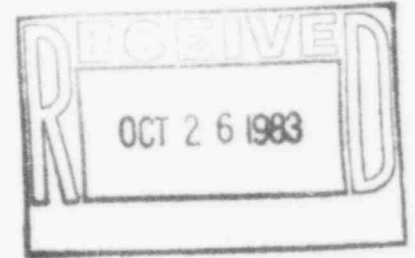


**Omaha Public Power District**  
1623 Harney Omaha, Nebraska 68102  
402/536-4000

October 24, 1983  
LIC-83-268

Mr. J. T. Collins, Administrator  
U. S. Nuclear Regulatory Commission  
Region IV  
611 Ryan Plaza Drive, Suite 1000  
Arlington, Texas 76011



Reference: Docket No. 50-285

Dear Mr. Collins:

Detailed Emergency Exercise Scenario

As requested by your letter dated January 14, 1982, please find attached the detailed scenario for the Fort Calhoun Station emergency exercise.

Sincerely,

A handwritten signature in cursive script that reads "W. E. Miller".

W. E. Miller  
Assistant General Manager

Attachments

cc: Mr. Patrick J. Breheny  
Regional Director  
Federal Emergency Management Agency  
Region VII  
Old Federal Office Building, Room 300  
911 Walnut Street  
Kansas City, Missouri 64106

8502190255 831024  
PDR ADOCK 05000285  
F PDR

*Handwritten notes:*  
IE 35  
NOT. Res ✓  
1/1

Initial Conditions

1. A severe ice storm is in progress at the station. Only assigned personnel are at the station. The ice storm is north of a line corresponding to the Washington-Douglas County line. Air travel into Eppley is not effected. Travel from Lincoln to Omaha is not effected. The forecast predicts the storm center to move rapidly to the northeast and it will be replaced by a cold front which will bring clearing conditions.
2. The ice storm has knocked out the 161 KV and 13.8 KV lines due to a downed span in the Blair substation at 2200 hours. The estimated time to repair the 161 KV is 15 to 17 hours to replace the span. The estimated time to repair the 13.8 KV is 24 hours because of additional damage to transformers in the substation. A major power outage has occurred in the Blair area.
3. A containment pressure release was initiated at 1500 and the containment pressure is 16.5 psia.
4. Fort Calhoun is operating at full power using the 345 KV line because the ice storm has caused a grid emergency. Nebraska City has been off the grid because of superheater tube damage caused by a leak followed by steam cutting and pipe whip, and North Omaha No. 5 is undergoing a maintenance outage. Nebraska City expects to be back on line within 18 hours.
5. An annual maintenance outage is currently underway on one diesel generator (DG-2) and at least 13 hours will be required to restore it to operational status.
6. The PASS is not fully operational and manual drawing of samples is required.

7. Equipment Status:

Charging Pump CH-1A is in service  
Charging Pump CH-1B is in standby  
Charging Pump CH-1C is in standby  
Auxiliary Building Ventilation Fans Running: 3 exhaust  
2 supply

8. Weather Conditions:

Windspeed	=	5.9 mph	(present)
Windspeed	=	5.9 mph	(previous hour)
Wind Direction	=	300°	
10 Meter Temp.	=	-2.2	°C
ΔTemp	=	-0.3	°C/100m

Initial Conditions (Continued)

9. A primary to secondary leak of less than 1 gpm is occurring.
10. [Unknown to anyone, valve HCV-746B was damaged internally when it was activated to reduce containment pressure. The damage has left a permanent one-inch hole through HCV-746B allowing air to pass through a slightly restricted hole into the vent line.] \*

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\*This information will not be provided to the Control Room.

SCENARIO

Time: 2300

Event: The Committee for the Destruction of Nuclear Energy calls threatening to attack the facility.

Security Guard Cue Card

You are currently receiving a phone call from an individual who threatens to lead an attack on Fort Calhoun Station using light weapons. The caller states that the threatened attack is in retaliation for the firing of some of his friends and he wants to make the District pay for its sins. The caller states that an event will take place in less than an hour which will prove he is for real. He identifies himself as a representative of the Committee for the Destruction of Nuclear Energy.

(Calls to local authorities are to be simulated. Additional personnel need not report to the station.)

Expected Response:

12/6 11:00pm An In-plant Security Alert is declared per the Security Plan. ✓  
An Unusual Event is declared per EPIP-OSC-1.

---

Time: 11:10 2310

Event: Explosion in the UF<sub>6</sub> storage area.

Security Guard Cue Card

An explosion has just occurred in the UF<sub>6</sub> storage area. There are no intrusion alarms and no activity has been observed near the perimeter fence.

Control Room Cue Card

An explosion is heard which appears to be outside of the plant. There are no indications of anything in the Control Room that could affect plant safety.

Expected Response:

The UF<sub>6</sub> area is checked using EP-38. Plant remains in a Security Alert.

Time: 0040

Security Guard Cue Card

The explosion dislodged some of the cylinders, but no cylinders were damaged and no UF<sub>6</sub> was observed to be leaking out.

Expected Response:

Information is reported to the Control Room.

---

Time: 0100

Event: An investigation of the the plant area yields nothing. No evidence is found which would indicate that anyone is within the security area. The Sheriff's Department reports apprehending a suspect.

Security Guard Cue Card

The Sheriff's Department reports that an individual was observed making a threatening phone call to Fort Calhoun. The individual has been apprehended. A search of his car revealed explosives. Under questioning he admitted setting explosives at Fort Calhoun Station. The Sheriff's Department feels that the individual is acting alone. Questioning of the suspect is continuing.

Expected Response:

The Security Force contacts the Control Room. In-plant Security Alert may be terminated. Notification of Unusual Event may be terminated.

Time: 0600

Event: Seized Rotor occurs with pressure "spike" followed by a rapid pressure reduction. The steam bypass valves fail to actuate properly causing the first bank of steam safeties to lift for approximately 20 seconds.

