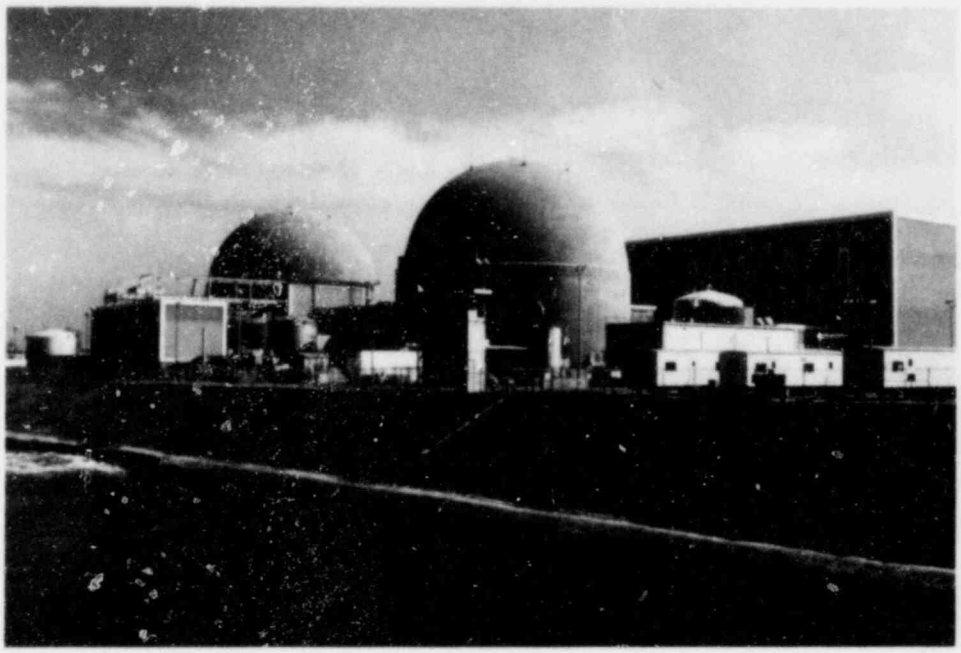
Virginia Electric and Power Company

Emergency Exercise

Surry Power Station
1982 Exercise Manual



Virginia Electric and Power Company

EMERGENCY EXERCISE

SURRY POWER STATION

1982 EXERCISE MANUAL

MANUAL NO.

008

INDEX

REFERENCES

1. Corporate Emergency Response Plan

2. Corporate Plan Implementing Procedures

3. Surry Power Station Emergency Plan

4. Surry Power Station Emergency Plan Implementing Procedures

5. Commonwealth of Virginia Radiological Emergency Response Plan

6. Radiological Emergency Response Plan for the counties of Surry, Isle of Wight, James City and York.

7. Radiological Emergency Response Plan for the cities of Newport News and Williamsburg.

8. NUREG-0654

9. NUREG-0696

9. Virginia Operations Plan Exercise 2-82 (VOPEX 2-82)

The Virginia Electric and Power Company intends to exercise the Emergency Plan and the Emergency Preparedness of the Surry Power Station (SPS) on November 10, 1982. The details of the exercise are summarized below.

1.0 Scope

The scope of this exercise includes the initiation of emergency responses for three of the four categories of emergencies as outlined in NUREG 0654 (up to Site Emergency).

To the greatest extent possible, freeplay will be encouraged during the exercise. It should be recognized that control of the exercise may be re-initiated from time to time to ensure that the prime objectives are accomplished. Control will be provided by controllers and the issuance of exercise messages.

The Technical Support Center (TSC), Emergency Operations Facility (EOF), Operations Support Center (OSC) and Corporate Emergency Response Center (CERC) will be activated.

Pre-selected emergency response organizations (e.g., INPO, NRC, Westinghouse, etc.) will be called from the CERC, located in the VEPCO Corporate Office in Richmond, Virginia, to verify communciations capability.

2.0 Objectives

The objectives of this exercise are to test and evaluate the emergency response capability of Vepco and coordination with offsite emergency response agencies as outlined below:

2.1 Notification and Communications

2.1.1 To test and evaluate the adequacy of the Surry Power Station notification procedures.

2.1.2 To test and evaluate the ability of key Surry Power Station response personnel to implement notification procedures including initial and follow-up communcations, and coordination and updating of information.

2.1.3 To test and evaluate the ability of Surry Power Station emergency response personnel to accurately and efficiently assess an abnormal or accident situation and disseminate vital information to appropriate offsite agencies.

2.1.4 To test and evaluate the Vepco Emergency Communication Systems between Vepco emergency response facilities (Control Room, OSC, TSC, EOF, CERC); and between these facilities and outside agencies.

2.1.5 To test and evaluate communication capabilities between the Surry Power Station offsite and onsite radiation monitoring teams and the TSC.

2.2 Direction and Control

2.2.1 To test and evaluate the Surry Power Station response staff in their ability to determine the cause of an accident, terminate or limit radioactive releases, and bring the unit to a safe shutdown condition.

2.2.2 To test and evaluate the adequacy of the Surry Power Station Emergency Plan Implementing Procedures in terms of management control of an emergency situation, dose assessment, health physics monitoring onsite and offsite.

2.2.3 To test and evaluate the adequacy of procedures for personnel accountability, site evacuation, and damage control.

2.2.4 To test and evaluate the adequacy of emergency medical response and transportation of a contaminated injured personnel.

3.0 Logistics

3.1 Date: November 10, 1982 - Wednesday

3.2 Time: 0930 to 1630 Exercise

1700 to 2000 Critique

3.3 Location: Virginia Electric and Power Company
Surry Power Station
Route 650 Off of Route 10
Surry County
Surry, VA 23883
See Map-Figure 3-1

3.4 Facilities: SPS Control Room (CR)
Technical Support Center (TSC)
Emergency Operations Facility (EOF)
Operational Support Center (OSC)
Corporate Emergency Response Center (CERC)
Public News Center (PNC)

3.5 Participating Organizations: (see Attachment for Telephone Numbers)

3.5.1 Virginia Electric and Power Company

3.5.2 Commonwealth of Virginia

3.5.3 Local Agencies:

A. Surry County, Virginia

B. James City County, Virginia

C. Isle of Wight County, Virginia

D. City of Newport News, Virginia

E. York County, Virginia

F. City of Williamsburg, Virginia

3.5.4 Medical Support:

A. Medical College of Virginia (MCV)
Richmond, Virginia

3.5.5 Federal Government Agencies

A. Federal Emergency Management Agency (FEMA)

B. Nuclear Regulatory Commission (NRC)

ATTACHMENT

LIST OF PARTICIPANTS

Telephone Numbers

The following organizations, agencies, and political subdivisions will participate in the Surry Power Station Emergency Exercise:

A. Virginia Electric and Power Company (VEPCO)

1. Corporate Headquarters (804) 771-3000
2. Surry Power Station (SPS) (804) 357-3184
3. Surry Power Station News Media Center (804) 294-5140

B. State Agencies, Commonwealth of Virginia

1. Agriculture and Consumer Services, Department of (804) 786-3544
2. Air Pollution Control Board, State (804) 786-7913
3. Consolidated and Laboratory Services, Division of (804) 786-5485
4. Conservation and Economic Development, Department of (Parks Division) (804) 786-2121
5. Corrections, Department of (804) 257-0167/1989
6. Emergency and Energy Services, Office of (804) 323-2300
7. Game and Inland Fisheries, Commission of (804) 257-1381
8. Health, Department of (804) 323-2300 (State EOC)
9. Highways and Transportation, Department of (804) 786-2817
10. Mental Health and Mental Retardation, Department of (804) 786-4005
11. Military Affairs, Department of (804) 786-2504/2416
12. State Police, Department of (804) 323-2014
13. Water Control Board, State (804) 257-0080
14. Welfare, Department of (804) 281-9209
15. Marine Resources Commission (804) 245-2811

C. Local Governments

1. Surry County (804) 294-3156 or 3182
2. Isle of Wight (804) 357-3191 x217
3. York County (804) 898-0180
4. James City County (804) 220-0242
5. City of Newport News (804) 247-8606
6. City of Williamsburg (804) 229-4821
7. City of Hampton (804) 727-6414
8. City of Poquoson (804) 868-7151
9. New Kent County (804) 730-9550
10. Charles City County (804) 829-2401 or 2466

D. Institutions - within ten miles of the Surry Power Station

E. Nuclear Regulatory Commission (NRC)

F. Federal Emergency Management Agency (FEMA)


BALTIMORE
WASHINGTON
ALEXANDRIA
ARLINGTON
BOWIE
SILVER SPRING
ROCKVILLE
FREDERICK
HAVRE DE GRACE
ABERDEEN
MIDDLE RIVER
ESSEX
GLENDALE
DOVER
DELAWARE
BAY
VINELAND
BRIDGETON
MILLVILLE
CAMBRIDGE
SALISBURY
LEXINGTON PARK
CHESAPEAKE BAY
ATLANTIC OCEAN
RICHMOND
COLONIAL HTS
PETERSBURG
NEWPORT NEWS
HAMPTON
NORFOLK
PORTSMOUTH
VIRGINIA BEACH
SUFFOLK
CHESAPEAKE
JOHN F. KENNEDY MEM. HY.
MARYLAND
DELAWARE
WEST CHESTER
PETERSBURG
ALEXANDRIA
ARLINGTON
RICHMOND-PETERSBURG TURNPIKE

4.0 Summary of Events

All major events listed below will be executed unless otherwise noted.

4.1 Declaration of Emergency or Emergencies

4.2 Notification of Offsite Agencies

4.3 Emergency Announcements

4.4 Activation of Emergency Response Facilities

- A. TSC - Technical Support Center
- B. EOF - Emergency Operations Facility
- C. OSC - Operational Support Center
- D. CERC - Corporate Emergency Response Center
- E. PNC - Public News Center

4.5 Activation of Health Physics Onsite and Offsite Monitoring Teams.

4.6 Site Evacuation and Accountability of Personnel (limited number of personnel).

4.7 Emergency Medical Assistance of Simulated Contaminated Injured Person.

- A. First Aid and Decontamination
- B. Transport to Medical care facility
- C. Treatment at Medical care facility

4.8 Activation of the Damage Control Team.

5.0 Exercise Scenario

5.1 Initial Conditions

Unit 2 is operating at 100% power (MOL; Boron Concentration: 500 ppm). All safety systems are operable. Pressurizer PORV's and main steam PORV's are isolated. Unit 1 is in the last day of a 7 day outage for overhauling of the charging pumps and snubber inspection. SW Transformer 1 (15G1) is out for maintenance. S/G "A & B" are aligned to BD Monitor "A". S/G "C" is aligned to BD Monitor "B".

The sky is overcast. Stability class is D. Winds are 15 mph from East-Northeast (60° to 65°). The 32 ft temperature is 80°F. A tropical storm off the coast of North and South Carolina has developed into a hurricane overnight and is headed in the North - Northeast direction.

5.2 Time Vs Events

Time	Event
9:30 A.M.	Exercise commences
9:40 A.M.	System Operator notifies Surry Power Station that a Hurricane Watch as been declared for Eastern and Southeastern Virginia, including Surry County. An Unusual Event is declared
10:00 A.M.	Increased levels of air ejector and S/G blowdown activities are detected.
10:05 A.M.	Operations determines that increased blowdown activity is from S/G "C". RCS Leak Rate Periodic Test is initiated. RCS and S/G samples and analyses are requested.

10:15 A.M.	Chemistry Technician returning from the sample room trips and falls. His left forearm and hand are cut. He is doused with radioactive samples and his wounds are contaminated. The accident also causes a heart attack. The victim remains conscious but is incapacitated by the chest pain.
10:20 A.M.	The Auxiliary Building Operator walks by and notices the victim on the floor. The Shift Supervisor and the First-Aid Team are notified.
10:30 A.M.	Shift Supervisor is notified of the need to transport contaminated victim to MCV.
10:40 A.M.	The on-site ambulance departs Surry Power Station.
	A second Unusual Event is reported
11:00 A.M.	The RCS Leak Rate Test indicated an unidentified RCS leakage of 0.2 gpm. Chemical analyses of RCS and S/G samples confirm a primary to secondary leakage of 0.1 gpm for S/G "C" and neglible leakage from "A & B" S/G's.
11:10 A.M.	High winds are being experienced as a result of the close proximity of the hurricane. Met Tower data indicate wind gusts are up to 60 mph.
11:15 A.M.	Air ejector and blowdown monitor "B" are maintaining a high but steady level due to S/G "C" leakage.

11:30 A.M.	Instrument power fuse for NI-41 power range monitor is blown causing a negative rate-of-change signal to initiate turbine runback, resulting in a load rejection of 30%. Reactor does not trip as the Rod Control System and Steam Dump to Condenser operate properly to gradually restore RCS pressure and temperature to normal levels.
11:40 A.M.	Vibration monitors on RCP C alarm and indicate very high vibrations. RCP C trips on motor overcurrent. Reactor trips, followed by the turbine and generator.
11:41 A.M.	Letdown radiation monitors alarm and reach a high reading of $2x10^4$cpm before readings decay to a steady 5×10^3 cpm.
11:45 A.M.	Plant stablizes as control systems act to restore RCS pressure and temperature, pressurizer and S/G levels at their no-load (zero power) levels.
11:50 A.M.	34.5KV Bus 5 experiences a faulted condition when high winds blow the sheet metal top off Fire Hose Station Building #18 onto the bus disconnect. Power to 4160 Station Service Buses A, B, 2H Emergency and 2G bus is lost. #2 Diesel Generator starts. All emergency buses are energized. Auxiliary FW system starts and operates properly.

12:00 P.M.	AP-39, Natural Circulation of Primary Coolant is implemented due to the loss of all RCP's. Steam dump is switched to the MS PORV's due to the loss of condenser vacuum as a resul. of the loss of cirulating water pumps.
12:10 P.M.	Core exit Thermocouples (T/C's) indicate the existance of hot spots near core locations K5 and L6. Subcooling monitors show a 25°F superheat condition for the hot spot region. Let down monitors read 10^4 Cpm. RCS sample and analysis are requested.
12:20 P.M.	Letdown radiation monitor reading steadily increasing. High level alarms are sounded at 10^5 cpm.
12:25 P.M.	T/C readings for core locations K5 and L6 indicate 1000°F. Remaining T/C readings average about 585°.
12:30 P.M.	RCS sample and analysis indicate fuel cladding damage. RCS specific activity is 260 Micro Ci/gm I-131 dose equivalent. <u>An Alert is declared</u>.
12:35 P.M.	PORV on MS Line C and FW to S/G "C" are isolated to reduce the radiological release. PORV's for MS Lines A & B continue to operate to remove decay heat.
12:45 P.M.	RCS wide range T-Hot and core exit T/C readings indicate adequate natural circulation for all outer core regions. Only fuel assemblies at core locations K5 and L6 are experiencing inadequate cooling. Natural circulation cooling is estimated at about 15°F per hour.

1:30 P.M.	Motor drive Aux. Feedwater Pump 3A stops as motor bearing seizes.
2:45 P.M.	A primary to secondary tube leak occurs in S/G "B".
	Winds are now 7 mph, from ENE (68°). ΔT is -1.05° (Class C).
2:50 P.M.	MS line B Hi Range Radiation Monitor indicates 2 x 10-1 MR/hr. Attempts to close PORV on Line B fail as PORV will not close on controller demand signal.
	A Site Emergency is declared
3:00 P.M.	Handwheel on PORV isolation valve is broken off the valve stem when attempt is made to close the manual isolation valve. Steam continues to "weep" from the valve. Venting instrument air at PORV actuator does not close the PORV.
3:15 P.M.	Maintenance crew reports that the spring on the PORV actuator is broken, causing the valve to stay partially open.
3:50 P.M.	Isolation valve to PORV is shut by applying wrench to valve stem.
	Release is Terminated
3:55 P.M.	Decay heat is being removed only through the PORV for MS Line A. Core exit T/C's continue to show inadequate cooling for fuel assemblies near core locations K5 and L6.
4:00 P.M.	Suffolk repair crew has repaired Bus 5. Station Service Buses A, B and Bus 2G are restored.
4:05 P.M.	RCP A is started to initiate forced circulation cooling.

4:15 P.M.	Core locations K5 and L6 are being cooled by forced circulation cooling as evidenced by decreasing T/C readings.
4:25 P.M.	All T/C and RCS temperature indications show adequate core cooling. (T-Hot = 465°F, Avg T/C = 475°)
4:45 P.M.	(Time compression) It is now 7:00 P.M. All reporting onsite and offsite radiological monitoring data are indicating background readings.
5:00 P.M.	Exercise Terminated

5.2 Plant Parameters vs. Time: See Appendix A.

5.3 Radiation Levels vs Time

5.3.1 In-plant radiation levels vs. time: See Appendix B.

5.3.2 On-site (out of plant) radiation levels vs. time: See Appendix C.

5.3.3 Offsite radiation levels vs. time: See Appendix D

5.4 Controller messages: See Appendix E.

6.0 NARRATIVE SUMMARY

The scenario begins with a hurricane watch being declared for Southeastern Virginia, including Surry County. An Unusual Event is declared. A chemistry technician is injured and contaminated in an accident when returning from the sample room. The transport of the contaminated, injured victim to the Medical College of Virginia causes the declaration of a second Unusual Event.

A loose part in the RCS causes a part of RCP C impeller to break off. Intense vibration of RCP C causes the pump to trip, resulting in reactor, turbine, and generator trips. Post-trip cooldown proceeds normally until 34.5 KV Bus 5 is lost. This results in the loss of RCP's A & B as well as condenser vacuum. RCS cooldown continues by natural circulation and the operation of the main steam atmospheric PORV's.

Loose parts and debris in RCS cause the partial blockage of flow channels for core locations K5 and L6. Natural circulation is insufficient to cool the affected assemblies and fuel cladding failure occurs. An Alert is declared when RCS activity attains 260 Micro Ci/gm I-131 dose equivalent.

A 10 gpm primary to secondary leakage develops for S/G "B", thus providing a release path to the environs. A Site Emergency is declared when Hi Rang Radiation Monitor on MS Line B exceeds 7.5×10^{-2} MR/hr. MS Line B cannot be isolated due to failure of the PORV and the manual isolation valve. Offsite radiation monitoring teams are dispatched because of the release to the environment. A site evacuation is also ordered based on a projected release period of 1-1/2 hours. The PORV is isolated one hour later, thus terminating the release. Upon restoration of Bus 5, forced circulation is initiated and provides adequate cooling to the affected assemblies.

7.0 EVALUATORS/CONTROLLERS

7.1 Controllers

Medical Emergency (1)
Remote Assembly Area (1)
Control Room (1)
TSC and Dose Assessment (2)
OSC (1)
EOF and Dose Assessment (2)
Offsite Monitoring Areas (2)
HP/Chemistry/floater (1)
Security/floater (1)

7.2 Evaluators

Control Room (1)
Medical Emergency (1 + Corp.)
HP/Count Room (1)
HP/Chemistry (1)
TSC (1)
OSC (1)
EOF (1)
Offsite Monitoring Area (1)
Security (1)
Remote Assembly Area (1)
Public News Center (1 + Corp.)

(Designation of Controllers/Evaluators will be made at a later date)

8.0 EXERCISE FREEPLAY ITEMS AND SIMULATIONS

The following list of freeplay items and simulations represent a conclusive listing of all nonscheduled events that may be inserted during the course of the exercise. All or none of the items may be utilized, depending on exercise progress and timing. An item may be inserted by the controller associated with the activity effected only with the express direction or concurrence of the Lead Controller.

8.1 Freeplay Items

Item	Approximate Time
One manager not present (accident/auto failure/vacation)	9:30 a.m. - 1:00 p.m.
One telephone or radio line disabled	9:30 a.m. or 1:00 p.m.
Automobile accident blocking plant access route	10:30 a.m. or 3:00 p.m.
Loss of plant parameter indicator	9:30 a.m. - 4:50 p.m.
Personnel overexposure/contamination	12:30 p.m. - 4:00 p.m.
Personnel injury onsite	1:30 p.m. - 4:00 p.m.
Unaccounted personnel	2:50 p.m.
Spontaneous evacuation of general population near the site	1:00 p.m. - 3:30 p.m.

8.2 Simulations

Simulate evacuating personnel, taking their personal dosimetry with them to their Remote Assembly Area.

Simulate partial monitoring of the personnel and vehicles at the Remote Assembly Area. (e.g., Survey as normal the first 10 to 20 vehicles and personnel at the Remote Assembly Area, but not all the vehicles and personnel).

Simulate a request for additional field monitoring personnel and vehicles from North Anna Power Station.

Simulate recall of as many employees on vacation as possible.

Simulate a request for food and bedding supplies for station personnel.

Simulate the following calls for technical assistance if necessary:

- Westinghouse
- INPO
- Stone and Webster

Simulate after a discussion, the relief of Key Emergency Personnel.

Simulate Suffolk repair crew working in the Switch Yard.

9.0 CRITIQUE/EVALUATIONS

A series of critiques will take place after the completion of the Surry Emergency Exercise, Wednesday, November 10, 1982. The initial critiques will be held immediately following the exercise. Vepco participants will assemble in the TRAINING COMPLEX AUDITORIUM, Surry Power Station, upon completion of the Recovery Phase of the exercise. Concurrently with this critique it is normal practice for the NRC to hold a separate critique of their observers. At a mutually agreeable time NRC Representatives and Vepco Representatives will conduct a joint meeting to present the findings of the preceding critiques.

The internal Vepco critique that follows the termination of the exercise should last approximately 30 to 60 minutes. Controllers and observers should present their comments. Key participants in the exercise shall attend this critique. The start of the critique will be delayed until representatives from the Corporate Emergency Response Center arrive. These representatives may leave the CERC before the completion of the Recovery Phase to avoid delaying the start of the station critique.

The initial station critique is intended to highlight exercise problem areas and/or identify those aspects of emergency planning that could be improved or changed to facilitate smoother operations. It is intended that this critique be an open discussion among Vepco participants in the exercise. It is possible that misunderstandings or erroneous observations can be resolved at this time.

In the joint meeting with the NRC and Vepco that follows the initial critiques it is normal practice for the utility to appoint a principal spokesman to present the findings of the critique. The utility normally makes its presentation first. The NRC Representatives will then present their findings. At this time it is also possible to resolve misunderstandings or misconceptions.

A tentative critique schedule of the Emergency Exercise to be held on November 10, 1982, is as follows:

1530 - CERC Representatives depart for Surry
1700 - Exercise Terminated
1730 - Vepco Critique
1800 - NRC Critique
1830 - Vepco List of Critique Findings Resolved
1900 - Joint NRC/Vepco Meeting and NRC Exit Interview

There is no planned formal Commonwealth of Virginia/FEMA Critique scheduled.

10. Notes

10.1 Controllers

Controllers, as designated in Section 7.1 are the only personnel who are authorized to provide input to the exercise response personnel. Controllers shall wear red arm bands and shall be responsible for all inputs (i.e. data, initiate scenario events, etc.) in their assigned area. Controllers are responsible for the successful conduct of this exercise scenario as scheduled. Any simulation required to assure the objectives of this exercise are met shall be the responsibility of the affected controller. The Controller shall not, however prompt an exercise participant unless required to meet the scenario schedule, in which case the participant shall be considered to have unsatisfactorily responded. Use of "Freeplay" additional simulations shall be conducted only after agreement on the item is reached between the lead controller and the controller(s) of the affected areas.

10.2 Evaluators

Evaluators, as designated in Section 7.2, shall wear orange armbands and shall not participate in any way in the exercise. Their function is limited to evaluating the exercise as objective critics, and documenting any deficiencies noted for evaluation and correction following the exercise. Evaluators may ask questions of participants to clarify actions taken, but should not interfere with the flow of events.

10.3 Participants

Exercise response personnel shall not wear any armbands and shall respond to exercise input data as provided by the controllers.

10.4 Exempts

Any station personnel whose position at the time of the exercise requires their attention to actual plant conditions to assure safe operation shall wear green armbands and shall be exempted from response to the simulated conditions of the exercise.

10.5 Observers

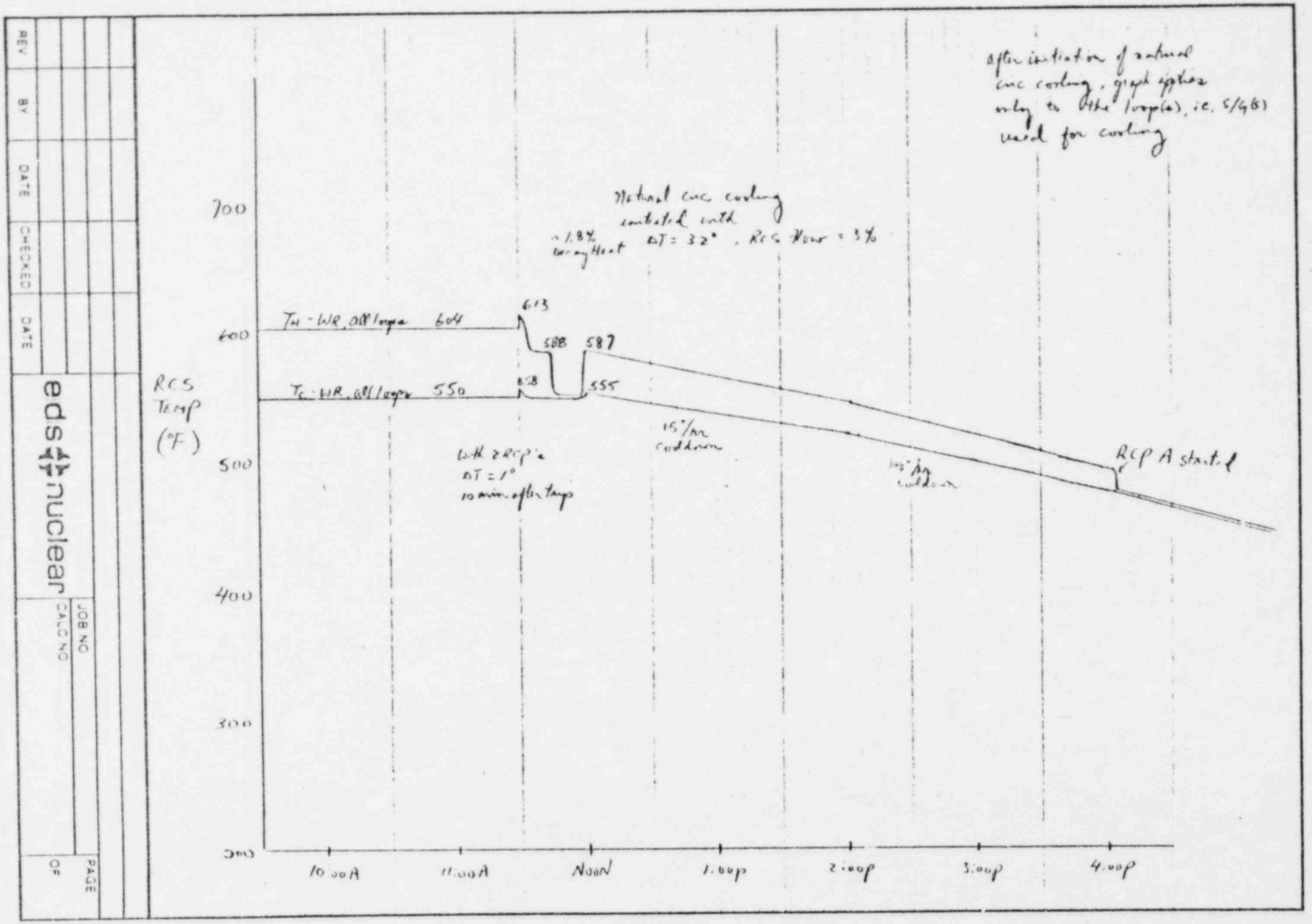
Observers are personnel who serve no evaluation, control or participatory function in the exercise. Visitors from NRC, offsite agencies, other utilities, etc. shall not interfere with Evaluators or Participants. Questions from observers should be directed to a controller.

