May 16, 1984

CONSOLIDATED EDISON COMPANY OF NEW YORK

INDIAN POINT UNIT NO. 2

DRILL SCENARIO NO. 4B REV. 0

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I. INTRODUCTION

The purpose of this drill is to demonstrate Con Edison's capability to effectively implement the Indian Point Unit No. 2 Site Emergency Plan and Procedures.

To assist the drill Observer/Controllers in the conduct and evaluation of the drill, this document has been prepared. It contains all the information and data necessary to properly conduct the drill in an efficient and coordinated manner and is broken down as follows:

Section II Objectives - this section defines the drill objectives.

Section III Drill Scenario - this section describes the Indian Point Unit NO. 2 postulated sequence of events occurring which will require the onsite emergency response organizations to respond. For each event described, the anticipated results of the participants are also detailed. These results should be used as a guide in evaluating the drill. However, it should be noted that the results observed may vary from those stated and should be evaluated on a case-by-case basis with respect to applicable procedures.

Section IV Messages - this section contains copies of the drill messages which will be utilized to control the progress of the drill scenario.

Section V Observer/Controller Instructions - this section provides general instructions to the drill Observers and Controllers in the conduct of the drill. Also included is evaluation criteria for evaluating the responses of the drill participants.

Section VI Plant Status Log - this section contains time-related information (non-radiological) concerning plant conditions, which corresponds to the development of the drill scenario.

Section VII Radiological/Meteorological Log - this section contains time-related plant radiological and meteorological data which corresponds to the development of the drill scenario.

Section VIII Radiological Information - this section contains time-related radiological information in the following categories:

- o Primary Coolant Activity
- o Containment Activity
- o Release Path Activity
- o Plant Radiation Levels
- o Facility Radiation Levels
- o Reuter-Stokes Readings
- o Plume Monitoring Data & Figures
- o Offsite TLD Readings
- o Post Accident Samples
- o Post Accident Offsite Contamination Levels

Section IX Logistics - this section contains information and direction for the handling of peripheral items related to the day of the drill.

- o Food for participants
- o Access lists
- o Methods of identification of players, controllers, observers, visitors, etc.

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II. OBJECTIVES

A. Emergency Operations, Facilities and Resources

1. Demonstrate the adequacy of the staffing and setting up as appropriate of emergency response facilities as well as demonstrating the adequacy of space and habitability for management of radiological emergency at:

   - o Control Room (CR)
   - o Technical Support Center (TSC)
   - o Operational Support Center (OSC)
   - o Emergency Operations Facility (EOF)
   - o Emergency News Center (ENC) limited to 4 Irving Place

2. Evaluate the adequacy of access control and security for emergency response facilities.

3. Demonstrate the Indian Point communication capabilities among the Control Room (CR), Technical Support Center (TSC), Emergency Operations Facility (EOF) and Operations Support Center (OSC).

4. Demonstrate emergency communications capability among the Counties, the State and Indian Point including the Radiological Emergency Communications System (RECS-Hot Line).

5. Demonstrate the ability of Indian Point to coordinate, control and deploy radiological monitoring teams via the respective field communications system.

B. Alerting and Mobilization of Officials and Staff

1. Demonstrate the ability of Indian Point staff to classify actual or potential emergencies in accordance with Indian Point Emergency Plan Implementation Procedures as to:

   - o Notification of Unusual Event,
   - o Alert
   - o Site Area Emergency,
   - o General Emergency.

2. Demonstrate the capability of Indian Point to notify the State, local and Federal levels of government in accordance with Federal guidance and established protocols.

3. Demonstrate the capability to communicate technical information among Indian Point, the State, and Counties. The extent of the interface with the offsite authorities will be limited because of the reduced level of participation. Indian Point will also demonstrate communicating with the NRC via the NRC Hot Line.

4. Demonstrate the capability of Indian Point to notify and activate emergency response personnel.

C. Emergency Operations Management

1. Evaluate the adequacy and capability of implementation of the Indian Point radiological emergency plans.

2. Demonstrate the emergency response capabilities of Indian Point.

3. Demonstrate the capability of Indian Point to implement their radiological emergency preparedness plans in a manner satisfying NRC acceptance criteria.

4. Demonstrate the ability of key emergency personnel at Indian Point to initiate and coordinate timely and effective decisions with respect to a radiological emergency and clearly demonstrate "who is in charge."

5. Demonstrate that there is effective organizational control (direction and control) and integrated radiological emergency response including deployment of field monitors, and receipt and analysis of field data.

D. Accident Assessment

1. Demonstrate the ability of Indian Point to receive and assess radiological data from field teams in accordance with the emergency plan implementation procedures.

2. Demonstrate the ability of Indian Point to calculate dose projections, compare the projections to the Protective Action Guides (PAGs) and determine appropriate protective actions.

3. Demonstrate the activation, operations and reporting procedures of Indian Point field monitoring teams. Indian Point teams will be dispatched within and beyond the site boundary.

E. Actions to Protect the Public

1. Demonstrate the capability of emergency personnel to identify requirements, assess and implement procedures for reentry.

F. Health, Medical and Exposure Control Measures

1. Demonstrate Indian Point employee accountability following the requirements of the Emergency Plan Implementing Procedures.

2. Demonstrate the decision process for limiting exposure of emergency workers.

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III. DRILL SCENARIO

Initial Conditions

Con Ed Indian Point Unit No. 2 has been operating at full power for 60 days. All plant parameters are normal and stable. The containment is being pressure relieved via the normal path.

Narrative Summary

A tremor is felt in the Control Room. No alarm annunciation is indicated and the Unit continues to operate wth no interruptions. The Unit No. 3 Watch Supervisor notifies the Unit No. 2 Control Room that two amber lights on the Peak Shock Annunciatior are lit.

After analysis of the accelerometer, the Unit No. 3 Watch Supervisor notifies the Unit No. 2 Control Room the horizontal and vertical indication is large enough to declare an ALERT.

Approximately 100 individuals have been previously designated to participate in assembly/accountability. After accountability has been performed non-players will be dismissed from the drill and returned to their normal work locations.

Later Rod Cluster Control Assembly (RCCA), Bank D, is ejected from the reactor core resulting in a small loss-of-coolant accident (LOCA). The reactor and turbine both trip.

As reactor coolant system (RCS) pressure and temperature decrease, Safety Injection is initiated. One of the three High Pressure Safety Injection Pumps (#21) fails to start, the other two operate normally. On receipt of the containment isolation signal, the two pressure relief valves outside containment fail to close. The inside valve does close, however, securing containment pressure relief.

The LOCA causes a "Site Area Emergency" to be declared.

The motor-driven auxiliary feedwater pumps start normally and begin to provide feedwater to the steam generators. At this time, an offsite electrical power disturbance causes a loss of all offsite power. In response to this, Emergency Diesel Generators Nos. 21, 22 and 23 all start normally. Vital loads are properly sequenced onto the emergency power supply except both motor-driven auxiliary feedwater pumps fail to start. No. 22 Auxiliary Boiler Feed Pump and No. 22 High Pressure Safety Injection Pumps are out on Limiting Condition for Operation (LCOs) for corrective maintenance. This results in no feedwater being supplied to the steam generators and only one High Pressure Safety Injection Pump in operation. At this point, a "General Emergency" should be declared. All steam generators boil dry resulting in a loss of the primary heat sink for the reactor. RCS temperature and pressure rapidly increase because only one HPSI pump supplying water to the core in a natural circulation mode is insufficient to remove decay heat. All power operated relief valves (PORVs) fail to open at the prescribed pressure.

Consideration may be given to opening the reactor head vent valves for a cooling path but this flow would be inadequate for core cooling. Due to the loss of heat sink and loss of bleed capability through the PORV, steam-blanketing of the core results in the Control Room receiving indications of fuel damage.

Subsequently, indications in the Control Room indicate the remaining closed containment Pressure Relief Valve (PCV-1192) fails OPEN. Initial attempts to close all valves fail.

Control Room instrumentation indicates high radiation levels in the plant ventilation system. Radiogas monitors indicate significant releases are occurring.

Eventually, the problem with the motor driven auxiliary feedwater pumps is corrected and the pumps are started. Feedwater flow is restored to the steam generators.

Maintenance teams manage to repair and close valve PCV-1191 of the Containment pressure relief system. This action terminates the release from the plant. Operations continue in a long-term cooling mode to cold shutdown.

The exercise will last approximately seven (7) hours. Duration of the radiological release will be 1-1/2 hours. The exercise will be completed after the release is terminated and the plant is in a controlled and stable condition. A Recovery phase will not be demonstrated.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
T = 08:00	1	Initial Conditions established.
T = 08:10	2	A tremor is felt in the Control Room. No alarm annunciation is indicated. Unit continues to operate with no interruptions.
T = 08:15	3	Unit No. 3 Watch Supervisor calls to say that they felt the tremor and two (2) amber lights lit on the Peak Shock Annunciation. He will call back as soon as the ground acceleration indication has been analyzed. Unit No. 3 will remain on the line until the evaluation is completed.
		ANTICIPATED RESULTS
		Senior Watch Supervisor (SWS)
		-Follows "Abnormal Operating Procedure A-42.
		-Declares a Notification of Unusual Event because of NUE Initiating Condition No. 13(a).
		-Fills out "Emergency Notification Fact Sheet, Part I."
		-Directs the "Communicator" to make the appropriate notifications in accordance with IP-10[illegible]2.
T = 08:25	3A	The SWS should declare an NUE at this time and initiate appropriate actions and notifications if not already done.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
T = 08:45	4	Unit No. 3 Watch Supervisor calls to say that the evaluation of the accelerometer indicates a 0.11 g horizontal and 0.04 vertical displacement. He also indicates that Unit No. 3 will remain on the line.

ANTICIAPTED RESULTS

Senior Watch Supervisor (SWS)

-Declares an ALERT and directs the CRO to sound the Site Emergency Assembly Alarm. Declaration of ALERT is because of Initiating Condition 17(a).

-Mobilizes emergency personnel.

-Fills out "Emergency Notification Fact Sheet, Part I."

-Directs the "Communicator" to make appropriate notifications in accordance with IP-1002.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY

Plant Operations Manager (POM)

- Reports to the Control Room and discusses the emergency, plant status, initiating conditions and classification with the SWS.

- Meets Offsite Rad Assessment Director (ORAD) and TSC personnel at the SWS office. Assigns individuals to fill the positions of ORAD and TSC Manager.

- Assumes Emergency Director (ED) position.

- Discusses protective actions with ORAD. None Required.

- Evaluates possiblility of taking the Unit off the line

Shift Technical Advisor (STA)

- Assists SWS and POM with system information.

Offsite Radiological Assessment Director (ORAD)

- Obtains two (2) onsite monitors, four (4) offsite monitors and one (1) communicator before or after reporting to the EOF as conditions dictate.

- Activates EOF and lists personnel on status board.

- Starts to activate personnel too fill all positions at the EOF, except for the ED.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
		Chief Accountability Officer (CAO)
		- Set up operation at the OSC (IP-1023) and performs accountability for the site.
		- Assigns reporting personnel to waiting areas within the OSC.
		- Assigns personnel to repair teams.
		- Has status boards maintained.
		Technical Support Center Manager (TSC Manager)
		- Activates TSC and mobilizes personnel (IP-1035).
		- Provides technical support to SWS and POM.
		- Evaluates plant data.
T = 08:55	4A	The SWS should declare an ALERT at this time and initiate appropriate actions and notifications if not already done.
		ANTICIPATE RESULTS
		Senior Watch Supervisor (SWS)
		- Confers with the POM to discuss the message from the Unit No. 3 Watch Supervisor.
		- Tells the POM that the inspection team has not reported back yet.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
T = 09:10	5	The damage survey team reports no evidence of damage to plant structures or equipment. Plant Operations Manager (POM) Decides to maintain the operating status of the Unit.
T = 09:10 (or later) but within 1 hr. of time ordered	6	If the site accountability has been completed, the POM (ED) is notified that all personnel not assigned to a facility (EOF, TSC, OSC, CR) may return to their normal duties. Otherwise defer the message to the appropriate time.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
T = 09:10	7	Rod Cluster Control Assembly (RCCA), Bank "D" has been ejected from the Reactor core, resulting in a small loss-of-coolant accident (LOCA). The reactor and turbine both "trip" on high power. The steam dump system activates and functions normally. As RCS temperature and pressure decrease, Safety Injection initiates. One of the three High Pressure Safety Injection Pumps (No. 21) fails to start; the other two operate normally. On receipt of the Containment isolation signal, the two pressure relief valves outside Containment fail to close (PCV-1191 and PCV-1192). The inside valve (PCV-1190) does close however, securing containment purge. The motor-driven auxiliary feedwater pumps start normally and provide flow to the steam generators. Control Room indicators are as follows: o Pressurizer Low Pressure and Level o Reactor Trip o Turbine Trip o Safety Injection ANTICIPATED RESULTS Control Room Operator (CRO) - Refers to Emergency Procedures.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY

Senior Watch Supervisor (SWS)

- Discusses plant/emergency status with the POM, including the need for RCS and VC samples.

Plant Operations Manager (POM)

- Discusses and reviews plant status, emergency action levels, initiating conditions and emergency classification with SWS and TSC Manager.

- Declares a SITE AREA EMERGENCY because of Initiating Condition No. 1.

- Fills out "Emergency Notification Fact Sheet, Parts I and III".

- Direct the "Communicator" to make appropriate notifications in accordance with IP-1002.

- Notify individual who will take over Emergency Director duties at EOF.

- Give appropriate instructions to Security Supervisor.

- Direct in-plant radiological monitoring. Initiate a security fence survey.

- Direct ORAD to initiate a site perimeter survey.

- Direct actions to mitigate emergency conditions.

- Turn over control of the emergency to the Emergency Director upon his arrival at the EOF.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY

Radiation Protection Technician (RPT)

- Provides radiological control for the Control Room, including set up of Step-Off Pad and "frisker" at entrance from turbine floor to SWS office; or as directed by the SWS.

- Perform surveys requested by SWS or POM.

- Evaluate PRM-ARM instrumentation.

- Determine status of controlled area evacuation, and report to SWS.

- Maintain Log Book.

Offsite Radiological Assessment Director (ORAD)

- Check information obtained from TSC.

- Perform necessary dose projections. Determine recommended Protective Actions using IP-1013. Review these with ED or POM. No release is occurring yet; however, Protective Action recommendations could require "consideration" of evacuation of a 2 mile radius and 5 miles in the three downwind sectors, and sheltering in the remainder of the 10 mile EPZ. No offsite Protective Actions recommendation at this time is also acceptable.