Control Room Cue Card

Reactor trip. Sequence of events shows the trip was caused by low RCS flow. The 86 relays on CB-123 for RC-3C indicate a fault. All off-site A/C power is lost and DG-1 is operating normally. The RCS gross coolant activity meter indicates RCS activity is increasing. The steam bypass system did not open the bypass valves on demand and the first bank of steam safeties lifted. The steam bypass valves opened approximately 20 seconds after the demand signal was generated and the first bank of steam safeties did properly reset.

Expected Response:

*Stand by*  
Restore off-site A/C power per EP-3 and restart RC pumps RC-3A and RC-3B per EP-3 or EP-4. Declare an "Alert" per EPIP-OSC-1.

---

Time: 0615

Event: Radiation monitors indicate increasing levels of radiation in the containment.

Control Room Cue Card

Containment area monitors indicate increasing levels of radiation. RCS gross activity monitor is increasing.

Expected Response:

Operator attempts to close valves HCV-746A and HCV-746B to terminate containment pressure reduction.

---

Time: 0620 (approximate, issued as appropriate)

Event: Status of containment purge valves.

Control Room Cue Card

Valve HCV-746A indicates open. Valve HCV-746B indicates closed.

Expected Response:

Containment purge would be terminated. The containment would be properly isolated. Maintenance Order would be written to work on HCV-746A.

Time: Issue as appropriate

Event: Investigation of containment purge line downstream of HCV-746B.

Auxiliary Building Operator and HP Cue Card

Area surveys indicate high activity in containment purge line downstream of HCV-746B.

Expected Response:

Attempt to close manual valve VA-262.

---

Time: Issue as appropriate

Event: Attempt to close VA-262

Aux. Bldg. Operator Cue Card

Valve stem twisted off of VA-262 when an attempt was made to close it. Valve could not be closed.

Expected Response:

Start investigation of means to stop flow through HCV-746B.

---

Time: As appropriate.

Event: Operator attempts to enter containment.

Operator Cue Card

Once you are inside the PAL, steam is visible through the sight glass in the door into containment.

Expected Response:

Report information to Control Room and the operator does not enter containment.

---

Time: 0700

Event: Charging is now increasing because a leak has formed in the RCP seal.

Control Room Cue Card

Unexplained leakage is now 5 gpm.

Expected Response:

Implement EP-28.



Time: 0730

Event: The 345 KV line fails due to ice on one of the towers.

Control Room Cue Card

Breakers 4 and 5 have opened. Low voltage indicated on all AC buses. Diesel DG-1 starts properly if it was shut down.

906 or TSC Cue Card

The 345 KV line has failed due to ice on the line and towers. At least one span is down. 43rd reports the earliest the span can be restored is at 1500.

Expected Response:

EP-3 is implemented.

Time: Approximately 0800 (as determined by action of Control Room operators)

Event: Natural circulation cooldown commences.

Expected Response:

Cooldown commenced using OI-RC-11.

Time: 0805

Event: High radiation is indicated by RM-060.

Control Room Cue Card

RM-060 (I) is now off scale.

Expected Response:

Implement EP-11 and shut down all supply and exhaust fans.

Time: 0915

Event: Outside air temperature is now 40°F and the sky is clearing.

Control Room Cue Card

Request shift chemist to draw and analyze an RCS coolant sample for boron concentration.

Expected Response:

Request an RCS coolant sample.

*Call HQ  
M. Hammond  
initial detector*

*Leave 8:10 pm*



Time: 0930

Event: Leakage now exceeds charging pump capacity and pressure starts to decrease.

Expected Response:

✓ Declare Site Area Emergency per EPIP-OSC-1. Implement EP-5 if it has not been previously implemented.

---

Time: 0945

Event: Technician drawing a sample of primary coolant has a heart attack and spills coolant on himself as he falls.

Shift Chemist Cue Card

You have had a heart attack and reactor coolant has been spilled on you.

HP/Chemist Cue Card

Your fellow worker has just had a heart attack and RCS coolant has been spilled on him.

Expected Response:

Rescue Squad should be summoned.

Time: 1130

Event: Piston seizure in diesel generator causes loss of all A/C power. The diesel catches fire and a worker is injured due to smoke inhalation. The fire is reported out 15 minutes after fire brigade arrives. The other diesel is not damaged.

Control Room Cue Card

Low lube oil pressure is indicated on DG-1.

Maintenance Worker

You and a companion went to Room 63 after hearing an unusual noise from DG-1. Upon entering the room, a fire erupts. Your companion is overcome by the smoke. You are able to get him out of the room.

Control Room Cue Card

Fire alarms indicate fire in Room 63. Deluge is activated in Room 63. DG-1 stops. DC power is still available.

Expected Response:

Declare General Emergency per EPIP-OSC-1. Fort Calhoun Rescue Squad should be called. The fire brigade should be dispatched. The Blair Fire Department should be called.

Control Room Cue Card

When calling the Blair Fire Department, request that they not respond.

Control Room Cue Card

When calling the Fort Calhoun Rescue Squad request that they do respond.

---

Time: Approximately 1200

Event: Fire in Room 63 is out.

Fire Brigade Cue Card

Fire is now out.

Expected Response:

Report information to Control Room and resume work on DG-2.

Time: 1300

Event: Power restored via diesel repair. Vessel refill commences.

Maintenance Personnel Cue Card

DG-2 repair and assembly is now complete.

Expected Response:

Start and load DG-2. Start HPSI and refill the vessel.

---

Time: 1315

Event: The 161 KV line is now available.

TSC Cue Card

906 and 43rd report that repairs have been completed on the 161 KV lines and it is now available for operation.

Expected Response:

Restore offsite A/C power to the station.

---

Time: 1330

Event: Containment release is stopped via plugging leaking line upstream of HCV-746B.

Maintenance Personnel Cue Card

Leak from HCV-746B has been stopped.

Expected Response:

Dispatch the Nebraska airplane to confirm that the release has been terminated.

---

Time: 1500

Event: Nebraska plane confirms the release has been stopped. Event is downgraded to a Site Area Emergency.

EOF Cue Card

State of Nebraska reports that the aerial survey confirms that the release has been terminated.

