to document the findings and track any corrective action. To ensure that all required actions are completed prior to startup, an LCO or equipment clearance should be initiated.

7.3.2 The Manager of Operations, or his alternate, is responsible for reviewing the event and subsequent analysis and for making a recommendation to Management on the capability of resuming safe power operation.

7.4 REPORTING

The STA group will complete a Narrative Event Report which includes a detailed sequence of events, findings of the post-event analysis, and corrective actions that were initiated and/or completed.

7.5 DOCUMENTATION

Attachments 1 and 3 through 8, the pertinent process computer edits, and the final narrative report will be filed in Document Control. The event shall be logged and assigned a sequential number, preceded by the unit number and last two digits of the year. The Shift Supervisor shall keep a log using the form similar to that shown as Attachment 2.

TITLE: SCRAM/TRANSIENT CHECKLIST

Scram/Transient No. _____ Date: _____ Time: _____

Event leading up to scram/transient: _____

_____

_____

RPS Sensor Causing Scram _____

SCRAM Discharge Volume Hi Level Trip _____

SCRAM Bus Lights Extinguished _____

SCRAM Discharge Volume Vent and Drain Valves Close _____

All Rods Verified Full In _____

Isolations

_____ GP I Cause _____ Reset Time _____

_____ GP II Cause _____ Reset Time _____

_____ GP III Cause _____ Reset Time _____

_____ GP IV Cause _____ Reset Time _____

_____ GP V Cause _____ Reset Time _____

Recirc Pump Trip A _____ B _____ No _____

Cause _____

Time _____ Time Restarted A _____ B _____

9400 Needed _____ Completed _____

Turbine Trip Auto _____ Manual _____ Cause _____

ADS Initiation _____ All Valves Open _____

HPCI Start Auto _____ Manual _____ Inject _____ Trip _____ Cause _____

RCIC Start Auto _____ Manual _____ Inject _____ Trip _____ Cause _____

CS A Start Auto _____ Manual _____ Inject _____ Trip _____ Cause _____

B Start Auto _____ Manual _____ Inject _____ Trip _____ Cause _____

TITLE: SCRAM/TRANSIENT CHECKLIST

LPCI A Start Auto _____ Manual _____ Inject _____ Trip _____ Cause _____

LPCI B Start Auto _____ Manual _____ Inject _____ Trip _____ Cause _____

LPCI C Start Auto _____ Manual _____ Inject _____ Trip _____ Cause _____

LPCI D Start Auto _____ Manual _____ Inject _____ Trip _____ Cause _____

SECs That Auto Started: _____

Feedpump A Trip _____ Cause _____ Restarted _____

B Trip _____ Cause _____ Restarted _____

Level Control _____
(narrative) _____
_____

Level Highest _____ in. Source _____

Lowest _____ in. Source _____

Pressure Control _____
(narrative) _____
_____

Pressure Highest _____ psig Lowest _____ psig

SRVs that lifted: Auto _____

Manual _____

AC Electrical Busses Energized: 4160V A___ B___ C___ D___ E___ F___ G___

600V A___ B___ C___ D___ AA___ BB___

DG A Start Auto _____ Manual _____ Tied _____ Trip _____ Cause _____

DG B Start Auto _____ Manual _____ Tied _____ Trip _____ Cause _____

DG C Start Auto _____ Manual _____ Tied _____ Trip _____ Cause _____

All DC Electrical Busses Energized: _____

SBGT A Start Auto _____ Manual _____ SBGT B Start Auto _____ Manual _____

Abnormal alarms: Rad. Mon., Electrical, etc.

TITLE: SCRAM/TRANSIENT CHECKLIST

Notifications made: NRC Time _____ Method _____

Load dispatcher _____

Management _____

Other _____

Deficiency Report written by OPS (Y/N - N/A) _____

Misc. Notes, LCOs initiated, equipment, problems, etc.

Completed By: _____ / _____
Date

Reviewed By: _____ / _____
Date

GEORGIA POWER COMPANY
HATCH NUCLEAR PLANT

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FORM TITLE:
SCRAM/TRANSIENT REPORTING LOG

NUMBER	DATE	BRIEF CAUSE OF SCRAM/TRANSIENT

ENG-0083 42EN-ENG-011-0S

TITLE: CONDITIONS PRIOR TO EVENT

Shift Personnel

Operations Supervisor _____

Shift Supervisor _____

Shift Technical Advisor _____

Plant Operator _____

Assistant Operator 1 _____

Assistant Operator 2 _____

Plant Equipment Operator 1 _____

Plant Equipment Operator 2 _____

Plant Equipment Operator 3 _____

Initial Conditions

Mode Switch Position _____

Power Level Thermal_____ Elect_____

Rx. Pressure _____ psig

Rx. Water Level _____ in

Core Flow _____ mlb/hr

Steam Flow _____ mlb/hr

FW Flow _____ mlb/hr

Procedures in Progress _____

_____

_____

_____

Narrative _____

_____

_____

Completed By: _____/_____
Date

DRYWELL PRESSURE

For each setpoint, insure that all required actions occurred and indicate maximum and minimum values with a bar graph.