- Confer with Dose Assessment H.P. and dispatch offsite monitoring teams to specified environmental sampling/survey points if there has been a release.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
		- Initiate mobilization of the complete EOF staff, with the exception of the Emergency Director, if not already done. - Fill out "Emergency Notification Fact Sheet, Part II" (Form 30b) and confer with the Emergency Director. TSC Manager - Transmit plant data to EOF. - Investigate failure of High Pressure Safety Injection Pump No. 21 to start, and failure of PCV-1191 and PCV-1192 to close. - Support Control Room and maintenance activities. OSC Coordinator - Repair teams may (or may not) be sent out to manually start Safety Injection Pump No. 21, and close PCV-1191 and PCV-1192. Emergency Director (ED) - Report to the EOF and assume overall direction and control of the emergency from the POM. - Discuss potential actions with POM and ORAD. - Evaluate conditions and declare a Site Area Emergency if not already done. - A precautionary recommendation to SHELTER in the two (2) mile radius and five (5) mile downward could also be considered. - No offsite Protective Action recommendation at this time is also acceptable.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
		- If required ensure offsite authorities are notified of recommended Protective Actions.
		Survey Team Health Physicist (STHP)
		- Check equipment availability.
		- Perform field survey at EOF; including set-up of TRITON in accordance with IP-1041, and set-up of SAM-2/RD-22 and RM-14/HP-210 Counter and Air Sampler in accordance with IP-1020.
		- Obtain two (2) Handi-Talkies from Security.
		- Assign film badges and dosimeters.
		- Set-up FRISKER and Step-off Pad at upper and lower entrance of EOF.
		- Perform appropriate surveys approximately every 30 minutes.
		- Follow and maintain personnel exposure and contamination control for all personnel.
		- Confer with ORAD and dispatch onsite field survey teams and receive data. Place field survey readings on Site Map.
T = 09:25	8	The Emergency Director should declare a SITE AREA EMERGENCY and initiate appropriate actions and notifications if it has not already been done.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
T = 09:40	9	RCS cooldown is taking place and the reactor is in a stable condition. The Charging Pumps and Safety Injection have stabilized RCS pressure at 1200 psig, and are continuing to provide makeup for coolant lost through the RCCA LOCA. RCS Tavg is constant at 500 F. It is estimated that cooldown of the RCS will take approximately 3 hours. Radiation monitors R-2, R-7, R-11 and R-12 ALARM. ANTICIPATED RESULTS Control Room Operator (CRO) - Review Abnormal Operating Instructions A-19.A and A-19.B. Area Radiation Monitors - High Radiation and High Activity - Containment Air Particulate Monitor R-11 and/or Containment Radiogas Monitor R-12. Senior Watch Supervisor (SWS) - Discuss plant/emergency status with POM. Radiation Protection Technician (RPT) - Perform surveys if requested by SWS and POM. - Evaluate PRM-ARM instrumentation. - Obtain Protected Area Fence Survey, if directed by the SWS or POM. - Maintain Log Book.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
T = 10:10	10	A disturbance in the offsite electric power system grid causes a loss of all offsite power. Power transfers to the emergency bus. Diesel Generators Nos. 21, 22 and 23 all start normally. Vital loads are properly sequenced onto the emergency power supply except for both motordriven Auxiliary Feedwater Pumps, and No. 22 High Pressure Safety Injection Pump fails to start. No feedwater is being supplied to the Steam Generators, and only one High Pressure Safety Injection Pump is in operation. Indications to the operator are as follows: o 6900 Volt Station Auxiliary Breakers trip. o 480 Volt Switchgear Motor trips. o Emergency Diesel Generators Nos. 21, 22 and 23 start. o Auxiliary Feedwater Pumps Nos. 21 and 23 fail to start. o HPSI 22 fails to start. ANTICIPATED RESULTS Control Room Operator (CRO) - Review Abnormal Operating Instruction A-4, "Loss of Outside Power." - Report any accident condition changes to SWS or STA, and maintain Log Book. Senior Watch Supervisor (SWS) - Inform and confer with the POM. Plant Operations Manager (POM) - Confers with the SWS and then with ED.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
		- Direct the OSC Coordinators to form a repair and corrective action team (per IP-1011) to check the status of the auxiliary feed pumps and SI pumps. - Direct the OSC Coordinators to send a Chem Tech to obtain a RCS sample. - Direct the OSC Coordinators to send a Chem Tech to obtain a containment air sample. Offsite Radiological Assessment Director (ORAD) - Check information obtained from TSC. - Perform necessary dose projections. Determine recommended Protective Actions using IP-1013. Review these with the ED. Protective Actions may at this time include evacuation of a two (2) mile radius and sheltering in the remainder of the ten (10) mile EPZ. - No change in Protective Action recommendations at this time is not acceptable. - Fill out "Emergency Notification Fact Sheet, Part II" and confer with the Emergency Director. Dose Assessment Health Physicist (DAHP) - Calculate projected offsite exposures at the Site Boundary, 2 miles, 5 miles and 10 miles. Discuss results with ORAD. - Check recommended Protective Actions (IP-1013).

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY

- Project future survey/sampling points.

TSC Manager

- Transmit plant data to EOF.

- Support Control Room and maintenance activities.

Emergency Director (ED)

- Obtain latest prognosis from POM.

- Evaluate conditions and declare a General Emergency because major parts of Initiating Conditions 3, 4a, 4b & 4d and associated Emergency Action Levels have been satisfied and plant parameters indicate worsening conditions.

- Discuss Protective Actions with the ORAD. Protective Action recommendations should include:

  o Evacuation in a 2 mile radius.
  o Sheltering for the remainder of the 10 mile EPZ.

- No change in Protective Action recommendations at this time is acceptable if the above recommendation had been given for the SAE.

- Fills out "Emergency Notification Fact Sheet, Part I" and has Technical Advisor (TA) complete Part III. Part II not required because there is no release to the environment.

- Have offsite authorities notified.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
T = 10:25	11	The Emergency Director should declare a GENERAL EMERGENCY and initiate appropriate actions and notifications if it has not already been done.
T = 10:25	12	Attempts to load the gas turbine generators are unsuccessful.
T = 10:25	13	All Steam Generators boil dry, resulting in the loss of the primary heat sink for the Reactor. ANTICIPATED RESULTS Control Room Operator (CRO) - Report any accident condition changes to SWS or STA, and maintain Log Book. Senior Watch Supervisor (SWS) - Inform and confer with the POM.
T = 10:35	14	The Power-Operated Relief Valves (PORVs) fail to OPEN at the prescribed pressure. ANTICIPATED RESULTS Control Room Operator (CRO) - Report any accident condition changes to SWS or STA, and maintain Log Book. Senior Watch Supervisor (SWS) - Inform and confer with the POM.
T = 10:40	15	Due to loss of heat sinks and loss of bleed capability through the PORVs, the Control Room is alerted to potential fuel cladding failure by the following: o Area Monitor High Radiation Alarm o Failed fuel monitor indicates high activity

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY

ANTICIPATED RESULTS

Control Room Operator (CRO)

- Review Abnormal Operating Instruction A-20, "High Activity/ Reactor Coolant System."

- Report any accident condition changes to SWS or STA, and maintain Log Book.

Senior Watch Supervisor (SWS)

- Inform and confer with the POM.

Plant Operations Manager (POM)

- Direct OSC Coordinators to send a Chem Tech to obtain a RCS sample.

Note: The taking and counting of this sample may be simulated. The controller is to hand the team the data after they have arrived at the sample site.

Offsite Radiological Assessment Director (ORAD)

- Check information obtained from the TSC.

- Perform necessary dose projections. Determine recommended Protective Actions using IP-1013. Review these with ED. Offsite Protective Actions should be increased at this time.

- Project future survey/sampling points.

Dose Assessment Health Physicist (DAHP)

Calculate projected offsite exposures at the Site Boundary, 2 miles, 5 miles and 10 miles. Discuss with ORAD.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
		- Check recommended Protective Actions (IP-1013). - Project future survey/sampling points. Emergency Director (ED) - Discuss Protective Actions with the ORAD, POM and TSC Manager. Protective Action recommendations should be increased at this time to include. o Evacuation out to 10 miles in Sectors 4, 5, and 6. o Evacuation out to 5 miles for remaining sectors. o Sheltering for the remainder of the 10 mile EPZ. - Fills out "Emergency Notification Fact Sheet, Part I" and has Technical Advisor (TA) complete Part III. Part II is not required because there is no release to the environment. - Has offsite authorities notified.
T = 11:10	16	The Control Room annunciators indicate that the remaining closed Containment Pressure Relief Valve (PCV-1190) has failed in the OPEN position. Initial attempts to close all valves fail.
T = 11:15	17	Control Room radiation monitors indicate high levels in the plant ventilation system. ARM R-13 and R-14 both ALARM. ANTICIPATED RESULTS Control Room Operator (CRO) - Follow Abnormal Operating Instructions A-19.C, "High Activity - Plant Vent Particulate Monitor R-13 and/or Plant Vent Radiogas Monitor R-14.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY

- Report any accident condition changes to SWS or STA, and maintain Log Book.

Senior Watch Supervisor (SWS)

- Inform and confer with the POM.

Plant Operations Manager (POM)

- Direct OSC Coordinators to send a Chem Tech to obtain a plant vent sample.
- Direct in-plant radiological monitoring.
- Direct actions to mitigate release.
- Confer with ED and TSC Manager.
- Authorize emergency personnel exposure in accordance with IP-1038.

Offsite Radiological Assessment Director (ORAD)

- Check information obtained from TSC.
- Fill out "Emergency Notification Fact Sheet, Part II" and confer with the Emergency Director.
- Perform necessary dose projections. Determine recommended Protective Actions using IP-1013. Review these with ED.
- Confer with Dose Assessment H.P. and dispatch offsite monitoring teams to specified environmental survey/sampling points.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
		- Request information from MIDAS operator on weather forecast. - Review new plant release and survey data, and compare predicted offsite exposure rates with survey team measured and/or Reuter-Stokes field readings. - Project future survey/sampling points. Survey Team Health Physicist (STHP) - Continue to perform appropriate surveys approximately every 30 minutes; including EOF field survey, air sampling and counting inside EOF, etc. - Continue updating personnel exposure records and maintain exposure and contamination control for all personnel at the EOF. - Confer with ORAD and dispatch onsite field survey teams and receive data. Place field survey readings on Site Map. Dose Assessment Health Physicist (DAHP) - Receive, evaluate and relate to ORAD offsite survey team data. Begin to detect elevated offsite radiation levels. - Calculate offsite exposures at the Site Boundary, 2 miles, 5 miles and 10 miles. Discuss results with ORAD. - Obtain from MIDAS Operator the Reuter-Stokes SENTRI readings. Review and compare with predicted and/or measured offsite exposure rates. Recommend to ORAD redirecting monitoring teams to resolve any discrepancies.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
		- Project future survey/sampling points.
		Emergency Director (ED)
		- Obtain latest prognosis from POM.
		- Discuss Protective Actions with the ORAD, Plant Operations Manager and TSC Manager.
		- Fills out "Emergency Notification Fact Sheet, Part I" and has the ORAD complete Part II and the TA Part III.
		- Has offsite authorities notified.
		TSC Manager
		- Transmit plant data to EOF.
		- Develop plans for closing PCV-1192.
		- Support Control Room and maintenance activities.
		OSC Coordinators
		- Form a Repair and Corrective Action team(s) (per IP-1011) to check the status of the exhaust valves.
		- Form team to obtain plant vent sample.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
T = 11:40	18	The wind has shifted from 270 degrees to 225 degrees. This message will only be used if the MIDAS Computer has not been preprogrammed with the scenario data.

Offsite Rad Assessment Director (ORAD)

- Request plume update from MIDAS Operator.

- Review new plant release and survey data and compare predicted offsite exposure rates with survey team measured and/or Reuter- Stokes field readings.

- Perform necessary dose projections. Determine recommended Protective Actions using IP-1013. Review these with the Emergency Director. Protective Actions should at this time be expanded to include evacuation of Sector 2 and 3 as well as 4, 5 and 6 out to 10 miles.

- Fill out "Emergency Notification Fact Sheet, Part II" and confer with the Emergency Director.

Survey Team Health Physicist (STHP)

- Continue to perform appropriate surveys approximately every 30 minutes; including EOF field survey, air sampling, and counting inside EOF, etc.

- Continue updating personnel exposure records and maintain exposure and contamination control for all personnel.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY

- Confer with ORAD and dispatch onsite field survey teams and receive data. Place field survey readings on Site Map.

Dose Assessment Health Physicist (DAHP)

- Receive, evaluate and relate to ORAD offsite survey team data. Begin to detect elevated offsite radiation levels in new downwind sectors.

- Calculate offsite exposures at the Site Boundary, 2 miles, 5 miles and 10 miles. Discuss results with ORAD.

- Obtain from MIDAS Operator the Reuter-Stokes SENTRI Readings. Review and compare with predicted and/or measured offsite exposure rates. Recommend to ORAD redirecting monitoring teams to resolve any discrepancies.

- Project future survey/sampling points.

Emergency Director (ED)

- Immediately notify the offsite authorities of the wind change.

- Obtain last prognosis from POM.

- Discuss Protective Actions with the ORAD. Protective Action recommendations should be expanded to include:

  o Evacuation of Sectors 2 and 3 as well as 4, 5 and 6 out to 10 miles.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
		- Fill out "Emergency Notification Fact Sheet, Part I" and have ORAD complete Part II and the TA Part III. - Have offsite authorities notified via telecopier.
T = 12:40	19	Maintenance teams have closed PCV-1191. The radioactive release from the plant is terminated. ANTICIPATED RESULTS Senior Watch Supervisor - Inform and confer with the POM. Emergency Director (ED) - Have Communicator inform offsite authorities that release has been terminated. - Evaluate offsite dose rates. - Discuss downgrading the emergency to a Site Area Emergency with the TSC Manager, ORAD and Plant Operations Manager. Offsite Radiological Assessment Director (ORAD) - Continue to monitor and assess the plume. Begin to consider recovery actions.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
		TSC Manager
		- Determine core damage from previous Reactor Coolant samples.
T = 12:55	20	Maintenance teams have repaired motor-driven Auxiliary Feedwater Pump #21. Feedwater flow may be restored to the Steam Generators.
		ANTICIPATED RESULTS
		Maintenance Team Leader
		- Reports back to OSC Coordinators that Auxiliary Feedwater Pump No. 21 is repaired.
		OSC Coordinators
		- Report to POM that Auxiliary Feedwater Pump No. 21 is repaired.
		Plant Operations Manager
		- Informs the SWS and directs him to restore feedwater flow to the steam generators.
T = 13:25	21	It is now 4 hours later, the plant is in a stable condition. Maintenance teams have repaired auxiliary feed pump #23 and have closed PCV-1192. Offsite power has been restored and the plant is in a controlled cooldown.
		ANTICIPATED RESULTS
		Emergency Director (ED)
		- Discussion plant situation with POM and TSC Manager.
		- Downgrades the emergency to ALERT.
		- Notifies the offsite authorities.

DETAILED SCENARIO TIME LINE

TIME	INITIATING MESSAGE NUMBER	EVENT SUMMARY
T = 14:10* (*Two days later	22	Two (2) days have passed. The plant is now in a safe and stable condition (i.e., core is cooled and radioactive release is terminated). ANTICIPATED RESULTS Emergency Director (ED) - Discuss declaration of the Recovery phase with the ORAD, TSC Manager, Plant Operations Manager and Recovery Manager. Offsite Rad Assessment Director (ORAD) - Initiate radiological checkout of Recovery Center. - Perform Post-Accident Environmental Sampling and Counting in accordance with IP-1004. - Perform Offsite Contamination Checks in accordance with IP-1039. - Continue, as necessary, radiological checking and decontamination of vehicles in accordance with IP-1009. - Estimate the total population dose within the 10 mile EPZ in accordance with IP-1036.
T = 15:10	23	All Exercise activities are terminated. All reports, logs, data and other pertinent material will be collected at this time by an Observer/Controller.

CONSOLIDATED EDISON COMPANY OF NEW YORK

INDIAN POINT UNIT NO. 2

DRILL SCENARIO NO. 4B REV. 0

IV. MESSAGES

TO: ALL EXERCISE PARTICIPANTS

FROM: ALL LOCATIONS

TIME: T = 08:00 or earlier

MESSAGE: EXERCISE GROUND RULES

All Exercise participants are required to observe the following Exercise Ground Rules for the entire duration of the Exercise. If you have any questions, ask your Exercise Controller for clarification at this time.

1. Ensure that all communications indicate that this is only an exercise. Make a positive statement that this is an exercise-related message at the beginning and end of all messages or conversations. If communication lines are kept open for extended periods, periodically repeat the caution. This is especially critical when transmitting messages over communication facilities that are monitored by non-Consolidated Edison personnel.

2. Take no actions that affect unit or non-exercise related operations.

3. Take immediate action(s) to restore safe operation, if an unsafe condition exists. Ignore exercise situation if actual safety becomes a concern.

4. Use only the information provided in accordance with the exercise ground rules or derived from approved procedures. Do not improvise information. Provide the actual outside temperature and precipitation conditions, when applicable.

   a. Controllers will provide appropriate information at the location where that information would normally be available (e.g., Reactor status at the Control Room, dose rate readings with field teams, meteorological information at Control Room or EOF).