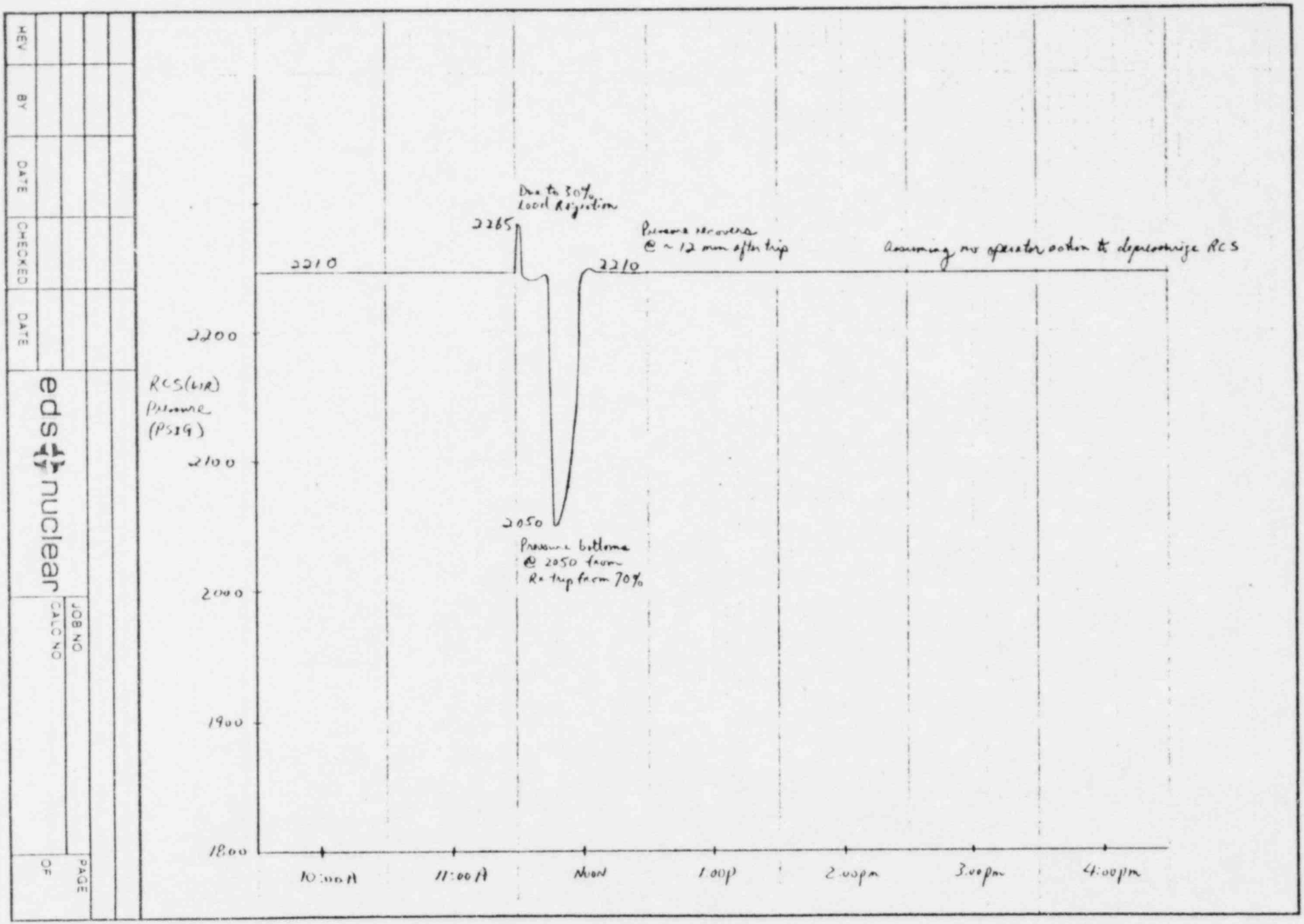
APPENDIX A

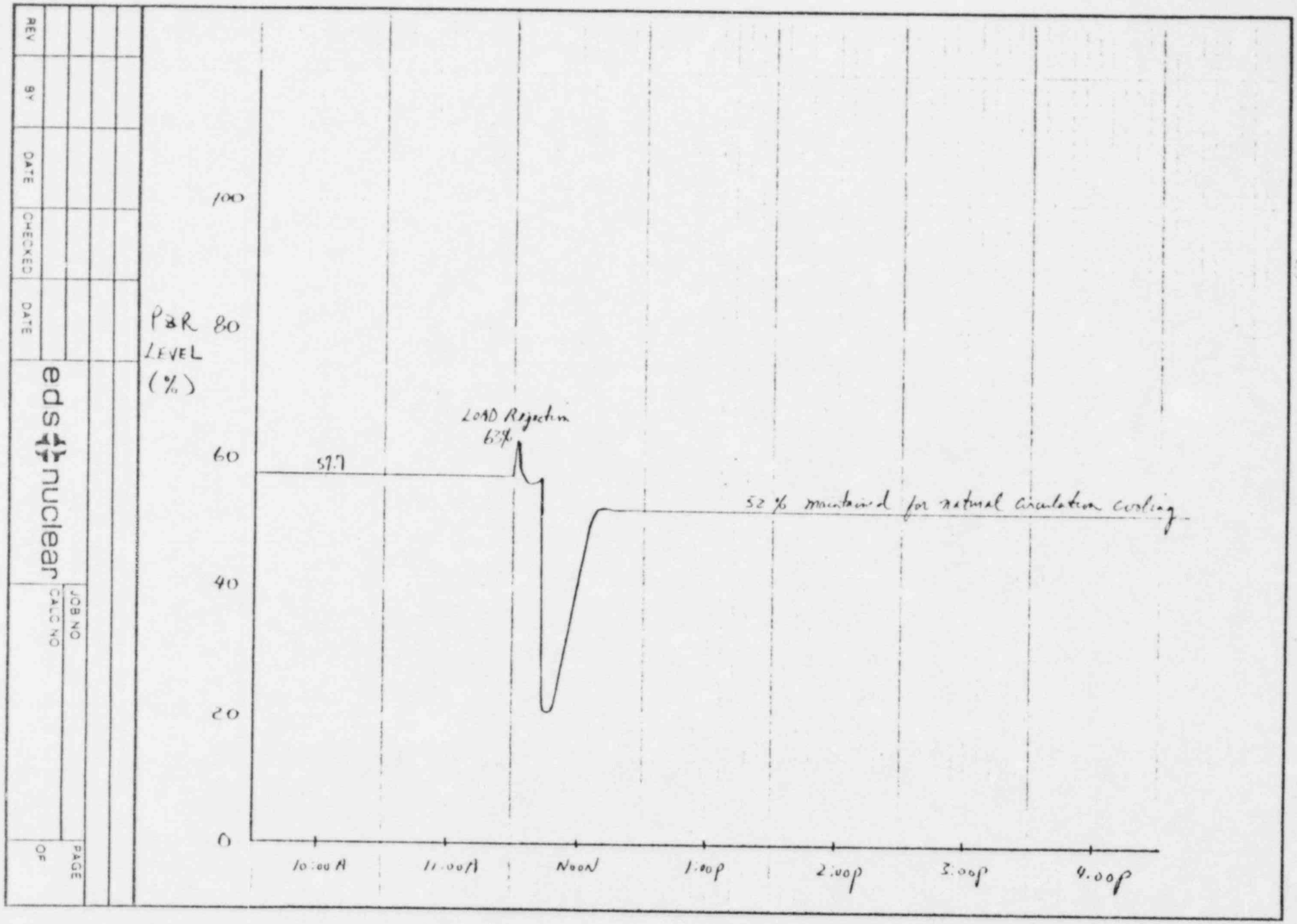
Plant Parameters

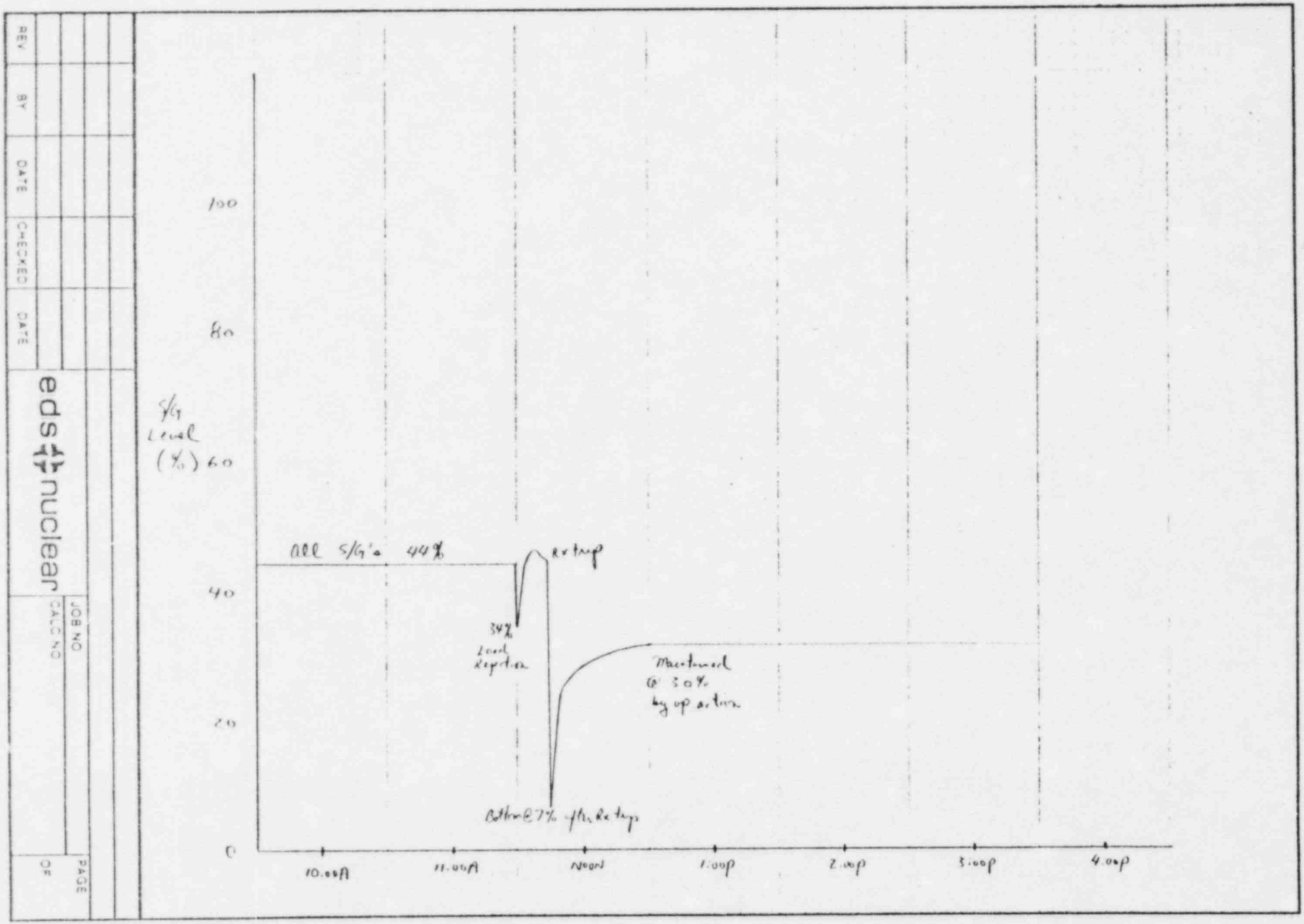
MS Hi Range RMS Readings (MR/hr)

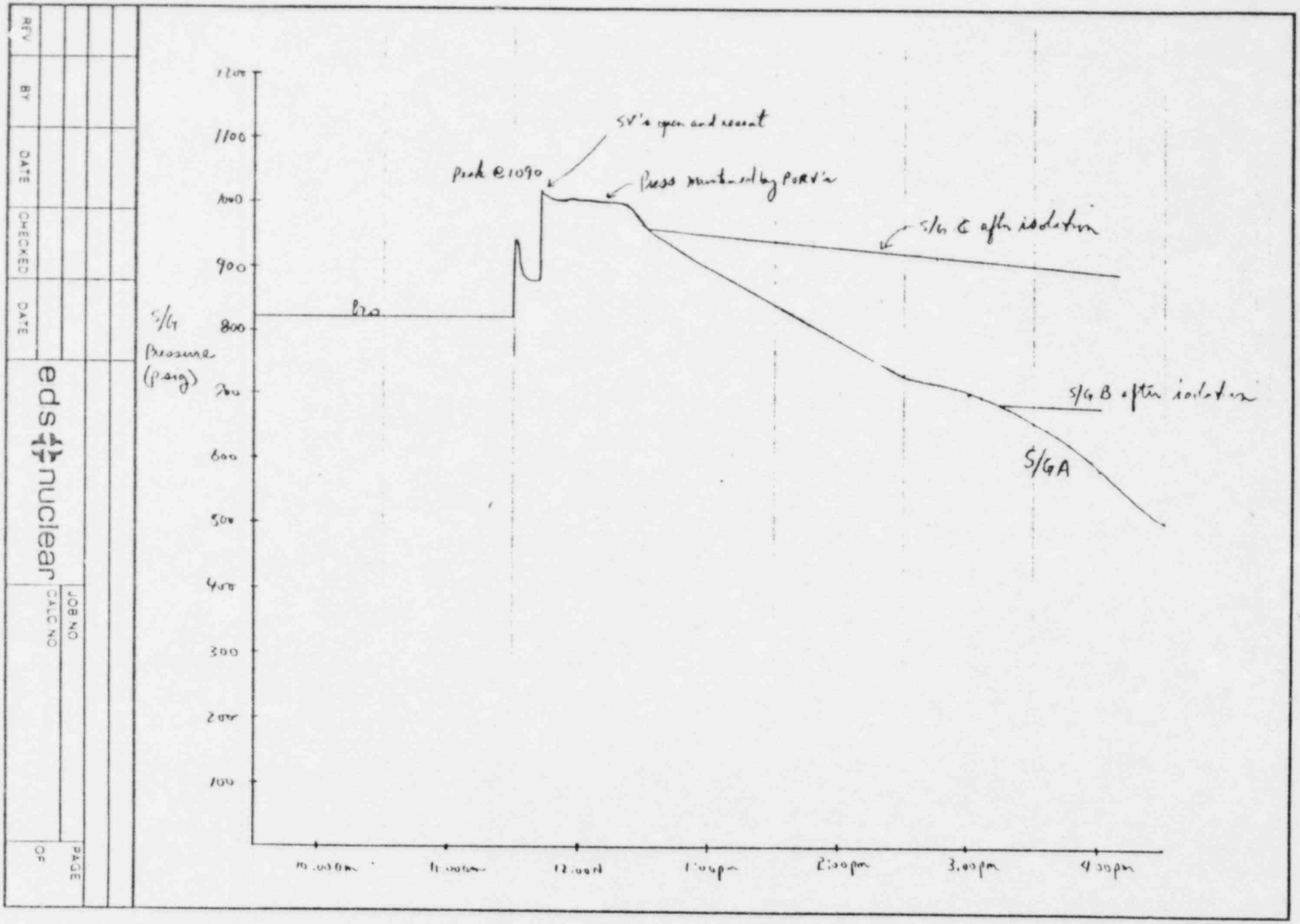
Time	Line C	Line B
10:00-10:29	Not on Scale	Not on Scale
10:30-10:59		
11:00-11:29		
11:30-11:59		
12:00-12:29		
12:30-12:59		
1:00- 1:29		
1:30- 1:59		
2:00- 2:29		
2:30- 2:59		2.0×10^{-1}
3:00- 3:29		2.0×10^{-1}
3:30- 3:50		2.0×10^{-1}
3:50- 5:44		BKND

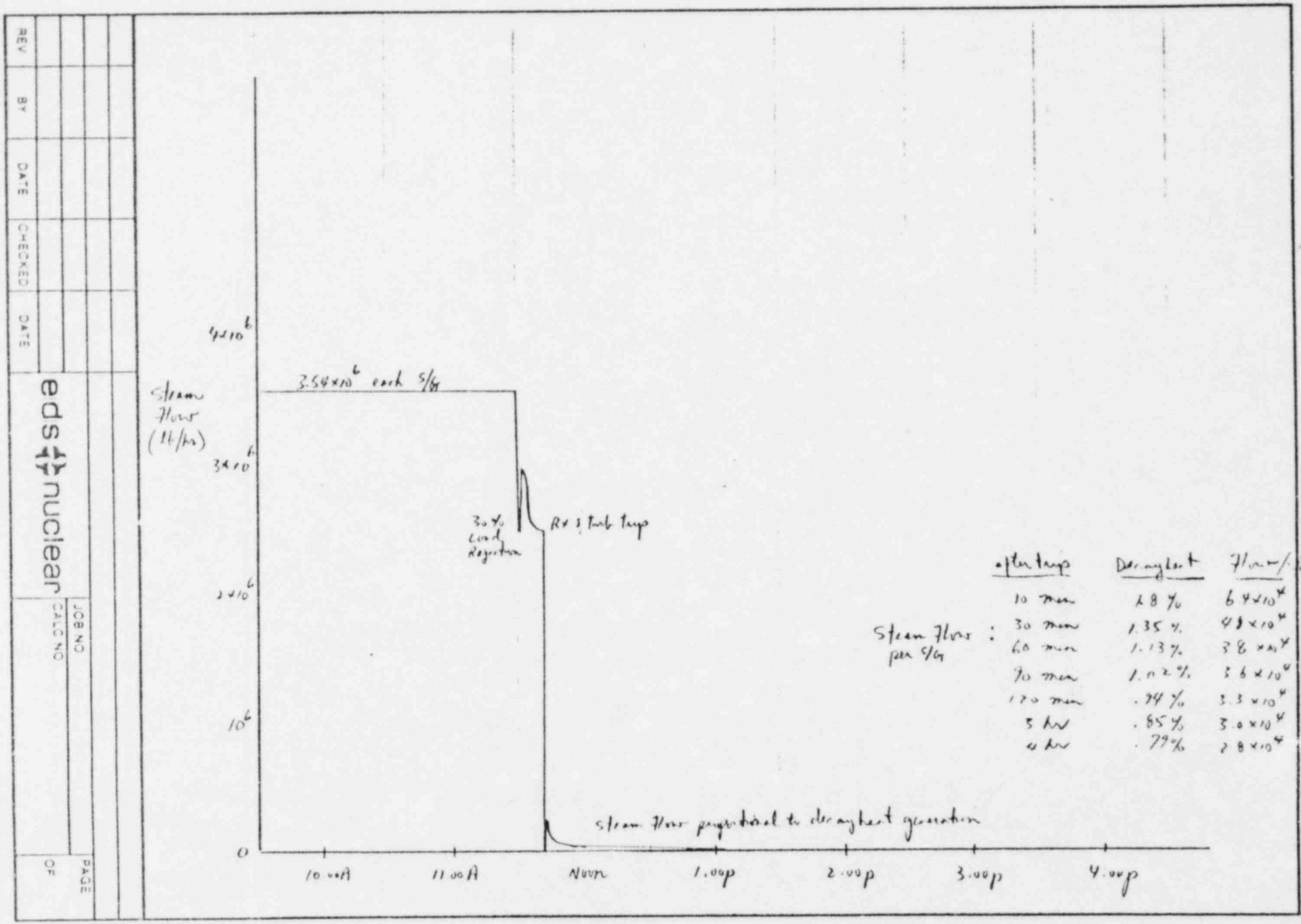

after initiation of natural circ cooling, graph applies only to the loop(s), i.e. S/G(s) used for cooling
Natural circ cooling controlled with ~1.8% decay Heat ΔT = 32°, RCS Flow = 3%
700
600
500
400
300
RCS TEMP (°F)
T_H - WR, all loops 604
T_C - WR, all loops 550
613
588
587
558
555
With 2 RCP's ΔT = 1° 10 min. after trip
15°/hr cooldown
100°/hr cooldown
RCP A start
10:00A
11:00A
NOON
1:00P
2:00P
3:00P
4:00P
REV
BY
DATE
CHECKED
DATE
eds nuclear
CALC NO
JOB NO
PAGE
OF

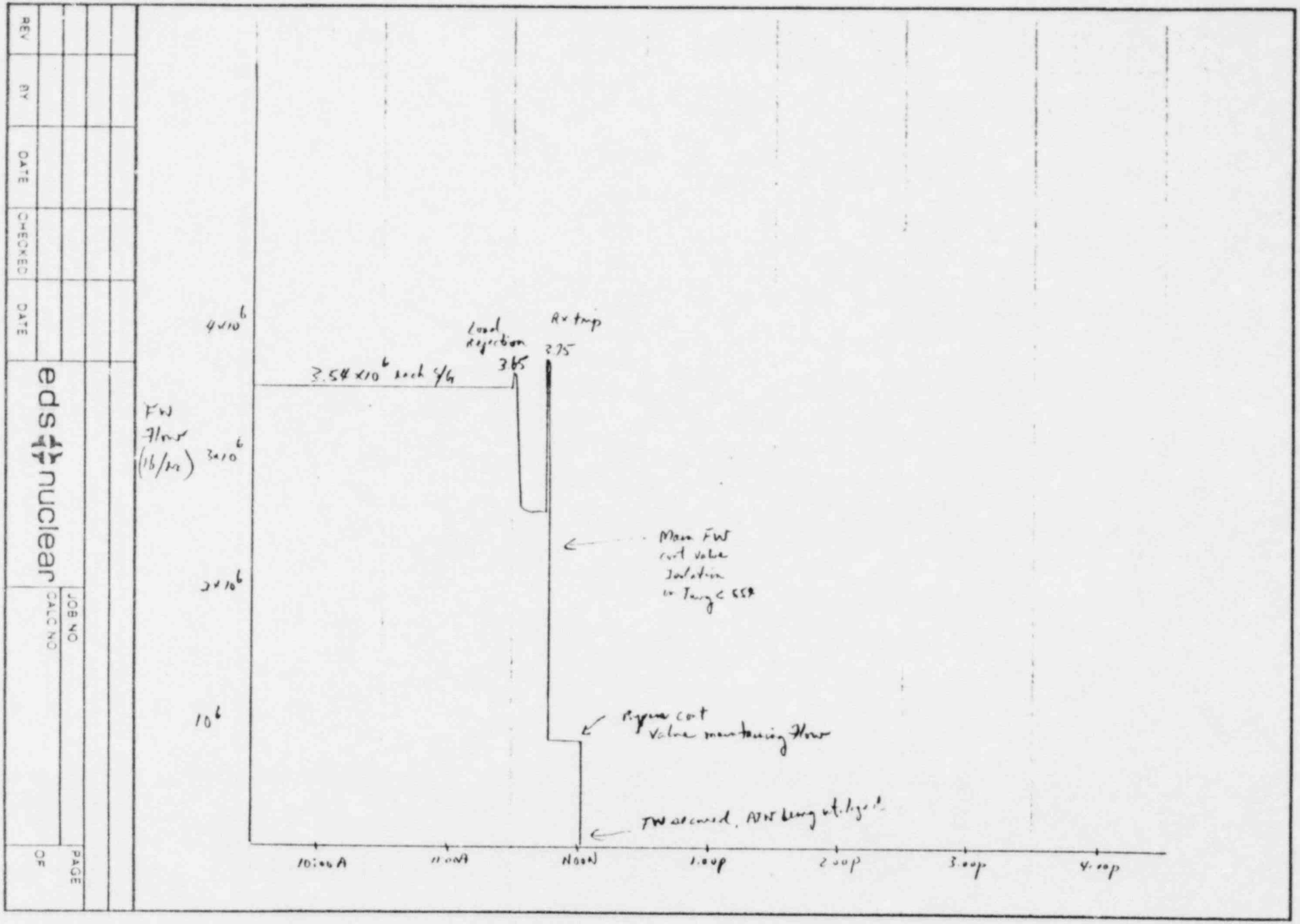

REV
BY
DATE
CHECKED
DATE
eds nuclear
CALC NO
JOB NO
OF
PAGE
RCS (LIR) Pressure (PSIG)
2200
2100
2000
1900
1800
2210
2285
Due to 30% Load Rejection
Pressure recovers @ ~ 12 min after trip
2210
Assuming no operator action to depressurize RCS
2050
Pressure bottoms @ 2050 from Re-trip from 70%
10:00 AM
11:00 AM
Noon
1:00 PM
2:00 PM
3:00 PM
4:00 PM


REV
BY
DATE
CHECKED
DATE
eds nuclear
CALC NO
JOB NO
PAGE
OF
PBR LEVEL (%)
100
80
60
40
20
0
57.7
LOAD Rejection 67%
52 % maintained for natural circulation cooling
10:00 A
11:00 A
Noon
1:00 P
2:00 P
3:00 P
4:00 P


REV.
BY
DATE
CHECKED
DATE
edsa nuclear
CALC NO
JOB NO
OF
PAGE
S/G Level (%)
100
80
60
40
20
0
All S/G's 44%
Rx trip
34% Load Rejection
Main feed @ 30% by op action
Bottom @ 7% after Rx trip
10.00A
11.00A
Noon
1:00P
2.00P
3:00P
4.00P


SV's open and reseat
Peak @ 1090
Press maintained by PORV's
S/G C after isolation
S/G B after isolation
S/G A
S/G Pressure (psig)
1200
1100
1000
900
800
700
600
500
400
300
200
100
11:00am
12:00N
1:00pm
2:00pm
3:00pm
4:00pm
REV
BY
DATE
CHECKED
DATE
eds nuclear
CALC NO
JOB NO
SHEET
OF


REV
BY
DATE
CHECKED
DATE
eds nuclear
CONTRACT NO
JOB NO
SHEET
OF
Steam Flow (lb/hr)
4×10^6
3×10^6
2×10^6
10^6
0
3.58×10^6 each S/G
30% Load Rejection
Rx + Turb Trips
Steam flow proportional to decay heat generation
10.00A
11.00A
Noon
1.00p
2.00p
3.00p
4.00p
Steam Flow per S/G :
after trips
Decay heat
Flow/S/G
10 min 1.8 % 6.4×10^4
30 min 1.35 % 4.8×10^4
60 min 1.13 % 3.8×10^4
90 min 1.02 % 3.6×10^4
120 min .94 % 3.3×10^4
5 hr .85 % 3.0×10^4
6 hr .79 % 2.8×10^4

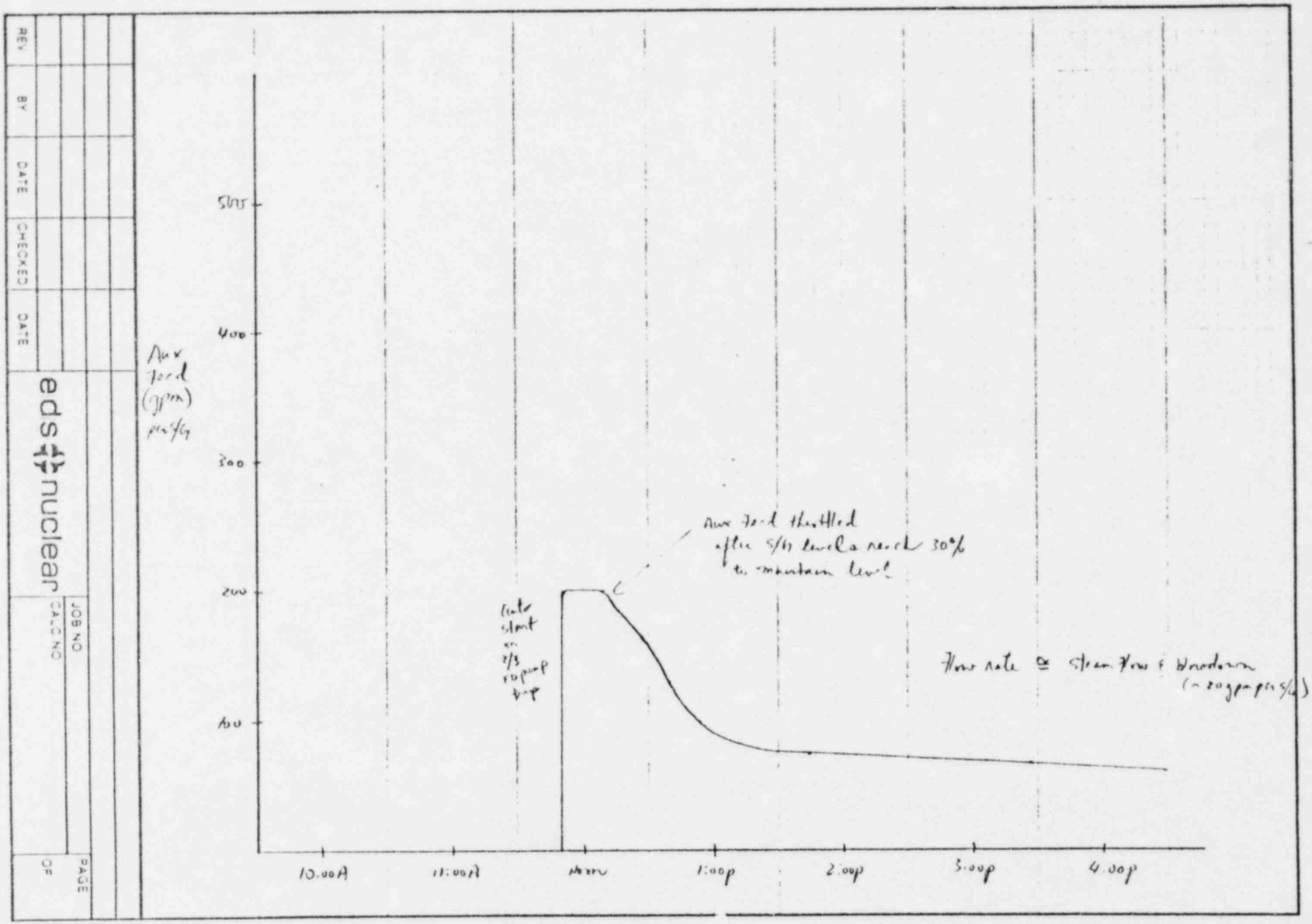


REV
BY
DATE
CHECKED
DATE

eds nuclear

CALC NO
JOB NO

OF
PAGE


Aux feed (gpm) per S/G
500
400
300
200
100
10:00A
11:00A
Noon
1:00P
2:00P
3:00P
4:00P
Aux feed throttled after S/G levels reach 30% to maintain level
Flow rate ≅ Steam flow + blowdown (~20gpm per S/G)
Aux feed start on 2/3 rx coolant pump trip
REV
BY
DATE
CHECKED
DATE
eds nuclear
CALC NO
JOB NO
OF
PAGE

REV	BY	DATE	CHECKED	DATE

eds nuclear

CALC NO

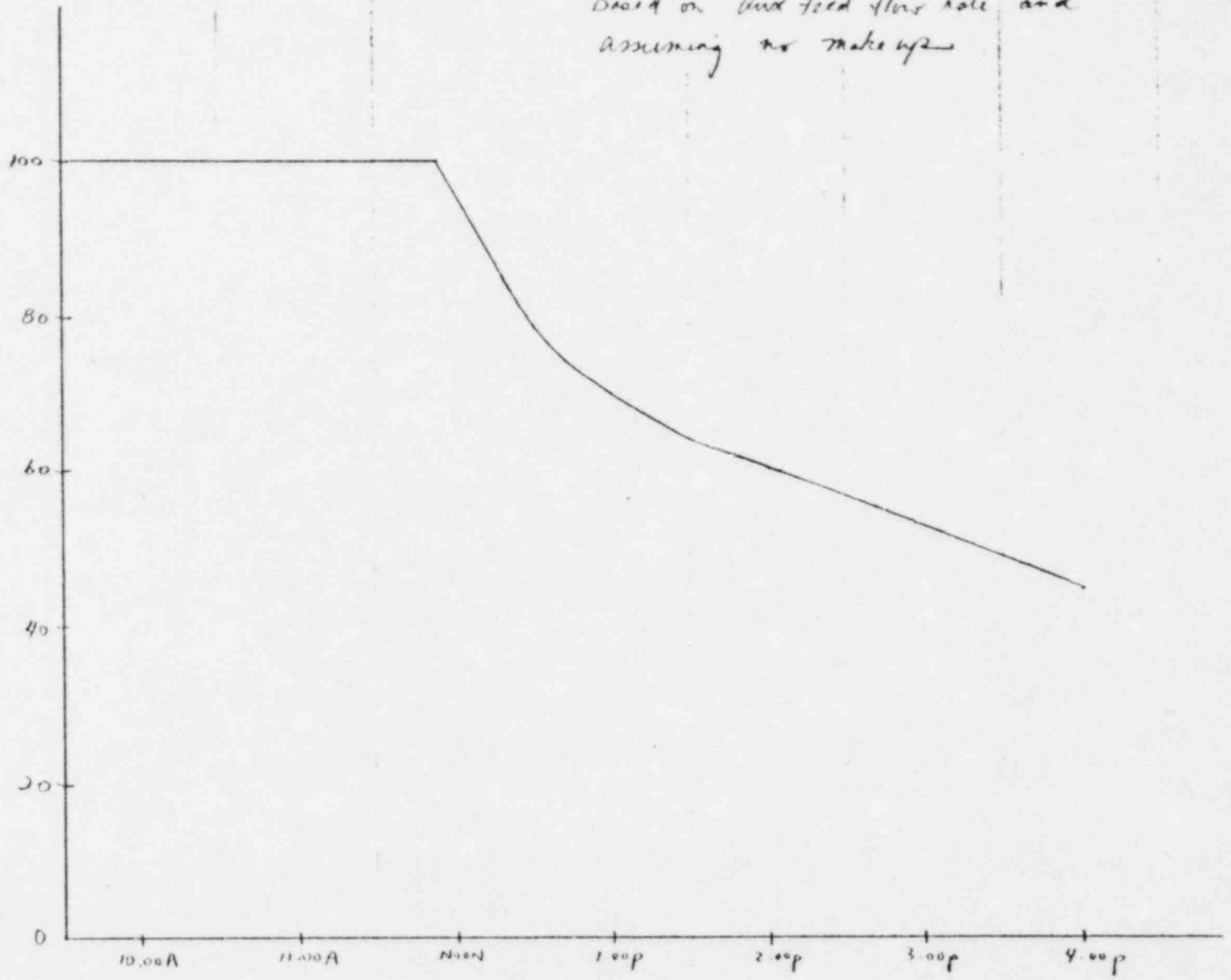
JOB NO

OF

PAGE

2CN-TK-1A CST Level (%)