---

Time: 1530-1630

Event: Exercise is terminated upon agreement of all participants (i.e., GPPD, Nebraska, Iowa, participating counties, and NRC).

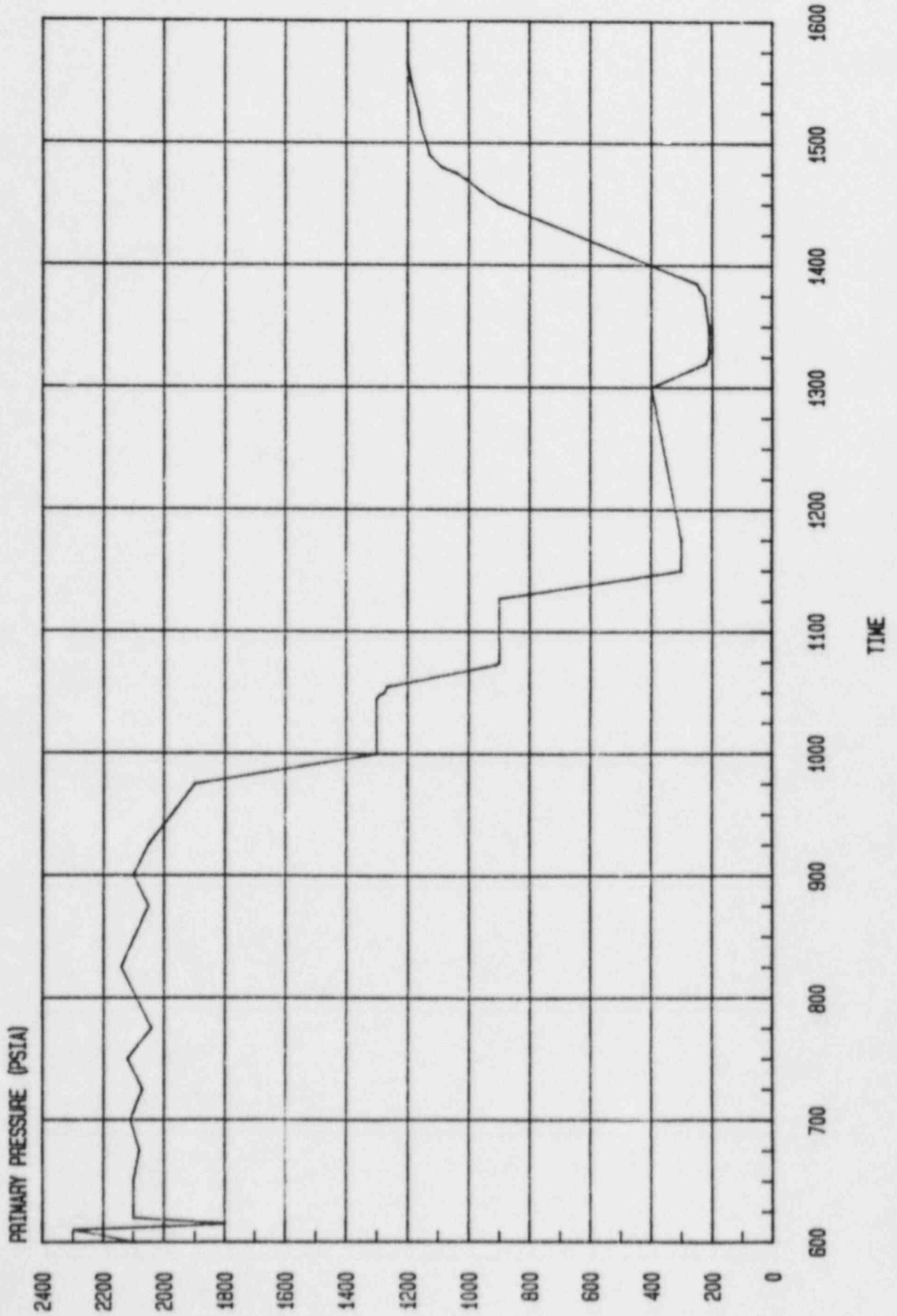
The following RCS parameter data, meteorological data, and radiological data presented in tabular and graphical format will be provided to the Control Room every 15 minutes during the exercise.