CONSOLIDATED EDISON COMPANY OF NEW YORK

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DRILL SCENARIO NO. 4B REV. 0

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4. Use only the information provided in accordance with the exercise ground rules or derived from approved procedures. Do not improvise information. Provide the actual outside temperature and precipitation conditions, when applicable.

   a. Controllers will provide appropriate information at the location where that information would normally be available (e.g., Reactor status at the Control Room, dose rate readings with field teams, meteorological information at Control Room or EOF).

b. Only selected parameters and readings will be provided. The selected information will be sufficient to make decisions in accordance with Con Edison plans and procedures.

c. DO NOT BECOME OVERLY CONCERNED WITH THE MECHANICS OF THE REACTOR OR THE CAUSE OF THE ACCIDENT. THIS EXERCISE IS DESIGNED TO TEST CON EDISON PLANS AND PROCEDURES AND IS NOT CONCERNED WITH BRAINSTORMING THE PROBABILITY, FEASIBILITY OR DETAILED MECHANICS OF THE SIMULATED ACCIDENT.

d. There will be a Con Edison Observer/Controller at each important location. Controllers will provide information and clarification on which actions are to be simulated or are outside the scope of this exercise in order to keep the exercise progressing in accordance with the scenario. Observer/Controllers will also observe all aspects of the exercise to prepare an in-house evaluation of plans, procedures and training.

5. Be sure that the Con Edison Observer/Controller is aware of your actions (actual or simulated).

6. Make all required notifications. All notifications outside the Company will be for information only.

7. If samples inside or outside the site are deemed necessary, they will actually be collected, if possible, and their analysis conducted or simulated, if directed by a Controller. Observer/Controllers will accompany the survey teams, both onsite and offsite.

8. This exercise is conducted to evaluate our plans and procedures. The exercise is also a training vehicle for members of the Con Ed Emergency Response Organization to practice working together and with outside organizations. Please make note of any improvements in any area that you observe as a participant and submit them to the Observer/Controller at the conclusion of the exercise.

9. If, during any part of the exercise, you are having trouble accomplishing your required duties, confusion arises, or clarification is necessary, ask your Controller. Controller assistance or clarification does not necessarily imply failure on your part. Your Controller will know the limitations of information he can provide you, and will assist you only to the extent necessary.

TO: SENIOR WATCH SUPERVISOR

LOCATION: CONTROL ROOM

TIME: T = 08:00

MESSAGE: NO. 1

This is a Drill

Con Ed Indian Point Unit No. 2 has been operating at full power for 60 days. All plant parameters are normal and stable. The Containment is being pressure relieved. No. 22 ABFP and No. 22 HPSI pump are out on LCOs for corrective maintenance.

This is a Drill

TO: SENIOR REACTOR OPERATOR

LOCATION: CONTROL ROOM

TIME: T = 08:10

MESSAGE: NO. 2

This is a Drill

A tremor is felt in the Control Room. No alarm annunciation is indicated. Unit continues to operate with no interruptions.

This is a Drill

TO: SENIOR REACTOR OPERATOR

LOCATION: CONTROL ROOM

TIME: T = 08:15

MESSAGE: NO. 3

This is a Drill

The Unit No. 3 Watch Supervisor calls to say that they felt the tremor and two (2) amber lights lit on the Peak Shock Annunciator. He will call back as soon as the ground acceleration indication has been analyzed. Unit No. 3 will remain on the line until the evaluation is completed.

This is a Drill

TO: SENIOR WATCH SUPERVISOR

LOCATION: CONTROL ROOM

TIME: T = 08:25 if the SWS has not declared an NUE

MESSAGE: No. 3A

This is a Drill

You should declare a NUE at this time. Initiate the appropriate actions and notifications.

This is a Drill

TO: SENIOR WATCH SUPERVISOR

LOCATION: CONTROL ROOM

TIME: T = 08:45

MESSAGE: NO. 4

This is a Drill

The Unit No. 3 Watch Supervisor calls to say that the evaluation of the accelerometer indicates a 0.11g horizontal and 0.04 vertical displacement. He also indicates that Unit No. 3 will remain on line.

This is a Drill

TO: SENIOR WATCH SUPERVISOR

LOCATION: CONTROL ROOM

TIME: T = 08:55 if the SWS has not declared an ALERT

MESSAGE: NO. 4A

This is a Drill

You should declare an ALERT at this time. Initiate the appropriate actions and notifications.

This is a Drill

TO: SENIOR WATCH SUPERVISOR

LOCATION: CONTROL ROOM

TIME: T = 09:10

MESSAGE: NO. 5

This is a Drill

The damage survey team reports no evidence of damage to plant structures or equipment.

This is a Drill

TO: PLANT OPERATIONS MANAGER

LOCATION: CONTROL ROOM

TIME: T = 09:10 or when accountability has been completed.

MESSAGE NO. 6

This is a Drill

All personnel not assigned to a facility (EOF, TSC, OSC, CR) may return to their normal duties.

This is a Drill

TO: SENIOR WATCH SUPERVISOR

LOCATION: CONTROL ROOM

TIME: T = 09:10

MESSAGE: NO. 7

This is a Drill

Rod Cluster Control Assembly (RCCA), Bank "D" has been ejected from the reactor core, resulting in a small LOCA.

The Reactor "trips" on high power level followed by a Turbine Trip.

As RCS temperature and pressure decrease, Safety Injection initiates. One of the three High Pressure Safety Injection Pumps (No. 21) fails to start; the other two operate normally. On receipt of the Containment isolation signal, the two pressure relief valves outside Containment fail to close (PCV-1191 and PCV-1192). The inside valve (PCV-1190) does close however, securing Containment purge. The motor-driven auxiliary feedwater pumps start normally and provide flow to the Steam Generators.

Indications are as follows:

- Reactor Trip
- Turbine Trip
- Pressurizer Low Pressure and Level
- Safety Injection

This is a Drill

TO: EMERGENCY DIRECTOR

LOCATION: EMERGENCY OPERATIONS FACILITY

TIME: T = 09:25 if the Plant Operations Manager has not already declared an S.A.E.

MESSAGE: NO. 8

This is a Drill

You should declare a SITE AREA EMERGENCY at this time. Initiate appropriate actions and notifications.

This is a Drill

TO: SENIOR WATCH SUPERVISOR

LOCATION: CONTROL ROOM

TIME: T = 09:40

MESSAGE: NO. 9

This is a Drill

RCS cooldown is taking place and the Reactor is in a stable condition. The Charging Pumps and Safety Injection have stabilized RCS pressure at 1200 psig, and are continuing to provide makeup for coolant lost through the RCCA LOCA. RCS Tavg is constant at 500°F.

It is estimated that cooldown of the RCS will take approximately 3 hours.

Radiation monitors R-2, R-7, R-11 and R-12 ALARM.

This is a Drill

TO: SENIOR WATCH SUPERVISOR

LOCATION: CONTROL ROOM

TIME: T = 10:10

MESSAGE: NO. 10

This is a Drill

A disturbance in the offsite electric power system grid causes a loss of all offsite power. Power transfers to the emergency bus. Vital loads are properly sequenced onto the emergency power supply except for both motor-driven Auxiliary Feedwater Pumps, and No. 22 High Pressure Safety Injection Pump fails to start. No feedwater being supplied to the Steam Generators, and only one High Pressure Safety Injection Pump is in operation.

Diesel Generators Nos. 21, 22 and 23 all start normally.

Indications are as follows:

- 6900 Volt Station Auxiliary Breakers trip
- 480 Volt Switchgear Motor trips
- Emergency Diesel Generators Nos. 21, 22 and 23 start
- Auxiliary Feedwater Pumps Nos. 21 and 23 fail to start
- High Pressure Safety Injection Pump No. 22 fails to start

This is a Drill

TO: EMERGENCY DIRECTOR

LOCATION: EMERGENCY OPERATIONS FACILITY

TIME: T = 10:25 if the Emergency Director has not already declared a General Emergency.

MESSAGE: NO. 11

This is a Drill

A GENERAL EMERGENCY should be declared at this time. Initiate appropriate actions and notifications.

This is a Drill

TO: SENIOR WATCH SUPERVISOR

LOCATION: CONTROL ROOM

TIME: T = 10:25 (only when attempt is made)

MESSAGE: NO. 12

This is a Drill

Attempts to parallel the Gas Turbine Generators to the electrical buses are unsuccessful.

This is a Drill

TO: SENIOR WATCH SUPERVISOR

LOCATION: CONTROL ROOM

TIME: T = 10:25

MESSAGE: NO. 13

This is a Drill

All Steam Generators boil dry.

This is a Drill

TO: SENIOR WATCH SUPERVISOR

LOCATION: CONTROL ROOM

TIME: T = 10:35

MESSAGE: NO. 14

This is a Drill

The Power-Operated Relief Valves (PORVs) fail to OPEN at the prescribed pressure.

This is a Drill

TO: SENIOR WATCH SUPERVISOR

LOCATION: CONTROL ROOM

TIME: T = 10:40

MESSAGE: NO. 15

This is a Drill

Indications are as follows:

- o Area Monitor High Radiation Alarm
- o Failed fuel monitor indicates high activity

This is a Drill

TO: SENIOR WATCH SUPERVISOR

LOCATION: CONTROL ROOM

TIME: T = 11:10

MESSAGE: NO. 16

This is a Drill

Control Room annunciators indicate that the remaining closed Containment Pressure Relief Valve (PCV-1190) has failed in the OPEN position. Initial attempts to close all valves fail.

This is a Drill

TO: SENIOR WATCH SUPERVISOR

LOCATION: CONTROL ROOM

TIME: T = 11:15

MESSAGE: NO. 17

This is a Drill

ARM R-13 and R-14 Alarm.

This is a Drill

TO: MIDAS OPERATOR

LOCATION: EMERGENCY OPERATIONS FACILITY

TIME: T = 11:40 This message should not be issued if the MIDAS has been preprogrammed with scenario Met conditions.

MESSAGE: NO. 18

This is a Drill

The wind has shifted from 270 degrees to 225 degrees.

This is a Drill

TO: SENIOR WATCH SUPERVISOR

LOCATION: CONTROL ROOM

TIME: T = 12:40

MESSAGE: NO. 19

This is a Drill

Maintenance teams manage to close PCV-1191. The radioactive release from the plant is terminated.

This is a Drill

TO: MAINTENANCE TEAM LEADER

LOCATION: AUX FEEDWATER PUMP NO. 21

TIME: T = 12:55

MESSAGE: NO. 20

This is a Drill

Your team has completed repair of the motor-driven Auxiliary Feedwater Pump No. 21.

This is a Drill

TO: PLANT OPERATIONS MANAGER

LOCATION: CONTROL ROOM

TIME: T = 13:25

MESSAGE: NO. 21

This is a Drill

It is now 4 hours later, the plant is in a stable condition, maintenance teams have repaired auxiliary feed pump #23 and have closed PCV-1192. Offsite power has been restored and the plant is in a controlled cooldown.

This is a Drill

TO: PLANT OPERATIONS MANAGER

LOCATION: CONTROL ROOM

TIME: T = 14:10 (two days later)

MESSAGE: NO. 22

This is a Drill

Two (2) days have passed. The plant is now in a safe and stable condition (i.e., core is cooled and radioactive release is terminated).

This is a Drill

TO: ALL EXCERCISE PARTICIPANTS

LOCATION: CONTROL ROOM

TIME: T = 15:10

MESSAGE: NO. 23

This is a Drill

All Exercise activities are terminated. All participants should report back to their individual staging (or assembly) areas.

All reports, logs, data and other pertinent material will be collected at this time by an Observer/Controller.

This is a Drill

CONSOLIDATED EDISON COMPANY OF NEW YORK
INDIAN POINT UNIT NO. 2
DRILL SCENARIO NO. 4B REV.0

V. OBSERVER/CONTROLLER INSTRUCTIONS

A. Exercise Control Organization

Exercise Observer/Controllers shall be appointed in order to control, observe, and later critique exercise activities. The title "Observer/Controller" is used to designate either a single, or dual function during the exercise. Observers will be assigned to watch exercise activities as they occur. They will provide no input or active involvement or direction to any participants during the exercise. Their only function is to quietly observe in order to later help develop a representative critique of exercise participants' actions. Controllers will be assigned to various "key" locations in order to actively control the progress of the exercise. They will input Control and Contingency Messages at the appropriate times and provide any necessary interpretation to exercise participants. Controllers will be the only ones who can answer participants' questions. They will also function as Observers to help evaluate performance; thus Observer/Controllers. The designation below of Observer/Controller will mean either Observer, Controller, or Observer and Controller. The "Chief Controller" is the lead exercise manager (or controller) and will be located in the Control Room. Prior to the exercise, Observer/Controller instructions will be provided in order to familiarize all Observer/Controllers with the entire scope of the exercise, and answer any specific questions. Table A provides a listing of all exercise Observers and Controllers, their locations and phone numbers.

B. Exercise Control Instructions

1. All Controllers shall be pre-positioned at least one hour prior to the first message time.

2. Prior to exercise commencement, all Controller communications will be tested to ensure satisfactory exercise control.

3. All Controllers will comply with instructions from the Chief Controller.

4. Each Controller will have copies of the messages controlling the progress of the exercise scenario. Messages shall be delivered by the Controller at the appropriate times, to the designated individual(s). If the response of exercise participants necessitates the use of a contingency message,

the situation should be discussed with the Drill Controller prior to issuance of the message.

Controllers will use the following techniques to control the exercise in accordance with the scenario.

a. Control Messages - Control messages provide information to the participants and/or cause the participants to take action needed to keep the exercise moving smoothly. The Controller will give a hard copy of the control message to the designated participant at the specified time. Simultaneously, the Controller will provide the essential information verbally. The Controller will follow through and clarify the message by answering questions to ensure that the participants do not read extraneous meaning into the message. Controller will not tell participants what action they are expected to take.

b. Contingency Messages - Contingency messages will be used only if participants fail to take the major actions expected from the control messages by the time designated. Controllers will give the contingency message to the designated participant and explain in as much detail as necessary what actions the participant is expected to perform. Contingency messages are used to keep the exercise on schedule, though their use may indicate inadequate plan implementation.

c. Control Information - Controllers for Health Physics and Environs Field Teams will provide instrument readings and other information to team members verbally when they request it by performing the measurements, etc. Controllers will refer to their current location and the applicable time period to obtain requested data from the appropriate tables.

d. Control Guidance - Controllers will provide verbal guidance to participants to keep the exercise oriented to the pre-arranged scope and scenario. Controllers will direct participants to simulate certain actions that are outside the immediate scope of the exercise at the time participants announce their intention to perform the action. Observer/Controllers will note that the participants simulated the action. Participants must request information that is not automatically provided from participants at other locations. Controllers will steer participants away from types of information that are outside the exercise scope to avoid bogging the exercise down in a quest for information that Controllers do not possess and have no intention of providing.

NOTE: All messages controlling the progress of the exercise scenario are noted with a number.

5. All Controllers shall synchronize their watches to ensure that messages are delivered at the proper time. Times on messages are real time.

6. Each Controller will have copies of time-related plant and radiological parameters (data) corresponding to the development of the exercise scenario. This information should be issued, only upon request or when required, to the appropriate exercise participants by either the Control Room Drill Controller, or Controllers accompanying the radiological monitoring or inplant health physics personnel.

7. Controllers shall not provide information to the exercise participants regarding scenario development or resolution of problem areas encountered. The exercise participants are expected to obtain information through their own organizations and exercise their own judgements in determining response actions and resolving problems.

8. Any inquiries originating from the general public, as a result of exercise activities, will be referred to a Controller. An explanation will consist only of stating that a practice drill is underway at the plant and all events are simulated (i.e., not real).

9. Some exercise participants may insist that certain parts of the scenario are unrealistic. The Drill Controller has the sole authority to clarify any questions regarding scenario content.

10. Each Observer/Controller should use the Log Sheet contained at the end of this section to take detailed notes regarding the progress of the exercise and the responses of the exercise participants at their respective assigned locations. Each Observer/Controller should carefully note the arrival and departure times for exercise participants, the times at which major activities or milestones occur, and problem areas encountered. Observer/Controllers' comments should consider the evaluation elements set forth in Section B, "Exercise Evaluation Criteria." All notes taken should be retained for the purposes of reconstructing the exercise chronology and preparing a written critique of the exercise.

11. The exercise is tentatively scheduled to end as indicated in the last message. Instructions for reassembly of the Observer/Controller team will be given at that time.