Based on Aux Feed flow rate and assuming no make up

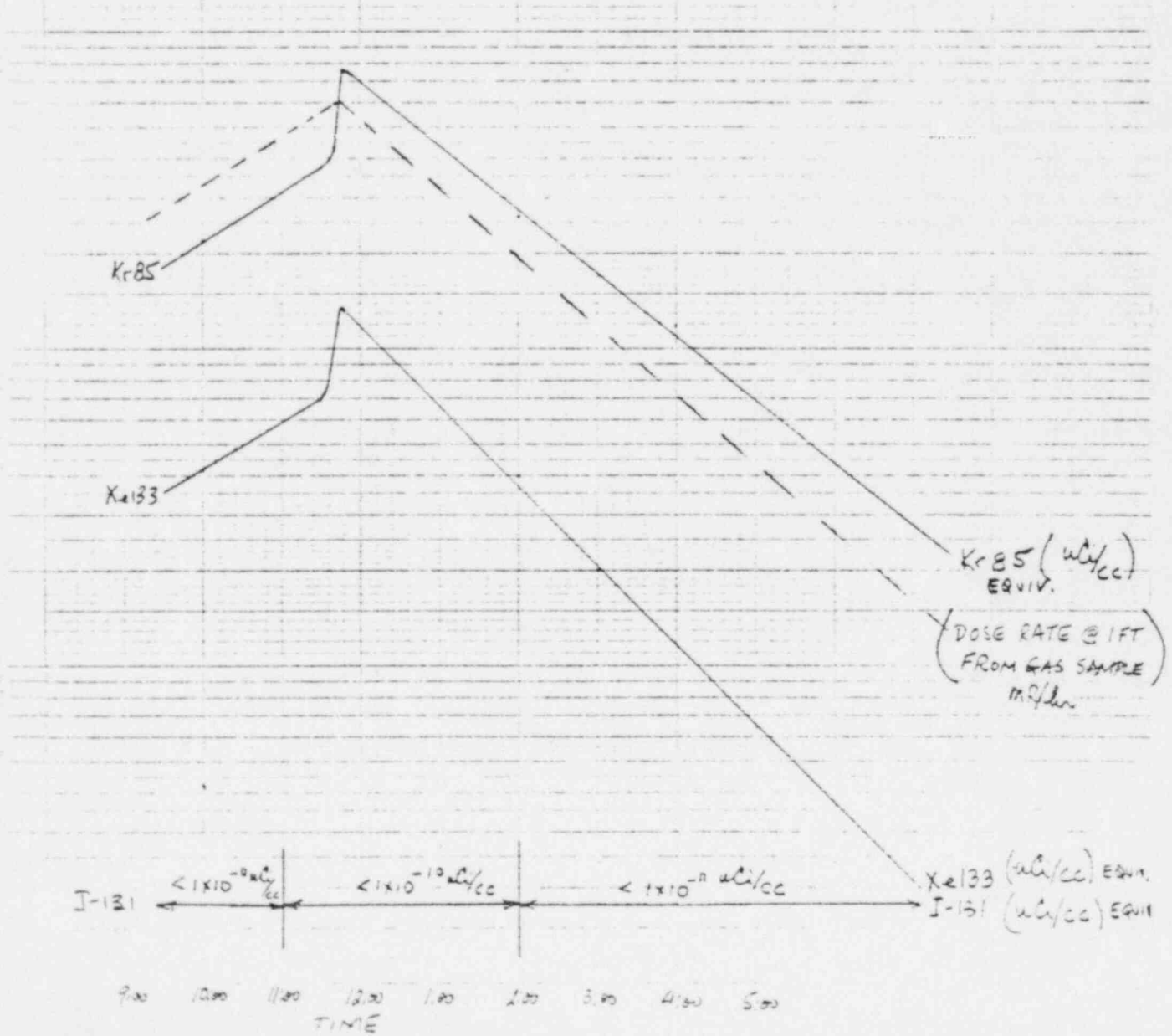


CONDENSER AIR EJECTOR SAMPLING RESULTS

H.P. MONITORING:

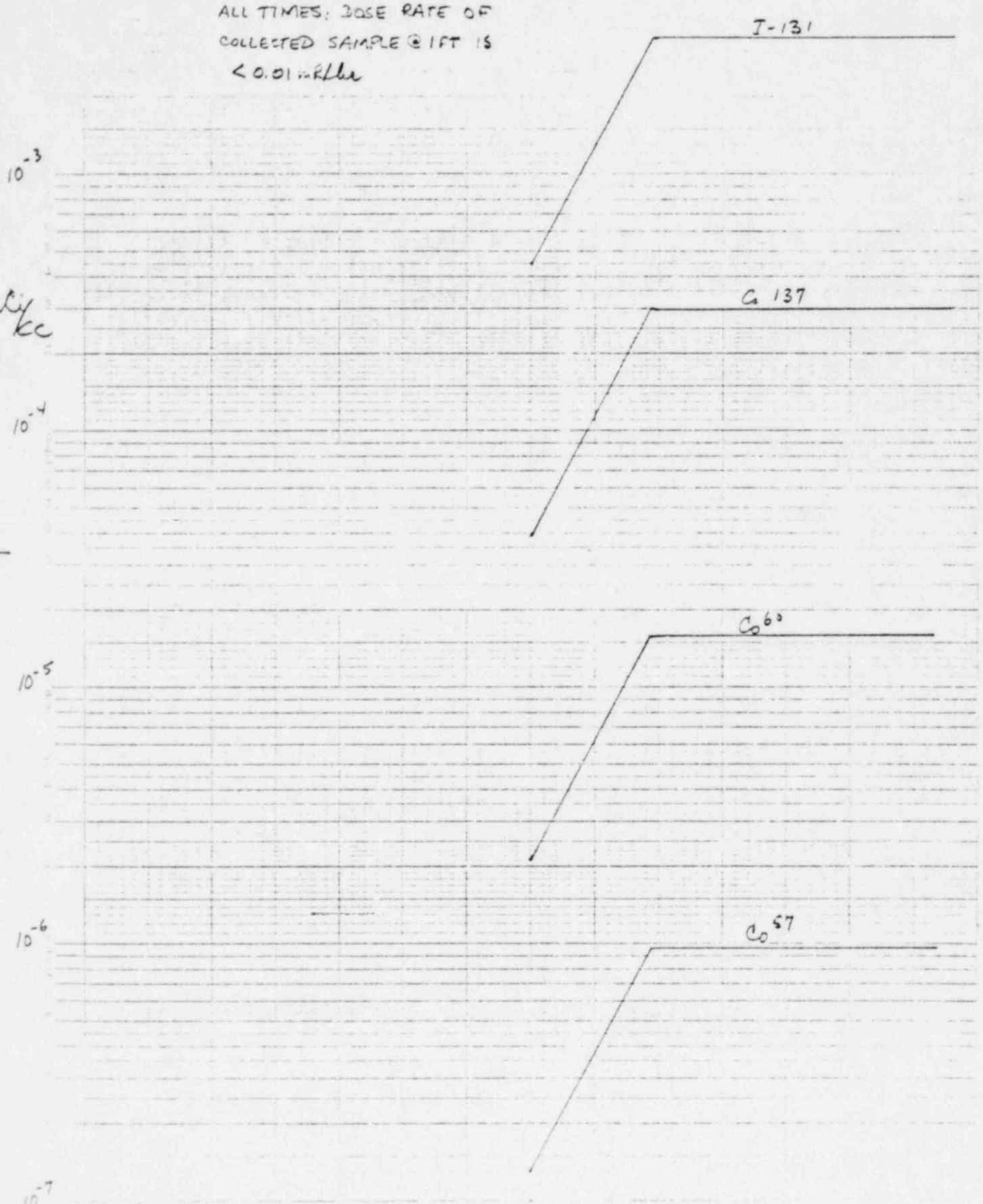
@12:45: DOSE RATE OF GAS SAMPLE @ 1ft = 0.06 mR/hr

ALL TIMES: DOSE RATE FOR IODINE CARTRIDGE - < 0.02 mR/hr



BLOWDOWN SAMPLING: S/G B ~uCi/cc

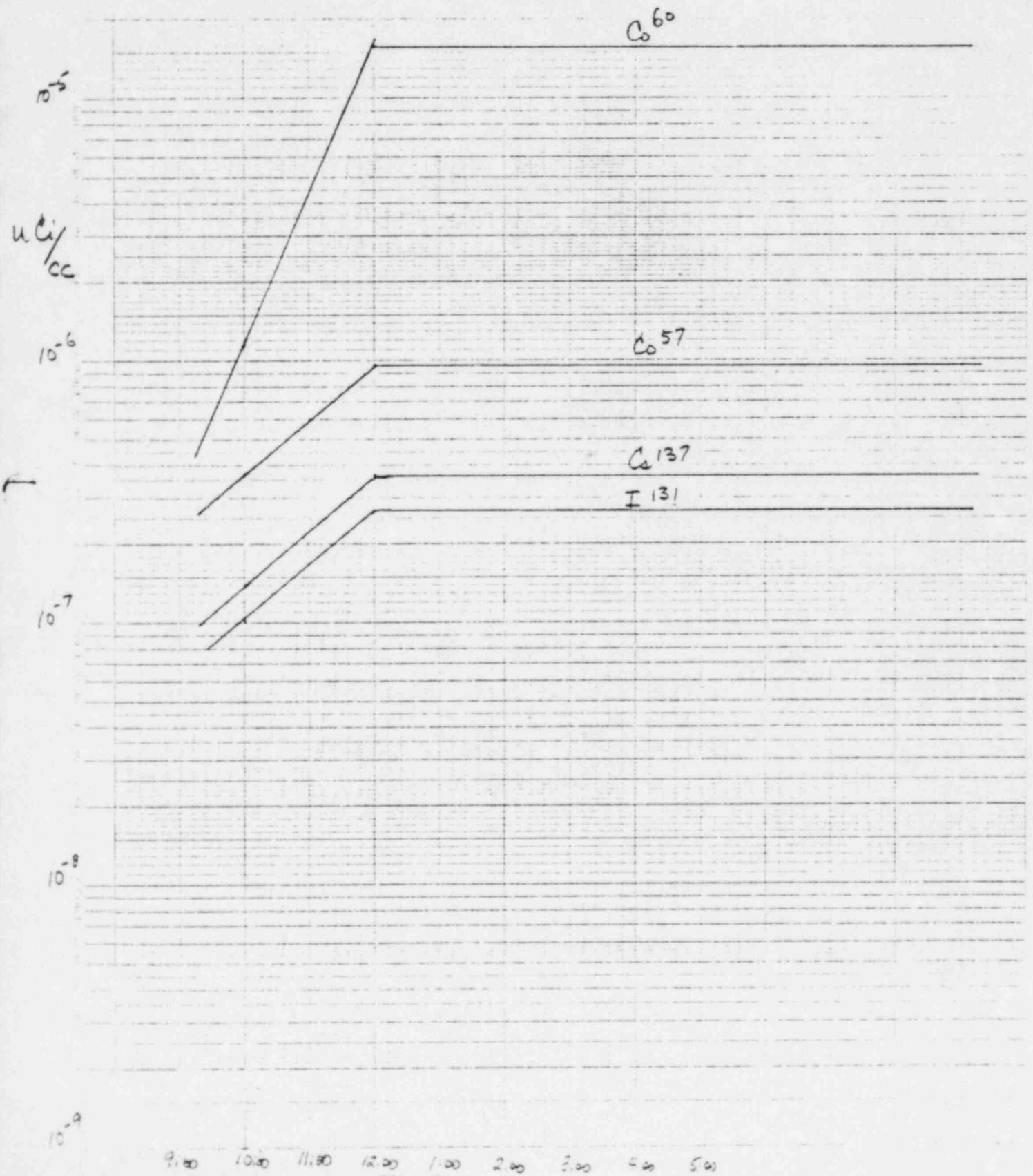
H.P. MONITORING:
ALL TIMES: DOSE RATE OF COLLECTED SAMPLE @ 1FT IS < 0.01 mR/hr



BLOWDOWN SAMPLING : S/G C.~ $\mu Ci/cc$

HP MONITORING:

ALL TIMES: DOSE RATE OF COLLECTED SAMPLE @ 1 FT. IS < 0.01 mR/hr



NUCLEAR INSTRUMENTATION

POWER RANGE 100 % 100 % 100 % 100 %
INTR. RANGE 10^{-} AMPS 10^{-} AMPS
SOURCE RANGE NA CPS NA CPS

WIND

SPEED 15 MPH
DIRECT. from 65 °
TEMP. 30 °F
Δ T -0.5 °F
σ θ 10 °

PLANT DATA SHEET — SORRY UNIT 2

Date 1/10/92 Time 2330

Int. C Conditions

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. (A)(B)(C)
RCS Flow loop A 100 % B 100 % C 100 %

T-Hot/T-Cold Loop A 604/550 °F B 604/550 °F C 604/550 °F
Pressurizer (Liq/Gas) 653/653 °F Level 58 % Press. 2200 psig
PRT Temp. 80 °F Level 10 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 8.7 psia CS Pump
Temperature 100 °F Pres.
Sump Level 5 % A 0
Sump Temp 98 °F B 0

Core Cooling

Core Thermocouples
Avg 609 °F
Peak 615 °F Location H8

Subcooling Monitors (with selector switch on T/C)
A 485 psi to Sat/— °F Superheat
B 485 psi to Sat/— °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 44 % B 43 % C 44 %
S/G Pressure A 820 psig B 820 psig C 820 psig
S/G Flow A 3.54E6 lb/hr B 3.54E6 lb/hr C 3.54E6 lb/hr
S/G Feed A 3.54E6 lb/hr B 3.54E6 lb/hr C 3.54E6 lb/hr
Aux. Feed Pump 3A AVL 3B AVL 2 AVL
AFW Flow S/G A 0 GPM B 0 GPM C 0 GPM

RMS

S/G BD Monitor A/B	100/100 cpm
Condenser Air Ejector	30 cpm
Process Vent (gas)	600 cpm
Process Vent (part)	10 cpm
Vent Vent (gas)	70 cpm
Vent Vent (part)	70 cpm
Letdown (high/low)	10^{2}/10^{3} cpm
Cont/Manipulator	10/50 mr/hr
Aux Bldg-Control Area	1 mr/hr
Aux Bldg-Drumming	1 mr/hr
Sample Room	1 mr/hr
New Fuel	1 mr/hr
Spent Fuel Pit	2 mr/hr
Control Room	<1 mr/hr

Other:

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ___ AVL ✓ OOC ___
3 OP ___ AVL ✓ OOC ___

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 100 %

Charging Flow 96 GPM
Letdown Flow 110 GPM
VCT Level 35 %

BAST A 90 %
BAST B 90 %
BAST C 75 %

CCW: Supply HDR (A)/B 6000 GPM
~~Return~~ HDR (A)/B 70 °F
Return

PLANT DATA SHEET — SURRY UNIT 2

Date 11/10/82 Time 0900 a

NUCLEAR INSTRUMENTATION

POWER RANGE 101 % 101 % 101 % 101 %
INTR. RANGE 10^{-3} AMPS 10^{-3} AMPS
SOURCE RANGE NA CPS NA CPS

WIND

SPEED 20 MPH
DIRECT. from 60 °
TEMP. 29 °F
Δ T -0.5 °F
σ θ 10 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 101 % B 101 % C 101 %

T-Hot/T-Cold Loop A 604/550 °F B 604/550 °F C 604/550 °F
Pressurizer (Liq/Gas) 653/653 °F Level 58 % Press. 2200 psig
PRT Temp. 80 °F Level 10 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

SECONDARY COOLANT SYSTEM

S/G Levels A 44 % B 44 % C 43 %
S/G Pressure A 920 psig B 920 psig C 920 psig
S/G Flow A 3566 lb/hr B 3566 lb/hr C 3566 lb/hr
S/G Feed A 3566 lb/hr B 3566 lb/hr C 3566 lb/hr
Aux. Feed Pump 3A AVL 3B AVL 2 AVL
AFW Flow S/G A 0 GPM B 0 GPM C 0 GPM

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ___ AVL ✓ OOC ___
3 OP ___ AVL ✓ OOC ___

AUXILIARY SYSTEMS

RWST Level 101 %
CST Level 101 %

Charging Flow 36 GPM
Letdown Flow 111 GPM
VCT Level 35 %

BAST A 30 %
BAST B 30 %
BAST C 30 %

CCW: Supply HDR (A/B) 60 GPM
~~Return~~ HDR (A/B) 11 °F

Containment

Pressure 8.9 psia
Temperature 100 °F
Sump Level 5 %
Sump Temp 98 °F

CS Pump Pres.
A 0
B 0

Core Cooling

Core Thermocouples
Avg 609 °F
Peak 615 °F Location H8

Subcooling Monitors (with switch on T/C)
A 45 psi to Sat/— °F Superheat
B 45 psi to Sat/— °F Superheat

RMS

S/G BD Monitor A/B	100/100	cpm
Condenser Air Ejector	500	cpm
Process Vent (gas)	100	cpm
Process Vent (part)	10	cpm
Vent Vent (gas)	10	cpm
Vent Vent (part)	10	cpm
Letdown (high/low)	10^2 / 10^3	cpm
Cont/Manipulator	10/50	mr/hr
Aux Bldg-Control Area	1	mr/hr
Aux Bldg-Drumming	1	mr/hr
Sample Room	1	mr/hr
New Fuel	1	mr/hr
Spent Fuel Pit	2	mr/hr
Control Room	<1	mr/hr

Other:

PLANT DATA SHEET SURRY UNIT 2

Date 11/10/82 Time 10:30 a

NUCLEAR INSTRUMENTATION

POWER RANGE 100 % 100 % 100 % 100 %
INTR. RANGE 10^-3 AMPS 10^-3 AMPS
SOURCE RANGE N/A CPS N/A CPS

WIND

SPEED 30 MPH
DIRECT. from 75 °
TEMP. 77 °F
Δ T -1.0 °F
σ θ 13 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 100 % B 100 % C 100 %

T-Hot/T-Cold Loop A 604/550 °F B 604/550 °F C 604/550 °F
Pressurizer (Liq/Gas) 653/653 °F Level 58 % Press. 2200 psig
PRT Temp. 80 °F Level 10 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 8.9 psia CS Pump Pres.
Temperature 100 °F
Sump Level 5 % A 0
Sump Temp 93 °F B 0

Core Cooling

Core Thermocouples
Avg 609 °F
Peak 65 °F Location 18

Subcooling Monitors
A 11 psi to Sat/— °F Superheat
B 11 psi to Sat/— °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 44 % B 44 % C 44 %
S/G Pressure A 820 psig B 820 psig C 820 psig
S/G Flow A 3556 lb/hr B 3556 lb/hr C 3556 lb/hr
S/G Feed A 3556 lb/hr B 3556 lb/hr C 3556 lb/hr
Aux. Feed Pump 3A AVL 3B AVL 2 AVL
AFW Flow S/G A 0 GPM B 0 GPM C 0 GPM

RMS

S/G BD Monitor A/B	100/100	cpm
Condenser Air Ejector	150	cpm
Process Vent (gas)	100	cpm
Process Vent (part)	90	cpm
Vent Vent (gas)	70	cpm
Vent Vent (part)	70	cpm
Letdown (high/low)	10^3/10^3	cpm

Cont/Manipulator	10/30	mr/hr
Aux Bldg-Control Area	1	mr/hr
Aux Bldg-Drumming	1	mr/hr
Sample Room	1	mr/hr
New Fuel	1	mr/hr
Spent Fuel Pit	2	mr/hr
Control Room	<1	mr/hr

Other:

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ___ AVL ✓ OOC ___
3 OP ___ AVL ✓ OOC ___

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 100 %

Charging Flow 55 GPM
Letdown Flow 110 GPM
VCT Level 39 %

BAST A 0 %
BAST B 0 %
BAST C 0 %

CCW: Supply HDR A/B 600 GPM
~~Return~~ Discharge HDR A/B 71 °F

PLANT DATA SHEET SURRY UNIT 2

Date 11/10/92 Time 11 0100

NUCLEAR INSTRUMENTATION

POWER RANGE 100 % 100 % 100 % 100 %
INTR. RANGE 10⁻⁴ AMPS 10⁻⁴ AMPS
SOURCE RANGE NA CPS NA CPS

WIND

SPEED 36 MPH
DIRECT. from 77 °
TEMP. 26 °F
Δ T -1.1 °F
σ θ 13 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A B C
RCS Flow loop A 100 % B 100 % C 100 %

T-Hot/T-Cold Loop A 604/550 °F B 604/550 °F C 604/550 °F
Pressurizer (Liq/Gas) 653/653 °F Level 58 % Press. 2300 psig
PRT Temp. 80 °F Level 10 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

SECONDARY COOLANT SYSTEM

S/G Levels A 44 % B 44 % C 44 %
S/G Pressure A 920 psig B 920 psig C 920 psig
S/G Flow A 3.5E6 lb/hr B 3.5E6 lb/hr C 3.5E6 lb/hr
S/G Feed A 3.5E6 lb/hr B 3.5E6 lb/hr C 3.5E6 lb/hr
Aux. Feed Pump 3A AVL 3B AVL 2 AVL
AFW Flow S/G A 0 GPM B 0 GPM C 0 GPM

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ___ AVL ✓ OOC ___
3 OP ___ AVL ✓ OOC ___

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 100 %

Charging Flow 96 GPM
Letdown Flow 110 GPM
VCT Level 37 %

BAST A 80 %
BAST B 2 %
BAST C 15 %

CCW: Supply HDR A/B 100 GPM
Return HDR A/B 11 °F
Discharge

Containment

Pressure 89 psia
Temperature 100 °F
Sump Level 5 %
Sump Temp 98 °F

CS Pump Pres.
A 0
B 0

Core Cooling

Core Thermocouples
Avg 609 °F
Peak 615 °F Location H8

Subcooling Monitors
A 100 psi to Sat/— °F Superheat
B 100 psi to Sat/— °F Superheat

RMS

S/G BD Monitor A/B	100/100	cpm
Condenser Air Ejector	650	cpm
Process Vent (gas)	100	cpm
Process Vent (part)	70	cpm
Vent Vent (gas)	70	cpm
Vent Vent (part)	70	cpm
Letdown (high/low)	10^2/10^3	cpm
Cont/Manipulator	10/50	mr/hr
Aux Bldg-Control Area	1	mr/hr
Aux Bldg-Drumming	1	mr/hr
Sample Room	1	mr/hr
New Fuel	1	mr/hr
Spent Fuel Pit	2	mr/hr
Control Room	<1	mr/hr

Other:

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 80 % 82 % 83 %
INTR. RANGE 10^-3 AMPS 10^-3 AMPS
SOURCE RANGE NA CPS NA CPS

WIND

SPEED 35 MPH
DIRECT. from 75 °
TEMP. 76 °F
Δ T -1.1 °F
σ θ 13 °

PLANT DATA SHEET — SURRY UNIT 2

Date 11/10/02 Time 11:30:10

NI-41 fails low. Turbine runback @ 2cont. min. to 70% pwr

PRIMARY SYSTEM

RCS Pressure 2275 psig RCP's Oper. A/B/C
RCS Flow loop A 100 % B 100 % C 100 %

T-Hot/T-Cold Loop A 613/558 °F B 614/558 °F C 615/560 °F
Pressurizer (Liq/Gas) 645/645 °F Level 63 % Press. 2265 psig
PRT Temp. 80 °F Level 10 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 9 psia CS Pump Pres.
Temperature 101 °F A 0
Sump Level 6 % B 0
Sump Temp 99 °F

Core Cooling

Core Thermocouples
Avg 620 °F
Peak 625 °F Location H8

Subcooling Monitors
A 125 psi to Sat/ – °F Superheat
B 125 psi to Sat/ – °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 34 % B 35 % C 34 %
S/G Pressure A 935 psig B 935 psig C 935 psig
S/G Flow A 3.066 lb/hr B 3.066 lb/hr C 3.066 lb/hr
S/G Feed A 3.65E6 lb/hr B 3.65E6 lb/hr C 3.65E6 lb/hr
Aux. Feed Pump 3A AVL 3B AVL 2 AVL
AFW Flow S/G A 0 GPM B 0 GPM C 0 GPM

RMS

S/G BD Monitor A/B 100/120 cpm
Condenser Air Ejector 650 cpm
Process Vent (gas) 100 cpm
Process Vent (part) 90 cpm
Vent Vent (gas) 90 cpm
Vent Vent (part) 90 cpm
Letdown (high/low) 10^3/10^3 cpm

Cont/Manipulator 10/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room <1 mr/hr

Other:

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ___ AVL ✓ OOC ___
3 OP ___ AVL ✓ OOC ___

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 100 %

Charging Flow 25 GPM
Letdown Flow 110 GPM
VCT Level 40 %

BAST A ___ %
BAST B 70 %
BAST C 75 %

CCW: Supply HDR A/B 6000 GPM
~~Return~~ Discharge HDR A/B 70 °F

PLANT DATA SHEET SURRY UNIT 2

Date 11/15/82 Time 1130

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 70 % 70 % 70 %
INTR. RANGE 10^3 AMPS 10^3 AMPS
SOURCE RANGE NA CPS NA CPS

WIND

SPEED 20 MPH
DIRECT. 210-69 °
TEMP. 26 °F
Δ T -11 °F
σ θ 13 °

PRIMARY SYSTEM

RCS Pressure 2260 psig RCP's Oper. A/B/C
RCS Flow loop A 100 % B 100 % C 100 %

T-Hot/T-Cold Loop A 610/555 °F B 610/555 °F C 611/555 °F
Pressurizer (Liq/Gas) 647/647 °F Level 61 % Press. 2250 psig
PRT Temp. 90 °F Level 10 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

SECONDARY COOLANT SYSTEM

S/G Levels A 38 % B 38 % C 38 %
S/G Pressure A 990 psig B 990 psig C 990 psig
S/G Flow A 2566 lb/hr B 2566 lb/hr C 2566 lb/hr
S/G Feed A 2566 lb/hr B 2566 lb/hr C 2566 lb/hr
Aux. Feed Pump 3A Avl 3B Avl 2 Avl
AFW Flow S/G A 0 GPM B 0 GPM C 0 GPM

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A Avl B Avl
ORS A Avl B Avl

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ___ AVL ✓ OOC ___
3 OP ___ AVL ✓ OOC ___

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 100 %

Charging Flow 25 GPM
Letdown Flow 40 GPM
VCT Level 50 %

BAST A 80 %
BAST B 80 %
BAST C 75 %

CCW: Supply HDR (A/B) 60 GPM
Return HDR (A/B) 70 °F

Containment

Pressure 9 psia
Temperature 101 °F
Sump Level 6 %
Sump Temp 99 °F

CS Pump Pres.
A 0
B 0

Core Cooling

Core Thermocouples
Avg 615 °F
Peak 620 °F Location H8

Subcooling Monitors
A 473 psi to Sat/ — °F Superheat
B 473 psi to Sat/ — °F Superheat

RMS

S/G BD Monitor A/B 1001/1550 cpm
Condenser Air Ejector 750 cpm
Process Vent (gas) 150 cpm
Process Vent (part) 70 cpm
Vent Vent (gas) 70 cpm
Vent Vent (part) 70 cpm
Letdown (high/low) 1500/1500 cpm

Cont/Manipulator 10/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room ≤1 mr/hr

Other:

PLANT DATA SHEET — SURRY UNIT 2

Date 11/10/82 Time 11:35 a

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 70 % 70 % 70 %
INTR. RANGE [illegible] AMPS [illegible] AMPS
SOURCE RANGE NA CPS NA CPS

WIND

SPEED 10 MPH
DIRECT. [illegible] °
TEMP. 75 °F
Δ T -1.3 °F
σ θ 30 °

PRIMARY SYSTEM

RCS Pressure 2310 psig RCP's Oper. (A)/B/C
RCS Flow loop A 100 % B 100 % C 100 %

T-Hot/T-Cold Loop A 595/553 °F B 594/554 °F C 594/553 °F
Pressurizer (Liq/Gas) 650/650 °F Level 59 % Press. 2200 psig
PRT Temp. 80 °F Level 10 % Press 3 psig
Safety Valves Open/(Closed)
PROV's Open/(Closed)
Other

Containment

Pressure 9 psia CS Pump
Temperature 101 °F Pres.
Sump Level 6 % A 0
Sump Temp 79 °F B 0

Core Cooling

Core Thermocouples
Avg 602 °F
Peak 605 °F Location H8

Subcooling Monitors
A [illegible] psi to Sat/— °F Superheat
B [illegible] psi to Sat/— °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 42 % B 42 % C 42 %
S/G Pressure A 880 psig B 880 psig C 880 psig
S/G Flow A [illegible] lb/hr B [illegible] lb/hr C [illegible] lb/hr
S/G Feed A [illegible] lb/hr B [illegible] lb/hr C [illegible] lb/hr
Aux. Feed Pump 3A AVL 3B AVL 2 AVL
AFW Flow S/G A 0 GPM B 0 GPM C 0 GPM

RMS

S/G BD Monitor A/B [illegible] cpm
Condenser Air Ejector [illegible] cpm
Process Vent (gas) [illegible] cpm
Process Vent (part) [illegible] cpm
Vent Vent (gas) [illegible] cpm
Vent Vent (part) [illegible] cpm
Letdown (high/low) [illegible] cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ___ AVL ✓ OOC ___
3 OP ___ AVL ✓ OOC ___

Cont/Manipulator 100/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room <1 mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 100 %

Charging Flow 40 GPM
Letdown Flow [illegible] GPM
VCT Level 31 %

BAST A 20 %
BAST B 0 %
BAST C 0 %

CCW: Supply HDR A/B 6000 GPM
Return HDR A/B 70 °F

PLANT DATA SHEET SURRY UNIT 2

Date 11/10/82 Time 11:38 a

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 70 % 70 % 70 %
INTR. RANGE 0 AMPS 0 AMPS
SOURCE RANGE NA CPS NA CPS

WIND

SPEED 33 MPH
DIRECT. 330 80 °
TEMP. 75 °F
Δ T -1.3 °F
σ θ 30 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 100 % B 100 % C 100 %

T-Hot/T-Cold Loop A 588/550 °F B 587/550 °F C 588/550 °F
Pressurizer (Liq/Gas) 654/654 °F Level 58 % Press. 2200 psig
PRT Temp. 80 °F Level 10 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

SECONDARY COOLANT SYSTEM

S/G Levels A 45 % B 45 % C 45 %
S/G Pressure A 990 psig B 990 psig C 990 psig
S/G Flow A 2566 lb/hr B 2566 lb/hr C 2566 lb/hr
S/G Feed A 2566 lb/hr B 2566 lb/hr C 2566 lb/hr
Aux. Feed Pump 3A AVL 3B AVL 2 AVL
AFW Flow S/G A 0 GPM B 0 GPM C 0 GPM

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ___ AVL ✓ OOC ___
3 OP ___ AVL ✓ OOC ___

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 100 %

Charging Flow 85 GPM
Letdown Flow 110 GPM
VCT Level 40 %

BAST A 25 %
BAST B 25 %
BAST C 25 %

CCW: Supply HDR A/B 600 GPM
Return HDR A/B 70 °F

Containment

Pressure 9 psia
Temperature 101 °F
Sump Level 6 %
Sump Temp 99 °F

CS Pump Pres.
A 0
B 0

Core Cooling

Core Thermocouples
Avg 594 °F
Peak 575 °F Location H8

Subcooling Monitors
A 640 psi to Sat/— °F Superheat
B 640 psi to Sat/— °F Superheat

RMS

S/G BD Monitor A/B 100/100 cpm
Condenser Air Ejector 150 cpm
Process Vent (gas) NVF cpm
Process Vent (part) 20 cpm
Vent Vent (gas) 20 cpm
Vent Vent (part) 20 cpm
Letdown (high/low) 1200/1200 cpm

Cont/Manipulator 10/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room <1 mr/hr

Other:

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE [illegible] AMPS [illegible] AMPS
SOURCE RANGE NA CPS NA CPS

WIND
SPEED 40 MPH
DIRECT. [illegible] 85°
TEMP. 75 °F
Δ T -1.5 °F
σ θ 35 °

PLANT DATA SHEET SURRY UNIT 2
Date 11/10/82 Time 1145 a

RCP C vibration [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] trip

PRIMARY SYSTEM

RCS Pressure 2200 psig↓ RCP's Oper. A/B/C
RCS Flow loop A 100 % B 100 % C 15 %

T-Hot/T-Cold Loop A 570/550 °F B 570/550 °F C 570/550 °F
Pressurizer (Liq/Gas) 650/650 °F Level 40 % Press. 2200 psig
PRT Temp. 80 °F Level 70 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment
Pressure 9 psia
Temperature 101 °F
Sump Level 6 %
Sump Temp 99 °F

CS Pump Pres.
A 0
B 0

Core Cooling
Core Thermocouples
Avg 576 °F
Peak 580 °F Location H-9

Subcooling Monitors
A 514 psi to Sat/ — °F Superheat
B 514 psi to Sat/ — °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 20 % B 20 % C 20 % ↓
S/G Pressure A 1065 psig B 1065 psig C 1065 psig
S/G Flow A 2.515 lb/hr B 2.515 lb/hr C 2.515 lb/hr
S/G Feed A 3.7516 lb/hr B 3.7516 lb/hr C 3.7516 lb/hr
Aux. Feed Pump 3A AVL 3B AVL 2 AVL
AFW Flow S/G A 0 GPM B 0 GPM C 0 GPM