RADIOLOGICAL DATA

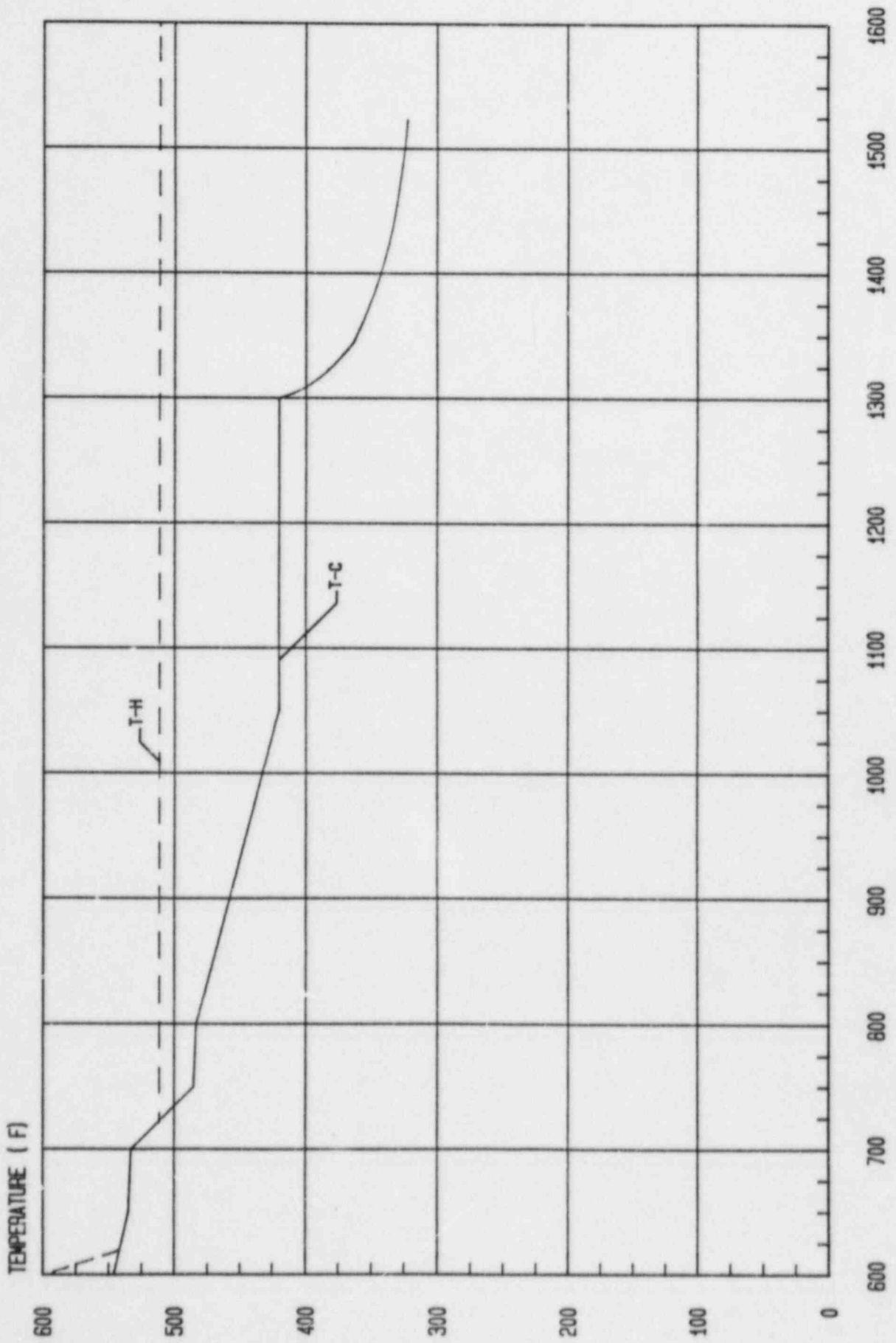
Time	RM-060 (I) (Gross CPM)	RM-063 (Noble Gas) (Gross CPM)	RM-062 (GROSS CPM)	RM-063 Film* (Mr/hr)	RM-074 (Mr/hr)	RM-091B (R/hr)	RM-050 (CPM)	RM-051 (CPM)
0600	95		35		80		1000	6,320
0615	130		54				Off Scale	13,874
0630	175		60		2,200			37,092
0645	220		61					296,732
0700	270		65		5,230			Off Scale
0715	325		68					
0730	385		71		31,930			
0745	450		76					
0800	520		476		129,770	129.8		
0815	Off Scale**	3.08*10 <sup>4</sup>	Off Scale	12.3				
0830		4.67*10 <sup>4</sup>		18.3	313,100	313		
0845		6.53*10 <sup>4</sup>		23.6				
0900		8.66*10 <sup>4</sup>		24.7				
0915		1.12*10 <sup>5</sup>		30.8				
0930		5.37*10 <sup>5</sup>		47.3	863,400	863		
0945		7.76*10 <sup>5</sup>		67.8				
1000		5.9*10 <sup>3</sup>	(63H)	113	Off Scale	1.3*10 <sup>3</sup>		
1015		1.1*10 <sup>4</sup>	"	197				
1030		1.6*10 <sup>4</sup>	"	309				
1045		2.2*10 <sup>4</sup>	"	410				
1100		3.1*10 <sup>4</sup>	"	577		3.2*10 <sup>3</sup>		
1115		7.2*10 <sup>4</sup>	"	1349				
1130		1.2*10 <sup>5</sup>	"	2368				
1145		2.2*10 <sup>5</sup>	"	4235				
1200		4.0*10 <sup>5</sup>	"	7684				
1215		4.3*10 <sup>5</sup>	"	8257		1.2*10 <sup>4</sup>		
1230		4.7*10 <sup>5</sup>	"	8949				
1245		5.2*10 <sup>5</sup>	"	9888				
1300		5.4*10 <sup>5</sup>	"	1.03*10 <sup>4</sup>		2.2*10 <sup>5</sup>		
1315		7.8*10 <sup>5</sup>	"	1.50*10 <sup>4</sup>				
1330		9.75*10 <sup>5</sup>	"	1.86*10 <sup>4</sup>				
1400								
1430								
1500								3.9*10 <sup>5</sup>
1530								3.5*10 <sup>5</sup>
1600								3.1*10 <sup>5</sup>
1630								2.5*10 <sup>5</sup>
								2.1*10 <sup>5</sup>
								1.6*10 <sup>5</sup>

\*Assumes film is advanced every 15 minutes  
 \*\*Fans are assumed to be shutoff.