NOTE: In the event of a real emergency during the exercise, the exercise may be immediately terminated by the Drill Controller, if deemed appropriate.

B. Exercise Evaluation Criteria

Observer/Controllers shall familiarize themselves with the duties and action requirements of the personnel they are monitoring.

Certain generic evaluation points are to be considered for all locations/participants, as appropriate. These include:

1. Notification, alerting and mobilization of emergency response personnel.

2. Adequate communications capabilities among onsite and offsite emergency response facilities and personnel.

3. Timely activation of emergency facilities and teams.

4. Clear and appropriate direction and control of all exercise activities.

5. Emergency procedures are followed. In some cases they should be referred to during accomplishment of specific duties; e.g., dose assessment.

6. Overall adequacy of the scenario to test the various emergency preparedness plans and procedures.

7. Benefit of the exercise to its participants.

The following guidelines provide basic evaluation criteria which must be addressed by the Observer/Controller in order to effectively critique the exercise. Evaluation criteria are grouped according to exercise activity location and individual (or team) functions.

NOTE: Specific exercise performance must be compared directly with company emergency procedures. Therefore, individuals assigned as Observer/Controllers shall be cognizant of the respective procedures and all actions that shall be carried out by the participants they observe.

After completion of the drill, and before the end of the next normal working day, the Chief Controller shall hold a verbal critique, where all Observer/Controllers shall discuss their observations and any noted shortcoming, and present their recommendations to improve performance and emergency preparedness. Critique comments will be requested from all participants at the conclusion of the exercise.

1. Control Room

Prior to initiating the exercise, the Drill Controller will confer with the Senior Watch Supervisor (SWS) in order to identify any ongoing operational or maintenance activities that should

not be interrupted. Those personnel engaged in these activities will be notified that they are to disregard any exercise-related announcements or activities. Emphasis should be made, however, that in the event of a real emergency the exercise may be terminated and station announcements will specify "THIS IS NOT A DRILL" such that instructions should be followed by all personnel.

The Observer/Controller shall observe the action of all personnel assigned to the Control Room and all personnel who report to the Control Room for assignment. In addition, he will pay special attention to the following:

- Use of map and overlays.
- Placement of calls to NRC, NYS and Counties.
- Notification, alerting and mobilization of emergency response personnel, including calling in off-duty personnel.
- Operations handling of accident conditions if appropriate.
- Instructions given to Search and Rescue teams, Repair and Corrective Action teams, and H.P. and Chem. Techs by the Senior Watch Supervisor (SWS).
- Does the SWS handle the emergency by directing his people or trying to do the work himself.
- Is the time frame of actions by the SWS reasonable enough.
- Deportment of all personnel in the Control Room.

The following procedures are to be used in the evaluation:

IP-1001	Mobilization of Onsite Emergency Organization
IP-1002	Emergency Notification and Communication
IP-1003	Planned Discharge of Containment Atmosphere During Accident Conditions
IP-1007	Determination of the Magnitude of Release and Exposure Rate
IP-1010	Search and Rescue Teams
IP-1011	Repair and Corrective Action
IP-1013	Recommendation of Protective Actions for Offsite Population
IP-1016	Obtaining Meteorological Data
IP-1020	Airborne Iodine - 131 Determination Using SAM-2/RD-22 or RM-14/HP-210
IP-1021	Manual Update and Readout of Proteus Plant Parimeter Data
IP-1026	Operation of the NAWAS Communication System
IP-1037	Obtaining Offsite Reuter-Stokes Monitor Data
IP-1038	Emergency Personnel Exposure

IP-1043 Operation of the NYS Radiological Emergency Communications System (RECS)
IP-1047 Obtaining Offsite Exposure Rates from MIDAS Via Control Room ASCII Terminal.

Plus Immediate Action Procedures for SWS, CRO, WATCH HP, POM

2. Technical Support Center

The Observer/Controller should observe the following:

- Timely activation
- A minimum of four qualified persons manning the center.
- Field survey performed.
- Noble gas monitor set up.
- "Frisker" set up.
- Work performed in professional manner.
- Phones are plugged in and direct lines to Control Room, NRC, and EOF are checked out.

The following procedures are to be used in the evaluation:

IP-1020 Airborne Iodine - 131 Determination Using SAM-2/RD-22 or RM-14/HP-210
IP-1021 Manual Update and Readout of Proteus Plant Parameter Data
IP-1035 Technical Support Center
IP-1041 Use of the Triton to Monitor Noblegas

3. Operations Control Center (OCC)

The Observer/Controller should observe the following:

- Timely initiation of a call to the paging service company.
- Adequate communications, including how problems with the radio and telephones are handled. Message handling and communication logging procedures.
- Verification call to Indian Point Unit No. 2 Control Room for authenticity of emergency.
- Preparation records of personnel who have called in.

The following procedure is to be used in the evaluation:

IP-1002 Emergency Notification and Communication

4. Assembly Area

The Observer/Controller should observe the following:

- o Do they seek out their section or department accountability officer, generally stay together as a group and remain orderly?
- o Were Assembly Area radiation surveys performed and results recorded? This will depend on whether there is an SAE or GE classification and releases to the environment.
- o Is there documentation of accountability and is it understandable to others.

The following procedure is to be used in the evaluation:

IP-1027 Site Personnel Accountability and Evaluation

5. Operational Support Center

The Observer/Controller should observe the following:

- o Is there documentation of accountability and is it understandable to others?
- o Do the personnel awaiting assignment remain orderly?
- o Were radiation surveys performed and recorded?
- o Receipt of request to form teams.
- o Handling the assignment of team members.

The following procedures are to be used in the evaluation.

IP-1020 Airborne Iodine - 131 Determination using SAM-2/RD-22 or RM-14/HP-210

IP-1023 Operational Support Center

IP-1027 Site Personnel Accountability and Evacuation

IP-1041 Use of the Triton to Monitor Noblegas.

6. Emergency Operations Facility

This is the command post for the interface with offsite authorities and it should seem so to the Observer/Controller. Look for the following things:

- o The Emergency Director is in command of the EOF.
- o The ORAD is in control of the radiological assessment activities, and reports results and recommendations to the Emergency Director in a timely and efficient manner.

- Any extra personnel, spectators and those awaiting orders are quietly standing out of the way.

- The H.P. or support personnel are performing duties in a timely and efficient manner and reporting results to either the Emergency Director or ORAD.

- Instrumentation deployed in the EOF is placed in a non-interfering position.

- Adequate communications, including how problems with the radio and telephone are handled. Message handling and communications logging procedures.

- Radioactive release rates, whole body and thyroid exposures to the offsite population are calculated quickly after the receipt of data from the Control Room or the offsite monitoring team(s).

- Prompt notification to the NRC, NYS and Counties of exposure data and changes to site meteorological conditions.

- The Emergency Director assigns, where possible, his routine calls to someone else thereby leaving himself free to command the action.

- Data forms filled out and turned in to the ORAD/Health Physicist.

- Timely deployment of teams.

- A central point for receipt of radiological monitoring data is designated and adequate communications with field teams demonstrated.

- Demonstrate ability to assess plant conditions, reclassify the incident (if appropriate), develop timely protective action recommendations, or communicate with offsite authorities in an accurate and timely manner.

- Demonstrate ability to control radiological monitoring field teams for "plume-tracking," and ingestion pathway monitoring.

- Demonstrate ability to develop recommendations for recovery and re-entry activities.

- Demonstrate ability to provide radiation exposure control for emergency workers.

The following procedures are to be used in the evaluation:

IP-1002 Emergency Notification and Communication
IP-1003 Planned Discharge of Containment Atmosphere During

	Accident Conditions
IP-1004	Post Accident Offsite Environmental Surveys, Sampling and Counting
IP-1005	Use of SAM-2/RD-22 to Determine Thyroid Burdens
IP-1006	Site Perimeter Surveys
IP-1007	Determination of the Magnitude of Release and Exposure Rate
IP-1013	Recommendation of Protective Actions for Offsite Population
IP-1016	Obtaining Meteorological Data
IP-1020	Airborne Iodine - 131 Determination Using SAM-2/RD-22 or RM-14/HP-210
IP-1021	Manual Update and Readout of Proteus Plant Parameter Data
IP-1029	Emergency Closeout/Class Reduction Written Summary to Authorities
IP-1036	Estimation of Population Dose Within the 10 Mile Emergency Planning Zone
IP-1037	Obtaining Offsite Reuter-Stokes Monitor Data
IP-1038	Emergency Personnel Exposure
IP-1041	Use of Triton to Monitor Noblegas
IP-1043	Operation of the NYS Radiological Emergency Communications System (RECS)
IP-1048	Deescalation of Emergency and Initiation of Recovery

Plus Immediate Action Procedures for ED, TA, ORAD, DAHP, STHP, MIDAS, EOF COMM, EOF CLERK

7. Security Building(s) or Security Control Points

It is to be noted that all normal practices, such as sign-out and use of the hand and foot monitor and the portal monitor, are to be accomplished unless the H.P. Technician gives other directions because of radiological conditions. The Observer/Controller will pay special attention to the above along with the following:

- o Timely activation or establishment of control points.
- o No one is wearing Anti-C clothing when leaving the site.
- o All alarms from monitoring equipment or computer card terminals are acknowledged.

The following procedures are to be used in the evaluation:

IP-1017	Issuance and Use of Radiological Equipment Stored in the Command Guard House

8. Onsite Monitoring Teams

Onsite monitoring teams will normally be assigned field survey work onsite, outside of the protected area fence, and at the Service Center building complex. Check on the following items:

- Received KI dose (simulated) from ORAD if required.

  NOTE: Do not actually take the KI Dose.

- They have a dosimeter and film badge.

- They have a charcoal filter respirator when leaving the building complex to perform a survey.

- Radio check performed before leaving the EOF parking lot.

- Field readings taken along the route to the designated area. Simulated field data will only be available at designated monitoring points.

- Work performed in a professional manner.

- Data forms filled out as appropriate and turned in to the ORAD/Health Physicist.

The following procedures are to be used in the evaluation:

IP-1006	Site Perimeter Surveys
IP-1008	Personnel Radiological Check and Decontamination
IP-1009	Radiological Check and Decontamination of Vehicles
IP-1014	Radiological Check of Equipment Before it leaves the Site
IP-1028	Onsite (out of plant) Field Surveys

9. Offsite Monitoring Teams

The Observer/Controller should observe the following items:

- Received Ki dose (simulated) from ORAD if required.

  NOTE: Do not actually take the KI dose.

- Operational check performed on survey instruments, sample counter and sample pump before leaving the EOF parking lot.

- Equipment check-off performed.

- Assignment of badges and dosimeters before leaving the EOF parking lot.

- Charcoal cartridge respirator made available before leaving EOF lot.

- Survey instrument made ready to take field readings.

- Radio check-out by communication to EOF before leaving.

- o Beta and gamma field surveys performed on the way to sample point.
- o Sampling and field surveys performed at sample location.
- o Instrument calibration performed and samples counted.
- o Air sampling started.

The following procedures are to be used in the evaluation:

IP-1004	Post Accident Offsite Environmental Surveys, Sampling and Counting
IP-1006	Site Perimeter Surveys
IP-1008	Personnel Radiological Check and Decontamination
IP-1009	Radiological Check and Decontamination of Vehicles
IP-1015	Mobilization and Operational Procedure for Offsite Monitoring Teams - Immediate Response.
IP-1020	Airborne Iodine - 131 Determination using SAM-2/RD-22 or RM-14/HP-210
IP-1039	Offsite Contamination Checks

10. Radiation Protection Technician (RPT)

The Observer/Controller should observe the following:

- o RPT follows his instructions indicated under his discipline tab during radiological emergencies.
- o RPT follows instructions from SWS or OSC coordinator.
- o RPT performs survey as indicated using appropriate instrumentation.
- o RPT performs duties during medical emergency as indicated in IP-1012.

The following procedures are to be used in the evaluation:

IP-1010	Search and Rescue Teams
IP-1011	Repair and Corrective Action
IP-1012	Onsite Medical Emergency
IP-1020	Airborne Iodine - 131 Determination Using SAM-2/RD-22 or RM-14/HP-210
IP-1042	In-Plant Radiological Surveys and Sampling
HPP-6.4	Decontamination
HPI-6.41	Personnel Decontamination

Plus Immediate Action Procedure WATCH H.P.

11. Chemistry Technician

The Observer/Controller should observe the following:

- o Chemistry Technician follows Chemistry Procedures as appropriate.
- o Samples are actually collected and counted, as indicated by the scenario.
- o Results of sample counting (simulated and real) are transmitted to the SWS or OSC Coordinator as appropriate.

The following procedures are to be used in the evaluation:

IPC-E-001	Post Accident Sampling and Analysis of Reactor Coolant
IPC-E-002	Post Accident Sampling and Analysis of the Vapor Containment Atmosphere
IPC-E-003	Post Accident Sampling and Analysis of Plant Discharges for Noblegas, Radioiodines and Particulates.

12. Maintenance Repair Team

The Observer/Controller should observe the following:

- o Response and repair time.
- o Proper equipment brought to perform the work.
- o Maintenance Repair Team members follow H.P. Technician's instructions.
- o Radiological precautions taken.

The following procedures are to be used in the evaluation.

IP-1010	Search and Rescue Teams
IP-1011	Repair and Corrective Action
IP-1023	Operational Support Center

TABLE A

1984 ANNUAL DRILL - CONTROLLER/OBSERVER

POSITION	LOCATION	INDIVIDUAL	TELEPHONE
Chief Controller	CCR	R. Sondike	
Controller	CCR	G. Lewis	
Observer (SWS/POM)	CCR	R. Colanero	
Observer (Communicator)	CCR	V. Megluevich	
Observer (H.P.)	CCR	E. Nestor	
Observer (Chem)	CCR	S. Profeta	
Backup Controller/Observer		T. Cotter	
Backup Controller/Observer		W. Thompson	
Backup Controller/Observer		T. Gildersleeve	
Controller	TSC	N. Hartmann	
Observer	TSC		
Observer	TSC		
Observer (CAO)	OSC	B. Barbalich	
Observer (Team)	OSC	J. Daly	
Observer (Team)	OSC	F. Gross	
Observer (Team)	OSC	H. Whitteborn	
Observer (53 el Confer Rm)	OSC	H. Dietrich	
Controller	EOF	G. H. Liebler	
Observer (ED/ORAD)	EOF	H. Sanders	
Observer (Communicator)	EOF		
Observer (Onsite Team)	EOF	T. Hanovich	
Observer (Offsite Team)	EOF	H. Gordon	
Observer (Offsite Team)	EOF	E. Savoca	
Observer (Assembly)	Simulator	J. Sedlacek	
Observer (Assembly)	Construction	A. Donnegan	
Observer (Assembly)	Maint.-Load. Well	M. DiGenova	
Observer (Assembly)	M.O. Bldg - Crouse	A. Tom	
Observer (Assembly)	U-1 Turb. Fl. Off.		
Observer (Security)	CGH		
Observer (Security)	River Gate	L. Rocco	
Observer (Security)	NSB Control Pt.	M. Skotzko	
Controller/Observer	OCC		
Observer	CRC	W. Piatek	