RMS

S/G BD Monitor A/B 100/100 cpm
Condenser Air Ejector [illegible] cpm
Process Vent (gas) [illegible] cpm
Process Vent (part) [illegible] cpm
Vent Vent (gas) [illegible] cpm
Vent Vent (part) [illegible] cpm
Letdown (high/low) 1500/1500 cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG)	OP	AVL	OOC
1		✓	
2		✓	
3		✓	

Cont/Manipulator 10/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room <1 mr/hr

Other: RCP C vibration [illegible]:
[illegible] - 20 mils
[illegible] - 7 mils

AUXILIARY SYSTEMS

RWST Level [illegible] %
CST Level [illegible] %

Charging Flow 110 GPM
Letdown Flow [illegible] GPM
VCT Level 18 %

BAST A 50 %
BAST B [illegible] %
BAST C 15 %

CCW: Supply HDR (A/B 6000 GPM
~~Return~~ HDR (A/B 70 °F
[illegible]

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE [illegible] AMPS [illegible] AMPS
SOURCE RANGE NA CPS NA CPS

WIND
SPEED 40 MPH
DIRECT. [illegible] 69 °
TEMP. 75 °F
Δ T -1.5 °F
σ θ 35 °

PLANT DATA SHEET SURRY UNIT 2
Date 11/10/82 Time 11:41 a

PRIMARY SYSTEM

RCS Pressure 2075 psig ↑ RCP's Oper. (A/B)/C
RCS Flow loop A 100 % B 100 % C 10 %

T-Hot/T-Cold Loop A 553/550 °F B 553/550 °F C 555/550 °F
Pressurizer (Liq/Gas) 640/640 °F Level 22 % Press. 2050 psig
PRT Temp. 80 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment
Pressure 9 psia CS Pump Pres.
Temperature 101 °F
Sump Level 6 % A 0
Sump Temp 92 °F B 0

Core Cooling
Core Thermocouples
Avg 559 °F
Peak 562 °F Location H9

Subcooling Monitors
A [illegible] psi to Sat/ — °F Superheat
B [illegible] psi to Sat/ — °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 8 % B 8 % C 8 % ↑
S/G Pressure A 1030 psig B 1030 psig C 1030 psig
S/G Flow A 2465 lb/hr B 2465 lb/hr C 2465 lb/hr
S/G Feed A 8565 lb/hr B 8565 lb/hr C 8565 lb/hr [illegible] isolated
Aux. Feed Pump 3A AVL 3B AVL 2 AVL
AFW Flow S/G A 0 GPM B 0 GPM C 0 GPM

RMS

S/G BD Monitor A/B 1021/1660 cpm
Condenser Air Ejector 150 cpm
Process Vent (gas) 105 cpm
Process Vent (part) 100 cpm
Vent Vent (gas) 70 cpm
Vent Vent (part) 70 cpm
Letdown (high/low) 2×10^{4}/2×10^{4} cpm [illegible]

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 52 % B 52 % C 52 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ___ AVL ✓ OOC ___
3 OP ___ AVL ✓ OOC ___

Cont/Manipulator 10/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room <1 mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 100 %

Charging Flow 120 GPM
Letdown Flow ___ GPM [illegible]
VCT Level 35 %

BAST A 80 %
BAST B 75 %
BAST C 72 %

CCW: Supply HDR (A/B 6000 GPM
Return HDR (A/B 70 °F

PLANT DATA SHEET — SURRY UNIT 2

Date 11/10/82 Time 1145 Cs

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE 5xE-11 AMPS 5xE-11 AMPS
SOURCE RANGE n/a CPS n/a CPS

WIND

SPEED 40 MPH
DIRECT. 70m 25 °
TEMP. 75 °F
Δ T -1.5 °F
σ θ 35 °

PRIMARY SYSTEM

RCS Pressure 2110 psig RCP's Oper. A/B/C
RCS Flow loop A 100 % B 100 % C 10 %

T-Hot/T-Cold Loop A 550/548 °F B 550/549 °F C 554/550 °F
Pressurizer (Liq/Gas) 650/650 °F Level 21 % Press. 2185 psig
PRT Temp. 90 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 9 psia CS Pump
Temperature 121 °F Pres.
Sump Level 1 % A 0
Sump Temp 99 °F B 0

Core Cooling

Core Thermocouples
Avg 557 °F
Peak 560 °F Location H9

Subcooling Monitors
A 7 psi to Sat/— °F Superheat
B 7 psi to Sat/— °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 15 % B 15 % C 15 %
S/G Pressure A 1010 psig B 1010 psig C 1010 psig
S/G Flow A 1.5E6 lb/hr B 1.5E6 lb/hr C 1.5E6 lb/hr
S/G Feed A 0E5 lb/hr B 0E5 lb/hr C 0E5 lb/hr
Aux. Feed Pump 3A Avl 3B Avl 2 Avl
AFW Flow S/G A 0 GPM B 0 GPM C 0 GPM

RMS

S/G BD Monitor A/B 104/1200 cpm
Condenser Air Ejector —— cpm
Process Vent (gas) 1xE2 cpm
Process Vent (part) 100 cpm
Vent Vent (gas) 26 cpm
Vent Vent (part) 20 cpm
Letdown (high/low) 5xE3/5xE2 cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A Avl B Avl
ORS A Avl B Avl

Emergency Diesel Generators (EDG)
1 OP ___ AVL ✓ OOC ___
2 OP ___ AVL ✓ OOC ___
3 OP ___ AVL ✓ OOC ___

Cont/Manipulator 1/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room <1 mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 100 %

Charging Flow 100 GPM
Letdown Flow 120 GPM
VCT Level 50 %

BAST A 15 %
BAST B 15 %
BAST C 15 %

CCW: Supply HDR A/B 6xE2 GPM
Return HDR A/B 11 °F

PLANT DATA SHEET — SURRY UNIT 2

Date 11/10/[illegible] Time 11:49 A

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %

INTR. RANGE [illegible] AMPS [illegible] AMPS

SOURCE RANGE [illegible] CPS [illegible] CPS

WIND

SPEED 27 MPH

DIRECT. [illegible] °

TEMP. 76 °F

Δ T -.3 °F

σ θ 33 °

PRIMARY SYSTEM

RCS Pressure 2165 psig RCP's Oper. (A/B/C)

RCS Flow loop A [illegible] % B [illegible] % C 10 %

T-Hot/T-Cold Loop A 549/549 °F B [illegible]/[illegible] °F C 554/550 °F

Pressurizer (Liq/Gas) 652/652 °F Level 21 % Press. 2150 psig

PRT Temp. 30 °F Level 0 % Press 3 psig

Safety Valves Open/Closed

PROV's Open/Closed

Other

SECONDARY COOLANT SYSTEM

S/G Levels A 25 % B 25 % C 25 %

S/G Pressure A [illegible] psig B [illegible] psig C [illegible] psig

S/G Flow A [illegible] lb/hr B [illegible] lb/hr C [illegible] lb/hr

S/G Feed A [illegible] lb/hr B [illegible] lb/hr C [illegible] lb/hr

Aux. Feed Pump 3A AVL 3B AVL 2 AVL

AFW Flow S/G A 0 GPM B 0 GPM C 0 GPM

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM

LHSI Flow A 0 GPM B 0 GPM

Accumulator Level A 57 % B 57 % C 57 %

IRS A AVL B AVL

ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___

2 OP ___ AVL ✓ OOC ___

3 OP ___ AVL ✓ OOC ___

AUXILIARY SYSTEMS

RWST Level [illegible] %

CST Level [illegible] %

Charging Flow [illegible] GPM

Letdown Flow [illegible] GPM

VCT Level 27 %

BAST A [illegible] %

BAST B [illegible] %

BAST C 71 %

CCW: Supply HDR A/B [illegible] GPM

Return HDR A/B 71 °F

Containment

Pressure 9 psia

Temperature [illegible] °F

Sump Level 7 %

Sump Temp 92 °F

CS Pump Pres.

A 0

B 0

Core Cooling

Core Thermocouples

Avg 553 °F

Peak 558 °F Location H9

Subcooling Monitors

A 1050 psi to Sat/ — °F Superheat

B 1050 psi to Sat/ — °F Superheat

RMS

S/G BD Monitor A/B 106/2350 cpm

Condenser Air Ejector 1505 cpm

Process Vent (gas) [illegible] cpm

Process Vent (part) [illegible] cpm

Vent Vent (gas) 70 cpm

Vent Vent (part) 70 cpm

Letdown (high/low) [illegible] cpm

Cont/Manipulator 10/30 mr/hr

Aux Bldg-Control Area 1 mr/hr

Aux Bldg-Drumming 1 mr/hr

Sample Room 1 mr/hr

New Fuel 1 mr/hr

Spent Fuel Pit 2 mr/hr

Control Room <1 mr/hr

Other:

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE 10-11 AMPS 10-11 AMPS
SOURCE RANGE 750 CPS 750 CPS

WIND SPEED 45 MPH
DIRECT. 70-72 °
TEMP. 16 °F
Δ T -1.3 °F
σ θ 34 °

PLANT DATA SHEET SURRY UNIT 2
Date 11/10/82 Time 11:51 a

RSS A & B and 2G bus are lost on BKR 2712 open due to a fault on bus 5

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 95 % B 95 % C 10 %

T-Hot/T-Cold Loop A 549/548 °F B 549/548 °F C 554/550 °F
Pressurizer (Liq/Gas) 654/654 °F Level 21 % Press. 2200 psig
PRT Temp. 92 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment
Pressure 9 psia CS Pump Pres.
Temperature 100 °F
Sump Level 7 % A 0
Sump Temp 97 °F B 0

Core Cooling
Core Thermocouples
Avg 553 °F
Peak 557 °F Location H9

Subcooling Monitors
A 1104 psi to Sat/ -- °F Superheat
B 1104 psi to Sat/ -- °F Superheat

SECONDARY COOLANT SYSTEM S/G Levels A 28 % B 28 % C 28 %
S/G Pressure A 1000 psig B 1000 psig C 1000 psig
S/G Flow A 6.4E4 lb/hr B 6.4E4 lb/hr C 6.4E4 lb/hr
S/G Feed A 5.0E5 lb/hr B 5.0E5 lb/hr C 5.0E5 lb/hr
Aux. Feed Pump 3A op 3B op 2 op aux feed autostarted
AFW Flow S/G A 200 GPM B 200 GPM C 200 GPM

RMS

S/G BD Monitor A/B 110/250 cpm
Condenser Air Ejector 150 cpm
Process Vent (gas) 400 cpm
Process Vent (part) 400 cpm
Vent Vent (gas) 70 cpm
Vent Vent (part) 70 cpm
Letdown (high/low) 9500/950 cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ✓ AVL ___ OOC ___
3 OP ___ AVL ✓ OOC ___

Cont/Manipulator 10/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room <1 mr/hr

Other:

AUXILIARY SYSTEMS
RWST Level 100 %
CST Level 100 %

Charging Flow 100 GPM
Letdown Flow 120 GPM
VCT Level 21 %

BAST A [illegible] %
BAST B [illegible] %
BAST C 75 %

CCW: Supply HDR (A)/B 6000 GPM
~~Return~~ Discharge HDR (A)/B 70 °F

PLANT DATA SHEET — SURRY UNIT 2

Date 11/17/82 Time 1155 a

6ps unavailable due to malfunction of low range recorder

NUCLEAR INSTRUMENTATION

POWER RANGE	0 %	0 %	0 %	0 %
INTR. RANGE	[illegible] AMPS	[illegible] AMPS		
SOURCE RANGE	[illegible] CPS	[illegible] CPS		

WIND

SPEED	23 MPH
DIRECT.	[illegible] °
TEMP.	22 °F
Δ T	-12 °F
σ θ	30 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C

RCS Flow loop A 3 % B 3 % C 3 %

T-Hot/T-Cold Loop A 595/555 °F B 599/556 °F C 599/555 °F

Pressurizer (Liq/Gas) 654/654 °F Level 38 % Press. 2200 psig

PRT Temp. 90 °F Level 0 % Press 3 psig

Safety Valves Open/Closed

PROV's Open/Closed

Other

SECONDARY COOLANT SYSTEM

S/G Levels A [illegible] % B 30 % C 30 %

S/G Pressure A [illegible] psig B 1055 psig C 1055 psig

S/G Flow A 5564 lb/hr B 5564 lb/hr C 5564 lb/hr

S/G Feed A 265 lb/hr B 265 lb/hr C 265 lb/hr

Aux. Feed Pump 3A Op 3B Op 2 AVL - secured

AFW Flow S/G A [illegible] GPM B [illegible] GPM C [illegible] GPM

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM

LHSI Flow A 0 GPM B 0 GPM

Accumulator Level A 57 % B 57 % C 57 %

IRS A AVL B AVL

ORS A AVL B AVL

Emergency Diesel Generators (EDG)

	OP	AVL	OOC
1		✓	
2	✓		
3		✓	

AUXILIARY SYSTEMS

RWST Level [illegible] %

CST Level 78 %

Charging Flow 120 GPM

Letdown Flow 60 GPM

VCT Level 25 %

BAST A [illegible] %

BAST B [illegible] %

BAST C 75 %

CCW: Supply HDR (A/B) [illegible] GPM

Return HDR (A/B) 11 °F

Exchanger

Containment

Pressure 2 psia

Temperature [illegible] °F

Sump Level 7 %

Sump Temp 97 °F

CS Pump Pres.

A 0

B 0

Core Cooling

Core Thermocouples

Avg 592 °F

Peak 615 °F Location K5

Subcooling Monitors

A [illegible] psi to Sat/— °F Superheat

B [illegible] psi to Sat/— °F Superheat

RMS

S/G BD Monitor A/B	110/2500 cpm
Condenser Air Ejector	[illegible] cpm
Process Vent (gas)	[illegible] cpm
Process Vent (part)	[illegible] cpm
Vent Vent (gas)	[illegible] cpm
Vent Vent (part)	[illegible] cpm
Letdown (high/low)	[illegible] cpm

Cont/Manipulator	[illegible] mr/hr
Aux Bldg-Control Area	[illegible] mr/hr
Aux Bldg-Drumming	[illegible] mr/hr
Sample Room	[illegible] mr/hr
New Fuel	[illegible] mr/hr
Spent Fuel Pit	[illegible] mr/hr
Control Room	[illegible] mr/hr

Other:

PLANT DATA SHEET — SURRY UNIT 2

Date 11/10/2 Time 12 EST

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE 0 AMPS 0 AMPS
SOURCE RANGE 2e4 CPS 2e5 CPS

WIND

SPEED 38 MPH
DIRECT. 2x.69 °
TEMP. 22 °F
Δ T -12 °F
σ θ 30 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 3 % B 3 % C 3 %

T-Hot/T-Cold Loop A 544/555 °F B 544/555 °F C 544/555 °F
Pressurizer (Liq/Gas) 654/655 °F Level 52 % Press. 2200 psig
PRT Temp. 90 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

SECONDARY COOLANT SYSTEM

S/G Levels A 30 % B 30 % C 30 %
S/G Pressure A 1035 psig B 1035 psig C 1035 psig
S/G Flow A 5.2E6 lb/hr B 5.2E6 lb/hr C 5.2E6 lb/hr
S/G Feed A 2E5 lb/hr B 2E5 lb/hr C 2E5 lb/hr
Aux. Feed Pump 3A op 3B op 2 AVL
AFW Flow S/G A 2xx GPM B 2xx GPM C 2xx GPM

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG)
1 OP ___ AVL ✓ OOC ___
2 OP ✓ AVL ___ OOC ___
3 OP ___ AVL ✓ OOC ___

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 76 %

Charging Flow 120 GPM
Letdown Flow 60 GPM
VCT Level 53 %

BAST A 3 %
BAST B 3 %
BAST C 3 %

CCW: Supply HDR (A/B) 6xxx GPM
Return HDR (A/B) 71 °F
Bearings

Containment

Pressure 7 psia
Temperature 1xx °F
Sump Level 7 %
Sump Temp 99 °F

CS Pump Pres.
A 0
B 0

Core Cooling

Core Thermocouples
Avg 593 °F
Peak 625 °F Location K5

Subcooling Monitors
A 358 psi to Sat/— °F Superheat
B 358 psi to Sat/— °F Superheat

RMS

S/G BD Monitor A/B	110/2400	cpm
Condenser Air Ejector	15[illegible]	cpm
Process Vent (gas)	6xx	cpm
Process Vent (part)	1xx	cpm
Vent Vent (gas)	70	cpm
Vent Vent (part)	70	cpm
Letdown (high/low)	4000/2xx	cpm
Cont/Manipulator	10/50	mr/hr
Aux Bldg-Control Area	1	mr/hr
Aux Bldg-Drumming	1	mr/hr
Sample Room	1	mr/hr
New Fuel	1	mr/hr
Spent Fuel Pit	2	mr/hr
Control Room	21	mr/hr

Other:

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE 10-11 AMPS 10-11 AMPS
SOURCE RANGE 150 CPS 150 CPS

WIND

SPEED 35 MPH
DIRECT. from 70 °
TEMP. 27 °F
Δ T -12 °F
σ θ 31 °

PLANT DATA SHEET

SURRY UNIT 2
Date 11/15/82 Time 12:05 P

Condenser vacuum is lost. Ops operating atmosphere PORVs to remove heat

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 3 % B 3 % C 3 %

T-Hot/T-Cold Loop A 587/555 °F B 587/555 °F C 587/555 °F
Pressurizer (Liq/Gas) 655/655 °F Level 52 % Press. 2200 psig
PRT Temp. 50 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 9 psia CS Pump
Temperature Low °F Pres.
Sump Level 7 % A 0
Sump Temp 99 °F B 0

Core Cooling

Core Thermocouples
Avg 594 °F
Peak 640 °F Location K5, L6

Subcooling Monitors
A 150 psi to Sat/— °F Superheat
B 150 psi to Sat/— °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 30 % B 30 % C 30 %
S/G Pressure A 1000 psig B 1000 psig C 1000 psig
S/G Flow A 5.0E4 lb/hr B 5.0E4 lb/hr C 5.0E4 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A Op 3B Op 2 Avl
AFW Flow S/G A 200 GPM B 200 GPM C 200 GPM

FW secured. Ops decide to use aux feed given the loss of condenser

RMS

S/G BD Monitor A/B 110/250 cpm
Condenser Air Ejector Low cpm
Process Vent (gas) Low cpm
Process Vent (part) Low cpm
Vent Vent (gas) 20 cpm
Vent Vent (part) 20 cpm
Letdown (high/low) 450/450 cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A N/A B N/A
ORS A N/A B N/A

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ✓ AVL ___ OOC ___
3 OP ___ AVL ✓ OOC ___

Cont/Manipulator 60/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room <1 mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level 97 %
CST Level 95 %

Charging Flow 60 GPM
Letdown Flow 60 GPM
VCT Level 30 %

BAST A 30 %
BAST B 30 %
BAST C 30 %

CCW: Supply HDR (A/B 66PM GPM
Return HDR (A/B 71 °F

PLANT DATA SHEET SURRY UNIT 2

Date 11/10/82 Time 12:10 P

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE 0 " AMPS 0 " AMPS
SOURCE RANGE 192 CPS 190 CPS

WIND

SPEED 35 MPH
DIRECT. from 75 °
TEMP. 27 °F
Δ T -1.2 °F
σ θ 32 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 3 % B 3 % C 3 %

T-Hot/T-Cold Loop A 583/552 °F B 593/552 °F C 583/553 °F
Pressurizer (Liq/Gas) 655/655 °F Level 52 % Press. 2210 psig
PRT Temp. 80 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 9 psia CS Pump
Temperature 110 °F Pres.
Sump Level 7 % A 0
Sump Temp 92 °F B 0

Core Cooling

Core Thermocouples
Avg 525 °F
Peak 675 °F Location K5, L6

Subcooling Monitors
A — psi to Sat/— °F Superheat
B — psi to Sat/— °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 30 % B 30 % C 30 %
S/G Pressure A 1000 psig B 1000 psig C 1000 psig
S/G Flow A 4420 lb/hr B 4420 lb/hr C 4420 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A off 3B off 2 n/a
AFW Flow S/G A 175 GPM B 175 GPM C 175 GPM

RMS

S/G BD Monitor A/B 1012500 cpm
Condenser Air Ejector — cpm
Process Vent (gas) — cpm
Process Vent (part) — cpm
Vent Vent (gas) — cpm
Vent Vent (part) — cpm
Letdown (high/low) 10,000/1000 cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 52 % B 52 % C 52 %
IRS A n/a B n/a
ORS A n/a B n/a

Emergency Diesel Generators (EDG) 1 OP — AVL ✓ OOC —
2 OP ✓ AVL — OOC —
3 OP — AVL ✓ OOC —

Cont/Manipulator 10/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming — mr/hr
Sample Room — mr/hr
New Fuel — mr/hr
Spent Fuel Pit — mr/hr
Control Room <1 mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level 95 %
CST Level — %

Charging Flow 60 GPM
Letdown Flow 60 GPM
VCT Level 30 %

BAST A 90 %
BAST B — %
BAST C 15 %

CCW: Supply HDR A/B 600 GPM
~~Return~~ HDR A/B 71 °F

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE 10⁻¹¹ AMPS 10⁻¹¹ AMPS
SOURCE RANGE 175 CPS 175 CPS

WIND

SPEED 32 MPH
DIRECT. from 65°
TEMP. 22 °F
Δ T -1.2 °F
σ θ 32 °

PLANT DATA SHEET — SURRY UNIT 2

Date 11/10/82 Time 12:15 P

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 3 % B 3 % C 3 %

T-Hot/T-Cold Loop A 580/551 °F B 581/551 °F C 580/551 °F
Pressurizer (Liq/Gas) 655/655 °F Level 52 % Press. 2260 psig
PRT Temp. 90 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 9 psia CS Pump
Temperature 120 °F Pres.
Sump Level 2 % A 0
Sump Temp 99 °F B 0

Core Cooling

Core Thermocouples
Avg 550 °F
Peak 725 °F Location K5, L6

Subcooling Monitors
A — psi to Sat/— °F Superheat
B — psi to Sat/75 °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 30 % B 30 % C 30 %
S/G Pressure A 775 psig B 775 psig C 775 psig
S/G Flow A 4624 lb/hr B 4624 lb/hr C 4624 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A op 3B op 2 AVL
AFW Flow S/G A 175 GPM B 175 GPM C 175 GPM

RMS

S/G BD Monitor A/B 110/2600 cpm
Condenser Air Ejector 15 cpm
Process Vent (gas) — cpm
Process Vent (part) — cpm
Vent Vent (gas) 10 cpm
Vent Vent (part) 70 cpm
Letdown (high/low) 12×10⁶/12×10⁶ cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG)
1 OP — AVL ✓ OOC —
2 OP ✓ AVL — OOC —
3 OP — AVL ✓ OOC —

Cont/Manipulator 10/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room <1 mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 97 %

Charging Flow 40 GPM
Letdown Flow 40 GPM
VCT Level 30 %

BAST A 50 %
BAST B 50 %
BAST C 75 %

CCW: Supply HDR A/B 600 GPM
Return HDR A/B 11 °F

PLANT DATA SHEET SURRY UNIT 2
Date 11/10/82 Time 13:20 P

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE 10⁻⁶ AMPS 10⁻¹¹ AMPS
SOURCE RANGE 175 CPS 175 CPS

WIND

SPEED 32 MPH
DIRECT. from 52°
TEMP. 22 °F
Δ T -1.1 °F
σ θ 25 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 3 % B 3 % C 3 %

T-Hot/T-Cold Loop A 578/548 °F B 579/549 °F C 579/548 °F
Pressurizer (Liq/Gas) 655/655 °F Level 52 % Press. 2200 psig
PRT Temp. 90 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

SECONDARY COOLANT SYSTEM

S/G Levels A 30 % B 30 % C 30 %
S/G Pressure A 730 psig B 730 psig C 730 psig
S/G Flow A 0424 lb/hr B 0424 lb/hr C 0424 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A off 3B off 2 AVL
AFW Flow S/G A 170 GPM B 170 GPM C 170 GPM

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ✓ AVL ___ OOC ___
3 OP ___ AVL ✓ OOC ___

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 29 %

Charging Flow 60 GPM
Letdown Flow 60 GPM
VCT Level 30 %

BAST A 7 %
BAST B 7 %
BAST C 7 %

CCW: Supply HDR A/B 600 GPM
~~Return~~ HDR A/B 71 °F
Discharge

Containment

Pressure 2 psia
Temperature 105 °F
Sump Level 2 %
Sump Temp 99 °F

CS Pump Pres.
A 0
B 0

Core Cooling

Core Thermocouples
Avg 528 °F
Peak 750 °F Location K5, L6

Subcooling Monitors
A ___ psi to Sat/100 °F Superheat
B ___ psi to Sat/100 °F Superheat

RMS

S/G BD Monitor A/B 115/2550 cpm
Condenser Air Ejector 14xx cpm
Process Vent (gas) 1xx cpm
Process Vent (part) 10x cpm
Vent Vent (gas) 20 cpm
Vent Vent (part) 20 cpm
Letdown (high/low) 105/105 cpm

Cont/Manipulator 0/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room <1 mr/hr

Other:

PLANT DATA SHEET — SURRY UNIT 2

Date 11/10/82 Time 17 35 P

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE 10 AMPS 10 AMPS
SOURCE RANGE 175 CPS 175 CPS

WIND

SPEED 20 MPH
DIRECT. from 65 °
TEMP. 77 °F
Δ T -1.1 °F
σ θ 23 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 3 % B 3 % C 3 %

T-Hot/T-Cold Loop A 597/548 °F B 577/545 °F C 577/545 °F
Pressurizer (Liq/Gas) 655/654 °F Level 52 % Press. 2200 psig
PRT Temp. 80 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 9 psia CS Pump
Temperature 105 °F Pres.
Sump Level 7 % A 0
Sump Temp 99 °F B 0

Core Cooling

Core Thermocouples
Avg 585 °F
Peak 1000 °F Location K5, L6

Subcooling Monitors
A — psi to Sat/— °F Superheat
B — psi to Sat/— °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 20 % B 20 % C 20 %
S/G Pressure A 770 psig B 770 psig C 770 psig
S/G Flow A 0.2E4 lb/hr B 0.2E4 lb/hr C 0.2E4 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A off 3B off 2 Avl
AFW Flow S/G A 165 GPM B 165 GPM C 165 GPM

RMS

S/G BD Monitor A/B 100/2500 cpm
Condenser Air Ejector 1400 cpm
Process Vent (gas) 100 cpm
Process Vent (part) 100 cpm
Vent Vent (gas) 10 cpm
Vent Vent (part) 20 cpm
Letdown (high/low) 1500/1500 cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A Avl B Avl
ORS A Avl B Avl

Emergency Diesel Generators (EDG)
1 OP ___ AVL ✓ OOC ___
2 OP ✓ AVL ___ OOC ___
3 OP ___ AVL ✓ OOC ___

Cont/Manipulator 40/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room 21 mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 91 %

Charging Flow 60 GPM
Letdown Flow 60 GPM
VCT Level 40 %

BAST A 30 %
BAST B — %
BAST C 15 %

CCW: Supply HDR (A/B 60 GPM
Return HDR (A/B 11 °F

PLANT DATA SHEET — SURRY UNIT 2

Date 11/10/82 Time 2 35 P

S/G C not connected TWT [illegible] because of leaks in S/G C and [illegible] releasing to atmosphere

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE [illegible] AMPS [illegible] AMPS
SOURCE RANGE 175 CPS 175 CPS

WIND

SPEED 25 MPH
DIRECT. from 67 °
TEMP. 77 °F
Δ T -1.1 °F
σ θ 22 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 3 % B 3 % C 3 %

T-Hot/T-Cold Loop A 576/547 °F B 576/547 °F C 576/547 °F
Pressurizer (Liq/Gas) 655/655 °F Level 52 % Press. 2200 psig
PRT Temp. 90 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 9 psia
Temperature [illegible] °F
Sump Level 7 %
Sump Temp 99 °F

CS Pump Pres.
A 0
B 0

Core Cooling

Core Thermocouples
Avg 595 °F
Peak 1150 °F Location K5, L6

Subcooling Monitors
A ___ psi to Sat/[illegible] °F Superheat
B ___ psi to Sat/[illegible] °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 30 % B 30 % C 30 %
S/G Pressure A 975 psig B 975 psig C 980 psig
S/G Flow A 5.7E4 lb/hr B 5.7E4 lb/hr C 0 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A op 3B op 2 AVL
AFW Flow S/G A 225 GPM B 225 GPM C 0 GPM

RMS

S/G BD Monitor A/B 110/2550 cpm
Condenser Air Ejector 1500 cpm
Process Vent (gas) [illegible] cpm
Process Vent (part) [illegible] cpm
Vent Vent (gas) 70 cpm
Vent Vent (part) 70 cpm
Letdown (high/low) [illegible] cpm

Cont/Manipulator 10/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel [illegible] mr/hr
Spent Fuel Pit 2 mr/hr
Control Room <1 mr/hr

Other:

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG)
1 OP ___ AVL ✓ OOC ___
2 OP ✓ AVL ___ OOC ___
3 OP ___ AVL ✓ OOC ___

AUXILIARY SYSTEMS

RWST Level [illegible] %
CST Level 78 %

Charging Flow 60 GPM
Letdown Flow 60 GPM
VCT Level 40 %

BAST A 90 %
BAST B [illegible] %
BAST C 75 %

CCW: Supply HDR A/B 6000 GPM
Return HDR A/B 71 °F
Discharge

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE [illegible] AMPS [illegible] AMPS
SOURCE RANGE 175 CPS 175 CPS

WIND

SPEED 20 MPH
DIRECT. from 70 °
TEMP. 27 °F
Δ T -11 °F
σ θ 22 °

PLANT DATA SHEET — SURRY UNIT 2

Date 11/10/82 Time 1245 P

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 3 % B 3 % C 0 %
T-Hot/T-Cold Loop A 570/541 °F B 570/541 °F C 575/544 °F
Pressurizer (Liq/Gas) 655/655 °F Level 52 % Press. 2200 psig
PRT Temp. 92 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 9 psia CS Pump
Temperature 110 °F Pres.
Sump Level 7 % A 0
Sump Temp 99 °F B 0

Core Cooling

Core Thermocouples
Avg 584 °F
Peak 1205 °F Location K5, 66

Subcooling Monitors
A — psi to Sat/[illegible] °F Superheat
B — psi to Sat/[illegible] °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 50 % B 50 % C 50 %
S/G Pressure A 775 psig B 775 psig C 780 psig
S/G Flow A 5.6E4 lb/hr B 5.6E4 lb/hr C 0 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A UP 3B UP 2 AVL
AFW Flow S/G A 172 GPM B 172 GPM C 0 GPM

RMS

S/G BD Monitor A/B 120/2550 cpm
Condenser Air Ejector 1343 cpm
Process Vent (gas) 100 cpm
Process Vent (part) 100 cpm
Vent Vent (gas) 70 cpm
Vent Vent (part) 70 cpm
Letdown (high/low) 3E5/3E5 cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP — AVL ✓ OOC —
2 OP ✓ AVL — OOC —
3 OP — AVL ✓ OOC —

Cont/Manipulator 10/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room <1 mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 73 %

Charging Flow 60 GPM
Letdown Flow 60 GPM
VCT Level 40 %

BAST A 20 %
BAST B 20 %
BAST C 20 %

CCW: Supply HDR A/B 60[illegible] GPM
Return HDR A/B 71 °F

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE 10⁻¹¹ AMPS 10⁻¹¹ AMPS
SOURCE RANGE 175 CPS 175 CPS

WIND

SPEED 17 MPH
DIRECT. FROM 69 °
TEMP. 22 °F
Δ T -1.1 °F
σ θ 21 °

PLANT DATA SHEET — SURRY UNIT 2

Date 11/10/82 Time [illegible]

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 3 % B 3 % C 0 %

T-Hot/T-Cold Loop A 564/539 °F B 564/538 °F C 575/546 °F
Pressurizer (Liq/Gas) 653/655 °F Level 52 % Press. 2200 psig
PRT Temp. 80 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 9 psia CS Pump
Temperature 105 °F Pres.
Sump Level 7 % A 0
Sump Temp 99 °F B 0