RCS PRESSURE

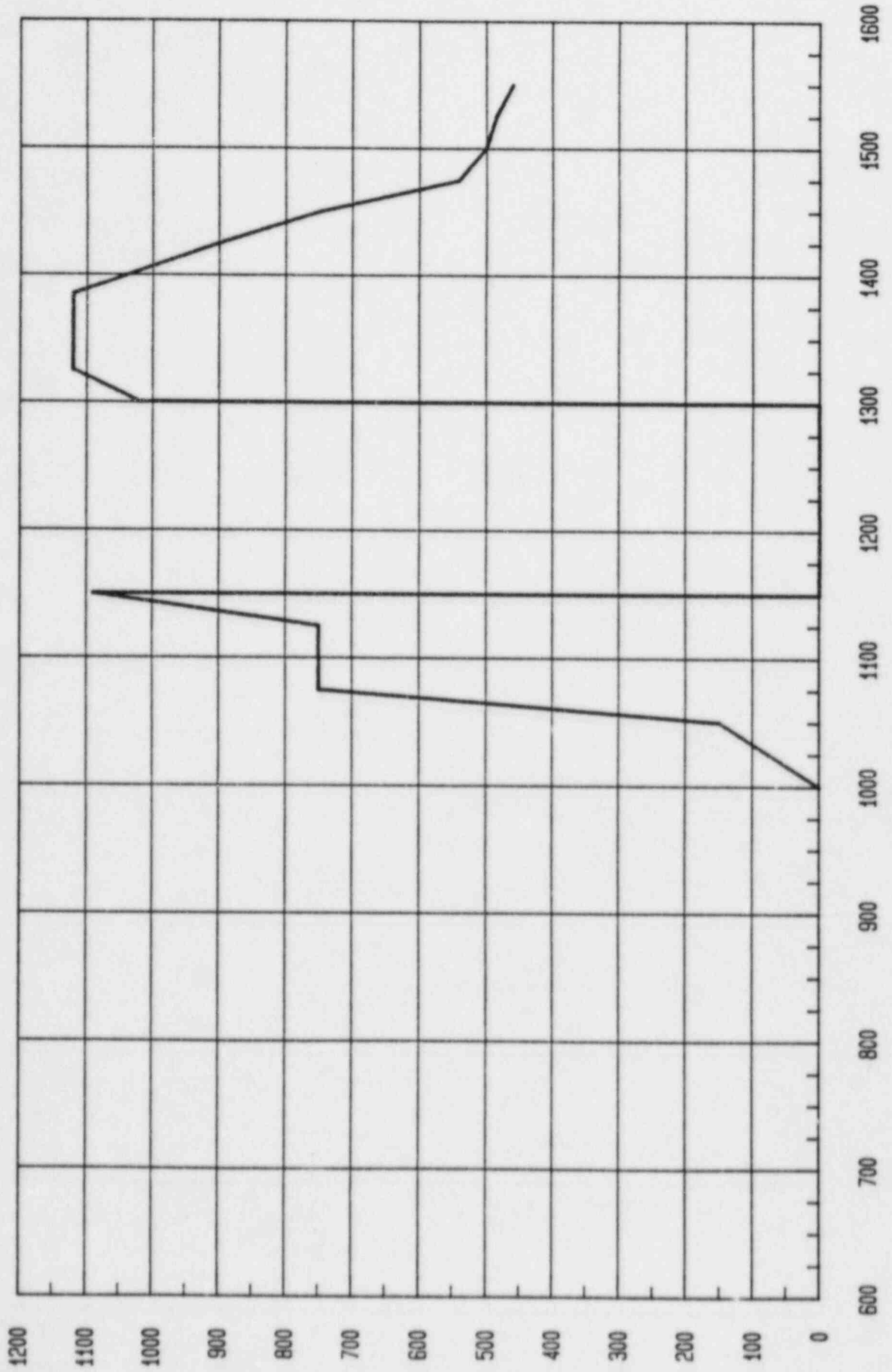


RCS HOT LEG AND COLD LEG TEMPERATURES