CONSOLIDATED EDISON COMPANY OF NEW YORK
INDIAN POINT UNIT NO. 2

EMERGENCY PREPAREDNESS EXERCISE

OBSERVER/CONTROLLER LOG SHEET

Neme: _____ Date: _____

Location: _____

TIME	OBSERVATION/COMMENT

PLANT STATUS LOG

SCENARIO NO. 4B REV. 0

PARAMETER TIME	08:00	08:15	08:45	09:00	09:10	09:11	09:12	09:13
Reactor Shutdown (Y/N)	N	N	N	N	N	N	Y	Y
NIS Power Range (%)	100	100	100	100	100	80	0	0
NIS Interim. Range #35 (Amps)	$2x10^{-4}$	$2x10^{-4}$	$2x10^{-4}$	$2x10^{-4}$	$2x10^{-4}$	$2x10^{-4}$	$2x10^{-5}$	10^{-5}
NIS Interim. Range #36 (Amps)	$2x10^{-4}$	$2x10^{-4}$	$2x10^{-4}$	$2x10^{-4}$	$2x10^{-4}$	$2x10^{-4}$	$2x10^{-5}$	10^{-5}
NIS Source Range #31 (CPM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NIS Source Range #32 (CPM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RCS Incor T/C (Center) (°F)	575	575	575	575	575	573	545	545
RCS Incore T/C (Highest) (°F)	575	575	575	575	575	573	545	545
RCS Pressure (PSIG)	2235	2235	2235	2235	2000	1900	1750	1675
RCS Avg. Temp. (°F)	549	549	549	549	549	549	545	545
RCS Cold Leg Temp. (°F)	523	523	523	523	523	525	545	545
SAT Meter Margin(°F)	76	76	76	76	60	55	58	68
RCP in Service (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y
Pressurizer Level (%)	25	25	25	25	15	15	14	14
Reactor Vessel Level (%)	100	100	100	100	100	100	100	100
S/G Levels #21 (%)	45	45	45	45	45	45	0	2
#22	45	45	45	45	45	45	0	2
#23	45	45	45	45	45	45	0	2
#24	45	45	45	45	45	45	0	2
S/G Press #21 (PSIG)	650	650	650	650	750	750	850	900
#22	650	650	650	650	750	750	850	900
#23	650	650	650	650	750	750	850	900
#24	650	650	650	650	750	750	850	900
VC Pressure (PSIG)	0	0	0	0	0	0.5	1	1
VC Temperature (°F)	116	116	116	116	117	118	119	120
VC Sump Level Elev. (ft.)	0	0	0	0	0	0	40.5	40.5
VC Hydrogen (%)	0	0	0	0	0	0	0	0
Aux. F. W. Flow(GPM)	0	0	0	0	0	0	400	400
RWST Level (ft.)	36	36	36	36	36	36	36	36
Condensate Storage Tank Level (ft.)	40	40	40	40	40	40	40	40

PLANT STATUS LOG

SCENARIO NO. 4B REV. 0

PARAMETER TIME	09:14	09:15	09:20	09:25	09:40	09:55	10:10	10:15
Reactor Shutdown (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y
NIS Power Range (%)	0	0	0	0	0	0	0	0
NIS Interim. Range #35 (Amps)	$7x10^{-6}$	$4x10^{-6}$	$2x10^{-7}$	10^{-9}	$5x10^{-11}$	$5x10^{-11}$	10^{-11}	10^{-11}
NIS Interim. Range #36 (Amps)	$7x10^{-6}$	$4x10^{-6}$	$2x10^{-7}$	10^{-9}	$5x10^{-11}$	$5x10^{-11}$	10^{-11}	10^{-11}
NIS Source Range #31 (CPM)	N/A	N/A	N/A	N/A	10,000	10,000	5,000	2,000
NIS Source Range #32 (CPM)	N/A	N/A	N/A	N/A	10,000	10,000	5,000	2,000
RCS Incor T/C (Center) (°F)	544	543	525	500	500	500	550	560
RCS Incore T/C (Highest) (°F)	544	543	525	500	500	500	550	570
RCS Pressure (PSIG)	1650	1625	1500	1200	1200	1200	1200	1200
RCS Avg. Temp. (°F)	544	543	525	500	500	500	550	540
RCS Cold Leg Temp. (°F)	544	543	525	500	500	500	550	540
SAT Meter Margin(°F)	64	63	71	67	67	67	17	7
RCP in Service (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y
Pressurizer Level (%)	14	13	14	24	25	25	25	25
Reactor Vessel Level (%)	100	100	100	100	100	100	100	100
S/G Levels #21 (%)	5	7	7	6	7	7	7	5
#22	5	7	7	6	7	7	7	5
#23	5	7	7	6	7	7	7	5
#24	5	7	7	6	7	7	7	5
S/G Press #21 (PSIG)	1000	1000	970	1000	950	950	950	950
#22	1000	1000	970	1000	950	950	950	950
#23	1000	1000	970	1000	950	950	950	950
#24	1000	1000	970	1000	950	950	950	950
VC Pressure (PSIG)	2	2	2	3	4	4	5	6
VC Temperature (°F)	121	122	127	126	127	127	128	129
VC Sump Level Elev. (ft.)	40.5	40.5	42.9	42.9	42.9	42.9	42.9	42.9
VC Hydrogen (%)	0	0	0	0	0	0	0	0
Aux. F. W. Flow(GPM)	400	400	400	400	400	400	0	0
RWST Level (ft.)	36	36	36	35	35	35	35	35
Condensate Storage Tank Level (ft.)	39	38	38	37	36	36	36	36

PLANT STATUS LOG

SCENARIO NO. 4B REV. 0

PARAMETER TIME	10:20	10:25	10:30	10:35	10:40	10:55	11:10	11:25
Reactor Shutdown (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y
NIS Power Range (%)	0	0	0	0	0	0	0	0
NIS Interim. Range #35 (Amps)	10^{-11}	10^{-11}	10^{-11}	10^{-11}	10^{-11}	10^{-11}	10^{-11}	10^{-11}
NIS Interim. Range #36 (Amps)	10^{-11}	10-11	10^{-11}	10^{-11}	10^{-11}	10^{-11}	10^{-11}	10^{-11}
NIS Source Range #31 (CPM)	1,000	500	200	100	100	100	100	100
NIS Source Range #32 (CPM)	1,000	500	200	100	100	100	100	100
RCS Incor T/C (Center) (°F)	565	570	620	640	660	680	680	680
RCS Incore T/C (Highest) (°F)	575	575	630	650	670	690	700	800
RCS Pressure (PSIG)	1200	2100	2300	2400	2400	2400	2400	2400
RCS Avg. Temp. (°F)	540	540	600	615	High	High	High	High
RCS Cold Leg Temp. (°F)	540	540	600	600	600	600	600	600
SAT Meter Margin(°F)	7	102	55	12	0	0	0	0
RCP in Service (Y/N)	N	N	N	N	N	N	N	N
Pressurizer Level (%)	25	25	25	25	0	0	0	0
Reactor Vessel Level (%)	100	100	100	100	90	40	30	40
S/G Levels #21 (%)	2	0	0	0	0	0	0	0
#22	2	0	0	0	0	0	0	0
#23	2	0	0	0	0	0	0	0
#24	2	0	0	0	0	0	0	0
S/G Press #21 (PSIG)	860	0	0	0	0	0	0	0
#22	860	0	0	0	0	0	0	0
#23	860	0	0	0	0	0	0	0
#24	860	0	0	0	0	0	0	0
VC Pressure (PSIG)	6	7	7	8	8	8	7	8
VC Temperature (°F)	130	130	130	130	130	130	130	130
VC Sump Level Elev. (ft.)	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9
VC Hydrogen (%)	0	0	0	0	0	0	0.4	0.6
Aux. F. W. Flow(GPM)	0	0	0	0	0	0	0	0
RWST Level (ft.)	34	34	34	34	33	33	33	32
Condensate Storage Tank Level (ft.)	36	36	36	36	36	36	36	36

PLANT STATUS LOG

SCENARIO NO. 4B REV. 0

PARAMETER TIME	11:40	11:55	12:10	12:25	12:40	12:55	13:10	13:25
Reactor Shutdown (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y
NIS Power Range (%)	10^{0}	10^{0}	10^{0}	10^{0}	10^{0}	10^{0}	10^{0}	10^{0}
NIS Interim. Range #35 (Amps)	10^{-11}	10^{-11}	10^{-11}	10^{-11}	10^{-11}	10^{-11}	10^{-11}	10^{-11}
NIS Interim. Range #36 (Amps)	10^{-11}	10-11	10^{-11}	10^{-11}	10^{-11}	10^{-11}	10^{-11}	10^{-11}
NIS Source Range #31 (CPM)	100	100	100	100	100	100	100	100
NIS Source Range #32 (CPM)	100	100	100	100	100	100	100	100
RCS Incor T/C (Center) (°F)	680	680	680	680	680	680	680	575
RCS Incore T/C (Highest) (°F)	900	1000	1000	1000	1000	1000	1000	600
RCS Pressure (PSIG)	2400	2400	2400	2400	2400	2400	2400	1400
RCS Avg. Temp. (°F)	High	High	High	High	High	High	High	400
RCS Cold Leg Temp. (°F)	600	600	600	600	600	600	600	400
SAT Meter Margin(°F)	0	0	0	0	0	0	0	187
RCP in Service (Y/N)	N	N	N	N	N	N	N	Y
Pressurizer Level (%)	0	0	0	0	0	0	0	25
Reactor Vessel Level (%)	45	60	70	75	80	80	85	90
S/G Levels #21 (%)	0	0	0	0	0	5	5	45
#22	0	0	0	0	0	5	5	45
#23	0	0	0	0	0	0	0	45
#24	0	0	0	0	0	0	0	45
S/G Press #21 (PSIG)	0	0	0	0	0	600	600	250
#22	0	0	0	0	0	600	600	250
#23	0	0	0	0	0	0	0	250
#24	0	0	0	0	0	0	0	250
VC Pressure (PSIG)	7	8	8	8	8	8	8	0
VC Temperature (°F)	130	130	130	130	130	130	130	130
VC Sump Level Elev. (ft.)	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9
VC Hydrogen (%)	0.8	1.0	1.0	1.0	1.0	1.0	1.0	0
Aux. F. W. Flow(GPM)	0	0	0	0	0	200	200	400
RWST Level (ft.)	32	32	32	31	31	31	31	25
Condensate Storage Tank Level (ft.)	36	36	36	36	36	36	36	36

PARAMETER TIME	13:40	13:55	14:10
Reactor Shutdown (Y/N)	Y	Y	Y
NIS Power Range (%)	0	0	0
NIS Interim. Range #35 (Amps)	10^{-11}	10^{-11}	10^{-11}
NIS Interim. Range #36 (Amps)	10^{-11}	10-11	10^{-11}
NIS Source Range #31 (CPM)	100	100	20
NIS Source Range #32 (CPM)	100	100	20
RCS Incor T/C (Center) (°F)	555	535	190
RCS Incore T/C (Highest) (°F)	580	560	190
RCS Pressure (PSIG)	1400	1400	0
RCS Avg. Temp. (°F)	380	360	180
RCS Cold Leg Temp. (°F)	380	360	180
SAT Meter Margin(°F)	187	187	32
RCP in Service (Y/N)	Y	Y	N
Pressurizer Level (%)	25	25	25
Reactor Vessel Level (%)	100	100	100
S/G Levels #21 (%)	45	45	45
#22	45	45	45
#23	45	45	45
#24	45	45	45
S/G Press #21 (PSIG)	195	150	0
#22	195	150	0
#23	195	150	0
#24	195	150	0
VC Pressure (PSIG)	0	0	0
VC Temperature (°F)	130	130	130
VC Sump Level Elev. (ft.)	42.9	42.9	42.9
VC Hydrogen (%)	0	0	0
Aux. F. W. Flow(GPM)	400	400	400
RWST Level (ft.)	25	25	10
Condensate Storage Tank Level (ft.)	36	36	30

PARAMETER		TIME 08:00
Offsite Power Available	138KV	0
	13.8KV	0
Emergency D/Gs	#21	S
	#22	S
	#23	S
SIS Pumps	#21	S
	#22	S
	#23	S
RHR Pumps	#21	S
	#22	S
Charging Pumps	#21	0
	#22	S
	#23	S
Containment Spray Pumps	#21	S
	#22	S
Recirculation Pumps	#21	S
	#22	S
Component Cooling Pumps	#21	0
	#22	0
	#23	S
Aux Component Cooling Pumps	#21	S
	#22	S
Aux Boiler Feed Pumps	#21	S
	#22	S
	#23	S
Fan Cooler Units	#21	0
	#22	0
	#23	0
	#24	0
	#25	0

PARAMETER			TIME 08:00
Service Water Pumps	#21		0
(Essential Header)	#22		0
	#23		S
	#24		S
	#25		0
	#26		0
Component Cool Heat Exch	#21		0
	#22		0
RHR Heat Exchanger	#21		S
	#22		S
Hydrogen Recombiner	#21		S
	#22		S
VC Isolation (A/B)			NO
Exceptions			
Containment Purge in Progress			
High Head SIS Flow	#21	(GPM)	0
	#22	(GPM)	0
	#23	(GPM)	0
	#24	(GPM)	0
Low Head SIS Flow	#21	(GPM)	0
	#22	(GPM)	0
	#23	(GPM)	0
	#24	(GPM)	0
Accumulator Level	#21	(%)	52
	#22	(%)	52
	#23	(%)	52
	#24	(%)	52
BIT Level		(%)	64
BIT Pressure		(PSIG)	90

Legend: O = Operating
O/S = Out of Service
S = Standby

PARAMETER		TIME 09:12
Offsite Power Available	138KV	0
	13.8KV	0
Emergency D/Gs	#21	0*
	#22	0*
	#23	0*
SIS Pumps	#21	0/S*
	#22	0*
	#23	0*
RHR Pumps	#21	S
	#22	S
Charging Pumps	#21	0
	#22	S
	#23	S
Containment Spray Pumps	#21	S
	#22	S
Recirculation Pumps	#21	S
	#22	S
Component Cooling Pumps	#21	0
	#22	0
	#23	S
Aux Component Cooling Pumps	#21	S
	#22	S
Aux Boiler Feed Pumps	#21	0*
	#22	0/S*
	#23	0*
Fan Cooler Units	#21	0
	#22	0
	#23	0
	#24	0
	#25	0

PARAMETER			TIME 09:12
Service Water Pumps (Essential Header)	#21		0
	#22		0
	#23		S
	#24		S
	#25		0
	#26		0
Component Cool Heat Exch	#21		0
	#22		0
RHR Heat Exchanger	#21		S
	#22		S
Hydrogen Recombiner	#21		S
	#22		S
VC Isolation (A/B)			YES*
Exceptions			
PCV-1191 & 1192 Fail to Close			
PCV-1190 Closes			
High Head SIS Flow	#21	(GPM)	0
	#22	(GPM)	0
	#23	(GPM)	0
	#24	(GPM)	0
Low Head SIS Flow	#21	(GPM)	0
	#22	(GPM)	0
	#24	(%)	0
Accumulator Level	#21	(%)	52
	#22	(%)	52
	#23	(%)	52
	#24	(%)	52
BIT Level		(%)	64
BIT Pressure		(PSIG)	90

Legend:
- O = Operating
- O/S = Out of Service
- S = Standby
- * = Change on status from previous log.

PARAMETER		TIME 09:20
Offsite Power Available	138KV	0
	13.8KV	0
Emergency D/Gs	#21	0
	#22	0
	#23	0
SIS Pumps	#21	0/S
	#22	0
	#23	0
RHR Pumps	#21	S
	#22	S
Charging Pumps	#21	0
	#22	S
	#23	S
Containment Spray Pumps	#21	S
	#22	S
Recirculation Pumps	#21	S
	#22	S
Component Cooling Pumps	#21	0
	#22	0
	#23	S
Aux Component Cooling Pumps	#21	S
	#22	S
Aux Boiler Feed Pumps	#21	0
	#22	0/S
	#23	0
Fan Cooler Units	#21	0
	#22	0
	#23	0
	#24	0
	#25	0

PARAMETER			TIME 09:20
Service Water Pumps	#21		0
(Essential Header)	#22		0
	#23		S
	#24		S
	#25		0
	#26		0
Component Cool Heat Exch	#21		0
	#22		0
RHR Heat Exchanger	#21		S
	#22		S
Hydrogen Recombiner	#21		S
	#22		S
VC Isolation (A/B)			YES
Exceptions			
PCV-1191 & 1192 Open			
PCV-1190 Closed			
High Head SIS Flow	#21	(GPM)	100*
	#22	(GPM)	100*
	#23	(GPM)	100*
	#24	(GPM)	100*
Low Head SIS Flow	#21	(GPM)	0
	#22	(GPM)	0
	#23	(GPM)	0
	#24	(GPM)	0
Accumulator Level	#21	(%)	52
	#22	(%)	52
	#23	(%)	52
	#24	(%)	52
BIT Level		(%)	10*
BIT Pressure		(PSIG)	15*

Legend:
- O = Operating
- O/S = Out of Service
- S = Standby
- * = Change on status from previous log.