Bar Graph	Setpoint (psi)	Action	Confirmation (Y/N or NA)
	1.8 (U1)	Reactor Scram	_____
	1.63 (U2)	Group II Isolation	_____
		HPCI Initiation	_____
		RHR Pump Starts	A____ B____
			C____ D____
		CSS Pump Starts	A____ B____
		Stdby. D/G Starts	A____ B____ C____
		Control Room Vent to Mode II	_____
		CRD Pump Trips	_____
		Drywell Chillers Trip	7A___ 7B___
			8A___ 8B___
			9A___ 9B___
		SBGT Starts	_____
		ADS Perm Alarm	_____
	1.5 (U1) .65 (U2)	Alarm	_____

REACTOR WATER LEVEL

For each setpoint, ensure that all required actions occurred and indicate maximum and minimum valves with a bar graph.

Bar Graph	Setpoint (inches above instr. zero)	Action	Confirmation (Y/N or NA)
	+ 54.5"	Main turbine trip	_____
		RFP Turbine Trip	_____
	+ 51.7"	HPCI Turbine Trip	_____
		RCIC Turbine Trip	_____
	+ 42. "	High Level Alarm	_____
	+ 32. "	Low Level Alarm	_____
		Runback (if any FWP < or = 20%)	_____
	+ 9.9"	Reactor Scram	_____
		Group II Isolation	_____
		Group V Isolation	_____
		SBGT Initiation	_____
	- 30. "	Group I Isolation (U1)	_____
	- 50.3"	RCIC Auto Initiation	_____
		HPCI Auto Initiation	_____
		Recirc Pump Trip	A____ B____
		Control Room Vent. to Mode II	_____
	-116. "	RHR Pumps Start	A____ B____
			C____ D____
		CSS Pumps Start	A____ B____
		Stdby. D/G Start	A____ B____ C____
		PSW to Turb Bldg Isolates	Div I____ Div II____
		Control Room Vent to Mode II	_____
		Group I Isolation (U2)	_____

CORE AVERAGE FLUX

For the following values of power, on the appropriate neutron instrumentation, confirm the below listed automatic actions occurred. Indicate highest level reached with a bar graph.

Bar Graph	Setpoint (APRM)	Action	Confirmation (Y/N or NA)
	117. %	Reactor Scram (fixed)	
	115. % (U1)		_____
	113.5 % (U2)	Reactor Scram (Flow Biased, Clamped)	_____
	.58W + 59%	Reactor Scram (Flow Biased)	_____
	.13%	Reactor Scram (When Not In Run)	_____
	3%	Reactor Scram (with Comp. IRM Hi or INOP in Run Mode)	_____

Setpoint (IRM)	Action	Confirmation (Y/N or NA)
115/125 of Scale	Reactor Scram (When Not in Run)	_____

Setpoint (SRM)	Action	Confirmation (Y/N or NA)
3 x 10^5 cps	Reactor Scram (When Shorting Links Removed)	_____

REACTOR PRESSURE (Unit 1 Only)

For each setpoint confirm that all actions occurred and indicate maximum and minimum values with a bar graph.

Bar Graph	Setpoint (psig)	Action	Confirmation (Y/N or NA)
	1085	ATWS Recirc Pump Trip	A____ B____
	1100 +/- 11	3 SRVs Lift	B____ C____ J____
	1090 +/- 10.9	4 SRVs Lift	D____ F____ H____ K____
	1080 +/- 10.8	4 SRVs Lift	A____ E____ G____ L____
	1034.75	Rx Scram	_____
	1042	High Pressure Alarm	_____
	863	Group I When in Run	_____

Bar Graph	Setpoint (psig)	Action	Confirmation (Y/N of NA)
	449	Permissive for Opening CS & RHR Injection Valves	_____
	360	Recirc Discharge Valve Close	A____ B____
	138	SDC Isolation	_____
	106	HPCI Isolation	_____
	77.5	RCIC Isolation	_____

REACTOR PRESSURE (Unit 2 Only)

For each setpoint confirm that all actions occurred and indicate maximum and minimum values with a bar graph.