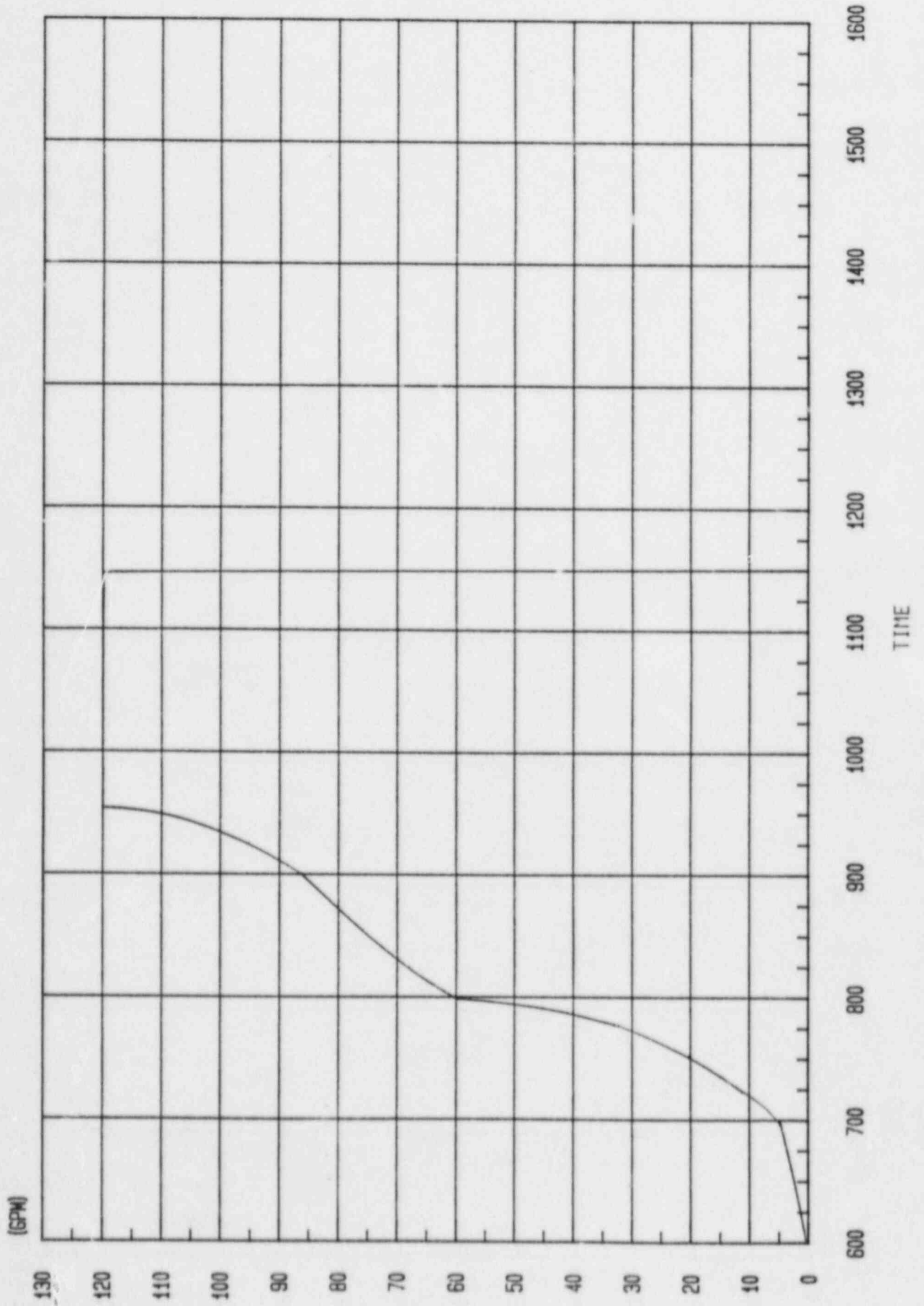


# SI FLOW (GPM)

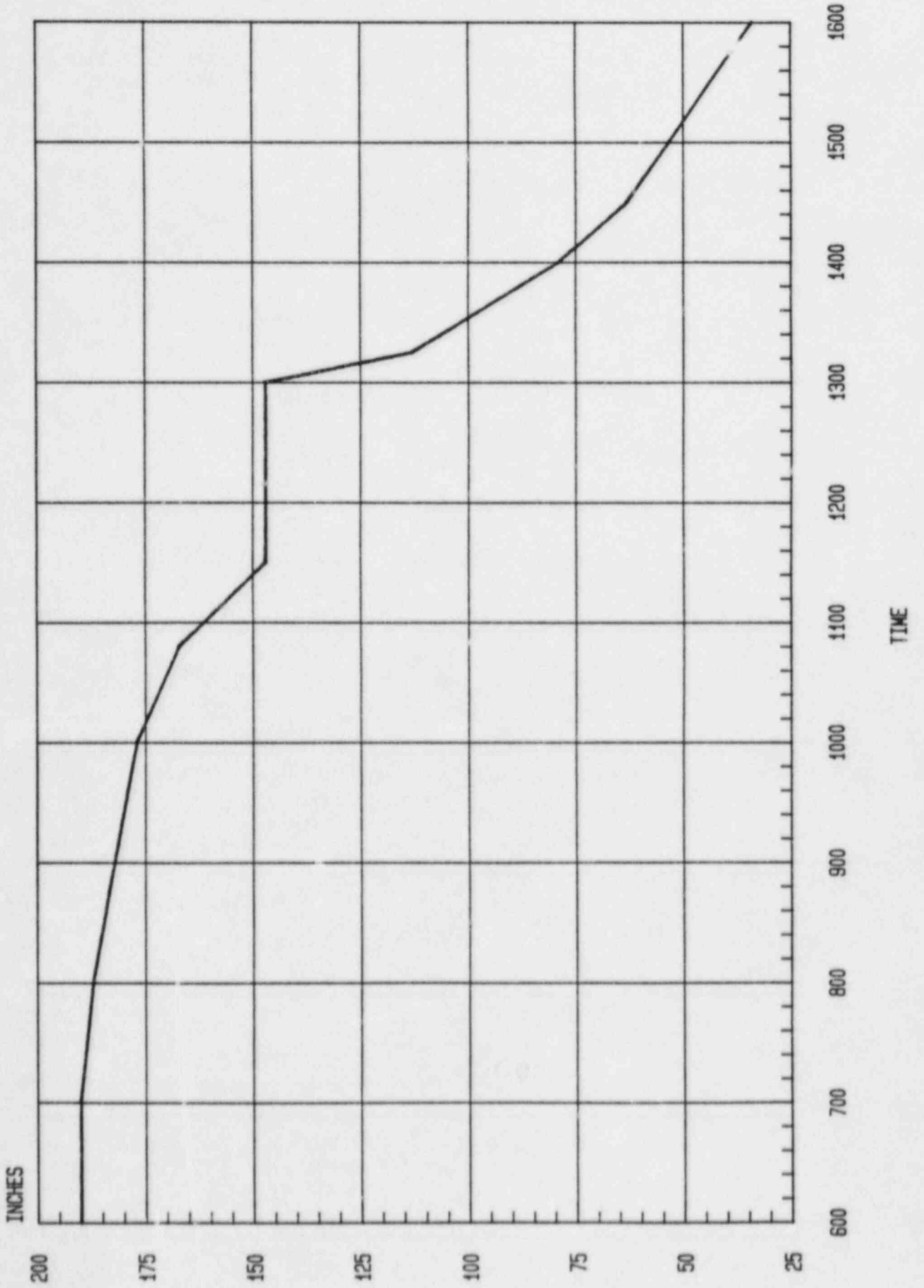