PARAMETER		TIME 09:25
Offsite Power Available	138KV	0
	13.8KV	0
Emergency D/Gs	#21	0
	#22	0
	#23	0
SIS Pumps	#21	0/S
	#22	0
	#23	0
RHR Pumps	#21	S
	#22	S
Charging Pumps	#21	0
	#22	S
	#23	S
Containment Spray Pumps	#21	S
	#22	S
Recirculation Pumps	#21	S
	#22	S
Component Cooling Pumps	#21	0
	#22	0
	#23	S
Aux Component Cooling Pumps	#21	S
	#22	S
Aux Boiler Feed Pumps	#21	0
	#22	0/S
	#23	0
Fan Cooler Units	#21	0
	#22	0
	#23	0
	#24	0
	#25	0

PARAMETER			TIME 09:25
Service Water Pumps	#21		0
(Essential Header)	#22		0
	#23		S
	#24		S
	#25		0
	#26		0
Component Cool Heat Exch	#21		0
	#22		0
RHR Heat Exchanger	#21		S
	#22		S
Hydrogen Recombiner	#21		S
	#22		S
VC Isolation (A/B)			YES
Exceptions			
PCV-1191 & 1192 Open			
PCV-1190 Closed			
High Head SIS Flow	#21	(GPM)	175*
	#22	(GPM)	175*
	#23	(GPM)	175*
	#24	(GPM)	175*
Low Head SIS Flow	#21	(GPM)	0
	#22	(GPM)	0
	#23	(GPM)	0
	#24	(GPM)	0
Accumulator Level	#21	(%)	52
	#22	(%)	52
	#23	(%)	52
	#24	(%)	52
BIT Level		(%)	10
BIT Pressure		(PSIG)	15

Legend:
- O = Operating
- O/S = Out of Service
- S = Standby
- * = Change on status from previous log.

PARAMETER		TIME 10:10
Offsite Power Available	138KV	0/S*
	13.8KV	0/S*
Emergency D/Gs	#21	0
	#22	0
	#23	0
SIS Pumps	#21	0/S
	#22	0/S
	#23	0
RHR Pumps	#21	S
	#22	S
Charging Pumps	#21	0
	#22	S
	#23	S
Containment Spray Pumps	#21	S
	#22	S
Recirculation Pumps	#21	S
	#22	S
Component Cooling Pumps	#21	0
	#22	0
	#23	S
Aux Component Cooling Pumps	#21	S
	#22	S
Aux Boiler Feed Pumps	#21	0/S*
	#22	0/S
	#23	0/S*
Fan Cooler Units	#21	0
	#22	0
	#23	0
	#24	0
	#25	0

PARAMETER			TIME 10:10
Service Water Pumps	#21		0
(Essential Header)	#22		0
	#23		S
	#24		S
	#25		0
	#26		0
Component Cool Heat Exch	#21		0
	#22		0
RHR Heat Exchanger	#21		S
	#22		S
Hydrogen Recombiner	#21		S
	#22		S
VC Isolation (A/B)			YES
Exceptions			
PCV-1191 & 1192 Open			
PCV-1190 Closed			
High Head SIS Flow	#21	(GPM)	75*
	#22	(GPM)	75*
	#23	(GPM)	75*
	#24	(GPM)	75*
Low Head SIS Flow	#21	(GPM)	0
	#22	(GPM)	0
	#23	(GPM)	0
	#24	(GPM)	0
Accumulator Level	#21	(%)	52
	#22	(%)	52
	#23	(%)	52
	#24	(%)	52
BIT Level		(%)	10
BIT Pressure		(PSIG)	15

Legend:
- O = Operating
- O/S = Out of Service
- S = Standby
- * = Change on status from previous log.

PLANT STATUS LOG

SCENARIO NO. 4B REV. 0

PARAMETER		TIME 10:25
Offsite Power Available	138KV	O/S
	13.8KV	O/S
Emergency D/Gs	#21	O
	#22	O
	#23	O
SIS Pumps	#21	O/S
	#22	O/S
	#23	O
RHR Pumps	#21	S
	#22	S
Charging Pumps	#21	O
	#22	S
	#23	S
Containment Spray Pumps	#21	S
	#22	S
Recirculation Pumps	#21	S
	#22	S
Component Cooling Pumps	#21	O
	#22	O
	#23	S
Aux Component Cooling Pumps	#21	S
	#22	S
Aux Boiler Feed Pumps	#21	O/S
	#22	O/S
	#23	O/S
Fan Cooler Units	#21	O
	#22	O
	#23	O
	#24	O
	#25	O

PARAMETER			TIME 10:25
Service Water Pumps	#21		O
(Essential Header)	#22		O
	#23		S
	#24		S
	#25		O
	#26		O
Component Cool Heat Exch	#21		O
	#22		O
RHR Heat Exchanger	#21		S
	#22		S
Hydrogen Recombiner	#21		S
	#22		S
VC Isolation (A/B)			YES
Exceptions			
PCV-1191 & 1192 Open			
PCV-1190 Closed			
High Head SIS Flow	#21	(GPM)	O*
	#22	(GPM)	O*
	#23	(GPM)	O*
	#24	(GPM)	O*
Low Head SIS Flow	#21	(GPM)	O
	#22	(GPM)	O
	#23	(GPM)	O
	#24	(GPM)	O
Accumulator Level	#21	(%)	52
	#22	(%)	52
	#23	(%)	52
	#24	(%)	52
BIT Level		(%)	10
BIT Pressure		(PSIG)	15

Legend:
- O = Operating
- O/S = Out of Service
- S = Standby
- * = Change on status from previous log.

PLANT STATUS LOG

SCENARIO NO. 4B REV. 0

PARAMETER		TIME 11:10
Offsite Power Available	138KV	O/S
	13.8KV	O/S
Emergency D/Gs	#21	O
	#22	O
	#23	O
SIS Pumps	#21	O/S
	#22	O/S
	#23	O
RHR Pumps	#21	S
	#22	S
Charging Pumps	#21	O
	#22	S
	#23	S
Containment Spray Pumps	#21	S
	#22	S
Recirculation Pumps	#21	S
	#22	S
Component Cooling Pumps	#21	O
	#22	O
	#23	S
Aux Component Cooling Pumps	#21	S
	#22	S
Aux Boiler Feed Pumps	#21	O/S
	#22	O/S
	#23	O/S
Fan Cooler Units	#21	O
	#22	O
	#23	O
	#24	O
	#25	O

PARAMETER			TIME 11:10
Service Water Pumps	#21		O
(Essential Header)	#22		O
	#23		S
	#24		S
	#25		O
	#26		O
Component Cool Heat Exch	#21		O
	#22		O
RHR Heat Exchanger	#21		S
	#22		S
Hydrogen Recombiner	#21		S
	#22		S
VC Isolation (A/B)			NO*
Exceptions			
PCV-1190, 1191 & 1192 Open			
High Head SIS Flow	#21	(GPM)	0
	#22	(GPM)	0
	#23	(GPM)	0
	#24	(GPM)	0
Low Head SIS Flow	#21	(GPM)	0
	#22	(GPM)	0
	#23	(GPM)	0
	#24	(GPM)	0
Accumulator Level	#21	(%)	52
	#22	(%)	52
	#23	(%)	52
	#24	(%)	52
BIT Level		(%)	10
BIT Pressure		(PSIG)	15

Legend:
- O = Operating
- O/S = Out of Service
- S = Standby
- * = Change on status from previous log.

PARAMETER		TIME 12:40
Offsite Power Available	138KV	O/S
	13.8KV	O/S
Emergency D/Gs	#21	O
	#22	O
	#23	O
SIS Pumps	#21	O/S
	#22	O/S
	#23	O
RHR Pumps	#21	S
	#22	S
Charging Pumps	#21	O
	#22	S
	#23	S
Containment Spray Pumps	#21	S
	#22	S
Recirculation Pumps	#21	S
	#22	S
Component Cooling Pumps	#21	O
	#22	O
	#23	S
Aux Component Cooling Pumps	#21	S
	#22	S
Aux Boiler Feed Pumps	#21	O/S
	#22	O/S
	#23	O/S
Fan Cooler Units	#21	O
	#22	O
	#23	O
	#24	O
	#25	O

PARAMETER			TIME 12:40
Service Water Pumps	#21		O
(Essential Header)	#22		O
	#23		S
	#24		S
	#25		O
	#26		O
Component Cool Heat Exch	#21		O
	#22		O
RHR Heat Exchanger	#21		S
	#22		S
Hydrogen Recombiner	#21		S
	#22		S
VC Isolation (A/B)			YES*
Exceptions			
PCV-1190 & 1192 Open			
PCV-1191 Closed			
High Head SIS Flow	#21	(GPM)	O
	#22	(GPM)	O
	#23	(GPM)	O
	#24	(GPM)	O
Low Head SIS Flow	#21	(GPM)	O
	#22	(GPM)	O
	#23	(GPM)	O
	#24	(GPM)	O
Accumulator Level	#21	(%)	52
	#22	(%)	52
	#23	(%)	52
	#24	(%)	52
BIT Level		(%)	10
BIT Pressure		(PSIG)	15

Legend:
- O = Operating
- O/S = Out of Service
- S = Standby
- * = Change on status from previous log.

PARAMETER		TIME 12:55
Offsite Power Available	138KV	O/S
	13.8KV	O/S
Emergency D/Gs	#21	O
	#22	O
	#23	O
SIS Pumps	#21	O/S
	#22	O/S
	#23	O
RHR Pumps	#21	S
	#22	S
Charging Pumps	#21	O
	#22	S
	#23	S
Containment Spray Pumps	#21	S
	#22	S
Recirculation Pumps	#21	S
	#22	S
Component Cooling Pumps	#21	O
	#22	O
	#23	S
Aux Component Cooling Pumps	#21	S
	#22	S
Aux Boiler Feed Pumps	#21	O*
	#22	O/S
	#23	O/S
Fan Cooler Units	#21	O
	#22	O
	#23	O
	#24	O
	#25	O

PARAMETER			TIME 12:55
Service Water Pumps	#21		O
(Essential Header)	#22		O
	#23		S
	#24		S
	#25		O
	#26		O
Component Cool Heat Exch	#21		O
	#22		O
RHR Heat Exchanger	#21		S
	#22		S
Hydrogen Recombiner	#21		S
	#22		S
VC Isolation (A/B)			YES
Exceptions			
PCV-1190 & 1192 Open			
PCV-1191 Closed			
High Head SIS Flow	#21	(GPM)	O
	#22	(GPM)	O
	#23	(GPM)	O
	#24	(GPM)	O
Low Head SIS Flow	#21	(GPM)	O
	#22	(GPM)	O
	#23	(GPM)	O
	#24	(GPM)	O
Accumulator Flow	#21	(%)	52
	#22	(%)	52
	#23	(%)	52
	#24	(%)	52
BIT Level		(%)	10
BIT Pressure		(PSIG)	15

Legend:
- O = Operating
- O/S = Out of Service
- S = Standby
- * = Change on status from previous log.

PARAMETER		TIME 13:25
Offsite Power Available	138KV	0*
	13.8KV	0*
Emergency D/Gs	#21	0
	#22	0
	#23	0
SIS Pumps	#21	0/S
	#22	0/S
	#23	0
RHR Pumps	#21	S
	#22	S
Charging Pumps	#21	0
	#22	S
	#23	S
Containment Spray Pumps	#21	S
	#22	S
Recirculation Pumps	#21	S
	#22	S
Component Cooling Pumps	#21	0
	#22	0
	#23	S
Aux Component Cooling Pumps	#21	S
	#22	S
Aux Boiler Feed Pumps	#21	0
	#22	0/S
	#23	0*
Fan Cooler Units	#21	0
	#22	0
	#23	0
	#24	0
	#25	0

PARAMETER			TIME 13:25
Service Water Pumps	#21		0
(Essential Header)	#22		0
	#23		S
	#24		S
	#25		0
	#26		0
Component Cool Heat Exch	#21		0
	#22		0
RHR Heat Exchanger	#21		S
	#22		S
Hydrogen Recombiner	#21		S
	#22		S
VC Isolation (A/B)			YES*
Exceptions			
PCV-1190 Open			
PCV-1191 & 1192 Closed			
High Head SIS Flow	#21	(GPM)	50*
	#22	(GPM)	50*
	#23	(GPM)	50*
	#24	(GPM)	50*
Low Head SIS Flow	#21	(GPM)	0
	#22	(GPM)	0
	#23	(GPM)	0
	#24	(GPM)	0
Accumulator Level	#21	(%)	52
	#22	(%)	52
	#23	(%)	52
	#24	(%)	52
BIT Level		(%)	10
BIT Pressure		(PSIG)	15

Legend:
- O = Operating
- O/S = Out of Service
- S = Standby
- * = Change on status from previous log.

PARAMETER		TIME 14:10
Offsite Power Available	138KV	0
	13.8KV	0
Emergency D/Gs	#21	S*
	#22	S*
	#23	S*
SIS Pumps	#21	0/S
	#22	0/S
	#23	S*
RHR Pumps	#21	S
	#22	S
Charging Pumps	#21	0
	#22	0*
	#23	S
Containment Spray Pumps	#21	S
	#22	S
Recirculation Pumps	#21	0*
	#22	S
Component Cooling Pumps	#21	0
	#22	0
	#23	S
Aux Component Cooling Pumps	#21	0*
	#22	0*
Aux Boiler Feed Pumps	#21	0
	#22	0/S
	#23	0
Fan Cooler Units	#21	0
	#22	0
	#23	0
	#24	0
	#25	0

PARAMETER			TIME 14:10
Service Water Pumps	#21		0
(Essential Header)	#22		0
	#23		S
	#24		S
	#25		0
	#26		0
Component Cool Heat Exch	#21		0
	#22		0
RHR Heat Exchanger	#21		0*
	#22		0*
Hydrogen Recombiner	#21		S
	#22		S
VC Isolation (A/B)			YES
Exceptions			
PCV-1190 Open			
PCV-1191 & 1192 Closed			
High Head SIS Flow	#21	(GPM)	0*
	#22	(GPM)	0*
	#23	(GPM)	0*
	#24	(GPM)	0*
Low Head SIS Flow	#21	(GPM)	400*
	#22	(GPM)	400*
	#23	(GPM)	400*
	#24	(GPM)	400*
Accumulator Level	#21	(%)	52
	#22	(%)	52
	#23	(%)	52
	#24	(%)	52
BIT Level		(%)	0*
BIT Pressure		(PSIG)	0*

Legend:
- O = Operating
- O/S = Out of Service
- S = Standby
- * = Change on status from previous log.