Bar Graph	Setpoint (psig)	Action	Confirmation (Y/N of NA)
	1085	ATWS Recirc Pump Trip	A____ B____
	1100 +/- 11.1	3 SRVs Lift	H____ E____ L____
	1100 +/- 11.0	4 SRVs Lift	D____ M____ A____ K____
	1090 +/- 10.9	4 SRVs Lift	B____ C____ G____ F____
	1044	Activate Low-Low Set Logic if any SRV is Opened (See Below)	
	1045	Rx. Scram	_____
	1025	High Pressure Alarm	_____
	855	Group I When in Run	_____
	449	Permissive for Opening CS & RHR Injection Valves	_____
	360	Recirc Discharge Valve Close	A____ B____
	138	SDC Isolation	_____
	115	HPCI Isolation	_____
	70	RCIC Isolation	_____

If Low-Low Set is activated, the following SRVs should open and close at the specified values of Reactor Pressure.

(U1)	(U1)	(U2)	(U2)	
1033	Open C	997	Open B	_____
887	Close C	851	Close B	_____
1023	Open G	1036	Open D	_____
877	Close G	890	Close D	_____
1008	Open A	1027	Open F	_____
862	Close A	881	Close F	_____
983	Open H	1012	Open G	_____
847	Close H	866	Close G	_____
	LLS LOGIC RESET			_____

TLE: LOGIC CHECK SHEETS

REACTOR PROTECTION SYSTEM (RPS)

Action	Confirmation (Y/N or N/A)
1. All rods go in	_____
2. Scram discharge volume trip	_____
3. Manual scram	_____
4. Mode switch to shutdown scram	_____

RECIRCULATION SYSTEM

Runback to No. 2 Limiter	_____
Runback to No. 1 Limiter	_____
Pump Trip if Turbine Trip 30% Power	A_____ B_____

TURBINE

Confirmation (Y/N or N/A)

Turbine tripped Manual _____ Auto _____

Cause _____

TSV Scram (if > 30%power) Annunciated _____
Computer _____

Lift Pumps Auto Start _____

Standby EHC Auto Start _____

Turning Gear Auto Start _____

Motor Suction Pump Auto Start _____

Turning Gear Oil Pump Auto Start _____

Emergency Bearing Oil Pump Auto Start (if turning gear oil pump didn't) _____

Bypass Valves Controlled Pressure at _____ psig
Setpoint at _____ psig

Completed by: _____/_____
Date

TITLE: CONDENSER VACUUM CHECK SHEET

For the following values of condenser vacuum, confirm that the listed automatic actions occurred. Indicate minimum values of vacuum during the event with a bar graph.

Bar Graph	Setpoint (Hg)	Action	Confirmation (Y/N or N/A)
	10	* Group 1 Isolation Bypass Valve Closure	_____
	22.3 (U2) 20 (U1)	Reactor Feed Pump Trip	_____
	22.3 (U2) 22.23 (U1)	Main Turbine Trip	_____
	24.73	Low Level Alarm	_____
	27 to 29	Normal Vacuum	

* - Confirm closure of: all MSIVs (1/2B21F022 and 28(A-D); Main steamline drain isolation valves (1/2B21F016, F019); Reactor water sample isolation valves (1/2B31F019, and F020); Torus water cleanup and makeup isolation valves (1/2G51-AOV-F013 & F021, 1/2G51-AOV-F011 & F012)

Completed by: _____/_____
Date

TITLE: PLANT RESPONSES

CONTAINMENT PARAMETERS

Maximum Drywell Pressure _____

Maximum Torus Pressure _____

Drywell Temperatures for Unit 1 _____

T1: 1T47-R611 Pt. 8 _____

T2: 1T47-R612 Pt. 8 _____

T3: 1T47-R611 Pt. 10 _____

T4: 1T47-R612 Pt. 10 _____

T5: 1T47-R612 Pt. 9 _____

T6: 1T47-R611 Pt. 13 _____

T7: 1T47-R611 Pt. 9 _____

T8: 1T47-R612 Pt. 12 _____

Average Volumetric D/W Temperature _____

$$\frac{T1 + T2 + T3 + T4}{4}(0.63) + \frac{T5 + T6}{2}(0.22) + \frac{T7 + T8}{2}(0.15) = \_\_\_\_\_$$

Drywell Temperatures for Unit 2

T1: 2T47-R626 Pt. 10 _____

T2: 2T47-R626 Pt. 12 _____

T3: 2T47-R627 Pt. 11 _____

T4: 2T47-R626 Pt. 8 _____

T5: 2T47-R626 Pt. 9 _____

T6: 2T47-R626 Pt. 13 _____

T7: 2T47-R620 _____

T8: 2T47-R621 _____

T9: 2T47-R626 Pt. 9 _____

T10: 2T47-R627 Pt. 12 _____

Average Volumetric D/W Temperature

$$\frac{(T1 + T2 + T3 + T4)}{4}(.825) + \frac{T5 + T6}{2}(.025) +$$

$$\frac{(T7 + T8 + T9 + T10)}{4}(.15) = \_\_\_\_\_$$

Maximum Torus Water Temperature _____

Causes for Significant Increases in any of above: _____

_____

_____

_____

Drywell Leak Rate

Equipment Drain _____ gpm
Floor Drain _____ gpm

Any system behavior indicative of unusual leakage into drywell?