Core Cooling

Core Thermocouples
Avg 578 °F
Peak 1250 °F Location K5, L6

Subcooling Monitors
A — psi to Sat/[illegible] °F Superheat
B — psi to Sat/[illegible] °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 50 % B 50 % C 50 %
S/G Pressure A 975 psig B 975 psig C 965 psig
S/G Flow A 5.5E4 lb/hr B 5.5E4 lb/hr C 0 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A OP 3B OP 2 AVL
AFW Flow S/G A 135 GPM B 135 GPM C 0 GPM

RMS

S/G BD Monitor A/B 110/2550 cpm
Condenser Air Ejector [illegible] cpm
Process Vent (gas) [illegible] cpm
Process Vent (part) [illegible] cpm
Vent Vent (gas) 20 cpm
Vent Vent (part) 20 cpm
Letdown (high/low) 5E3/5E3 cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ✓ AVL ___ OOC ___
3 OP ___ AVL ✓ OOC ___

Cont/Manipulator 20/50 mr/hr
Aux Bldg-Control Area [illegible] mr/hr
Aux Bldg-Drumming [illegible] mr/hr
Sample Room [illegible] mr/hr
New Fuel [illegible] mr/hr
Spent Fuel Pit 2 mr/hr
Control Room 21 mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level [illegible] %
CST Level 70 %

Charging Flow 60 GPM
Letdown Flow 40 GPM
VCT Level [illegible] %

BAST A 50 %
BAST B [illegible] %
BAST C [illegible] %

CCW: Supply HDR A/B 6[illegible] GPM
Return HDR A/B 71 °F
Discharge

PLANT DATA SHEET — SURRY UNIT 2

Date 11/10/92 Time 1145

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE 10-11 AMPS 10-11 AMPS
SOURCE RANGE 175 CPS 175 CPS

WIND

SPEED 12 MPH
DIRECT. 270/72 °
TEMP. 18 °F
Δ T -1.07 °F
σ θ 19 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 3 % B 5 % C 0 %

T-Hot/T-Cold Loop A 560/533 °F B 560/533 °F C 575/546 °F
Pressurizer (Liq/Gas) 655/655 °F Level 52 % Press. 2200 psig
PRT Temp. 80 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed)
Other

Containment

Pressure 9 psia CS Pump
Temperature 100 °F Pres.
Sump Level 7 % A 0
Sump Temp 79 °F B 0

Core Cooling

Core Thermocouples
Avg 575 °F
Peak 1250 °F Location K5, L6

Subcooling Monitors
A — psi to Sat/600 °F Superheat
B — psi to Sat/600 °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 30 % B 30 % C 30 %
S/G Pressure A 970 psig B 970 psig C 960 psig
S/G Flow A 5460 lb/hr B 5464 lb/hr C 0 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A OP 3B OP 2 AVL
AFW Flow S/G A 120 GPM B 120 GPM C 0 GPM

RMS

S/G BD Monitor A/B 110/250 cpm
Condenser Air Ejector 1000 cpm
Process Vent (gas) 100 cpm
Process Vent (part) 100 cpm
Vent Vent (gas) 70 cpm
Vent Vent (part) 70 cpm
Letdown (high/low) 6×10³/6×10³ cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ✓ AVL ___ OOC ___
3 OP ___ AVL ✓ OOC ___

Cont/Manipulator 10/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room <1 mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 67 %

Charging Flow 60 GPM
Letdown Flow 60 GPM
VCT Level 40 %

BAST A 80 %
BAST B 70 %
BAST C [illegible] %

CCW: Supply HDR A/B 600 GPM
Return HDR A/B 71 °F

NUCLEAR INSTRUMENTATION

POWER RANGE	0 %	0 %	0 %	0 %
INTR. RANGE	[illegible] AMPS	[illegible] AMPS		
SOURCE RANGE	175 CPS	175 CPS		

WIND

SPEED 10 MPH
DIRECT. [illegible] °
TEMP. 28 °F
Δ T -1.07 °F
σ θ 18 °

PLANT DATA SHEET

SURRY UNIT 2
Date 11/10/82 Time 1200 P

RCP pump 3A trips off

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 3 % B 3 % C 0 %

T-Hot/T-Cold Loop A 555/520 °F B 555/530 °F C 575/546 °F
Pressurizer (Liq/Gas) 655/655 °F Level 52 % Press. 2200 psig
PRT Temp. 80 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 9 psia CS Pump
Temperature [illegible] °F Pres.
Sump Level 7 % A 0
Sump Temp 72 °F B 0

Core Cooling

Core Thermocouples
Avg 529 °F
Peak 1250 °F Location K5, L6

Subcooling Monitors
A — psi to Sat/[illegible] °F Superheat
B — psi to Sat/[illegible] °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 30 % B 30 % C 30 %
S/G Pressure A 940 psig B 940 psig C 940 psig
S/G Flow A 5,164 lb/hr B 5,164 lb/hr C 0 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A OOC 3B OP 2 AVL
AFW Flow S/G A 110 GPM B 110 GPM C 0 GPM

RMS

S/G BD Monitor A/B	10/2550 cpm
Condenser Air Ejector	[illegible] cpm
Process Vent (gas)	[illegible] cpm
Process Vent (part)	[illegible] cpm
Vent Vent (gas)	70 cpm
Vent Vent (part)	70 cpm
Letdown (high/low)	6[illegible]/6[illegible]5 cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 52 % B 52 % C 52 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG)

1 OP	—	AVL	✓	OOC	—
2 OP	✓	AVL	—	OOC	—
3 OP	—	AVL	✓	OOC	—

Cont/Manipulator	10/50 mr/hr
Aux Bldg-Control Area	1 mr/hr
Aux Bldg-Drumming	1 mr/hr
Sample Room	1 mr/hr
New Fuel	1 mr/hr
Spent Fuel Pit	2 mr/hr
Control Room	<1 mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level [illegible] %
CST Level 60 %

Charging Flow 60 GPM
Letdown Flow [illegible] GPM
VCT Level 40 %

BAST A [illegible] %
BAST B 70 %
BAST C [illegible] %

CCW: Supply HDR A/B [illegible] GPM
Return HDR A/B 70 °F

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE 10⁻⁶ AMPS 10⁻⁶ AMPS
SOURCE RANGE 175 CPS 175 CPS

WIND

SPEED 2 MPH
DIRECT. from 68°
TEMP. 28 °F
Δ T -1.05 °F
σ θ 15 °

PLANT DATA SHEET — SURRY UNIT 2

Date 11/10/82 Time 2 AM

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 2.5 % B 2.5 % C 0 %

T-Hot/T-Cold Loop A 545/522 °F B 545/522 °F C 536/545 °F
Pressurizer (Liq/Gas) 655/655 °F Level 52 % Press. 2200 psig
PRT Temp. 60 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

SECONDARY COOLANT SYSTEM

S/G Levels A 30 % B 30 % C 30 %
S/G Pressure A 790 psig B 790 psig C 930 psig
S/G Flow A 4519 lb/hr B 4524 lb/hr C 0 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A OOC 3B OP 2 AVL
AFW Flow S/G A 110 GPM B 110 GPM C 0 GPM

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ✓ AVL ___ OOC ___
3 OP ___ AVL ✓ OOC ___

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 60 %

Charging Flow 60 GPM
Letdown Flow 60 GPM
VCT Level 30 %

BAST A [illegible] %
BAST B ___ %
BAST C ___ %

CCW: Supply HDR A/B 6111 GPM
Return HDR A/B 110 °F

Containment

Pressure 9 psia
Temperature 105 °F
Sump Level 7 %
Sump Temp 99 °F

CS Pump Pres.
A 0
B 0

Core Cooling

Core Thermocouples
Avg 560 °F
Peak 1250 °F Location K5 46

Subcooling Monitors
A — psi to Sat/630 °F Superheat
B — psi to Sat/630 °F Superheat

RMS

S/G BD Monitor A/B	110 / 2550 cpm
Condenser Air Ejector	500 cpm
Process Vent (gas)	105 cpm
Process Vent (part)	175 cpm
Vent Vent (gas)	70 cpm
Vent Vent (part)	70 cpm
Letdown (high/low)	6x10⁵ / 6x10⁵ cpm
Cont/Manipulator	20 / 30 mr/hr
Aux Bldg-Control Area	1 mr/hr
Aux Bldg-Drumming	1 mr/hr
Sample Room	1 mr/hr
New Fuel	1 mr/hr
Spent Fuel Pit	2 mr/hr
Control Room	<1 mr/hr

Other:

PLANT DATA SHEET SURRY UNIT 2
Date 1/23/82 Time 2,10 p

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE 6 E-11 AMPS 6 E-11 AMPS
SOURCE RANGE 175 CPS 175 CPS

WIND

SPEED 8 MPH
DIRECT. Var 60 °
TEMP. 28 °F
Δ T -1.03 °F
σ θ 15 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 2.5 % B 2.5 % C 0 %
T-Hot/T-Cold Loop A 538/516 °F B 535/516 °F C 534/545 °F
Pressurizer (Liq/Gas) 655/655 °F Level 52 % Press. 2200 psig
PRT Temp. 90 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 9 psia CS Pump
Temperature 120 °F Pres.
Sump Level 7 % A 0
Sump Temp 92 °F B 0

Core Cooling

Core Thermocouples
Avg 550 °F
Peak 1350 °F Location K5, L6

Subcooling Monitors
A — psi to Sat/60 °F Superheat
B — psi to Sat/60 °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 30 % B 30 % C 30 %
S/G Pressure A 755 psig B 755 psig C 725 psig
S/G Flow A 9624 lb/hr B 9624 lb/hr C 0 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A OOC 3B OP 2 MDP
AFW Flow S/G A 105 GPM B 105 GPM C GPM

RMS

S/G BD Monitor A/B 110/2550 cpm
Condenser Air Ejector 200 cpm
Process Vent (gas) 100 cpm
Process Vent (part) 100 cpm
Vent Vent (gas) 70 cpm
Vent Vent (part) 70 cpm
Letdown (high/low) 6x10^5/6x10^4 cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A NA B NA
ORS A NA B NA

Emergency Diesel Generators (EDG) 1 OP — AVL ✓ OOC —
2 OP ✓ AVL — OOC —
3 OP — AVL ✓ OOC —

Cont/Manipulator 40/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 1 mr/hr
Control Room <1 mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level 77 %
CST Level 92 %
Charging Flow 70 GPM
Letdown Flow 60 GPM
VCT Level 38 %

BAST A 30 %
BAST B 30 %

CCW: Supply HDR A/B 165 GPM
Return HDR A/B 110 °F

PLANT DATA SHEET SURRY UNIT 2

Date 4/10/82 Time 2:50 pm

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE [illegible] AMPS [illegible] AMPS
SOURCE RANGE 175 CPS 175 CPS

WIND

SPEED 7 MPH
DIRECT. [illegible] 68°
TEMP. 72 °F
Δ T [illegible] °F
σ θ 15 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 25 % B 25 % C 0 %

T-Hot/T-Cold Loop A 532/510 °F B 532/510 °F C 541/505 °F
Pressurizer (Liq/Gas) 655/655 °F Level 52 % Press. 2200 psig
PRT Temp. 90 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 9 psia CS Pump
Temperature 120 °F Pres.
Sump Level 7 % A 0
Sump Temp 77 °F B 0

Core Cooling

Core Thermocouples
Avg 547 °F
Peak 1250 °F Location K5, L6

Subcooling Monitors
A — psi to Sat/660 °F Superheat
B — psi to Sat/660 °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 31 % B 30 % C 50 %
S/G Pressure A 730 psig B 730 psig C 920 psig
S/G Flow A 4629 lb/hr B 4629 lb/hr C 0 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A OOS 3B OP 2 A/C
AFW Flow S/G A 100 GPM B 100 GPM C 0 GPM

RMS

S/G BD Monitor A/B 110/7600 cpm
Condenser Air Ejector 9000 cpm
Process Vent (gas) 100 cpm
Process Vent (part) 1000 cpm
Vent Vent (gas) 100 cpm
Vent Vent (part) 900 cpm
Letdown (high/low) 65.3/5.2x10³ cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A N/A B N/A
ORS A N/A B N/A

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ✓ AVL ___ OOC ___
3 OP ___ AVL ✓ OOC ___

Cont/Manipulator 40/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room <1 mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level [illegible] %
CST Level 56 %

Charging Flow [illegible] GPM
Letdown Flow [illegible] GPM
VCT Level 25 %

BAST A [illegible] %
BAST B [illegible] %

CCW: Supply HDR A/B 60 GPM
Return HDR A/B [illegible] °F

PLANT DATA SHEET SURRY UNIT 2

Date 4/10/82 Time 2 05

NUCLEAR INSTRUMENTATION

POWER RANGE 6 % 0 % 0 % 0 %
INTR. RANGE 1E-4 AMPS 2E-4 AMPS
SOURCE RANGE 15 CPS 12 CPS

WIND

SPEED 8 MPH
DIRECT. from 69 °
TEMP. 27 °F
Δ T -1.02 °F
σ θ 15 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 2.5 % B 2.5 % C 0 %

T-Hot/T-Cold Loop A 527/505 °F B 527/505 °F C 576/505 °F
Pressurizer (Liq/Gas) 655/655 °F Level 52 % Press. 2200 psig
PRT Temp. 80 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

SECONDARY COOLANT SYSTEM

S/G Levels A 33 % B 33 % C 30 %
S/G Pressure A 720 psig B 750 psig C 912 psig
S/G Flow A 4524 lb/hr B 4524 lb/hr C 0 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A OOS 3B OOS 2 N/A
AFW Flow S/G A 75 GPM B 75 GPM C 0 GPM

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A N/A B N/A
ORS A N/A B N/A

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ✓ AVL ___ OOC ___
3 OP ___ AVL ✓ OOC ___

AUXILIARY SYSTEMS

RWST Level 96 %
CST Level 50 %
BAST A 30 %
BAST B 30 %
BAST C 30 %

Charging Flow 70 GPM
Letdown Flow 75 GPM
VCT Level 5 %

CCW: Supply HDR A/B 60 GPM
Return HDR A/B 70 °F

Containment

Pressure 9 psia
Temperature 105 °F
Sump Level 7 %
Sump Temp 99 °F

CS Pump Pres.
A 0
B 0

Core Cooling

Core Thermocouples
Avg 540 °F
Peak 1250 °F Location K5, K6

Subcooling Monitors
A — psi to Sat/600 °F Superheat
B — psi to Sat/600 °F Superheat

RMS

S/G BD Monitor A/B 110/2600 cpm
Condenser Air Ejector 2E4 cpm
Process Vent (gas) 1mr cpm
Process Vent (part) 1E1 cpm
Vent Vent (gas) 70 cpm
Vent Vent (part) 70 cpm
Letdown (high/low) 2E3/2E5 cpm

Cont/Manipulator 10/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room <1 mr/hr

Other:

PLANT DATA SHEET — SURRY UNIT 2

Date 11/10/22 Time 3:00 PM

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE 1E-11 AMPS 1E-11 AMPS
SOURCE RANGE 175 CPS 175 CPS

WIND

SPEED 7 MPH
DIRECT. from 67 °
TEMP. 72 °F
Δ T 1.02 °F
σ θ 15 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 25 % B 25 % C 0 %

T-Hot/T-Cold Loop A 520/497 °F B 520/497 °F C 515/544 °F
Pressurizer (Liq/Gas) 655/655 °F Level 52 % Press. 2200 psig
PRT Temp. 80 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 9 psia CS Pump
Temperature 105 °F Pres.
Sump Level 2 % A 0
Sump Temp 97 °F B 0

Core Cooling

Core Thermocouples
Avg 530 °F
Peak 1254 °F Location K5 L6

Subcooling Monitors
A — psi to Sat/600 °F Superheat
B — psi to Sat/605 °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 34 % B 34 % C 30 %
S/G Pressure A 765 psig B 755 psig C 770 psig
S/G Flow A 9026 lb/hr B 8964 lb/hr C 0 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A OOC 3B OP 2 AVL
AFW Flow S/G A 150 GPM B 0 GPM C 0 GPM

S/G B and C available

RMS

S/G BD Monitor A/B 110/2600 cpm
Condenser Air Ejector 200 cpm
Process Vent (gas) 100 cpm
Process Vent (part) 100 cpm
Vent Vent (gas) 70 cpm
Vent Vent (part) 70 cpm
Letdown (high/low) 2.5/1.0E5 cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ✓ AVL ___ OOC ___
3 OP ___ AVL ✓ OOC ___

Cont/Manipulator 10/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 3 mr/hr
Control Room ~1 mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 82 %

Charging Flow 70 GPM
Letdown Flow 70 GPM
VCT Level 32 %

BAST A 30 %
BAST B 30 %
BAST C 30 %

CCW: Supply HDR A/B 60 GPM
Return HDR A/B 70 °F
no change

PLANT DATA SHEET SURRY UNIT 2
Date 11/10/82 Time 3:15 PM

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE 10 AMPS 10 AMPS
SOURCE RANGE 175 CPS 175 CPS

WIND
SPEED 7 MPH
DIRECT. From 68°
TEMP. 29 °F
Δ T -102 °F
σ θ 15 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 25 % B 25 % C 0 %
T-Hot/T-Cold Loop A 514/493 °F B 514/493 °F C 570/542 °F
Pressurizer (Liq/Gas) 655/655 °F Level 52 % Press. 2200 psig
PRT Temp. — F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

SECONDARY COOLANT SYSTEM

S/G Levels A 34 % B 32 % C 30 %
S/G Pressure A 800 psig B 805 psig C 795 psig
S/G Flow A 3E4 lb/hr B 5E4 lb/hr C 0 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A OOC 3B OP 2 AVL
AFW Flow S/G A 210 GPM B 0 GPM C 0 GPM

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A — GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP — AVL ✓ OOC —
2 OP ✓ AVL — OOC —
3 OP — AVL ✓ OOC —

AUXILIARY SYSTEMS

RWST Level 40 %
CST Level 71 %
Charging Flow 70 GPM
Letdown Flow 40 GPM
VCT Level 30 %

BAST A — %
BAST B — %
BAST C — %

CCW: Supply HDR A/B 60 GPM
Return HDR A/B 70 °F

Containment

Pressure 9 psia CS Pump
Temperature 105 °F Pres.
Sump Level 7 % A 0
Sump Temp 97 °F B 0

Core Cooling

Core Thermocouples
Avg 525 °F
Peak 1250 °F Location K5, L6

Subcooling Monitors
A — psi to Sat/— °F Superheat
B — psi to Sat/— °F Superheat

RMS

S/G BD Monitor A/B	11E5/2450	cpm
Condenser Air Ejector	—	cpm
Process Vent (gas)	—	cpm
Process Vent (part)	—	cpm
Vent Vent (gas)	70	cpm
Vent Vent (part)	70	cpm
Letdown (high/low)	7E5/2E5	cpm

Cont/Manipulator	10/50	mr/hr
Aux Bldg-Control Area	1	mr/hr
Aux Bldg-Drumming	1	mr/hr
Sample Room	1	mr/hr
New Fuel	1	mr/hr
Spent Fuel Pit	2	mr/hr
Control Room	1	mr/hr

Other:

PLANT DATA SHEET SURRY UNIT 2

Date 11/10/82 Time 3:55 pm

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE 10^-11 AMPS 10^-11 AMPS
SOURCE RANGE 125 CPS 125 CPS

WIND

SPEED 9 MPH
DIRECT. 40 - 60 °
TEMP. 20 °F
Δ T -1.02 °F
σ θ 15 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 2.5 % B 2.5 % C 0 %

T-Hot/T-Cold Loop A 505/439 °F B 505/489 °F C 567/540 °F
Pressurizer (Liq/Gas) 655/655 °F Level 52 % Press. 2200 psig
PRT Temp. 80 °F Level 0 % Press ≥ psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 9 psia CS Pump
Temperature 105 °F Pres.
Sump Level 7 % A 0
Sump Temp 97 °F B 0

Core Cooling

Core Thermocouples
Avg 515 °F
Peak 1250 °F Location K5, C6

Subcooling Monitors
A — psi to Sat/600 °F Superheat
B — psi to Sat/600 °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 32 % B 32 % C 30 %
S/G Pressure A 650 psig B 805 psig C 900 psig
S/G Flow A 3E4 lb/hr B 5E4 lb/hr C 0 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A 900 3B 900 2 AVL
AFW Flow S/G A 125 GPM B 0 GPM C 0 GPM

RMS

S/G BD Monitor A/B 110/2600 cpm
Condenser Air Ejector 150 cpm
Process Vent (gas) 105 cpm
Process Vent (part) 105 cpm
Vent Vent (gas) 70 cpm
Vent Vent (part) 70 cpm
Letdown (high/low) 7×10^3/7×10^5 cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ✓ AVL ___ OOC ___
3 OP ___ AVL ✓ OOC ___

Cont/Manipulator 10/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room <1 mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 97 %

Charging Flow 60 GPM
Letdown Flow 70 GPM
VCT Level 32 %

BAST A 30 %
BAST B 40 %
BAST C 15 %

CCW: Supply HDR A/B 600 GPM
Return HDR A/B 90 °F

[redacted]CLEAR[redacted]INS[redacted]ME[redacted]TIO[redacted]

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE [illegible] AMPS [illegible] AMPS
SOURCE RANGE 125 CPS 125 CPS

WIND
SPEED 8 MPH
DIRECT. [illegible] °
TEMP. 80 °F
Δ T [illegible] °F
σ θ 15 °

PLANT DATA SHEET SURRY UNIT 2
Date 11/10/82 Time 3 50 PM

MS Line R Bank is isolated

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A B/C
RCS Flow loop A 25 % B 2.5 % C 0 %

T-Hot/T-Cold Loop A 498/482 °F B 493/482 °F C 564/528 °F
Pressurizer (Liq/Gas) 655/655 °F Level 52 % Press. 2200 psig
PRT Temp. 80 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment
Pressure 9 psia CS Pump
Temperature [illegible] °F Pres.
Sump Level 7 % A 0
Sump Temp 57 °F B 0

Core Cooling
Core Thermocouples
Avg 505 °F
Peak 1250 °F Location K5 L6

Subcooling Monitors
A — psi to Sat/600 °F Superheat
B — psi to Sat/600 °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 30 % B 33 % C 30 %
S/G Pressure A 625 psig B 850 psig C 990 psig
S/G Flow A 24.9 lb/hr B 0 lb/hr C 0 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A OOC 3B OP 2 AVL
AFW Flow S/G A 120 GPM B 0 GPM C 0 GPM

RMS

S/G BD Monitor A/B 115/2450 cpm
Condenser Air Ejector [illegible] cpm
Process Vent (gas) [illegible] cpm
Process Vent (part) [illegible] cpm
Vent Vent (gas) 70 cpm
Vent Vent (part) 70 cpm
Letdown (high/low) 7x10^3/2x10^5 cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ✓ AVL ___ OOC ___
3 OP ___ AVL ✓ OOC ___

Cont/Manipulator 10/50 mr/hr
Aux Bldg-Control Area 1 mr/hr
Aux Bldg-Drumming 1 mr/hr
Sample Room 1 mr/hr
New Fuel 1 mr/hr
Spent Fuel Pit 2 mr/hr
Control Room 21 mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level [illegible] %
CST Level 92 %

Charging Flow 70 GPM
Letdown Flow 45 GPM
VCT Level 33 %

BAST A [illegible] %
BAST B [illegible] %
BAST C 25 %

CCW: Supply HDR A/B [illegible] GPM
Return HDR A/B 70 °F

BAST C [illegible] %

PLANT DATA SHEET — SURRY UNIT 2

Date 11/10/92 Time 4:35 PM

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE 10^-11 AMPS 10^-11 AMPS
SOURCE RANGE 170 CPS 170 CPS

WIND

SPEED 9 MPH
DIRECT. 62 - 67 °
TEMP. 31 °F
Δ T -1.03 °F
σ θ 16 °

PRIMARY SYSTEM

RCS Pressure 2210 psig RCP's Oper. A/B/C
RCS Flow loop A 107 % B 10 % C 10 %

T-Hot/T-Cold Loop A 465/365 °F B 465/465 °F C 465/365 °F
Pressurizer (Liq/Gas) 653/653 °F Level 25 % Press. 2285 psig
PRT Temp. 80 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 9 psia CS Pump
Temperature 100 °F Pres.
Sump Level 7 % A 0
Sump Temp 99 °F B 0

SECONDARY COOLANT SYSTEM

S/G Levels A 36% % B 34 % C 30 %
S/G Pressure A 860 psig B 880 psig C 870 psig
S/G Flow A 760 lb/hr B 0 lb/hr C 0 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A OOC 3B OP 2 AVL
AFW Flow S/G A 100 GPM B 0 GPM C 0 GPM

Core Cooling

Core Thermocouples
Avg 475 °F
Peak 490 °F Location K5

Subcooling Monitors
A 589 psi to Sat/ — °F Superheat
B 589 psi to Sat/ — °F Superheat

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 57 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ___ AVL ✓ OOC ___
3 OP ___ AVL ✓ OOC ___

RMS

S/G BD Monitor A/B	110/2550	cpm
Condenser Air Ejector	150	cpm
Process Vent (gas)	105	cpm
Process Vent (part)	100	cpm
Vent Vent (gas)	70	cpm
Vent Vent (part)	90	cpm
Letdown (high/low)	2465/2505	cpm

Cont/Manipulator	1/50	mr/hr
Aux Bldg-Control Area	1	mr/hr
Aux Bldg-Drumming	1	mr/hr
Sample Room	1	mr/hr
New Fuel	1	mr/hr
Spent Fuel Pit	2	mr/hr
Control Room	<1	mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level 100 %
CST Level 97 %

Charging Flow 50 GPM
Letdown Flow 120 GPM
VCT Level 50 %

BAST A 80 %
BAST B 75 %
BAST C 75 %

CCW: Supply HDR A/B 600 GPM
Return HDR A/B 120 °F
before

NUCLEAR INSTRUMENTATION

POWER RANGE 0 % 0 % 0 % 0 %
INTR. RANGE 10^-11 AMPS 10^-11 AMPS
SOURCE RANGE 1x10^5 CPS 1x10^5 CPS

WIND

SPEED 11 MPH
DIRECT. 2.. 65°
TEMP. 25 °F
Δ T -1.2 °F
σ θ 19 °

PLANT DATA SHEET — SORRY UNIT 2

Date 1/12/22 Time 9:45

Hi now 7:00pm
RCS to S. RHR

PRIMARY SYSTEM

RCS Pressure 315 psig RCP's Oper. A/B/C
RCS Flow loop A 100 % B 10 % C 10 %

T-Hot/T-Cold Loop A 310/310 °F B 310/310 °F C 310/310 °F
Pressurizer (Liq/Gas) 310/310 °F Level 100 % Press. 310 psig
PRT Temp. 50 °F Level 0 % Press 3 psig
Safety Valves Open/Closed
PROV's Open/Closed
Other

Containment

Pressure 9 psia CS Pump
Temperature 100 °F Pres.
Sump Level 7 % A 0
Sump Temp 99 °F B 0

Core Cooling

Core Thermocouples
Avg 315 °F
Peak 319 °F Location K5

Subcooling Monitors
A 227 psi to Sat/— °F Superheat
B 227 psi to Sat/— °F Superheat

SECONDARY COOLANT SYSTEM

S/G Levels A 30 % B 35 % C 30 %
S/G Pressure A 100 psig B 100 psig C 100 psig
S/G Flow A 0 lb/hr B 0 lb/hr C 0 lb/hr
S/G Feed A 0 lb/hr B 0 lb/hr C 0 lb/hr
Aux. Feed Pump 3A OOC 3B AVL 2 AVL
AFW Flow S/G A 0 GPM B 0 GPM C 0 GPM

RMS

S/G BD Monitor A/B	110/2400 cpm
Condenser Air Ejector	60 cpm
Process Vent (gas)	100 cpm
Process Vent (part)	100 cpm
Vent Vent (gas)	60 cpm
Vent Vent (part)	70 cpm
Letdown (high/low)	100/100 cpm

ENGINEERED SAFEGUARDS

COLD/HOT LEG SI A 0 GPM B 0 GPM C 0 GPM
LHSI Flow A 0 GPM B 0 GPM
Accumulator Level A 57 % B 57 % C 570 %
IRS A AVL B AVL
ORS A AVL B AVL

Emergency Diesel Generators (EDG) 1 OP ___ AVL ✓ OOC ___
2 OP ___ AVL ✓ OOC ___
3 OP ___ AVL ✓ OOC ___

Cont/Manipulator	10/30 mr/hr
Aux Bldg-Control Area	1 mr/hr
Aux Bldg-Drumming	1 mr/hr
Sample Room	11 mr/hr
New Fuel	1 mr/hr
Spent Fuel Pit	1 mr/hr
Control Room	<1 mr/hr

Other:

AUXILIARY SYSTEMS

RWST Level 102 %
CST Level 90 %

Charging Flow 30 GPM
Letdown Flow 0 GPM
VCT Level 30 %

BAST A 20 %
BAST B 10 %
BAST C 15 %

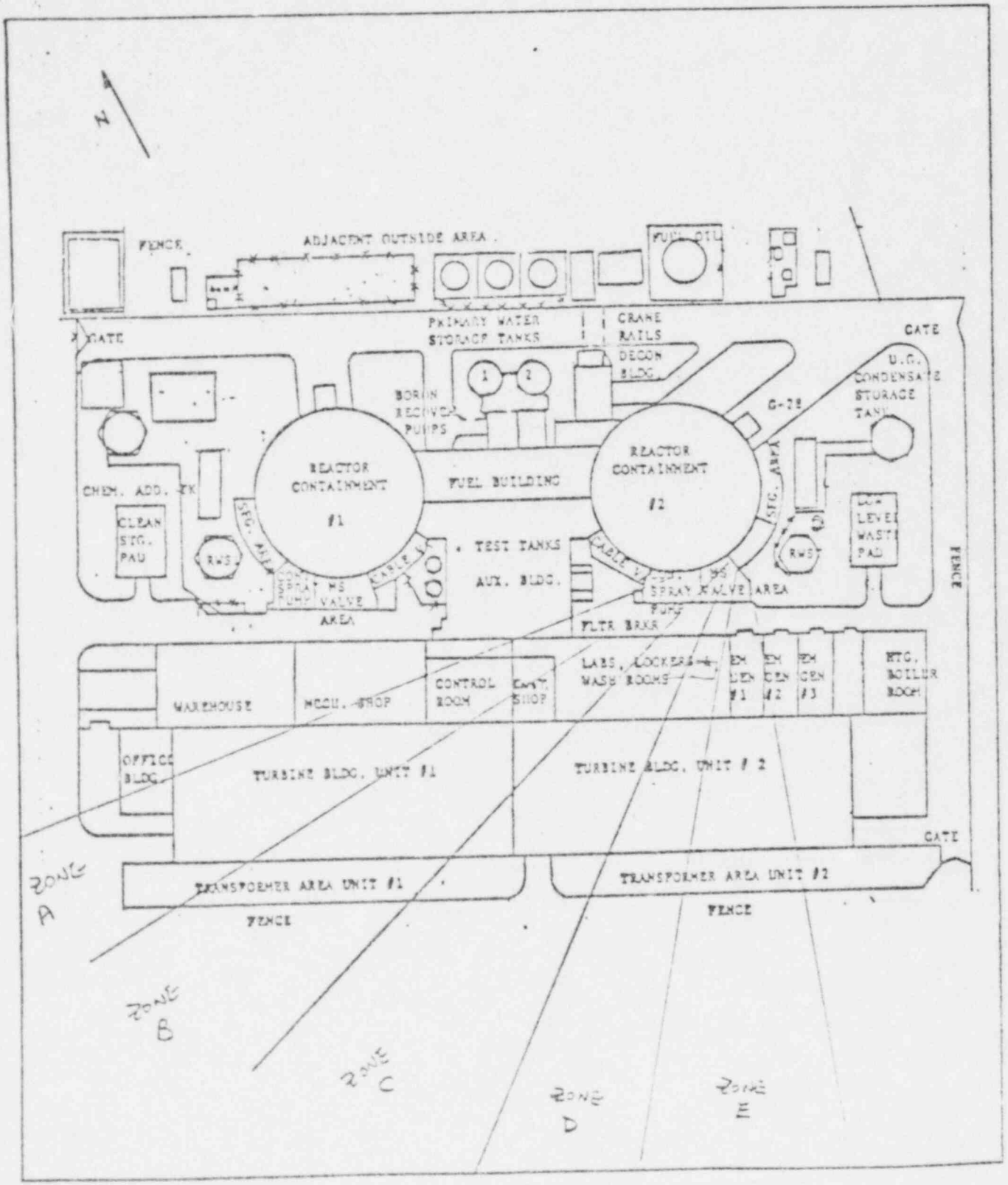
CCW: Supply HDR A/B 6000 GPM
Return HDR A/B 70 °F
Isolated