PARAMETER TIME	08:00	08:15	08:45	09:00	09:10	09:11	09:12
R-1 CCR mR/hr	0.1	0.1	0.1	0.1	0.1	0.1	0.1
R-2 VC 80' mR/hr	1	1	1	1	1	2	4
R-4 Chrg. Pump mR/hr	1	1	1	1	1	1	1
R-5 F.S.B. mR/hr	0.2	0.2	0.2	0.2	0.2	0.2	0.2
R-6 Sample Rm mR/hr	2	2	2	2	2	2	2
R-7 VC Seal Table mR/hr	5	5	5	5	5	8	12
R-8 Drum Sta. mR/hr	0.5	0.5	0.5	0.5	0.5	0.5	0.5
R-10 Stm Line Penet mR/hr	0	0	0	0	0	0	0
R-11 VC Part CPM	37,000	37,000	37,000	37,000	37,000	N/A	N/A
R-12 VC Gas CPM	3,000	3,000	3,000	3,000	3,000	N/A	N/A
R-13 Vent Part CPM	1,500	1,500	1,500	1,500	1,500	1,500	1,500
R-14 Vent Gas CPM	1,800	1,800	1,800	1,800	1,800	1,800	1,800
R-15 Air Ejector CPM	200	200	200	200	200	200	N/A
R-16 F.C. Water CPM	1,300	1,300	1,300	1,300	1,300	1,300	1,300
R-17 Comp. Cool CPM	400	400	400	400	400	400	400
R-18 Liquid Waste CPM	6,000	6,000	6,000	6,000	6,000	6,000	6,000
R-19 S/G B.D. CPM	500	500	500	500	500	500	500
R-23 F.C. Water CPM	1,900	1,900	1,900	1,900	1,900	1,900	1,900
R-25 VC Hi-Rge R/hr	0	0	0	0	0	0	0
R-26 VC Hi-Rge R/hr	0	0	0	0	0	0	0
R-27 Vent Monitor uCi/cc	0	0	0	0	0	0	0
R-27 Vent Flow Rate CFM	45,000	45,000	45,000	45,000	45,000	45,000	45,000
R-27 Vent Dis Rate uCi/sec	0	0	0	0	0	0	0
Main Steam #21 Rad Mon CPM	250	250	250	250	250	250	250
#22	275	275	275	275	275	275	275
#23	300	300	300	300	300	300	300
#24	285	285	285	285	285	285	285
Vent Flow Rate CFM	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Main Steam Exh Lbs/Hr	3×10^6	3×10^6	3×10^6	3×10^6	3×10^6	2.4×10^6	0
Air Ejector CFM (measured value)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
METEOROLOGICAL							
Wind Speed (meters/sec)	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Wind Direction (degrees)	270	270	270	270	270	270	270
Pasquill Stability Category	D	D	D	D	D	D	D

PARAMETER TIME	09:13	09:14	09:15	09:20	09:25	09:40	09:55
R-1 CCR mR/hr	0.1	0.1	0.1	0.1	0.1	0.1	0.1
R-2 VC 80' mR/hr	7	8	10	10	11	13	13
R-4 Chrg. Pump mR/hr	1	1	1	1	1	1	1
R-5 F.S.B. mR/hr	0.2	0.2	0.2	0.2	0.2	0.2	0.2
R-6 Sample Rm mR/hr	2	2	2	2	2	2	2
R-7 VC Seal Table mR/hr	13	15	17	18	20	22	22
R-8 Drum Sta. mR/hr	0.5	0.5	0.5	0.5	0.5	0.5	0.5
R-10 Stm Line Penet mR/hr	0	0	0	0	0	0	0
R-11 VC Part CPM	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R-12 VC Gas CPM	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R-13 Vent Part CPM	1,500	1,500	1,500	1,500	1,500	1,500	1,500
R-14 Vent Gas CPM	1,800	1,800	1,800	1,800	1,800	1,800	1,800
R-15 Air Ejector CPM	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R-16 F.C. Water CPM	1,300	1,300	1,300	1,300	1,300	1,300	1,300
R-17 Comp. Cool CPM	400	400	400	400	400	400	400
R-18 Liquid Waste CPM	6,000	6,000	6,000	6,000	6,000	6,000	6,000
R-19 S/G B.D. CPM	500	500	500	500	500	500	500
R-23 F.C. Water CPM	1,900	1,900	1,900	1,900	1,900	1,900	1,900
R-25 VC Hi-Rge R/hr	0	0	0	0	0	0	0
R-26 VC Hi-Rge R/hr	0	0	0	0	0	0	0
R-27 Vent Monitor uCi/cc	0	0	0	0	0	0	0
R-27 Vent Flow Rate CFM	45,000	45,000	45,000	45,000	45,000	45,000	45,000
R-27 Vent Dis Rate uCi/sec	0	0	0	0	0	0	0
Main Steam #21 Rad Mon CPM	250	250	250	250	250	250	250
#22	275	275	275	275	275	275	275
#23	300	300	300	300	300	300	300
#24	285	285	285	285	285	285	285
Vent Flow Rate CFM	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Main Steam Exh Lbs/Hr	0	0	0	0	0	0	0
Air Ejector CFM (measured value)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
METEOROLOGICAL							
Wind Speed (meters/sec)	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Wind Direction (degrees)	270	270	270	270	270	270	270
Pasquill Stability Category	D	D	D	D	D	D	D

PARAMETER TIME	10:10	10:15	10:20	10:25	10:30	10:35	10:40
R-1 CCR mR/hr	0.1	0.1	0.1	0.1	0.1	0.1	0.1
R-2 VC 80' mR/hr	14	15	16	17	17	18	19
R-4 Chrg. Pump mR/hr	1	1	1	1	1	1	1
R-5 F.S.B. mR/hr	0.2	0.2	0.2	0.2	0.2	0.2	0.2
R-6 Sample Rm mR/hr	2	2	2	2	2	2	2
R-7 VC Seal Table mR/hr	23	25	28	31	34	36	38
R-8 Drum Sta. mR/hr	0.5	0.5	0.5	0.5	0.5	0.5	0.5
R-10 Stm Line Penet mR/hr	0	0	0	0	0	0	0
R-11 VC Part CPM	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R-12 VC Gas CPM	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R-13 Vent Part CPM	1,500	1,500	1,500	1,500	1,500	1,500	1,500
R-14 Vent Gas CPM	1,800	1,800	1,800	1,800	1,800	1,800	1,800
R-15 Air Ejector CPM	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R-16 F.C. Water CPM	1,300	1,300	1,300	1,300	1,300	1,300	1,300
R-17 Comp. Cool CPM	400	400	400	400	400	400	400
R-18 Liquid Waste CPM	6,000	6,000	6,000	6,000	6,000	6,000	6,000
R-19 S/G B.D. CPM	500	500	500	500	500	500	500
R-23 F.C. Water CPM	1,900	1,900	1,900	1,900	1,900	1,900	1,900
R-25 VC Hi-Rge R/hr	0	0	0	0	0	0	0
R-26 VC Hi-Rge R/hr	0	0	0	0	0	0	0
R-27 Vent Monitor uCi/cc	0	0	0	0	0	0	0
R-27 Vent Flow Rate CFM	45,000	45,000	45,000	45,000	45,000	45,000	45,000
R-27 Vent Dis Rate uCi/sec	0	0	0	0	0	0	0
Main Steam #21 Rad Mon CPM	250	250	250	250	250	250	250
#22	275	275	275	275	275	275	275
#23	300	300	300	300	300	300	300
#24	285	285	285	285	285	285	285
Vent Flow Rate CFM	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Main Steam Exh Lbs/Hr	0	0	0	0	0	0	0
Air Ejector CFM (measured value)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
METEOROLOGICAL							
Wind Speed (meters/sec)	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Wind Direction (degrees)	270	270	270	270	270	270	270
Pasquill Stability Category	D	D	D	D	D	D	D

PARAMETER TIME	10:55	11:10	11:25	11:40	11:55	12:10	12:35
R-1 CCR mR/hr	0.1	0.1	0.1	0.1	0.1	0.1	0.1
R-2 VC 80' mR/hr	20	1000	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE
R-4 Chrg. Pump mR/hr	1	1	1	1	1	1	1
R-5 F.S.B. mR/hr	0.2	0.2	0.2	0.2	0.2	0.2	0.2
R-6 Sample Rm mR/hr	2	2	2	2	2	2	2
R-7 VC Seal Table mR/hr	39	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE
R-8 Drum Sta. mR/hr	0.5	0.5	0.5	0.5	0.5	0.5	0.5
R-10 Stm Line Penet mR/hr	0	0	15	50	300	300	300
R-11 VC Part CPM	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R-12 VC Gas CPM	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R-13 Vent Part CPM	1,500	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE
R-14 Vent Gas CPM	1,800	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE
R-15 Air Ejector CPM	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R-16 F.C. Water CPM	1,300	1,300	1,300	1,300	1,300	1,300	1,300
R-17 Comp. Cool CPM	400	400	400	400	400	400	400
R-18 Liquid Waste CPM	6,000	6,000	6,000	6,000	6,000	6,000	6,000
R-19 S/G B.D. CPM	500	500	500	500	500	500	500
R-23 F.C. Water CPM	1,900	1,900	1,900	1,900	1,900	1,900	1,900
R-25 VC Hi-Rge R/hr	0	1.0	40	190	870	880	900
R-26 VC Hi-Rge R/hr	0	1.9	60	250	1,000	1,000	1,000
R-27 Vent Monitor uCi/cc	0	47	47	47	57	62	208
R-27 Vent Flow Rate CFM	45,000	45,000	45,000	45,000	45,000	45,000	45,000
R-27 Vent Rls Rate uCi/sec	0	10^9	10^9	10^9	1.2×10^9	1.3×10^9	4.4×10^9
Main Steam #21 Rad Mon CPM	250	250	250	250	250	250	250
#22	275	275	275	275	275	275	275
#23	300	300	300	300	300	300	300
#24	285	285	285	285	285	285	285
Vent Flow Rate CFM	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Main Steam Exh Lbs/Hr	0	0	0	0	0	0	0
Air Ejector CFM (measured value)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
METEOROLOGICAL							
Wind Speed (meters/sec)	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Wind Direction (degrees)	270	270	270	225	225	225	225
Pasquill Stability Category	D	D	D	D	D	D	D

PARAMETER TIME	12:40	12:55	13:10	13:25	13:40	13:55	14:10
R-1 CCR mR/hr	0.1	0.1	0.1	0.1	0.1	0.1	0.1
R-2 VC 80' mR/hr	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE
R-4 Chrg. Pump mR/hr	1	1	1	1	1	1	1
R-5 F.S.B. mR/hr	0.2	0.2	0.2	0.2	0.2	0.2	0.2
R-6 Sample Rm mR/hr	2	2	2	2	2	2	2
R-7 VC Seal Table mR/hr	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE	OFFSCALE
R-8 Drum Sta. mR/hr	0.5	0.5	0.5	0.5	0.5	0.5	0.5
R-10 Stm Line Penet mR/hr	300	300	300	200	200	200	50
R-11 VC Part CPM	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R-12 VC Gas CPM	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R-13 Vent Part CPM	1,500	1,500	1,500	1,500	1,500	1,500	1,500
R-14 Vent Gas CPM	1,800	1,800	1,800	1,800	1,800	1,800	1,800
R-15 Air Ejector CPM	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R-16 F.C. Water CPM	1,300	1,300	1,300	1,300	1,300	1,300	1,300
R-17 Comp. Cool CPM	400	400	400	400	400	400	400
R-18 Liquid Waste CPM	6,000	6,000	6,000	6,000	6,000	6,000	6,000
R-19 S/G B.D. CPM	500	500	500	500	500	500	500
R-23 F.C. Water CPM	1,900	1,900	1,900	1,900	1,900	1,900	1,900
R-25 VC Hi-Rge R/hr	900	900	900	700	700	700	2
R-26 VC Hi-Rge R/hr	1,000	1,000	1,000	800	800	800	5
R-27 Vent Monitor uCi/cc	0	0	0	0	0	0	0
R-27 Vent Flow Rate CFM	45,000	45,000	45,000	45,000	45,000	45,000	45,000
R-27 Vent Dis Rate uCi/sec	0	0	0	0	0	0	0
Main Steam #21 Rad Mon CPM	250	250	250	250	250	250	250
#22	275	275	275	275	275	275	275
#23	300	300	300	300	300	300	300
#24	285	285	285	285	285	285	285
Vent Flow Rate CFM	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Main Steam Exh Lbs/Hr	0	0	0	0	0	0	0
Air Ejector CFM (measured value)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
METEOROLOGICAL							
Wind Speed (meters/sec)	6.8	6.8	6.8	6.8	6.8	6.8	3.4
Wind Direction (degrees)	225	225	225	225	225	225	90
Pasquill Stability Category	D	D	D	D	D	D	A

CONSOLIDATED EDISON COMPANY OF NEW YORK

INDIAN POINT UNIT NO. 2

DRILL SCENARIO NO. 4B REV. 0

VIII RADIOLOGICAL INFORMATION

TAB A TABLE 1: Primary Coolant Activity

TAB B TABLE 2: Containment Activity

TAB C TABLE 3: Release Path Activity

TAB D TABLE 4: Plant Radiation Levels

TAB E TABLE 5: Facility Radiation Levels

TAB F TABLE 6: Reuter-Stokes Readings

TAB G TABLE 7: Plume Monitoring Data & Figures

TAB H TABLE 8: Offsite TLD Readings

TAB I TABLE 9: Post Accident Samples

TAB J TABLE 10: Post Accident Offsite Contamination Levels

TAB K TABLE 11: Medical Emergency Data

TABLE 1

PRIMARY COOLANT ACTIVITY

Nuclide	08:00 hrs. uCi/ml	10:40 hrs. uCi/ml	11:10 hrs. uCi/ml	11:40 hrs. uCi/ml
I-131	2.3×10^{-1}	5.6×10^{-1}	1.0	8.1
132	8.2×10^{-2}	8.2×10^{-1}	1.5	11.7
133	3.2×10^{-1}	1.2	2.3	17.6
134	4.3×10^{-2}	1.4	2.5	19.8
135	1.8×10^{-1}	1.1	2.1	16.1
Xe-133	20.0	76.2	145.7	1,130
133m	2.6×10^{-1}	22.1	42.3	330
135	4.7×10^{-1}	24.6	47.0	370
135m	3.3×10^{-2}	12.3	23.5	180
138	4.5×10^{-2}	17.2	32.9	260
Kr-85	2.6×10^{-1}	2.5	4.7	40.0
85m	1.5×10^{-1}	17.2	32.9	260
87	8.5×10^{-2}	29.5	56.4	440
88	2.6×10^{-1}	44.2	84.6	660
Te-132	2.5×10^{-2}	1.0×10^{-1}	1.8×15^{-1}	1.4
Cs-134	1.7×15^{-2}	9.2×10^{-3}	1.7×10^{-2}	1.3×10^{-1}
137	3.0×10^{-2}	4.6×10^{-3}	8.4×10^{-3}	6.5×10^{-2}
138	5.1×10^{-3}	4.6×10^{-3}	8.4×10^{-3}	6.5×10^{-2}
Ce-144	2.9×10^{-5}	6.9×10^{-2}	1.3×10^{-1}	9.8×10^{-1}
Le-140	1.2×10^{-4}	1.4×10^{-1}	2.5×10^{-1}	2.0
Ba-140	3.3×10^{-4}	1.3×10^{-1}	2.4×10^{-1}	1.9

Data to be provided to Chemistry personnel 1 hour <u>after</u> the sample is obtained.

TABLE 1 (Continued)

PRIMARY COOLANT ACTIVITY

Nuclide	12:10 hrs. uCi/ml	12:40 hrs. uCi/ml	14:10 hrs.* uCi/ml
I-131	14.0	17.0	1.8×10^{-1}
132	20.4	25.6	2.6×10^{-1}
133	30.5	38.4	$3.8.10^{-1}$
134	34.3	43.2	4.3×10^{-1}
135	28.0	35.2	3.5×10^{-1}
Xe-133	1,960	2,480	24.8
133m	570	720	7.2
135	640	800	8.0
135m	320	400	4.0
138	450	560	5.6
Kr-85	70.0	80.0	8×10^{-1}
85m	450	560	5.6
87	760	960	9.6
88	1,140	1,440	14.4
Te-132	2.5	3.1	3.1×10^{-2}
Cs-134	2.3×10^{-1}	2.8×10^{-1}	2.9×10^{-3}
137	1.1×10^{-1}	1.4×10^{-1}	1.4×10^{-3}
138	1.1×10^{-1}	1.4×10^{-1}	1.4×10^{-3}
Ce-144	1.7	2.1	2.1×10^{-2}
Le-140	3.4	4.3	4.3×10^{-2}
Ba-140	3.3	4.1	4.1×10^{-2}

Data to be provided to Chemistry personnel 1 hour after the sample is obtained.