_____

_____

_____

Hydrogen Level Before _____% After _____%
Oxygen Level Before _____% After _____%

Explanation for any change:

_____

_____

Torus Level Max _____ in. Min _____ in.

Explanation for any change:

_____

_____

REACTOR WATER LEVEL
Answer the following questions concerning the plant water level response.

1. Was initial transient in the expected direction? (If no, explain)

2. Did the magnitude of the change deviate significantly from expected values? (If yes, explain)

3. Did level recovery systems (HPCI, RCIC Feedpumps, etc.) function to regain and control reactor water level in a manner consistent with system design characteristics? (If no, explain)

REACTOR PRESSURE RESPONSE
Answer the following questions concerning plant pressure response.

1. Did peak pressure deviate significantly from expected values? (If yes, explain)

2. Did overpressure period extend significantly past what is normally expected? (If yes, explain below)

3. Did bypass valves (If MSIVs open) control pressure at EHC pressure setpoint? (If No or N/A, explain below)

4. Did safety relief valves (if MSIVs closed) lift to control pressure at the appropriate setpoints? (Yes/No) (N/A) (If No or N/A, explain below)

STEAM FLOW

Answer the following questions concerning steam flow.

1. Did steam flow react as expected for the transient.

2. Did steam flow react as expected for a scram? (If no, explain below)

3. Did steam flow react as expected for a turbine trip? (If no, explain below)

4. Did steam flow react as expected for a Group I isolation?
(If No, explain below)

5. Did steam flow react as expected for an SRV actuation?
(If No, explain below)

6. Did steam flow react as expected for HPCI/RCIC operation?
(If No, explain below)

7. Did steam flow react as expected for bypass valve actuation?
(If no, explain below)

RADIATION VALUES

Answer the following questions concerning plant radiation monitors.

1. Did MSL rad monitors drop to expected values?
(If No, explain below)

2. Did ARMs drop or remain at expected values?

3. Did containment radiation monitor readings remain at expected values?
(If No, explain below)

4. Did the FPM readings drop to expected values?
(If No, explain below)

5. Did stack readings remain at expected values?
(If no, explain below)

6. Did RBCCW radiation values remain at expected values?
(If No, explain below)

7. Did PWS radiation values remain at expected values?
(If No, explain below)

_____

_____

_____

8. Did reactor building vent radiation values remain at expected values?
(If No, explain below)

_____

_____

_____

ELECTRICAL

Did any AC bus not transfer as intended? _____

If Not, give specifics and actions taken _____

_____

_____

_____

Was power lost to any DC bus? _____

If so, give specifics and actions taken _____

_____

_____

Completed by: _____/_____
Date

Did any system not operate as you expected?

Did any procedure prove inadequate to operate a system or to ensure effective corrective action?

Were there any difficulties in diagnosing a condition due to poor system layout or inaccurate indication or annunciation?

Were any deficiencies noted that could be improved by changes in Training Program? (List AIT No.)

Completed By: _____/_____
Date

TLE: POST EVENT DEBRIEFING MINUTES

Event _____

Date _____

Time _____
Location _____

Persons Present	Title

Items Brought Forward:

Corrective Actions Proposed:

Prerequisites for Startup:

Recorded By: _____/_____
Date

Approved By: _____/_____
Date

TLE: ABNORMALITIES DISCOVERED IN ANALYSIS

Function or Operation in Question _____

_____

Instrumentation in Question/Setpoint /Value /Last Cal./or FT

_____/_____/_____/_____/_____

Completed By: _____

Corrective Action Requirements

_____ Need Investigation

_____ Need Resolution Prior to Startup/LCO
No._____

Completed By: _____

Tracking Mechanism (DCR, MR, MWO, Deficiency Report No., etc)

_____ _____ _____ _____

Resolution:

_____

_____

_____

_____

_____

_____

_____

_____

Completed By: _____/_____
Date

Reviewed By: _____/_____
Date

Approved By: _____/_____
Date

FORM TITLE:
SCRAM/TRANSIENT REPORTING LOG

NUMBER	DATE	BRIEF CAUSE OF SCRAM/TRANSIENT