APPENDIX B

Onsite In-Plant Doses

Inside Buildings

ONSITE PROTECTED AREA MAP



Time: 9:30 to 2:49

Onsite In-Plant Doses - Inside Buildings

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	µCi/cc)
A	<1	0	0
B	<1	0	0
C	<1	0	0
D	<1	0	0
E	<1	0	0

Note: Above values do not apply to control room or counting/analysis rooms

Time: 2:50 to 3:14

Onsite In-Plant Doses - Inside Buildings

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm)	Thyroid Dose (μCi/cc)
A	5	4×10^{2}	1.2×10^{-8}
B	20	5×10^{3}	1.6×10^{-7}
C	31	9.5×10^{4}	3.02×10^{-6}
D	6	5×10^{3}	1.6×10^{-7}
E	2	4×10^{2}	1.2×10^{-8}

Note: Above values do not apply to control room or counting/analysis rooms

Time: 3:15 to 3:44

Onsite In-Plant Doses - Inside Buildings

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm)	Thyroid Dose (μCi/cc)
A	7	1.8×10^{3}	5.7×10^{-8}
B	18	2.9×10^{4}	9.2×10^{-7}
C	32	2.93×10^{5}	9.3×10^{-6}
D	8	2.9×10^{4}	9.2×10^{-7}
E	1	1.8×10^{3}	5.7×10^{-8}

Note: Above values do not apply to control room or counting/analysis rooms

Time: 3:45 to 4:14

Onsite In-Plant Doses - Inside Buildings

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm)	Thyroid Dose (μCi/cc)
A	< 1	0	0
B	2	1.5×10^{2}	4.6×10^{-9}
C	3	2.9×10^{3}	9.3×10^{-8}
D	2	1.5×10^{2}	4.6×10^{-9}
E	< 1	0	0

Note: Above values do not apply to control room or counting/analysis rooms

Time: 4:15 to 4:44

Onsite In-Plant Doses - Inside Buildings

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm)	Thyroid Dose (μCi/cc)
A	<1	0	0
B	<1	195	6.2×10^{-9}
C	<1	230	7.3×10^{-9}
D	<1	195	6.2×10^{-9}
E	<1	0	0

Note: Above values do not apply to control room or counting/analysis rooms

Time: 4:45 to 4:54

Onsite In-Plant Doses - Inside Buildings

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	µCi/cc)
A	<1	0	0
B	<1	0	0
C	<1	0	0
D	<1	0	0
E	<1	0	0

Note: Above values do not apply to control room or counting/analysis rooms

Time: 7:00

Onsite In-Plant Doses

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm)	Thyroid Dose (µCi/cc)
A	<1	0	0
B	<1	0	0
C	<1	0	0
D	<1	0	0
E	<1	0	0

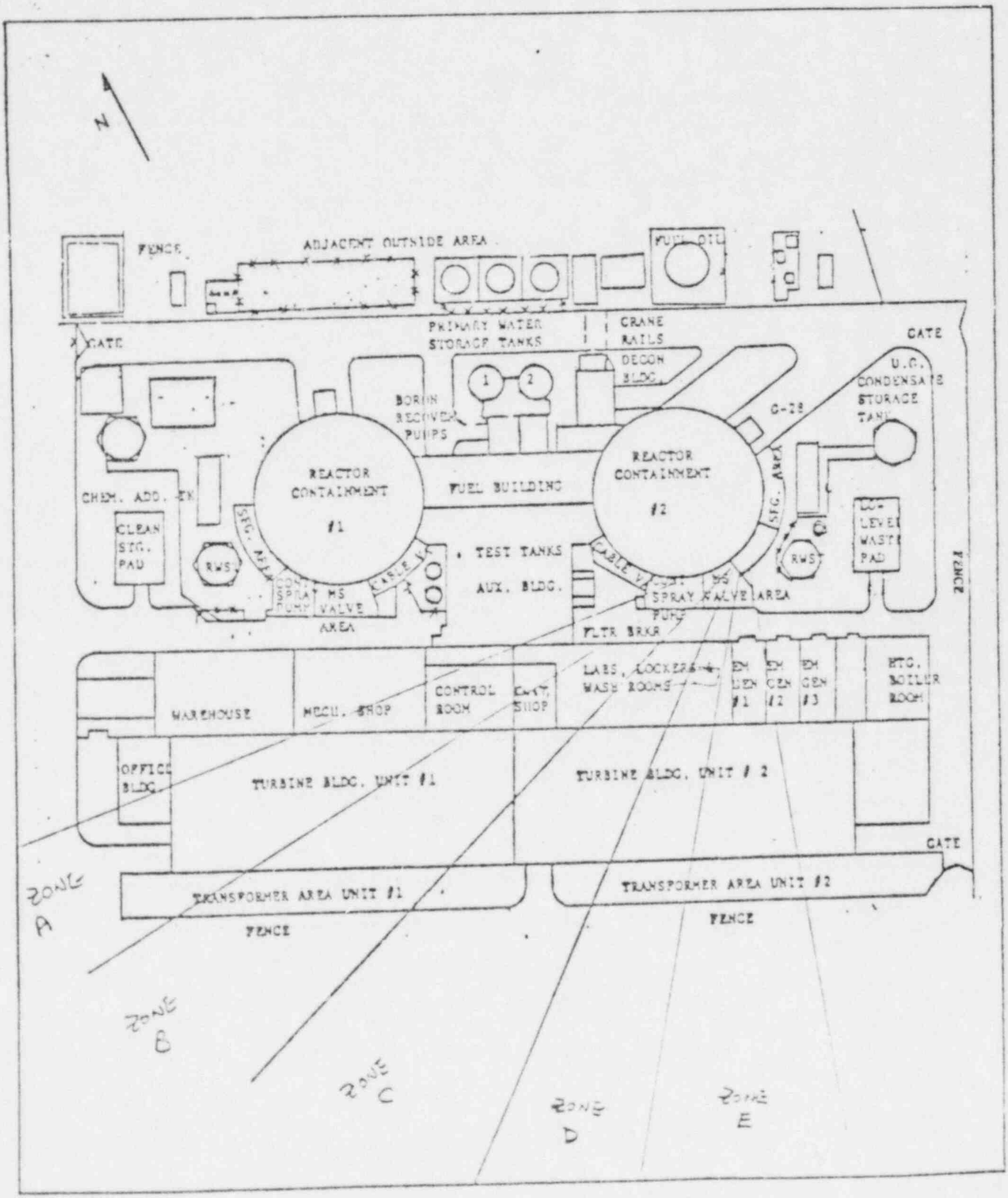
Note: Above values do not apply to control room or counting/analysis rooms

APPENDIX B1

Onsite Plant Dose

Outside Buildings

ONSITE PROTECTED AREA MAP



Time: 9:30 to 2:49

Onsite Plant Doses - Outside Buildings

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	µCi/cc)
A	< 1	0	0
B	< 1	0	0
C	< 1	0	0
D	< 1	0	0
E	< 1	0	0

Time: 2:50 to 3:54

Onsite Plant Doses - Outside Buildings

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	µCi/cc)
A	10	1×10^5	3.2×10^{-6}
B	23	1.4×10^5	4.4×10^{-6}
C	80	5×10^5	1.6×10^{-5}
D	17	1×10^5	3.2×10^{-6}
E	7	5×10^4	1.6×10^{-6}

Time: 3:55 to 4:14

Onsite Plant Doses - Outside Buildings

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm)	Thyroid Dose (μCi/cc)
A	1	60	1.9×10^{-9}
B	3	78	2.5×10^{-9}
C	15	260	8.3×10^{-9}
D	5	62	2×10^{-9}
E	2	48	1.5×10^{-9}

Time: 4:15 to 4:44

Onsite Plant Doses - Outside Buildings

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm)	Thyroid Dose (μCi/cc)
A	< 1	48	1.5×10^{-9}
B	1.5	79	2.4×10^{-9}
C	4.5	215	6.8×10^{-9}
D	< 1	77	2.4×10^{-9}
E	< 1	50	1.6×10^{-9}

Time: 4:45 to 4:54

Onsite Plant Doses - Outside Buildings

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm)	Thyroid Dose (μCi/cc)
A	< 1	0	
B	< 1	45	1.4×10^{-9}
C	2.5	85	2.7×10^{-9}
D	1	50	1.6×10^{-9}
E	< 1	0	

Time: 7:00

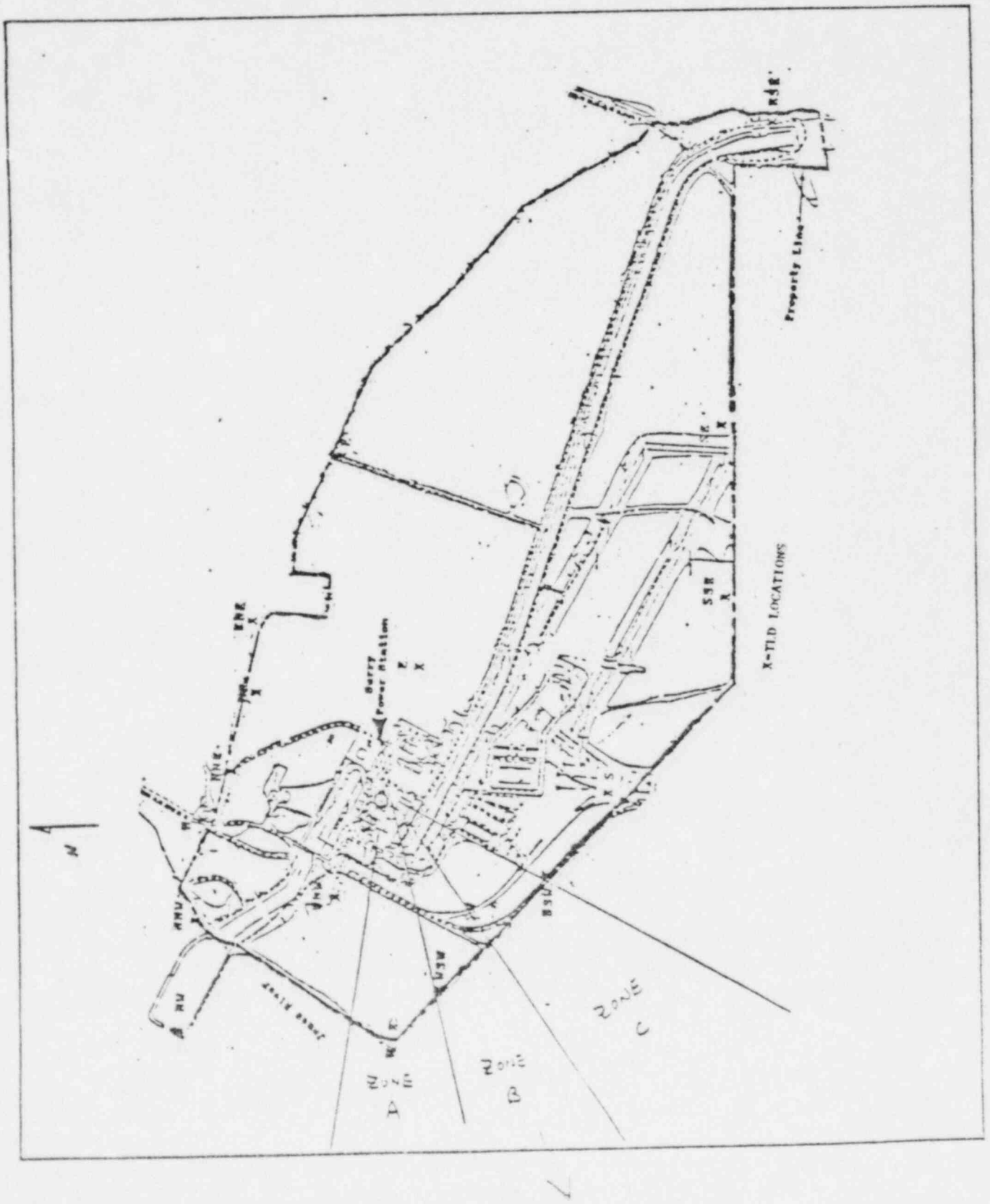
Onsite Plant Doses - Outside Buildings

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	µCi/cc)
A	< 1	0	0
B	< 1	0	0
C	< 1	0	0
D	< 1	0	0
E	< 1	0	0

APPENDIX C

Onsite Out-Of-Plant Doses

SITE BOUNDARY MAP



Time: 9:30 to 2:49

Onsite Out-Of-Plant Doses

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm)	Thyroid Dose (µci/cc)
A	< 1	0	0
B	< 1	0	0
C	< 1	0	0

Time: 2:50 to 3:55

Onsite Out-Of-Plant Doses

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm)	Thyroid Dose (μci/cc)
A	21	1.29×10^{5}	4×10^{-6}
B	73	4.5×10^{5}	1.4×10^{-5}
C	15	9.19×10^{4}	2.9×10^{-6}

Time: 3:55 to 4:14

Onsite Out-Of-Plant Doses

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm)	Thyroid Dose (μci/cc)
A	2	71	2.22×10^{-9}
B	10	235	7.4×10^{-9}
C	3	56	1.8×10^{-9}

Time: 4:15 to 4:44

Onsite Out-Of-Plant Doses

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm)	Thyroid Dose (μci/cc)
A	1	72	2.2×10^{-9}
B	4	195	6.2×10^{-9}
C	1	70	2.1×10^{-9}

Time: 4:45 to 4:54

Onsite Out-Of-Plant Doses

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm)	Thyroid Dose (µci/cc)
A	< 1	0	0
B	2	78	2.4×10^{-9}
C	1	0	0

Time: 7:00

Onsite Out-Of-Plant Doses

Location (Zone)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	µci/cc)
A	< 1	0	0
B	< 1	0	0
C	< 1	0	0

APPENDIX D

Offsite Doses

Time: 2:50 to 3:14

Offsite Doses

Location (Distance	Sector)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	μci/cc)
SITE BOUND - 0.99	L	5	3.5×10^4	1.1×10^{-6}
	M	11	6.9×10^4	2.2×10^{-6}
	N	5	3.2×10^4	1.0×10^{-6}
1.0 - 1.99	L	1	5,100	1.6×10^{-7}
	M	2	9,800	3.1×10^{-7}
	N	1	4,600	1.5×10^{-7}
2.0 - 2.99	L	< 1	1,200	3.8×10^{-8}
	M	< 1	2,940	9.3×10^{-8}
	N	< 1	1,100	3.5×10^{-8}
3.0 - 3.99	L	< 1	750	2.4×10^{-8}
	M	< 1	1,470	4.7×10^{-8}
	N	< 1	570	1.8×10^{-8}
4.0 - 4.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
5.0 - 5.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
6.0 - 6.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0

Time: 2:50 to 3:14

Offsite Doses

Location (Distance	Sector)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	μ ci/cc)
7.0 - 7.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
8.0 - 8.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
9.0 - 9.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
10.0 - 10.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0

Time: 3:15 to 3:44

Offsite Doses

Location (Distance	Sector)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	μci/cc)
Site Bound-0.99	L	5	3.0×10^{4}	9.5×10^{-7}
	M	11	6.9×10^{4}	2.2×10^{-6}
	N	5	3.8×10^{4}	1.2×10^{-6}
1.0-1.99	L	1	5,000	1.6×10^{-7}
	M	2	9,800	3.1×10^{-7}
	N	1	4,500	1.4×10^{-7}
2.0-2.99	L	< 1	1,100	3.5×10^{-8}
	M	< 1	2,940	9.3×10^{-8}
	N	< 1	900	2.9×10^{-8}
3.0-3.99	L	< 1	700	2.2×10^{-8}
	M	< 1	1,470	4.7×10^{-8}
	N	< 1	550	1.7×10^{-8}
4.0-4.99	L	< 1	300	9.5×10^{-9}
	M	< 1	850	2.7×10^{-8}
	N	< 1	350	1.1×10^{-8}
5.0-5.99	L	< 1	250	8.0×10^{-9}
	M	< 1	620	2.0×10^{-8}
	N	< 1	220	7.0×10^{-9}
6.0-6.99	L	< 1	200	6.4×10^{-9}
	M	< 1	440	1.4×10^{-8}
	N	< 1	150	4.8×10^{-9}

Time: 3:15 to 3:44

Offsite Doses

Location (Distance	Sector)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	μ ci/cc)
7.0-7.99	L	< 1	120	3.8×10^{-9}
	M	< 1	370	1.2×10^{-8}
	N	< 1	100	3.2×10^{-9}
8.0-8.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
9.0-9.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
10.0-10.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0

Time: 3:45 to 4:14

Offsite Doses

Location (Distance	Sector)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	μci/cc)
Site Bound 0.99	L	5	3.2×10^{4}	1.0×10^{-6}
	M	11	6.9×10^{4}	2.2×10^{-6}
	N	5	3.5×10^{4}	1.1×10^{-6}
1.0-1.99	L	1	4,500	1.4×10^{-7}
	M	2	9,800	3.1×10^{-7}
	N	1	5,000	1.6×10^{-7}
2.0-2.99	1	< 1	900	2.9×10^{-8}
	M	< 1	2,940	9.3×10^{-8}
	N	< 1	1,100	3.5×10^{-8}
3.0-3.99	L	< 1	580	1.8×10^{-8}
	M	< 1	1,470	4.7×10^{-8}
	N	< 1	670	2.1×10^{-8}
4.0-4.99	L	< 1	320	1.0×10^{-8}
	M	< 1	850	2.7×10^{-8}
	N	< 1	290	9.2×10^{-9}
5.0-5.99	L	< 1	210	6.7×10^{-9}
	M	< 1	620	2.0×10^{-8}
	N	< 1	250	8.0×10^{-9}
6.0-6.99	L	< 1	150	4.8×10^{-9}
	M	< 1	440	1.4×10^{-8}
	N	< 1	200	6.4×10^{-9}
7.0-7.99	L	< 1	100	3.18×10^{-9}

Time: 3:45 to 4:14

Offsite Doses (cont'd)

Location (Distance	Sector)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	μ ci/cc)
	M	<1	370	1.2×10^{-8}
	N	<1	120	3.8×10^{-9}
8.0-8.99	L	<1	100	3.2×10^{-9}
	M	<1	275	8.8×10^{-9}
	N	<1	95	3.0×10^{-9}
9.0-9.99	L	<1	90	2.9×10^{-9}
	M	<1	230	7.3×10^{-9}
	N	<1	100	3.2×10^{-9}
10.0-10.99	L	<1	65	2.1×10^{-9}
	M	<1	195	6.2×10^{-9}
	N	<1	50	1.6×10^{-9}

Time: 4:15 to 4:44

Offsite Doses

Location (Distance	Sector)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	µci/cc
SITE BOUND - 0.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
1.0 - 1.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
2.0 - 2.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
3.0 - 3.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
4.0 - 4.99	L	< 1	310	9.9×10^{-9}
	M	< 1	850	2.7×10^{-8}
	N	< 1	280	8.9×10^{-9}
5.0 - 5.99	L	< 1	240	7.6×10^{-9}
	M	< 1	620	2.0×10^{-8}
	N	< 1	210	6.7×10^{-9}
6.0 - 6.99	L	< 1	170	5.4×10^{-9}
	M	< 1	440	1.4×10^{-8}

Time: 4:15 to 4:44

Offsite Doses

Location (Distance	Sector)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	μci/cc)
	N	< 1	190	6.0×10^{-9}
7.0 - 7.99	L	< 1	110	3.5×10^{-9}
	M	< 1	370	1.2×10^{-8}
	N	< 1	120	3.8×10^{-9}
8.0 - 8.99	L	< 1	95	3.0×10^{-9}
	M	< 1	275	8.8×10^{-9}
	N	< 1	100	3.2×10^{-9}
9.0 - 9.99	L	< 1	90	2.8×10^{-9}
	M	< 1	230	7.3×10^{-9}
	N	< 1	80	2.5×10^{-9}
10.0 - 10.99	L	< 1	62	2.0×10^{-9}
	M	< 1	195	6.2×10^{-9}
	N	< 1	45	1.4×10^{-9}

Time: 4:45 to 4:54

Offsite Doses

Location (Distance	Sector)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	μ ci/cc)
Site Bound -0.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
1.0-1.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
2.0-2.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
3.0-3.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
4.0-4.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
5.0-5.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
6.0-6.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0

Time: 4:45 to 4:54

Offsite Doses

Location (Distance	Sector)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	µci/cc)
7.0-7.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
8.0-8.99	L	< 1	90	2.9×10^{-9}
	M	< 1	275	8.8×10^{-9}
	N	< 1	80	2.5×10^{-9}
9.0-9.99	L	< 1	78	2.5×10^{-9}
	M	< 1	230	7.3×10^{-9}
	N	< 1	75	2.4×10^{-9}
10.0-10.99	L	< 1	43	1.4×10^{-9}
	M	< 1	195	6.2×10^{-9}
	N	< 1	61	1.9×10^{-9}

Time: 7:00

Offsite Doses

Location (Distance	Sector)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	µci/cc)
Site Bound-0.99	L	<1	0	0
	M	<1	0	0
	N	<1	0	0
1.0-1.99	L	<1	0	0
	M	<1	0	0
	N	<1	0	0
2.0-2.99	L	<1	0	0
	M	<1	0	0
	N	<1	0	0
3.0-3.99	L	<1	0	0
	M	<1	0	0
	N	<1	0	0
4.0-4.99	L	<1	0	0
	M	<1	0	0
	N	<1	0	0
5.0-5.99	L	<1	0	0
	M	<1	0	0
	N	<1	0	0
6.0-6.99	L	<1	0	0
	M	<1	0	0
	N	<1	0	0

Time: 7:00

Offsite Doses

Location (Distance	Sector)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	μci/cc)
Site Bound-0.99	L	<1	0	0
	M	<1	0	0
	N	<1	0	0
1.0-1.99	L	<1	0	0
	M	<1	0	0
	N	<1	0	0
2.0-2.99	L	<1	0	0
	M	<1	0	0
	N	<1	0	0
3.0-3.99	L	<1	0	0
	M	<1	0	0
	N	<1	0	0
4.0-4.99	L	<1	0	0
	M	<1	0	0
	N	<1	0	0
5.0-5.99	L	<1	0	0
	M	<1	0	0
	N	<1	0	0
6.0-6.99	L	<1	0	0
	M	<1	0	0
	N	<1	0	0

Time: 7:00

Offsite Doses

Location (Distance	Sector)	Whole Body Dose (MR/HR)	Thyroid Dose (cpm	µ ci/cc)
7.0-7.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
8.0-8.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
9.0-9.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0
10.0-10.99	L	< 1	0	0
	M	< 1	0	0
	N	< 1	0	0

APPENDIX E

Controller Messages

Message No. 1

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATORS
SHIFT SUPV.

Date: 11/10 Time: 9:30 AM

MESSAGE:

This is a Drill

Unit 2 is operating at 100% power (MOL; Boron Concentration: 500 ppm). All safety systems are operable. Pressurizer PORV's and main steam PORV's are isolated. Unit 1 is in the last day of a 7 day outage for overhauling of the charging pumps and snubber inspection. SW Transformer 1 (15G1) is out for maintenance. S/G "A & B" are aligned to BD Monitor "A". S/G "C" is aligned to BD Monitor "B".

The sky is overcast. Stability class is D. Winds are 15 mph from East-Northeast (60° to 65°). The 32 ft temperature is 80°F. A tropical storm off the coast of North and South Carolina has developed into a hurricane overnight and is headed in the North - Northeast direction.

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
None - initial conditions	
	Deliver to:

Message No. 2

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR Date: 11/10 Time: 9:40 AM

MESSAGE :

This is a Drill

Eastern and Southeastern Virginia are under a Hurricane Watch. The area under the Watch includes Surry County.

This is a Drill

FROM: System Operator (Lead controller)

Expected Actions:	Controllers Evaluation/Comments:
Declare Unusual Event	
	Deliver to:

Message No. 3

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR | Date: 11/10 Time: 10:00 AM

MESSAGE:

This is a Drill

Activities on S/G Blowdown and Condenser Air Ejectors are increasing.

Air Ejector	500 cpm
S/G Bldn A	100 cpm
S/G Bldn B	1000 cpm

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
Start investigation to determine cause. Determine RCS Leakage rate and request RCS & S/G Blowdown samples. See Message 3C	Deliver to: _____

Message No. 3C

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: SHIFT SUPV. Date: 11/10 Time: 10:05 AM

MESSAGE:

This is a Drill

Initiate RCS Lead Rate Periodic Test. Request RCS and S/G sample analysis.

In the event an air ejector radiation sample is requested the results are:

Time of Collection: 10:20 AM

Kr-85 Equivalent 2.5×10^{-2} µCi/cc
Xe-133 Equivalent 4.9×10^{-3} µCi/cc
I-131 Equivalent $< 1 \times 10^{-11}$ µCi/cc

Dose Rates at 1 foot from collected samples:

Gas Sample - 0.06 mR/hr
Iodine Cartridge - <0.02 mR/hr

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
None - contingency	
	Deliver to:

Message No. 4

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR | Date: 11/10 Time: 10:15 AM

MESSAGE:

This is a Drill

S/G "C" Blowdown - sample results are:

Co60 - 1.6×10^{-6} µCi/cc
Co57 - 4.1×10^{-7} µCi/cc
Cs137- 1.6×10^{-7} µCi/cc
I 131- 1.2×10^{-7} µCi/cc

Dose rate at 1 foot from collected sample: < 0.01 mR/hr

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
	Deliver to: _____

Message No. 5

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: SHIFT SUPV. | Date: 11/10 Time: 10/20 AM

MESSAGE:

This is a Drill

A Chem Tech is seriously injured at (location). His left arm and hand are cut from broken sample containers - possibly contaminated. He is conscious, but appears to be having severe chest pains. I think the guy may have had a heart attack.

This is a Drill

FROM: Auxiliary Building Operator

Expected Actions:	Controllers Evaluation/Comments:
Dispatch First-Aid Team	
	Deliver to:

Message No. 6

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: SHIFT SUPV. Date: 11/10 Time: 10:40 AM

MESSAGE:

This is a Drill

The ambulance has departed from the site with the injured Chem Tech.

This is a Drill

FROM: First Aid Team Leader

Expected Actions:	Controllers Evaluation/Comments:
Declare a second UNUSUAL EVENT.	
	Deliver to:

Message No. 7

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: SHIFT SUPV. Date: 11/10 Time: 11:00 AM

MESSAGE:

This is a Drill

Results of the RCS Leak Rate Test indicate 0.2 gpm unidentified leakage. Chem analysis of RCS and S/G's indicate 0.1 gpm primary to secondary leak on S/G "C"; negligable for S/G "A and B".

This is a Drill

FROM: Chem Tech and Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
	Deliver to: _____

Message No. 8

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR

Date: 11/10 Time: 11:30 AM

MESSAGE:

This is a Drill

NI - 41 fuse is blown, initiating turbine runback to 70%.
Reactor did not trip. Steam Dump to condenser operated okay.

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
	Deliver to:

Message No. 9

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR | Date: 11/10 Time: 11:40 AM

MESSAGE:

This is a Drill

RCP C Vibration Alarm initiates.
Vibration recorder indicates very high vibration.

RCP C Trip Alarm initiated (O/C).

Reactor and turbine/generator trip.

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
	Deliver to: _____

Message No. 10

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR | Date: 11/10 Time: 11/41 AM

MESSAGE:

This is a Drill

Letdown Radiation Monitors alarm. They peak at 2×10^4 cpm, then steady out at 5×10^3 cpm.

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
	Deliver to: _____

Message No. 11

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR | Date: 11/10 Time: 11:50 AM

MESSAGE :

This is a Drill

34.5 KV Bkr LT12 Trip Alarm initiates.

4160 v Bus A, B, 2G, 2H Emergency U/V alarms.

No. 2 DG starts and satisfactorily re-energizes Bus 2H.

Aux. FW starts and operates satisfactorily. S/G Blowdown isolates all loads from A & B Bus de-energized.

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
Shift Supr. should dispatch operator to unisolate MS PORV's. See Message 11c. Direct operator to investigate cause of power loss.	Deliver to: _____

Message No. 11C

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: SHIFT SUPV. | Date: 11/10 Time: 11:55 AM

MESSAGE :

This is a Drill

Direct an Equipment Operator to open MS PORV isolation valves.

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
None - contingency	
	Deliver to:

Message No. 12

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR | Date: 11/10 Time: 12:00 Noon

MESSAGE:

This is a Drill

Isolation valves to MS PORV's are open.

This is a Drill

FROM: Equipment Operator

Expected Actions:	Controllers Evaluation/Comments:
Switch Steam dump to MS PORV's due to loss of condenser vacuum - circ pumps de-energized.	Deliver to: _____

Message No. 13

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR | Date: 11/10 Time: 12:10 PM

MESSAGE:

This is a Drill

Subcooled margin alarm comes in.

Letdown monitors read 10^4 cpm.

Suffolk repair crew on its way to repair 34.5 KV Bus. Fire Hose Station #18 roof blew off and caused fault on the bus.

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
Shift Supv. request RCS sample analysis. See Message 13C	
	Deliver to:

Message No. 13C

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: SHIFT SUPV. Date: 11/10 Time: 12:10 PM

MESSAGE:

This is a Drill

Request RCS sample analysis.

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
None - contingency	
	Deliver to: _____

Message No. 14

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR | Date: 11/10 Time: 12:20 PM

MESSAGE:

This is a Drill

Letdown RM's in alarm and reading 10^5 cpm.

Suffolk repair crew estimates 4 - 5 hours to get 34.5 KV Bus 5 back in service.

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
	Deliver to: _____

Message No. 15

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: SHIFT SUPV. | Date: 11/10 Time: 12:30 PM

MESSAGE:

This is a Drill

RCS activity is 260 µCi/gm I-131 dose equivalent.

Other data:
I-131 137 µCi/gm
I-132 201 µCi/gm
I-133 315 µCi/gm
I-134 367 µCi/gm
I-135 291 µCi/gm
Cs-134 320 µCi/gm
Cs-137 411 µCi/gm

RMS-156 reading before entry into sample room: 36 mR/hr
Dose rate at 1 foot from unshielded sample = 1.32 R/hr
Dose rate at 1 foot from unshielded sample diluted 1:1,000: 1.3mR/hr
Dose rate at 1 foot from unshielded sample diluted 1:10^6: 0.01mR/hr
Dose rate at 1 foot from original sample shielded in "Pig": 27 mR/hr

This is a Drill

FROM: Chem Tech

Expected Actions:	Controllers Evaluation/Comments:
Shift Supv. should declare ALERT. Isolate MS line C PORV - See Message 15C	Deliver to: _____

Message No. 15C

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: SHIFT SUPV. Date: 11/10 Time: 12:30 PM

MESSAGE:

This is a Drill

Dispatch an Equipment Operator to isolate MS line C PORV.

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
None - contingency	
	Deliver to:

Message No. 16

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR | Date: 11/10 Time: 12:35 PM

MESSAGE:

This is a Drill

MS line C PORV is isolated.

This is a Drill

FROM: Equipment Operator.

Expected Actions:	Controllers Evaluation/Comments:
	Deliver to: _____

Message No. 17

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR

Date: 11/10 Time: 1:30 PM

MESSAGE:

This is a Drill

MDAFWPump 3A trip alarm comes in.