TIME

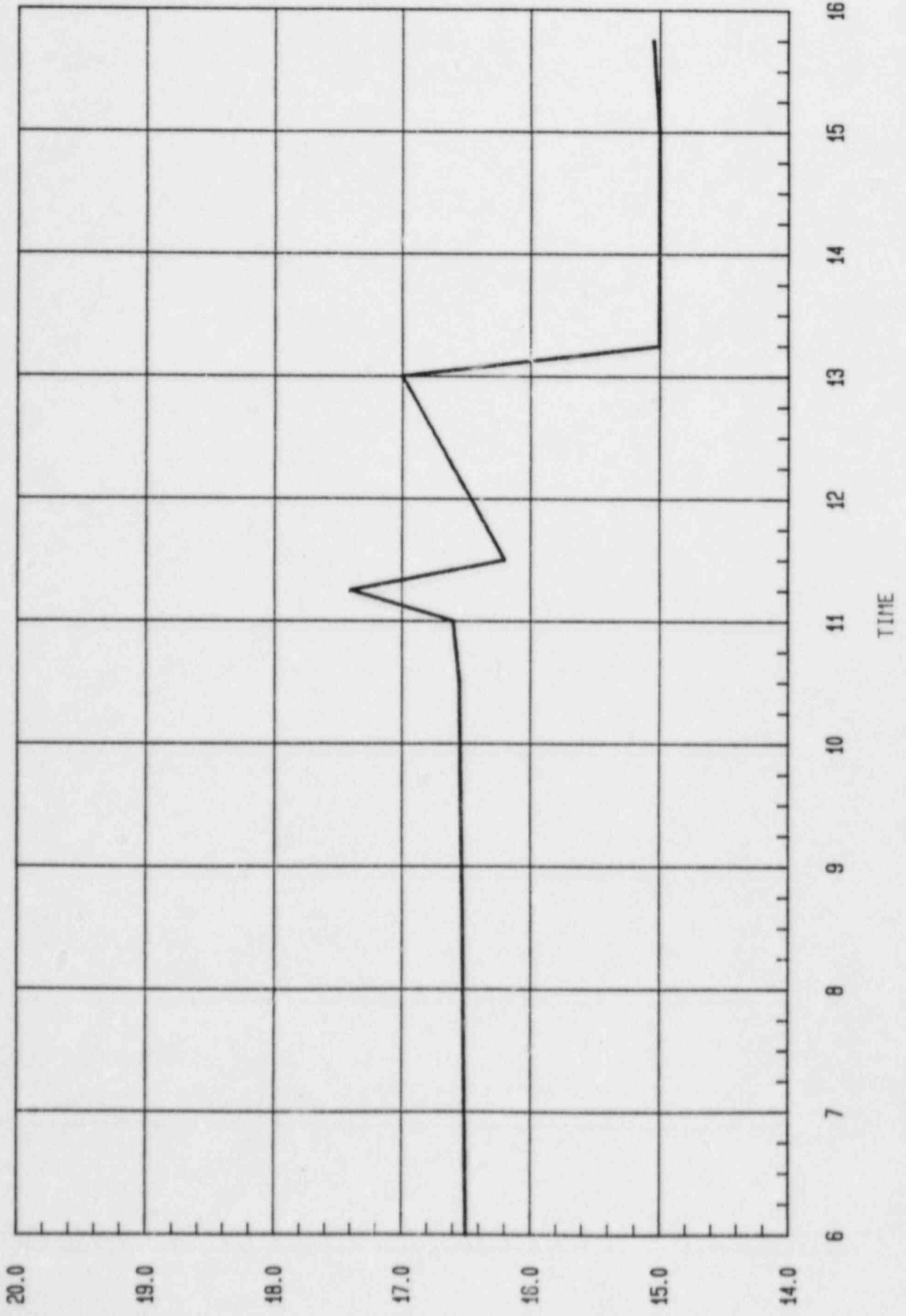
# CHARGING PUMP FLOW [LETDOWN ISOLATED]



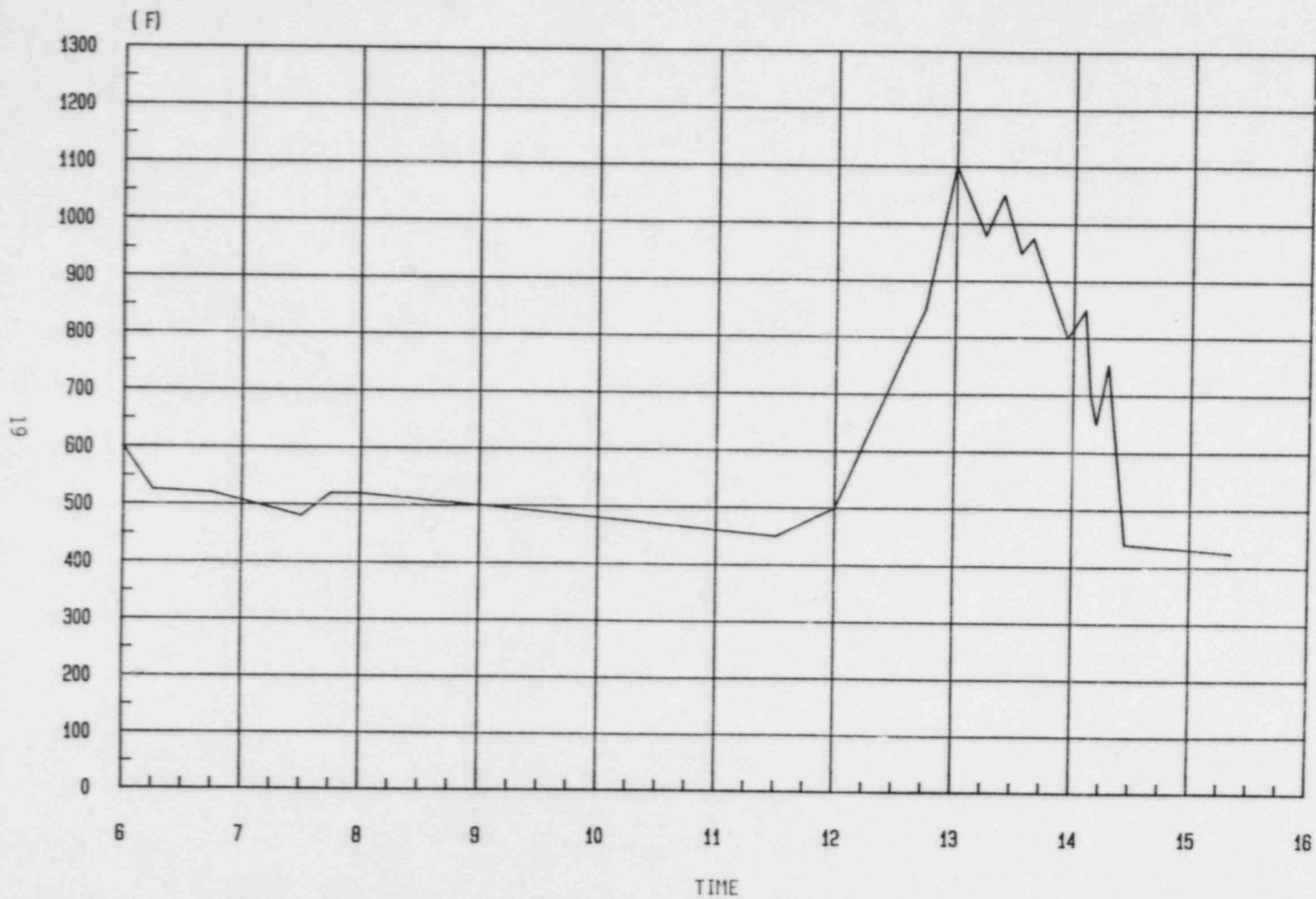
# SIRWT TANK LEVEL



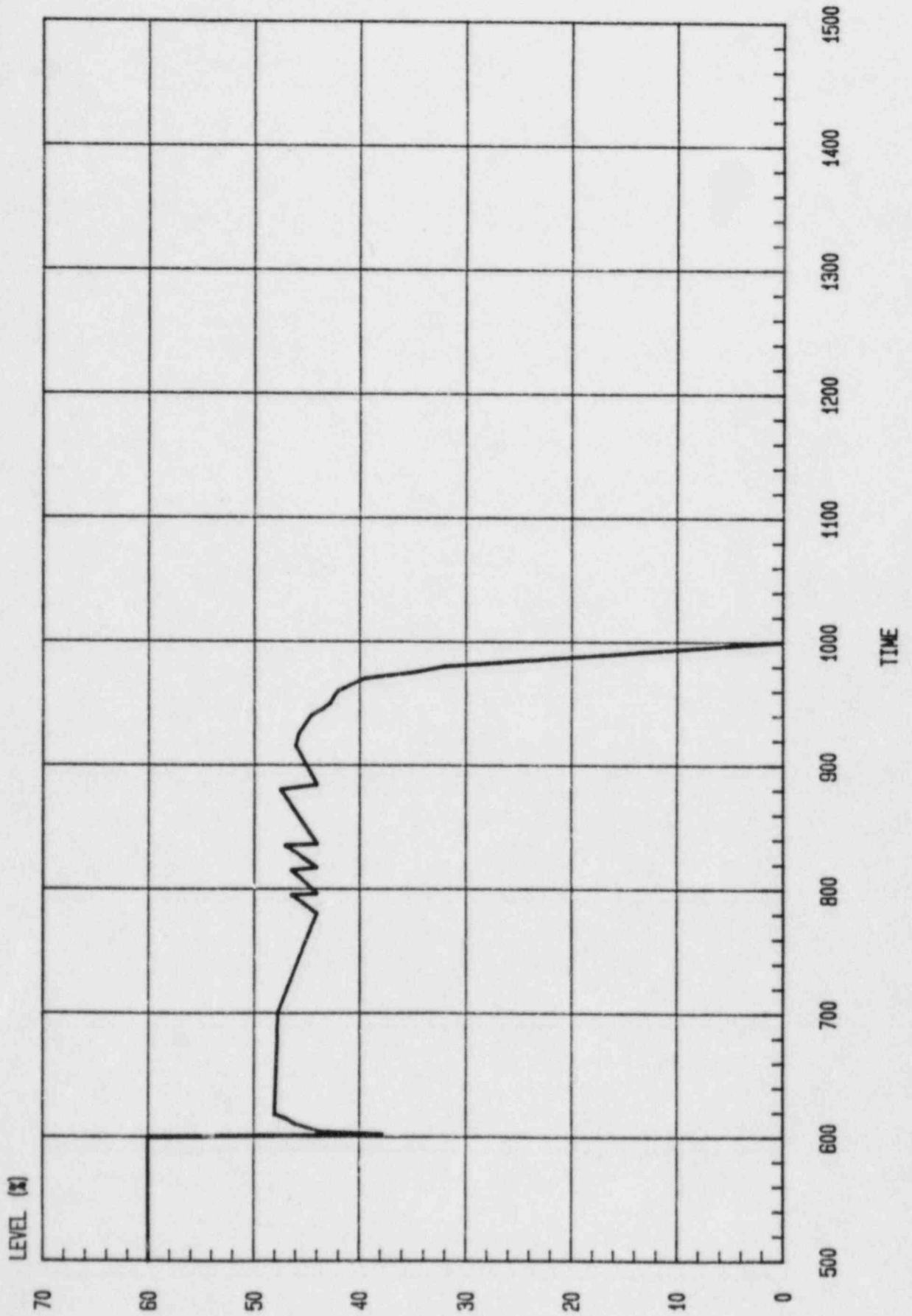
# CONTAINMENT PRESSURE (PSIA)



# MAXIMUM CORE EXIT THERMOCOUPLE TEMP.



# PRESSURIZER LEVEL



METEOROLOGICAL DATA

<u>Time</u>	<u>Windspeed</u>	<u>Wind Direction</u>	<u><math>\Delta T(^{\circ}C)</math></u>	<u>Amb. T<sup>o</sup>C</u>
0615	7.9	305	-1.3	-2.2 <sup>28</sup>
0630	8.2	310	-1.3	-2.4
0645	8.1	312	-1.3	-2.5
0700	8.0	315	-1.4	-2.5
0715	9.1	310	-1.2	-2.3
0730	9.1	300	-1.2	-2.3
0745	9.4	290	-1.2	-2.0
0800	9.8	282	-1.2	-1.8
0815	10.0	290	-1.3	-1.1
0830	10.0	285	-1.3	1.0
0845	9.6	285	-1.4	1.6
0900	8.2	298	-1.1	3.5
0915	7.6	315	-1.0	4.5
0930	7.6	300	-1.1	4.4
0945	7.2	320	-1.0	4.6
1000	6.5	310	-1.2	4.8
1015	6.4	315	-1.1	4.8
1030	6.2	310	-1.2	4.7
1045	6.7	300	-1.1	4.9
1100	6.9	310	-0.8	5.0
1115	7.4	315	-0.4	5.1
1130	8.0	298	-0.4	5.0
1145	8.5	295	-0.4	5.2
1200	8.7	300	-0.3	5.4
1215	8.9	292.5	-0.4	5.8
1230	8.7	292.5	-0.2	5.7
1245	8.3	305	-0.4	6.1
1300	7.9	315	-0.3	6.5
1315	7.1	315	-0.4	7.1
1330	6.9	300	-0.4	7.5 <sup>45.5</sup>