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
	Deliver to: _____

Message No. 18

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: DC Team Leader | Date: 11/10 Time: 1:40 PM

MESSAGE:

This is a Drill

MDAFWP 3A Motor is slightly smoking at the pump end bearing and has loosened its motor mounts. The pump shaft is not free to move.

This is a Drill

FROM: Controller

Expected Actions:	Controllers Evaluation/Comments:
	Deliver to:

Message No. 19

SET-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR | Date: 11/10 Time: 2:45 PM

MESSAGE:

This is a Drill

S/G "B" level has promptly increased in level from 30% to 33% and pressure from 730# to 750#.

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
Dispatch operator to check reading on MS line B Hi - Range RM. - See Message 19C	
	Deliver to:

Message No. 19C

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: SHIFT SUPV. | Date: 11/10 Time: 2:45 PM

MESSAGE :

This is a Drill

Dispatch operator to check reading on MS line B Hi-Range RM.

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
None - contingency	
	Deliver to: _____

Message No. 20

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR | Date: 11/10 Time: 2:50 PM

MESSAGE:

This is a Drill

Attempts to close MS line B PORV fail.

MS line B Hi-Range RM indicates 2×10^{-1} mR/hr.

This is a Drill

FROM: Operator/Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
Shift Supervisor should declare SITE EMERGENCY, Dispatch operator to isolate MS line B PORV - See Message 20C Dispatch maintenance to PORV.	Deliver to: _____

Message No. 20C

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: SHIFT SUPV. | Date: 11/10 Time: 2:50 PM

MESSAGE:

This is a Drill

Dispatch an operator to isolate MS line B PORV.

Dispatch maintenance to fix PORV.

If a post accident RCS Sample is requested.

Results are:

I-131	2340	µCi/gm
I-132	3410	µCi/gm
I-133	5360	µCi/gm
I-134	6240	µCi/gm
I-135	4950	µCi/gm
Cs-134	900	µCi/gm
Cs-137	4960	µCi/gm

RMS-156 reading before entry into sample room :550mR/hr

Dose rate at 1 foot from unshielded sample = 20 R/hr
Dose rate at 1 foot from unshielded sample diluted 1:1,000: 20mR/hr
Dose rate at 1 foot from unshielded sample diluted 1:10⁶: 0.02mR/hr
Dose rate at 1 foot from original sample shielded in "Pig": 0.6 R//hr

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
None - contingency	
	Deliver to: _____

Message No. 21

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR

Date: 11/10 Time: 3:00 PM

MESSAGE:

This is a Drill

As the MS line B PORV isolation valve nears the closed seat, the handwheel on MS line B PORV isolation valve is broken off the valve stem. Steam continues to "weep" from the valve. Venting air at the PORV will not close the PORV.

This is a Drill

FROM: Operator (@ PORV)

Expected Actions:	Controllers Evaluation/Comments:
	Deliver to: _____

Message No. 22

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR | Date: 11/10 Time: 3:15 PM

MESSAGE:

This is a Drill

The spring on the MS line B PORV is broken, causing the valve to remain open.

This is a Drill

FROM: Maintenance (@ PORV)

Expected Actions:	Controllers Evaluation/Comments:
	Deliver to: _____

Message No. 23

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR | Date: 11/10 Time: 3:50 PM

MESSAGE:

This is a Drill

The isolation valve to MS line B PORV is closed. Maintenance closed it with a wrench.

This is a Drill

FROM: Operator (@ PORV)

Expected Actions:	Controllers Evaluation/Comments:
	Deliver to:

Message No. 24

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: SHIFT SUPV. Date: 11/10 Time: 4:00 PM

MESSAGE:

This is a Drill

The Suffolk repair crew has repaired 34.5 KV Bus 5. LT12 is closed and 4.16 KV Buses A, B, and 2G are restored to service.

This is a Drill

FROM: Operator (at repair location)

Expected Actions:	Controllers Evaluation/Comments:
Start forced circulation cooling of RCS.	
	Deliver to:

Message No. 24C

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: SHIFT SUPV. | Date: 11/10 Time: 4:05 PM

MESSAGE:

This is a Drill

RCP A is restarted.

This is a Drill

FROM: Lead Controller

Expected Actions:	Controllers Evaluation/Comments:
None - contingency	
	Deliver to: _____

Message No. 25

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: CR OPERATOR | Date: 11/10 Time: 4:55 PM

MESSAGE:

This is a Drill

It is now 7:00 PM.

Offsite and onsite monitoring teams now reporting background.

This is a Drill

FROM: All controllers

Expected Actions:	Controllers Evaluation/Comments:
	Deliver to: _____

Message No. 26

SEE-82
CONTROLLER INSTRUCTION/EVALUATION

TO: ALL PARTICIPANTS | Date: 11/10 Time: 5:00 PM

MESSAGE:

This is a Drill

Exercise terminated.

This is a Drill

FROM: All controllers

Expected Actions:	Controllers Evaluation/Comments:
	Deliver to: _____

APPENDIX F

CONTROLLER AND OBSERVER

DUTIES AND RESPONSIBILITIES

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY EMERGENCY EXERCISE

CONTROLLER DUTIES AND RESPONSIBILITIES

1. The Controller will:

   a. Initiate the exercise by providing the emergency conditions either by cue cards, written direction, or verbal communication.

   b. Closely follow the progress of the exercise within his assigned area and keep abreast of the overall progress of the exercise.

   c. If the Controller observes the player going off on a tangent, because of either receiving misleading information or misinterpreting the emergency condition given by the Controller, the Controller can request reevaluation of the data or give minor guidance, but at no time may he lead the player in the resolution of the problem.

   d. The Controller will continue to distribute key emergency information as directed by the Lead Controller.

2. One Controller will be stationed at the following area(s) during the exercise unless otherwise indicated:

   a. Medical Emergency

   b. Remote Assembly Area

   c. Control Room

   d. TSC and Dose Assessment (2)

   e. OSC

   f. EOF and Dose Assessment (2)

   g. Offsite Monitoring Area(s) (2)

   h. HP/Chemistry Office (floater as required)

   i. Security (floater as required)

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY EMERGENCY EXERCISE

OBSERVER DUTIES AND RESPONSIBILITIES

1. The Observer will become knowledgeable of what actions are expected in his assigned area.

2. The Observer will closely monitor the players actions, responses and use of emergency procedures.

3. Observers will note key data on check sheets and make specific remarks of any irregularities observed.

4. The observer will summarize his/her findings and present, or have them presented, at the critique.

5. One observer will be assigned to cover the following areas:

   a. Control Room

   b. Medical Emergency

   c. Health Physics Office/Count Room

   d. HP/Chemistry Office(s)

   e. TSC

   f. OSC

   g. EOF

   h. Offsite Monitoring Area(s)

   i. Security

   j. Public News Center

   k. Remote Assembly Area

   l. Floater as Required

OBSERVER CRITIQUE SHEETS

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY EMERGENCY EXERCISE

CRITIQUE SHEET Q.C. OBSERVER _____

DATE _____

CONTROL ROOM

1. What time/date did the exercise commence?

   Time:_____ Date:_____

2. What time were the following emergency conditions declared and which EAL caused escalation:

   Unusual Event _____ EAL# _____

   Alert _____ EAL# _____

   Site Emergency _____ EAL# _____

   General Emergency _____ EAL# _____

3. Were procedures (AP's, EP's, EPIP's) properly utilized? _____

   _____

4. Was the Control Room properly staffed? _____

5. What time was security called to initiate the call-out process? _____

6. Were Control Room access requirements maintained? _____

7. Were the following EPIP's initiated? If so, what time?

   EPIP-1.01 - 1.04 Yes___ No___ Time _____

   EPIP-2.01 - 2.03 Yes___ No___ Time _____

   EPIP-3.01 - 3.04 Yes___ No___ Time _____

   EPIP-4.01 Yes___ No___ Time _____

   EPIP-5.05 Yes___ No___ Time _____

8. Other major items on attached exercise covered: _____

   _____

   REMARKS: _____

   _____

   _____

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY EMERGENCY EXERCISE

CRITIQUE SHEET

Q. C. OBSERVER_____

DATE_____

MEDICAL EMERGENCY

1. What time was the first aid team called?_____
2. What time did the team arrive at the scene?_____
3. What time was outside help requested?_____
4. What time did offsite rescue squad arrive?_____
5. Was communications established/maintained with the Control Room?_____
6. What time did the victim depart the site for the medical facility?_____
7. Were appropriate procedures followed?_____
8. What time did ambulance arrive at Medical College of Virginia?_____

REMARKS:_____

_____

_____

_____

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY EMERGENCY EXERCISE

CRITIQUE SHEET

Q. C. OBSERVER_____

DATE_____

HEALTH PHYSICS

1. What time was HP notified of emergency?_____
2. What time was EPIP-4.01 initiated?_____
3. Did HP perform required monitoring?_____
4. Was EPIP-4.08 initiated?_____
5. Were calculations performed properly?_____
6. What time(s) were the following EPIP's completed?

   EPIP-4.03 _____

   EPIP-4.15_____

   EPIP-4.16 _____

   EPIP-4.21 _____
7. What time did HP begin to survey and monitor the Auxiliary Bldg.?_____
8. What other HP oriented EPIP's were initiated?_____
9. Did HP accompany the chemist to obtain the high activity samples?_____

REMARKS:_____

_____

_____

_____

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY EMERGENCY EXERCISE

CRITIQUE SHEET

Q. C. OBSERVER_____

DATE_____

CHEMISTRY

1. When was the chemistry technician notified to draw a primary water sample?_____

2. What time(s) were the following EPIP's initiated?

   EPIP-4.23 _____

   EPIP-4.25 _____

   EPIP-4.26 _____

3. Were all requirements of the above listed EPIP's adhered to?_____

4. Did the chemistry technician use the post accident sampling system properly?_____

5. What condition alerted the chemistry technician to use this system?____

   _____

6. What were the highest radiation readings obtained from the sample?_____

   _____

7. Was dilution achieved before the sample was taken to HP for analysis?__

   _____

REMARKS:_____

_____

_____

_____

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY EMERGENCY EXERCISE

CRITIQUE SHEET

Q. C. OBSERVER_____

DATE_____

ONSITE TECHNICAL SUPPORT CENTER (TSC)

1. What time was the TSC manned?_____

2. Was all needed equipment in the TSC operable?_____

3. Was the initiation of data transmitted from the Control Room to the TSC performed in a timely and effective manner?_____

4. What time were monitoring teams alerted?_____

5. Were the following Attachments to EPIP-3.02 initiated? Time?

Attachment 1_____	Time:_____	Attachment 6_____	Time:_____
Attachment 2_____	Time:_____	Attachment 7_____	Time:_____
Attachment 3_____	Time:_____	Attachment 8_____	Time:_____
Attachment 4_____	Time:_____	Attachment 9_____	Time:_____
Attachment 5_____	Time:_____	Attachment 10_____	Time:_____

6. Were all aspects of EPIP-3.02 complied with?_____

7. What time did the Station Emergency Manager transfer Management responsibility to the EOF?_____

8. What time was the Dose Assessment Team Leader directed to report to the Radiological Assessment Coordinator at the EOF?_____

9. What time was accountability ordered?_____ _____

10. What time was site evacuation ordered?_____ _____

11. What time did the Recovery Phase start?_____

REMARKS:_____

_____

_____

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY EMERGENCY EXERCISE

CRITIQUE SHEET

Q. C. OBSERVER_____

DATE_____

OPERATIONS SUPPORT CENTER (OSC)

1. What time was the OSC manned?_____
2. Who assumed the position of OSC Director?_____
3. Was EPIP-3.03, Attachment 1, completed and reported to Security?_____
4. Was a personnel check-in/check-out system initiated?_____
5. What time was the Station Emergency Manager advised that the OSC was activated?_____

REMARKS:_____

_____

_____

_____

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY EMERGENCY EXERCISE

CRITIQUE SHEET

Q. C. OBSERVER_____

DATE_____

EMERGENCY OPERATIONS FACILITY (EOF)

1. What time was the EOF manned by the following individuals?

   Recovery Manager: Name: _____ Time:_____

   Director-Chemistry & HP: Name: _____ Time:_____

   EOF Coordinator: Name: _____ Time:_____

2. What time was communications established with the following:

   Onsite Technical Support Center Time:_____

   Corporate Emergency Response Center Time:_____

   Public News Center Time:_____

3. What time did the Station Emergency Manager transfer management responsibility to the EOF?_____

4. Were facsimile messages transmitted? Yes_____ No_____

   Itemize:_____

   _____

   _____

   _____

REMARKS:_____

_____

_____

_____

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY EMERGENCY EXERCISE

CRITIQUE SHEET

Q. C. OBSERVER_____

DATE_____

HEALTH PHYSICS MONITORING TEAM

1. Was the HP instrumentation verified operable before departing the station?_____

2. Was the vehicle checked (gas, oil, etc.) before departing station?_____

3. What time did team leave the station?_____

4. Was EPIP-4.16 available and complied with?_____

5. Was EPIP-4.19 available and complied with?_____

6. Were radiation levels properly transmitted?_____

7. What were the readings and their locations?_____

Reading:_____ Location:_____

Reading:_____ Location:_____

Reading:_____ Location:_____

Reading:_____ Location:_____

REMARKS:_____

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY EMERGENCY EXERCISE

CRITIQUE SHEET

Q. C. OBSERVER_____

DATE_____

SECURITY

1. What time was Security notified to implement notification of emergency response personnel?_____

2. Were applicable departments listed in EPIP-3.01 contacted?_____

3. List the names of those actually contacted (one from each department).

Name	Department

4. What time was Security notified the station would be evacuated?_____

5. Was EPIP-3.04 (Accivation of EOF) accomplished?_____

6. Was EPIP-5.03 (Personnel Accountability) accomplished?_____

7. Was EPIP-5.04 (Access Control) complied with?_____

REMARKS:_____

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY EMERGENCY EXERCISE

CRITIQUE SHEET

Q. C. OBSERVER_____

DATE_____

PUBLIC NEWS CENTER - OJRP

1. What time was the Public News Center manned?_____
2. Was communications established with the EOF?_____
3. Did news releases follow the established format?_____
4. What time was assistance requested by the Recovery Manager?_____

REMARKS:_____

_____

_____

_____

APPENDIX G

USEFUL INFORMATION

USEFUL INFORMATION

USEFUL INFORMATION

ROUTES TO SURRY POWER STATION

BY AIR: Patrick Henry International Airport

Byrd International Airport - Richmond

Norfolk Interntional Airport

BY BUS: Direct service by Greyhound and Trailway to Richmond, Newport News, Williamsburg, and Norfolk.

BY CAR: Refer to the maps on following pages.

The station is about 60 miles North of Norfolk, 70 miles South of Richmond and 35 miles Northwest of Newport News traveling the following road network:

FROM NEWPORT NEWS

Exit I-64 traveling west on Mercury Boulevard (Newport News) which becomes State Route 17/258, cross the James River Bridge (17/258) and exit right at State Route 32 which intersects State Route 10 (Benns Church). Turn north (right) on State Route 10 and travel about 20 miles. Exit right on State Route 650, travel 5 miles and Surry Power Station will be on your right.

BY TRAIN: AM-TRAK with connections in Richmond, Williamsburg, Newport News and Norfolk.

NEARBY ACCOMMODATIONS

Surry (Approximately 10 miles from station)

The Surry House Motel
Hwy. 10
(804) 294-3191

Smithfield (Approximately 20 miles from station)

The Smithfield Inn On US 258, 112 Main Street
Restaurant and Inn
(804) 357-4358

Newport News (Approximately 35-45 miles from station)

Holiday Inn of Newport News
Route 17 and 143
6128 Jefferson Avenue
Restaurant and Lounge
(804) 826-4500

King James Motor Hotel
Intersection Jefferson Avenue and Mercury Boulevard
6045 Jefferson Avenue
Restaurant
(804) 245-2801

Ramada Inn
Intersection I-64 and Route 17
950 J. Clyde Morris Boulevard
Restaurant & Lounge
(804) 595-4460

Others in Newport News

Budget Lodge of America	(804) 595-5647
Colonial Courts Motel	(804) 595-3345
Econo Travel Hotel	(804) 599-3237
The Patton Motel	(804) 595-7671
Travelers Inn Motel	(804) 874-0201

Williamsburg (Approximately 35 miles by ferry; approximately 80 miles using shortest road network)

Patrick Henry Inn
York and Page Streets
(804) 229-9540

Holiday Inn - East
814 Capitol Landing Road
Travel lodge and Restaurant
(804) 229-0200

Holiday Inn - West
902 Richmond Road
Travel lodge and Restaurant
(804) 229-5060

Ramada Inn - East
351 York Street
Travel lodge and Restaurant
(804) 229-4100

Ramada Inn - West
3052 Richmond Road
Travel lodge and Restaurant
(804) 565-2000

Others in Williamsburg

Captain John Smith	(804) 220-0710
Colonial Motel	(804) 229-3621
Hilton Inn	(804) 220-2500
King William Inn	(804) 229-4933

Hopewell (Approximately 45 miles to station)

City Point Inn
Intersection of Foute 10 & 36
Travel lodge and Restaurant
(804) 458-5950

Chester (Approximately 60 miles from station)

Days Inn
Intersection of I-95 and Route 10
Restaurant
(804) 848-3871

Holiday Inn
Intersection of I-95 and Route 10
Restaurant
(804) 748-6321

Howard Johnson's
Intersection of I-95 and Route 10
Restaurant
(804) 748-5010

Height Restriction - 12'6"
Weight Restrictions:
16 Tons per Vehicle
28 Tons per Semi-trailer
Combination

Schedule and Fares Subject to
Change without Notice

Two-Axle (Gross Weight 3 Tons or Less)
One Way 1.00
Multi-Axle Single Unit & Two-Axle
Greater than 3 Tons
Gross Weight, One Way 4.00
Multi-Axle Multi-Unit
One Way 6.00
Pedestrian or Bicycle 0.15

Commuter Book Tickets
Two-Axle (Gross Weight 3 Tons or Less)
20 Tickets per Book $5.00/Book

SCHEDULE

JAMESTOWN-SCOTLAND FERRY

Revised October 1, 1980
Subject to Change Without Notice

Operated by
Virginia Department of Highways
and Transportation
Richmond, Virginia
786-2838

SEPT. 16 - MAY 31
MONDAY THRU THURSDAY

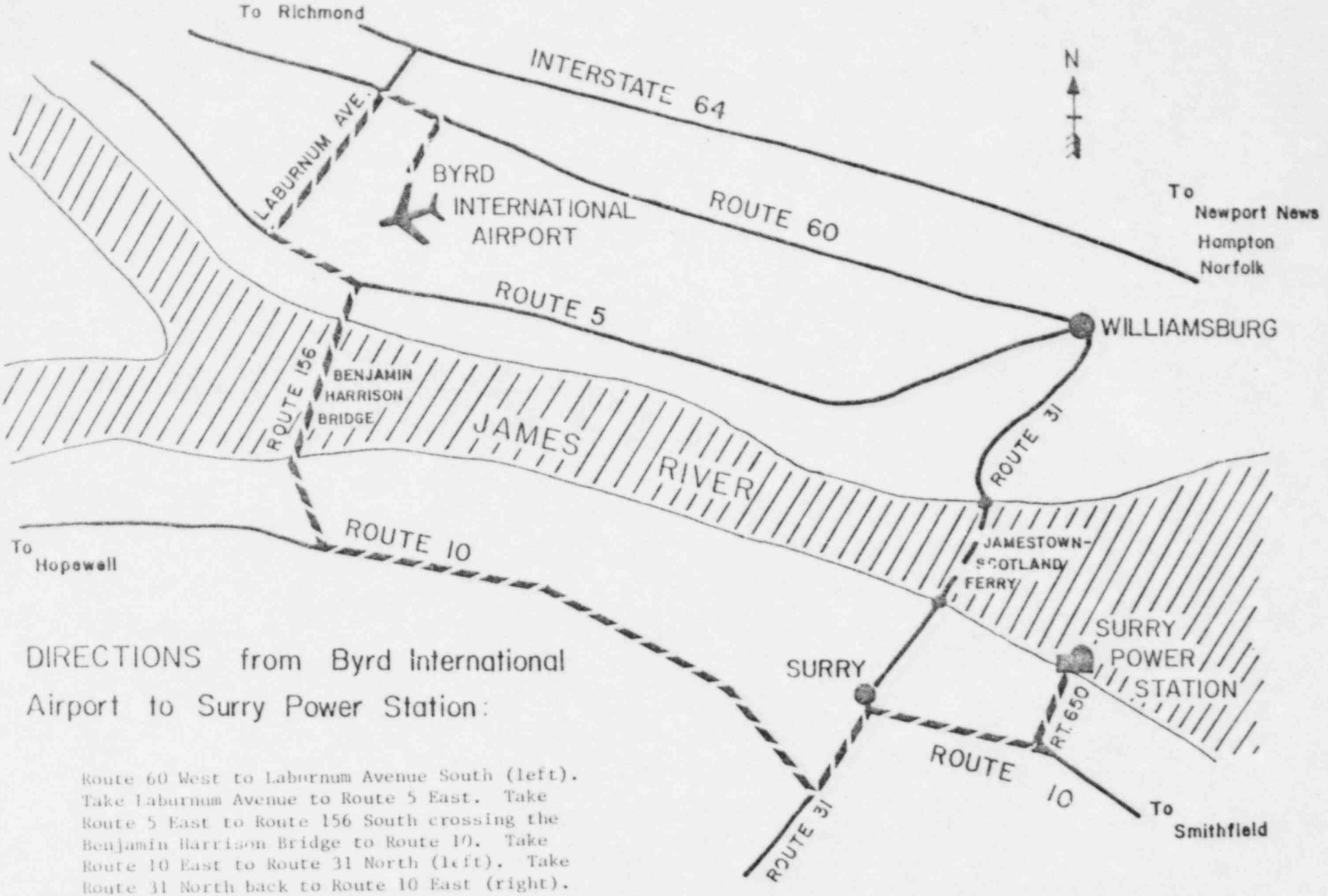
Leave Scotland Wharf on Route 31	Leave Glass House Point on Route 31
*5:00 AM	*5:20 AM
5:40 AM	6:05 AM
6:30 AM	6:50 AM
7:15 AM	7:35 AM
8:00 AM	8:30 AM
9:00 AM	9:30 AM
10:00 AM	10:30 AM
11:00 AM	11:30 AM
12:00 PM	12:30 PM
1:00 PM	1:30 PM
2:00 PM	2:30 PM
2:30 PM	3:00 PM
3:00 PM	3:30 PM
3:30 PM	4:00 PM
4:00 PM	4:30 PM
4:30 PM	5:00 PM
5:00 PM	5:30 PM
5:30 PM	6:00 PM
6:00 PM	6:30 PM
7:00 PM	7:30 PM
8:00 PM	8:30 PM
9:00 PM	9:30 PM
10:00 PM	10:30 PM
11:00 PM	11:30 PM
12:00 AM	12:30 AM

*MON THRU FRI ONLY

SEPT 16 - MAY 31
FRIDAY - SATURDAY - SUNDAY
JUNE 1 - SEPT 15
EVERYDAY

Leave Scotland Wharf on Route 31	Leave Glass House Point 9n Route 31
*5:00 AM	*5:20 AM
5:40 AM	6:05 AM
6:30 AM	6:50 AM
7:15 AM	7:35 AM
8:00 AM	8:30 AM
9:00 AM	9:30 AM
10:00 AM	10:30 AM
10:30 AM	11:00 AM
11:00 AM	11:30 AM
11:30 AM	12:00 PM
12:00 PM	12:30 PM
12:30 PM	1:00 PM
1:00 PM	1:30 PM
1:30 PM	2:00 PM
2:00 PM	2:30 PM
2:30 PM	3:00 PM
3:00 PM	3:30 PM
3:30 PM	4:00 PM
4:00 PM	4:30 PM
4:30 PM	5:00 PM
5:00 PM	5:30 PM
5:30 PM	6:00 PM
6:00 PM	6:30 PM
6:30 PM	7:00 PM
7:00 PM	7:30 PM
8:00 PM	8:30 PM
9:00 PM	9:30 PM
10:00 PM	10:30 PM
11:00 PM	11:30 PM
12:00 AM	12:30 AM

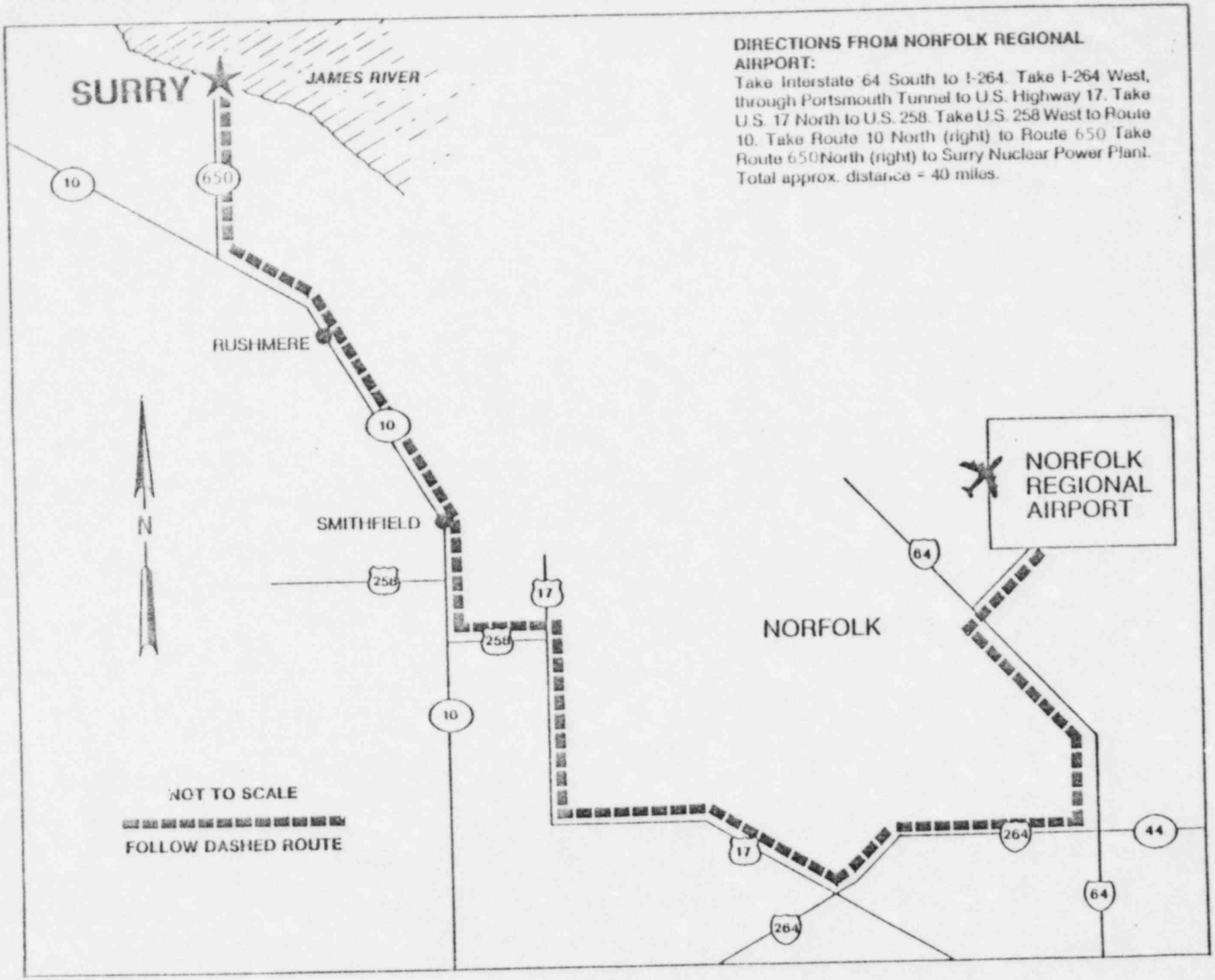
*MON THRU FRI ONLY



DIRECTIONS from Byrd International Airport to Surry Power Station:

Route 60 West to Laburnum Avenue South (left). Take Laburnum Avenue to Route 5 East. Take Route 5 East to Route 156 South crossing the Benjamin Harrison Bridge to Route 10. Take Route 10 East to Route 31 North (left). Take Route 31 North back to Route 10 East (right). Take Route 10 East to Route 650 (left) into Surry Power Station.

Total Approx. Distance = 70 miles

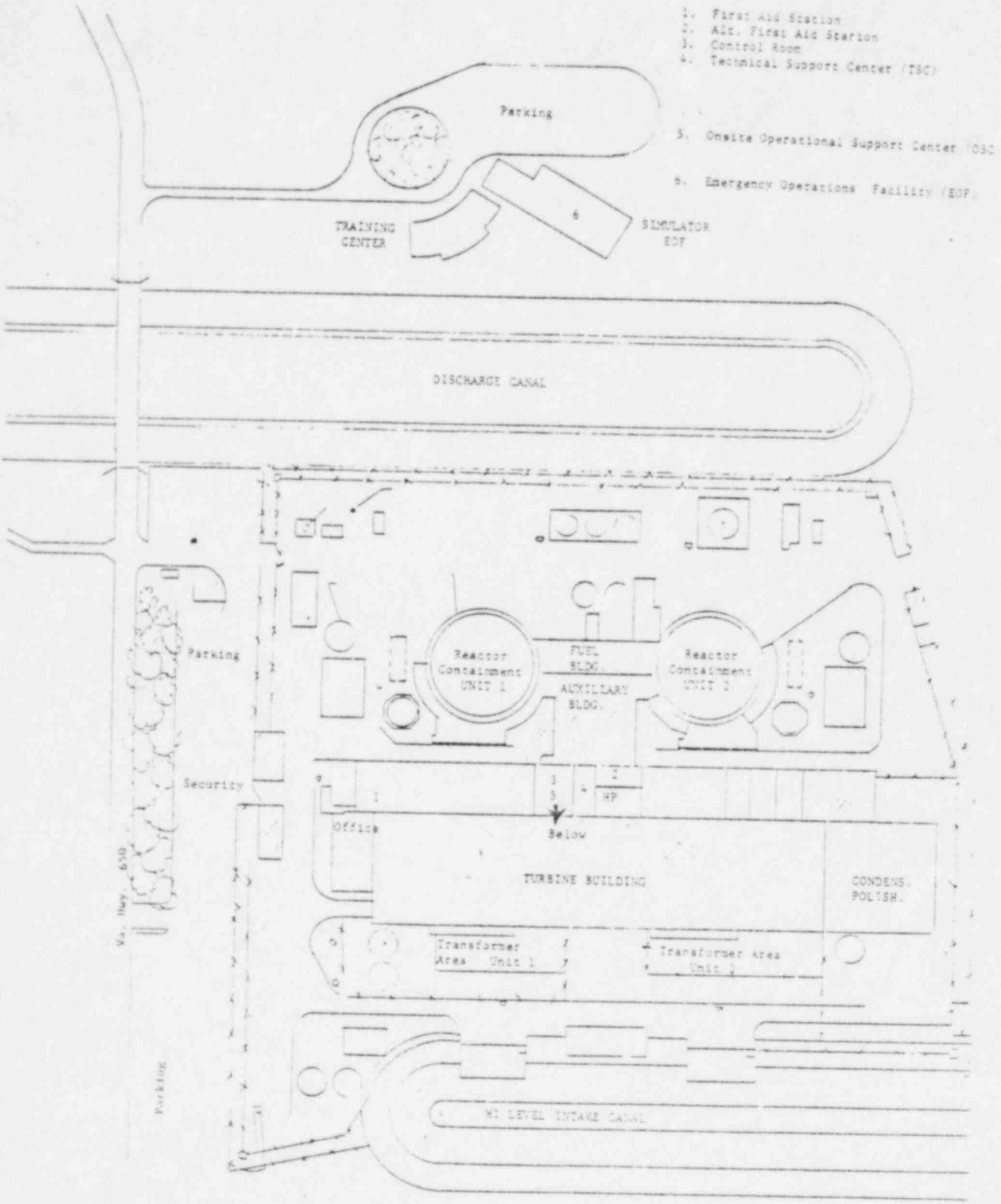

DIRECTIONS FROM NORFOLK REGIONAL AIRPORT:
Take Interstate 64 South to I-264. Take I-264 West, through Portsmouth Tunnel to U.S. Highway 17. Take U.S. 17 North to U.S. 258. Take U.S. 258 West to Route 10. Take Route 10 North (right) to Route 650. Take Route 650 North (right) to Surry Nuclear Power Plant. Total approx. distance = 40 miles.
SURRY
JAMES RIVER
10
650
RUSHMERE
10
SMITHFIELD
258
17
258
10
N
NORFOLK REGIONAL AIRPORT
64
NORFOLK
17
264
44
64
264
NOT TO SCALE
FOLLOW DASHED ROUTE

APPENDIX H

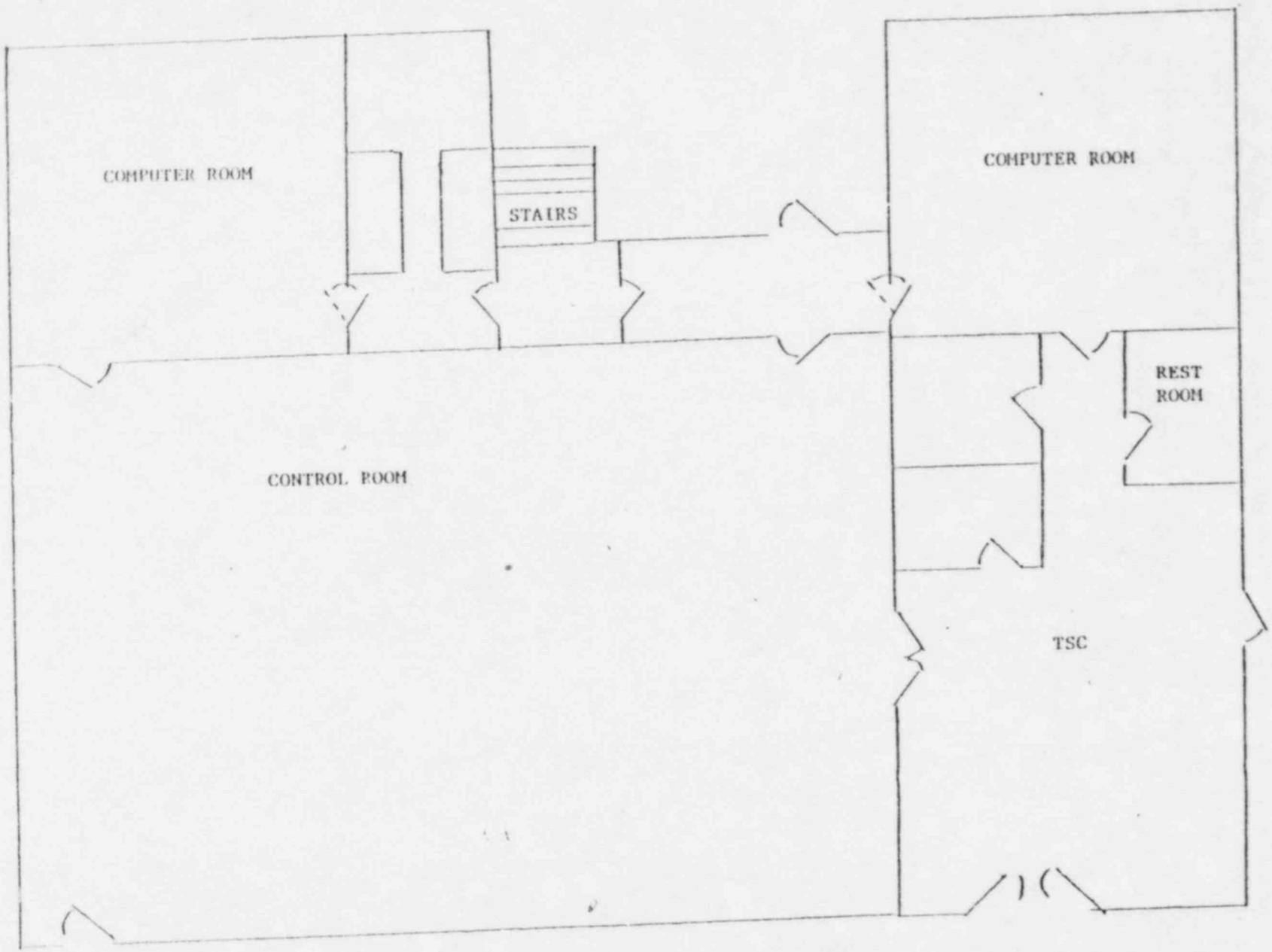
DIAGRAM OF FACILITIES

DIAGRAM OF FACILITIES

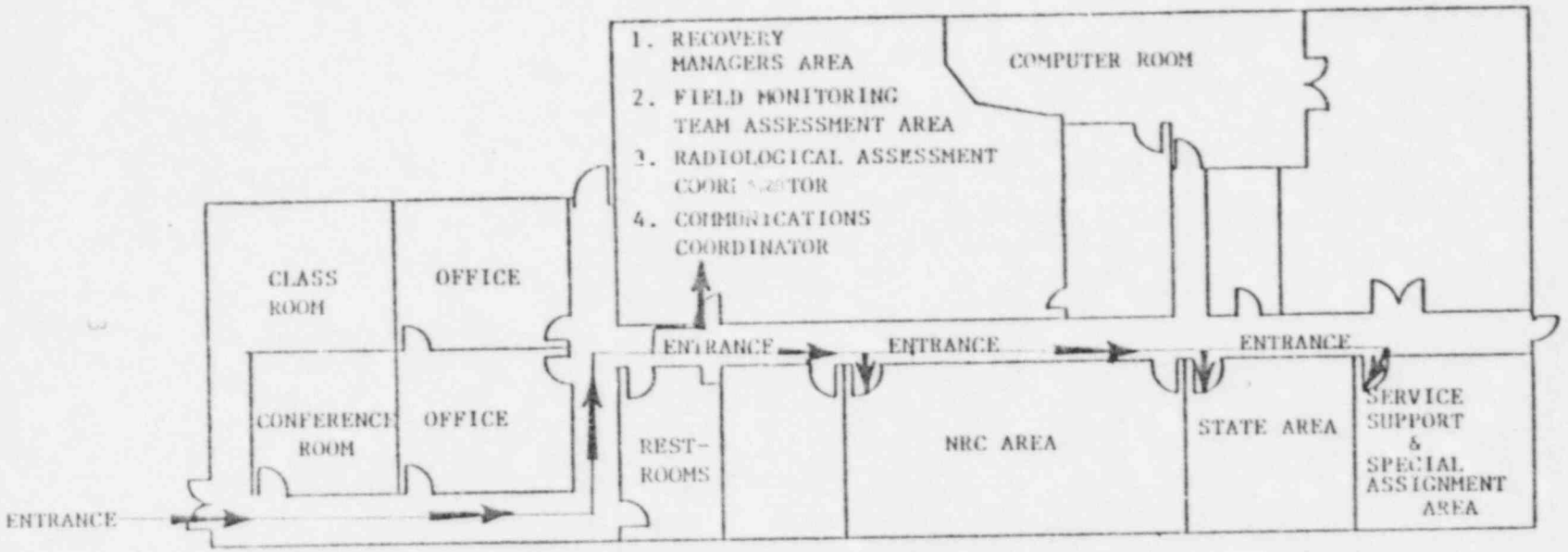
SURRY NUCLEAR POWER STATION



CONTROL ROOM AND TSC

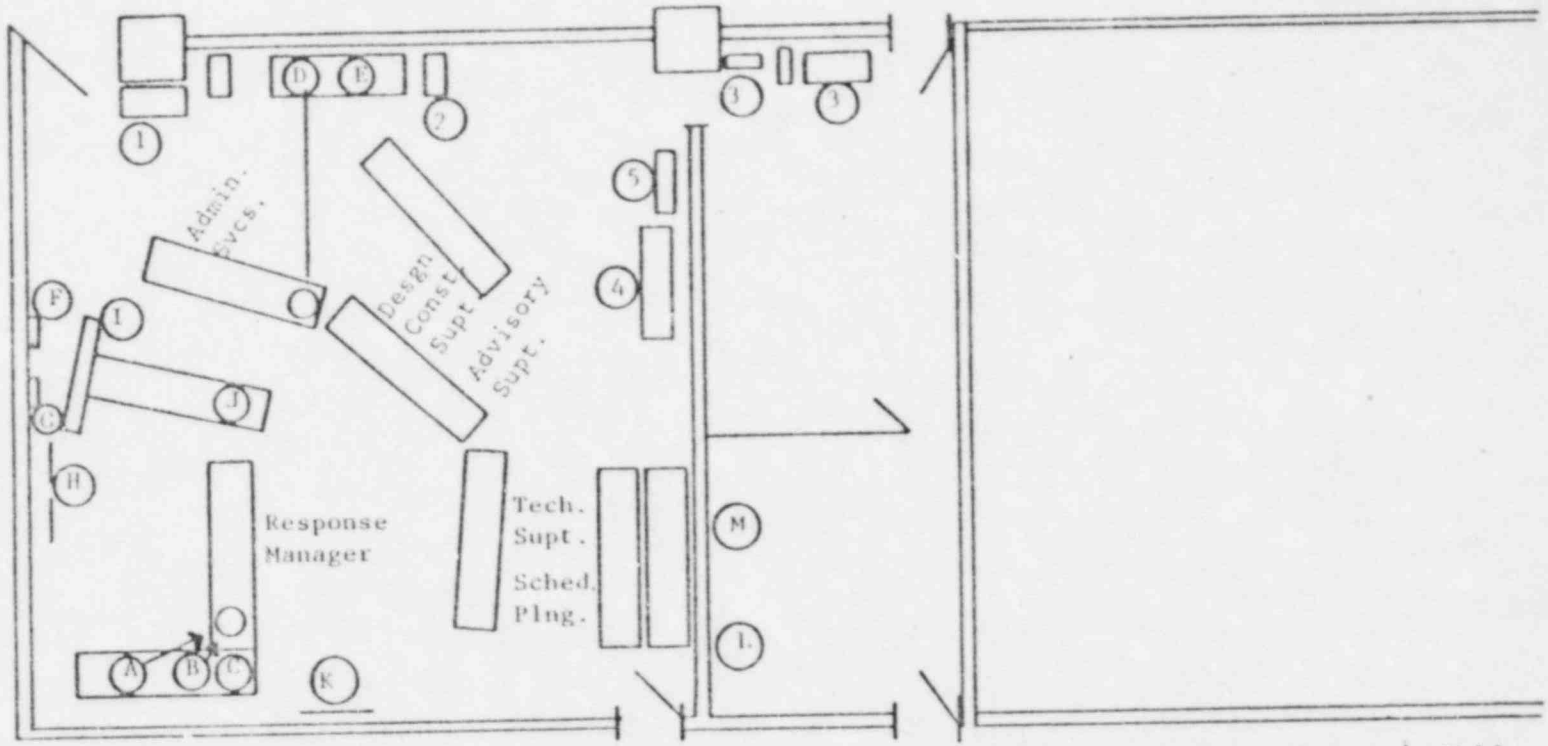


EMERGENCY OPERATION FACILITY (EOF)



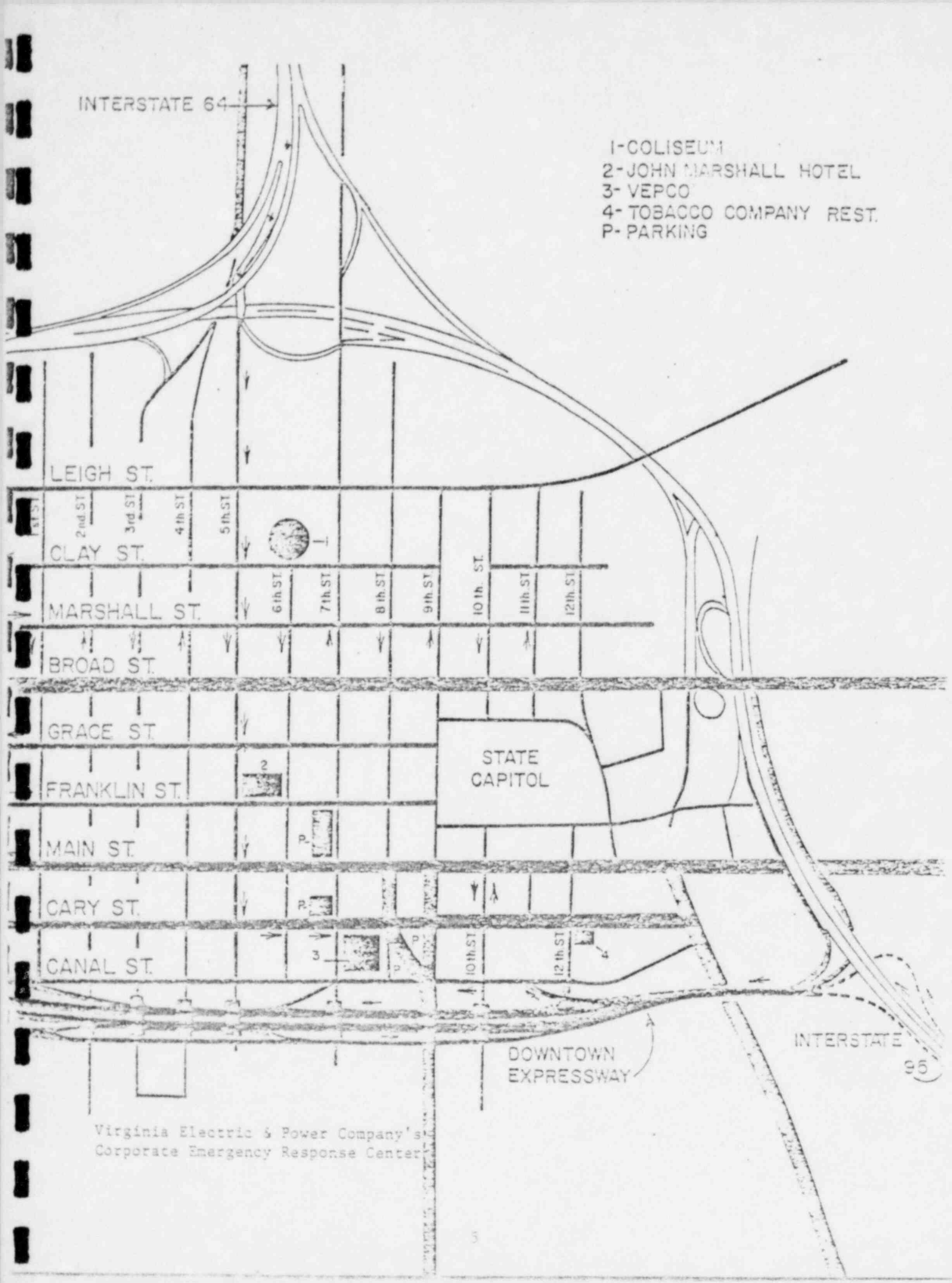
CORPORATE EMERGENCY RESPONSE PLAN
SURRY POWER STATION'S TRAINING CENTER SIMULATER BUILDING
EMERGENCY OPERATION FACILITY (EOF) FLOOR PLAN
FLOOR ASSIGNMENT PLAN

CERC FLOOR PLAN



1 CERC Drawer
2 CERC File Cabinet
3 CERC Signs/Status Boards
4 CERC Bookcase
5 CERC Storage Cabinet

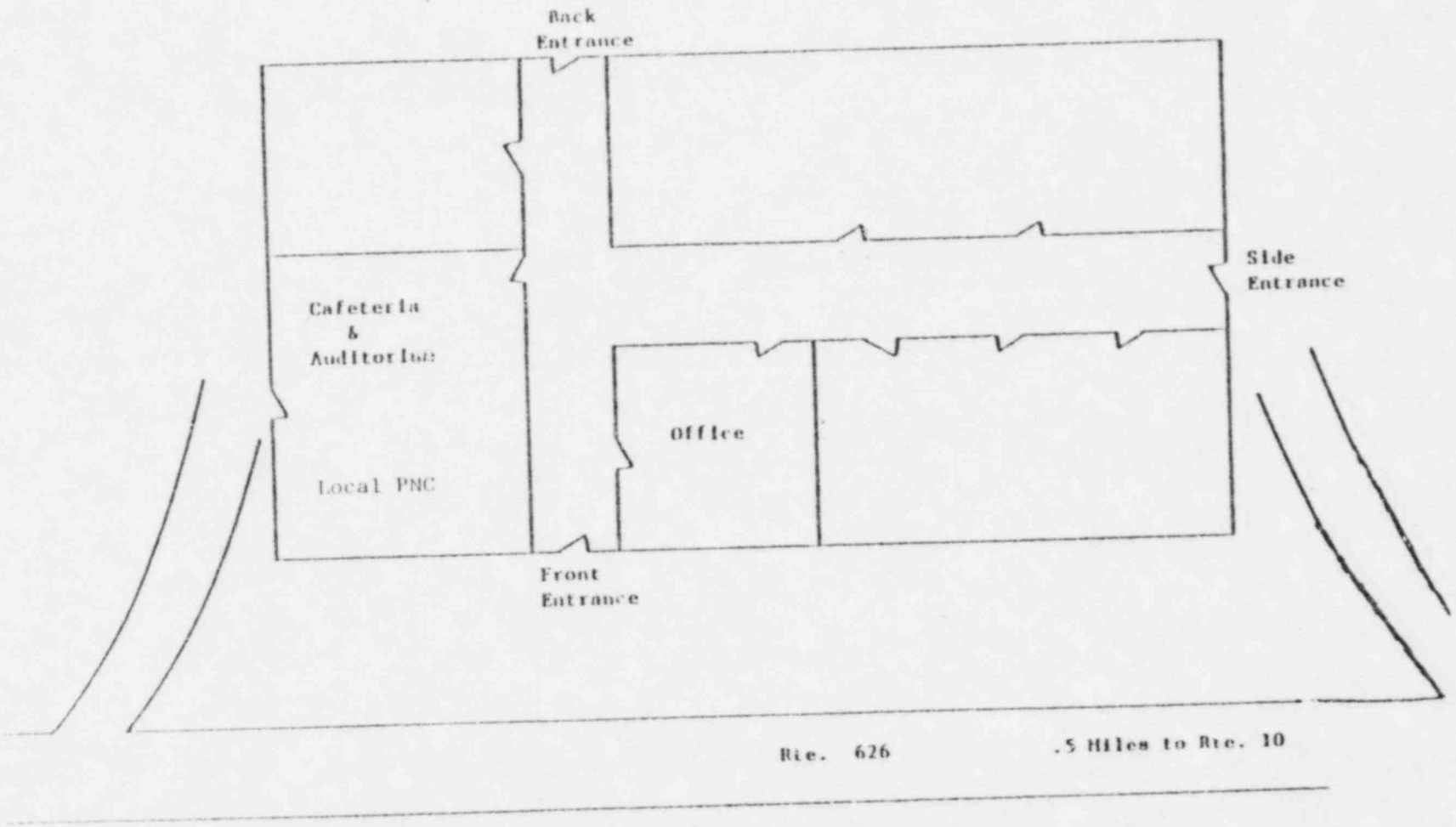
A - Surry EOF Ringdown w/speaker affected plant RED phone and speaker on Response Manager's Table
B - N.A. EOF Ringdown w/speaker
C - System Operator PBX (x393)
D - 771-3199 (also has 4741, 4442, which do not ring) Jack on back of phone on selected line.
E - 649-1476
F - N.A. EOF Jack
G - Surry EOF Jack
H - Status Board
I - "Rover" Board
J - Table for overhead projector
K - Affected station map
L & M - North Anna and Surry maps

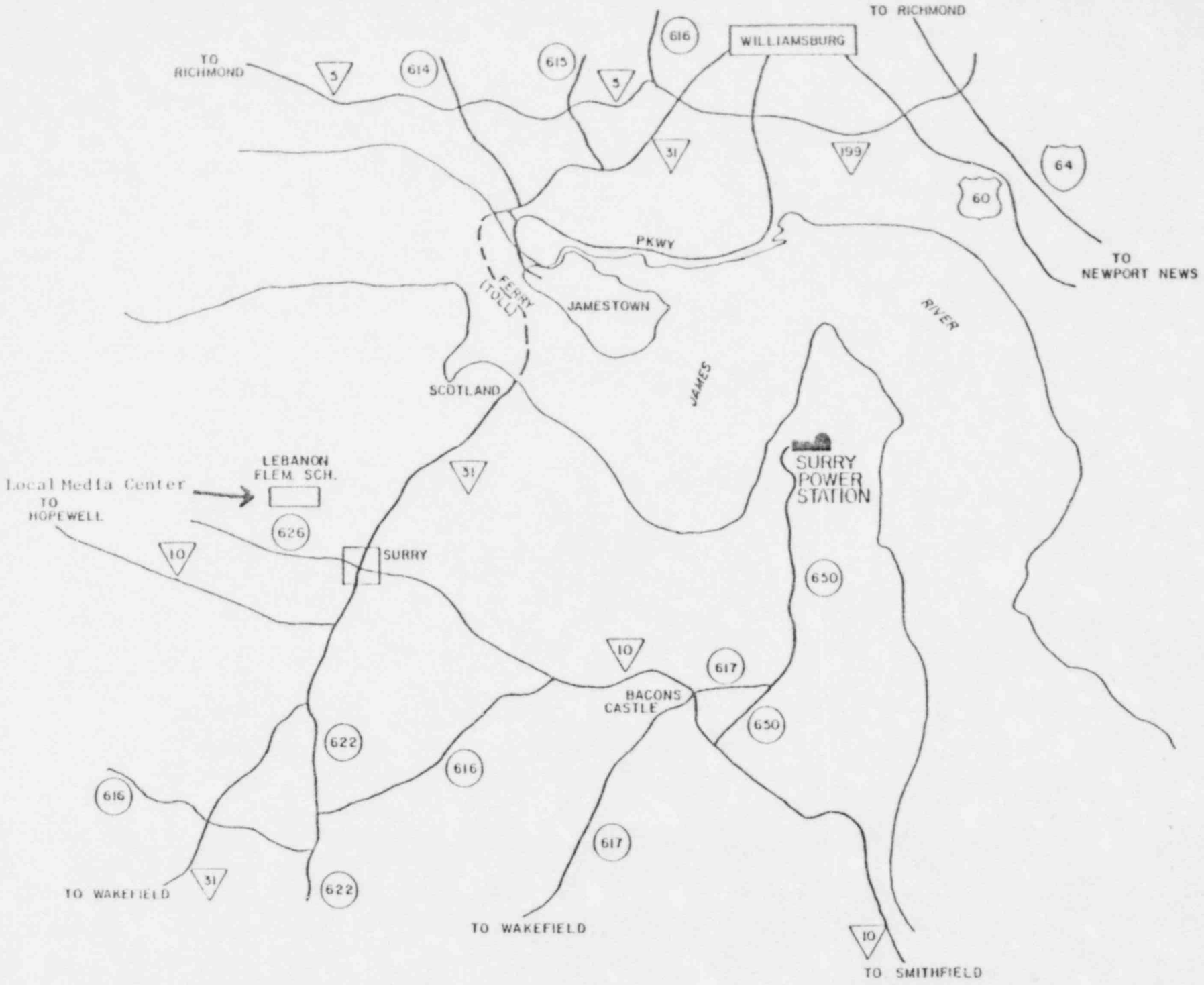

INTERSTATE 64
1-COLISEUM
2-JOHN MARSHALL HOTEL
3-VEPCO
4-TOBACCO COMPANY REST.
P-PARKING
LEIGH ST.
CLAY ST.
MARSHALL ST.
BROAD ST.
GRACE ST.
FRANKLIN ST.
MAIN ST.
CARY ST.
CANAL ST.
2nd ST
3rd ST
4th ST
5th ST
6th ST
7th ST
8th ST
9th ST
10th ST
11th ST
12th ST
STATE CAPITOL
DOWNTOWN EXPRESSWAY
INTERSTATE 95
Virginia Electric & Power Company's
Corporate Emergency Response Center

LOCAL MEDIA CENTER

LEBANON ELEMENTARY SCHOOL

SURRY, VIRGINIA




TO RICHMOND
WILLIAMSBURG
TO RICHMOND
5
614
615
616
5
31
199
64
60
PKWY
TO NEWPORT NEWS
FERRY (TOLL)
JAMESTOWN
JAMES RIVER
SCOTLAND
LEBANON FLEM. SCH.
Local Media Center
TO HOPEWELL
626
31
SURRY POWER STATION
10
SURRY
650
10
617
BACONS CASTLE
650
622
616
616
617
31
622
TO WAKEFIELD
TO WAKEFIELD
10
TO SMITHFIELD

APPENDIX I

VOPEX 2-82

INTENT, SCOPE, AND SCENARIO OF VOPEX 2-82

The intent, scope, and scenario of the Surry Power Station exercise to be conducted on Wednesday, November 10, 1982 are as follows:

A. Intent

1. Familiarization with the content of State and local government Radiological Emergency Response Plans, Vepco plans, emergency organizations, emergency action levels, and notification procedures.

2. Demonstrate the interface between plans, awareness by all of responsibilities, ability to rapidly notify response organizations and to alert and warn the public.

3. Provide training to all participants in radiological emergency response actions.

4. Test and evaluate the ability of agencies and individuals to properly execute their plans.

B. Scope

1. A radiological accident will occur at the Surry Power Station of such magnitude that it will initiate emergency responses for three emergency action levels--Unusual Event, Alert and Site Emergency. The accident will be played in real time and escalated to a Site Emergency. The severity of the accident will require implementation of the Station, State, and local government plans and the mobilization and commitment of State and local personnel and resources adequate to verify the capability to respond to an accident scenario commensurate with that level of play. The exercise will allow free play to the extent feasible and include participation by State agencies tasked in the State Plan, the departments of 10 political subdivisions, Vepco Corporate Headquarters and Surry Power Station. Significant elements of the plans to be tested include:

   a. Use of the classes of emergency action levels.
   b. The notification procedures (insta-phone system).
   c. Staffing EOCs, EOF and media centers.
   d. Communications; initial and follow-up, and coordinating and updating of information.
   e. Handling of simulated casualties (on-site to off-site).
   f. Off-site emergency services assistance.
   g. Use of protective clothing.
   h. Deployment of radiological monitoring teams; reporting procedures.
   i. Public information activities.
   j. Off-site radiological assessment.
   k. Recovery actions.

2. In most cases, the emergency response will be real, with the State agencies and local governments responding in accordance with the procedures outlined in their respective plans. By prior agreement, certain response actions will be simulated, other activities will be reduced or eliminated from play. For example: Sirens will not be activated; EBS will not be brought into the play. RACES and CAP (radio communications) will not participate; there will be limited radiological monitoring.

C. Exercise Scenario

1. Scenario Background

a. The joint, full-scale Exercise, to be known by the acronym "VOPEX-2-82" (Virginia Operations Plan Exercise - No. 2, 1982), will be played on November 10, 1982.

b. The Exercise play will be structured around a radiological emergency at the Surry Power Station (SPS) which affects surrounding political subdivisions. Provisions of the Vepco Corporate Headquarters, Surry Power Station, State, and affected local government Radiological Emergency Response Plans will be implemented. A Technical Scenario was developed by the Surry Power Station as a basis for realistic exercise play.

c. The Exercise will be phased and include many of the actions likely to be encountered during an actual emergency situation. The Exercise will cover a period of about six hours and consist of real time Exercise play. Every effort will be made to develop situations which are realistic and which can be fully acted on. Although phases have been identified, it must be realized that real time constraints will preclude actions in some cases to be brought to satisfactory conclusions. Participants are cautioned that the short period of play will cause artificial conditions which may appear abnormal. Nonetheless, the Exercise will provide the training benefits and achieve the objectives intended if each situation presented is acted upon realistically and brought to some conclusion, even though in some cases the action is simulated.

d. State agencies and local governments participating in the Exercise will include a shift change, either actual or simulated, during the course of Exercise play to demonstrate that this capability exists.

2. Phases

The Exercise will be conducted in four phases. The times of each phase are estimated. Actual times will be dictated by the flow of events.

a. Phase I - will cover the first 1-2 hours of the Exercise. The Exercise will begin with the SPS notifying the State EOC and the six political subdivisions within the plume exposure pathway Emergency Planning Zone (EPZ) of a Notification of Unusual Event at the station by use of the "insta-phone" system.

Note: The Report of Emergency form will be used to record all notifications from the SPS.

b. Phase II - will cover the next 2-3 hours of the Exercise. The SPS Shift Supervisor reports an Alert to the State EOC and the six applicable local governments.

c. Phase III - will cover the next 2 hours of the Exercise. The Vepco Emergency Director, located at the EOF, declares a Site Area Emergency and evacuates all non-essential on-site personnel. All appropriate government agencies are notified of conditions at the SPS.

d. Phase IV - will cover the last hour of the Exercise. This phase will cover the period from "cold" shutdown to the end of the emergency. The Vepco Emergency Director notifies government agencies that the radiological emergency is under control and that the reactor has been brought to a "cold shutdown". Radioactive release from the Station is terminated and conditions have dropped below Site Area Emergency classification. Recovery actions continue to include radiological monitoring and assessment until the State Department of Health notifies the State OEES that the areas are safe for re-entry. OEES, based on Department of Health recommendations, advises local Directors of Emergency Services to allow their people to return to their homes.

3. Direction and Control

a. Political Subdivisions

Directors of Emergency Services are responsible for the emergency response in their jurisdictions and direct their efforts through their local Coordinator of Emergency Services. The Coordinators activate their RERPs and coordinate their overall response for their political subdivisions from their local EOCs.

b. State of Virginia

(1) The State organization for radiological emergency response is based on normal governmental structures and channels of communications. The Governor, in his role of Director of Emergency Services, directs the response through the State Coordinator of Emergency and Energy Services. The overall State response is coordinated by the State Coordinator from the State EOC. Technical advice and assistance on radiological accident assessment, monitoring, and exposure control is provided by the Department of Health which furnishes personnel for the State Radiological Emergency Response Team (RERT).

(2) When notified of a radiological emergency, the State EOC will be activated and commence emergency response operations. Activities of the State RERT will be directed from the State EOC initially and from the EOF when directed.

(3) The Emergency Operations Facility (EOF) will be activated by Vepco immediately whenever an Alert or Site or General Emergency occurs at the SPS. The EOF will be located in the Training Building, near site. Federal, State, and Vepco representatives will operate from the EOF and joint radiological assessment and data analysis will be performed.

(4) Press facilities will be established in the Corporate Headquarters Building, One James River Plaza, Richmond. An alternate news media center will be established at the Lebanon Elementary School. Briefings will be presented when warranted.

c. Implementation of Exercise Requirements

It is anticipated that implementation of some of the Exercise requirements will be simulated. In these cases, participants will carry out all coordination required as though action were actually to be taken. Instructions will be issued, although NOT implemented. All actions taken or simulated will be recorded in communication logs maintained by all agencies and separate offices participating in the Exercise.

d. Exercise Message Indicator

During the Exercise all messages, regardless of the mode of transmission or receipt, will start and end with the Exercise indicator "VOPEX MESSAGE". EXAMPLE:

"VOPEX MESSAGE" - This is Deputy Smith. Traffic Control has been established at S.R. 650 and S.R. 10. "VOPEX MESSAGE".

4. Abbreviated Scenario (Time/Events)

Time	Event
9:30 a.m.	Exercise Commences NOTE: Hurricane Watch exists - heavy winds.
9:40 a.m.	Notification of Unusual Event - Personal Injury. NOTE: An SPS employee is injured and requires evacuation to MCV.
10:40 a.m.	Notification of Unusual Event - Plant problem.
12:30 p.m.	Alert declared.
14:50 p.m.	Site Area Emergency declared.
15:20 p.m.	Evacuation of non-essential on-site personnel.
15:50 p.m.	Release is terminated.
17:00 p.m.	Exercise terminated.