*Two (2) days later

TABLE 2

CONTAINMENT ACTIVITY

Nuclide	09:40 hrs uCi/cc	10:40 hrs uCi/cc	11:40 hrs uCi/cc	12:40 hrs uCi/cc	14:10* uCi/cc
I-131	9.5×10^{-3}	5.6×10^{-2}	$8.1.10^{-2}$	1.8×10^{-1}	1.8×10^{-3}
132	1.4×10^{-2}	8.2×10^{-2}	1.2×10^{-1}	2.6×10^{-1}	2.6×10^{-3}
133	2.1×10^{-2}	1.2×10^{-1}	1.8×10^{-1}	3.8×10^{-1}	3.8×10^{-3}
134	2.3×10^{-2}	1.4×10^{-1}	2.0×10^{-1}	4.3×10^{-1}	4.3×10^{-3}
135	1.9×10^{-2}	1.1×10^{-1}	1.6×10^{-1}	3.5×10^{-1}	3.5×10^{-3}
Xe-133	6.7×10^{-1}	7.63	113	248	2.48
133m	1.9×10^{-1}	2.21	33	72	0.72
135	2.2×10^{-1}	2.46	37	80	0.80
135m	1.1×10^{-1}	1.23	18	40	0.40
138	1.5×10^{-1}	1.72	26	56	0.56
Kr-85	2.2×10^{-2}	0.25	4	8	0.08
85m	1.5×10^{-1}	1.72	26	56	0.56
87	2.6×10^{-1}	2.95	44	96	0.96
88	3.9×10^{-1}	4.43	66	144	1.44
Te-132	1.7×10^{-3}	1.0×10^{-2}	1.4×10^{-2}	3.1×10^{-2}	3.1×10^{-4}
Cs-134	1.5×10^{-4}	9.2×10^{-4}	1.3×10^{-3}	2.8×10^{-3}	2.9×10^{-5}
137	7.6×10^{-5}	4.6×10^{-4}	6.5×10^{-4}	1.4×10^{-3}	1.4×10^{-5}
138	7.1×10^{-5}	4.6×10^{-4}	6.5×10^{-4}	1.4×10^{-3}	1.4×10^{-5}
Ce-144	1.1×10^{-3}	6.9×10^{-3}	9.8×10^{-3}	2.1×10^{-2}	2.1×10^{-4}
La-140	2.3×10^{-3}	1.4×10^{-2}	2.0×10^{-2}	4.3×10^{-2}	4.3×10^{-4}
Ba-140	2.2×10^{-3}	1.3×10^{-2}	1.9×10^{-2}	4.1×10^{-2}	4.2×10^{-4}

Data to be provided to Chemistry personnel 1 hour <u>after</u> the sample is obtained.

*Two (2) days later

TABLE 3

RELEASE PATH ACTIVITY

RELEASE PATH	MEASUREMENT METHOD	TIME	RADIATION LEVELS
PLANT VENT	VENT CONTACT METHOD	< 11:11	0.01 R/hr
		11:11	380 R/hr
		11:25	680 R/hr
		11:40	OFFSCALE $>10^{6}$ mR/hr
		> 12:40	0.10 R/hr
PLANT VENT	CHEMISTRY SAMPLE	11:11	Noble Gases 47.1 uCi/cc
			I-131/5.18 x 10^{-4} uCi/cc
			I-132/7.54 x 10^{-3} uCi/cc
			I-133/1.13 x 10^{-3} uCi/cc
			I-134/1.27 x 10^{-3} uCi/cc
			I-135/1.04 x 10^{-3} uCi/cc
		11:40	Noble Gases/367.2 uCi/cc
			I-131/4.04 x 10^{-3} uCi/cc
			I-132/5.87 x 10^{-3} uCi/cc
			I-133/8.81 x 10^{-3} uCi/cc
			I-134/9.91 x 10^{-3} uCi/cc
			I-135/8.07 x 10^{-3} uCi/cc
		12:10	Noble Gases/635.6 uCi/cc
			I-131/7.00 x 10^{-2} uCi/cc
			I-132/1.02 x 10^{-2} uCi/cc
			I-133/1.53 x 10^{-2} uCi/cc
			I-134/1.72 x 10^{-2} uCi/cc
			I-135/1.40 x 10^{-2} uCi/cc
		12:30	Noble Gases/743.9 uCi/cc
			I-131/8.18 x 10^{-2} uCi/cc
			I-132/1.19 x 10^{-2} uCi/cc
			I-133/1.79 x 10^{-2} uCi/cc
			I-134/2.01 x 10^{-2} uCi/cc
			I-135/1.64 x 10^{-2} uCi/cc

NOTE: Vent contract reading provided to Rad Prot Tech. Chemistry data available 30 minutes after the sample is taken.

TABLE 4
PLANT RADIATION LEVELS

LOCATION	TIME	RADIATION LEVELS
General Vicinity of "stuck" Containment Pressure Relief Valve PCV-1191	< 11:10	Background
	11:11	40 R/hr
	11:40	60 R/hr
	12:10	90 R/hr
	12:25	135 R/hr
	12:45	2 R/hr
Security Fence	09:10	< 1 mR/hr
	10:40	3 mR/hr
	11:10	> 1 R/hr
Aux Feed Pump No. 21	Radiation fields as measured	
SI Pumps	Radiation fields as measured	
RCS Chemistry Sample	10:40	3.5 R/hr @ Contact 75 mR/hr @ 3'
	11:10	7 R/hr @ Contact 140 mR/hr @ 3'
	11:40	13 R/hr @ Contact 270 mR/hr @ 3'
	12:10	20 R/hr @ Contact 430 mR/hr @ 3'
	12:40	27 R/hr @ Contact 600 mR/hr @ 3'
	14:10	2.7 R/hr @ Contact 60 mR/hr @ 3'
Plant Vent Chemistry Sample	11:11	780 mR/hr @ Contact 50 mR/hr @ 3'
	11:40	2.6 R/hr @ Contact 96 mR/hr @ 3'
	12:10	4.4 R/hr @ Contact 166 mR/hr @ 3'
	12:30	5.2 R/hr @ Contact 195 mR/hr @ 3'
VC Chemistry Sample	10:40	1.2 R/hr @ Contact 100 mR/hr @ 3'
	11:40	2.0 R/hr @ Contact 158 mR/hr @ 3'
	12:40	4.4 R/hr @ Contact 300 mR/hr @ 3'

NOTE 1: All loose contamination and airborne concentrations are actual levels detected.

NOTE 2: Data to be supplied to Rad Prot Tech at the locations after the survey is performed.

TABLE 5

FACILITY RADIATION LEVELS

LOCATION	TIME	1 METER HEIGHT READING		10 ft.^{3} AIR SAMPLE		
		B + γ mR/hr	γ mR/hr	BKGD CPM	IODINE CPM	PART CPM
Emergency Operation Facility (EOF)	All Times	< 1.0	< 1.0	200	200	200
Operational Support Center (OSC)	All Times	< 1.0	< 1.0	200	200	200
Technical Support Center (TSC)	All Times	< 1.0	< 1.0	200	200	200
Control Room (CR)	All Times	< 1.0	< 1.0	200	200	200
Emergency News Center (ENC)	All Times	< 1.0	< 1.0	200	200	200
Recovery Center (RC)	All Times	< 1.0	< 1.0	200	200	200

NOTE: Data to be supplied to Rad Protection Technician after the survey is completed.

TABLE 6

REUTER-STOKES READINGS

mR/hr

TIME	1	2	3	4	5	6	7	8	9	10	11
< 11:18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
11:25			< 1	< 1	3,000	50					
11:40			35	3,000	1,000	20					
11:55			4,100	< 1	< 1	< 1					
12:10			5,200								
12:25			6,100								
12:40			12,100								
12:55			20								
13:00			< 1								

TABLE 6(Continued)

RUETER-STOKES READINGS

TIME	12	13	14	15	16
< 11:18	< 1	< 1	< 1	< 1	< 1

TABLE 7

PLUME MONITORING DATA-SECTORS 2 THRU 6

TIME	EMERGENCY/FIXED SAMPLE SITE NO. OR CENTERING DIRECTION NO. DEG	MILES	1 METER HEIGHT READING B + γ mR/hr	γ mR/hr	10 FT^3 AIR SAMPLE DATA BKGD CPM	IODINE CPM	PART CPM
ALL TIMES	2	1-10	< 1	< 1	200	200	200
11:40	45	2	< 1	< 1	200	200	200
11:48	45	2	1,600	1,460	200	860	200
11:55	45	2	1,770	1,600	200	870	200
12:10	45	2	1,750	1,590	200	980	200
12:25	45	2	1,800	1,650	200	1,045	200
12:40	45	2	6,000	5,370	200	3,060	200
> 12:48	45	2	< 1	< 1	200	200	200
12:00	45	5	430	395	200	365	200
12:10	45	5	475	430	200	364	200
12:25	45	5	450	415	200	394	200
12:40	45	5	675	600	200	410	200
12:55	45	5	1,650	1,450	200	913	200
> 13:00	45	5	< 1	< 1	200	200	200
12:20	45	10	180	160	200	260	200
12:25	45	10	185	170	200	262	200
12:40	45	10	190	175	200	278	200
12:55	45	10	220	205	200	285	200
13:10	45	10	645	595	200	486	200
> 13:20	45	10	< 1	< 1	200	200	200
11:44	3	1	3,790	3,500	200	2,400	200
11:55	3	1	5,080	4,200	200	2,550	200
12:15	3	1	6,280	5,800	200	2,350	200
12:25	3	1	7,150	6,600	200	3,000	200
12:40	3	1	23,500	21,500	200	5,480	200
> 12:44	3	1	< 1	< 1	200	200	200

NOTE: Plume Center Line Direction Is Given In Degrees. The Emergency Or Fixed Sample Sites Are Indicated By Sector No. And Mile Distance.

TABLE 7 (Continued)

PLUME MONITORING DATA-SECTORS 2 THRU 6

TIME	EMERGENCY/FIXED SAMPLE SITE NO. OR CENTERING DIRECTION NO. DEG	MILES	1 METER HEIGHT READING B + γ mR/hr	γ mR/hr	10 FT^3 AIR SAMPLE DATA BKGD CPM	IODINE CPM	PART CPM
11:47	3	2	1,570	1,460	200	850	200
11:55	3	2	1,700	1,540	200	880	200
12:10	3	2	1,740	1,590	200	1,000	200
12:25	3	2	2,620	2,500	200	1,040	200
12:40	3	2	7,000	5,370	200	3,000	200
> 12:47	3	2	< 1	< 1	200	200	200
11:52	3	3	1,100	1,000	200	650	200
12:10	3	3	1,240	1,100	200	660	200
12:25	3	3	1,450	1,300	200	780	200
12:40	3	3	3,000	2,350	200	1,150	200
> 12:52	3	3	< 1	< 1	200	200	200
11:55	3	4	780	720	200	525	200
12:10	3	4	820	740	200	540	200
12:25	3	4	830	750	200	600	200
12:40	3	4	840	760	200	620	200
12:55	3	4	1,000	860	200	650	200
> 13:00	3	4	< 1	< 1	200	200	200
12:04	3	6	350	320	200	330	200
12:10	3	6	370	340	200	340	200
12:25	3	6	360	330	200	340	200
12:40	3	6	380	350	200	350	200
12:55	3	6	620	550	200	400	200
> 13:04	3	6	< 1	< 1	200	200	200

NOTE: Plume Center Line Direction Is Given In Degrees. The Emergency Or Fixed Sample Sites Are Indicated By Sector No. And Mile Distance.

TABLE 7 (Continued)

PLUME MONITORING DATA-SECTORS 2 THRU 6

TIME	EMERGENCY/FIXED SAMPLE SITE NO. OR CENTERING DIRECTION NO. DEG	MILES	1 METER HEIGHT READING B + γ mR/hr	γ mR/hr	10 FT^3 AIR SAMPLE DATA BKGD CPM	IODINE CPM	PART CPM
12:19	3	10	185	175	200	260	200
12:25	3	10	190	180	200	262	200
12:40	3	10	200	190	200	270	200
12:55	3	10	240	220	200	280	200
13:10	3	10	625	595	200	470	200
> 13:19	3	10	< 1	< 1	200	200	200
11:14	4	1	< 1	< 1	200	200	200
11:25	4	1	2	2	200	201	200
11:40	4	1	5,080	4,200	200	2,500	200
11:45	4	1	5,750	5,000	200	3,010	200
11:50	4	1	4	3	200	210	200
> 11:55	4	1	< 1	< 1	200	200	200
11:10	90	2	< 1	< 1	200	200	200
11:19	90	2	1,350	1,200	200	750	200
11:25	90	2	1,425	3,300	200	760	200
11:40	90	2	1,370	1,250	200	745	200
> 11:55	90	2	< 1	< 1	200	200	200
11:31	90	5	350	310	200	325	200
11:40	90	5	390	320	200	340	200
11:45	90	5	55	50	200	25	200
> 12:00	90	5	< 1	< 1	200	200	200
ALL TIMES	90	10	< 1	< 1	200	200	200
11:16	5	2	3,050	2,500	200	1,045	200
11:25	5	2	3,800	3,000	200	1,240	200
11:40	5	2	4,000	3,300	200	1,300	200
> 11:45	5	2	< 1	< 1	200	200	200

NOTE: Plume Center Line Direction Is Given In Degrees. The Emergency Or Fixed Sample Sites Are Indicated By Sector No. And Mile Distance.

TABLE 7 (Continued)

PLUME MONITORING DATA-SECTORS 2 THRU 6

TIME	EMERGENCY/FIXED SAMPLE SITE NO. OR CENTERING DIRECTION NO. DEG	MILES	1 METER HEIGHT READING B + γ mR/hr	γ mR/hr	10 FT^3 AIR SAMPLE DATA BKGD CPM	IODINE CPM	PART CPM
11:24	5	4	480	450	200	365	200
11:40	5	4	480	400	200	350	200
> 11:45	5	4	< 1	< 1	200	200	200
11:35	5	6	240	220	200	285	200
11:40	5	6	350	300	200	330	200
> 11:45	5	6	< 1	< 1	200	200	200
ALL TIMES	5	10	< 1	< 1	200	200	200
ALL TIMES	6	1-10	< 1	< 1	200	200	200

NOTE: Plume Center Line Direction Is Given In Degrees. The Emergency Or Fixed Sample Sites Are Indicated By Sector No. And Mile Distance.

TABLE 7 (Continued)

PLUME MONITORING DATA-SITE BOUNDARY SEGMENTS (mR/hr)

TIME	WIND DIR	1		2		3		4		5		6	
		B+ γ	γ	B+ γ	γ	B+ γ	γ	B+ γ	γ	B+ γ	γ	B+ γ	γ
11:00	270	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
11:10	270	< 1	< 1	12	10	1,320	1,200	14,200	12,900	1,320	1,200	12	10
11:20	270	< 1	< 1	12	10	1,320	1,200	14,200	12,900	1,320	1,200	12	10
11:30	270	< 1	< 1	12	10	1,320	1,200	14,200	12,900	1,320	1,200	12	10
11:40	225	14,200	12,900	1,340	1,200	650	600	< 1	< 1	< 1	< 1	< 1	< 1
11:50	225	14,200	12,900	1,340	1,200	12	10	< 1	< 1	< 1	< 1	< 1	< 1
12:00	225	14,200	12,900	1,340	1,200	12	10	< 1	< 1	< 1	< 1	< 1	< 1
12:10	225	18,500	16,800	1,750	1,600	18	15	< 1	< 1	< 1	< 1	< 1	< 1
12:20	225	18,500	16,800	1,750	1,600	19	15	< 1	< 1	< 1	< 1	< 1	< 1
12:30	225	62,400	56,700	6,150	5,000	56	50	< 1	< 1	< 1	< 1	< 1	< 1
12:40	225	5,500	5,000	65	50	6	5	< 1	< 1	< 1	< 1	< 1	< 1
> 12:50	225	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

All other segments<1 mR/hr at ALL TIMES

PLUME MONITORING DATA-SITE BOUNDARY SEGMENTS

AIR SAMPLES (CPM)

TIME	WIND DIR	1		2		3		4		5		6	
		IODINE	PART	IODINE	PART	IODINE	PART	IODINE	PART	IODINE	PART	IODINE	PART
11:00	270	200	200	200	200	200	200	200	200	200	200	200	200
11:10	270	200	200	210	200	750	200	6,500	200	750	200	210	200
11:20	270	200	200	210	200	750	200	6,550	200	750	200	210	200
11:30	270	200	200	210	200	750	200	6,540	200	750	200	208	200
11:40	225	7,800	200	750	200	300	200	200	200	200	200	200	200
11:50	225	7,900	200	750	200	210	200	200	200	200	200	200	200
12:00	225	8,000	200	800	200	205	200	200	200	200	200	200	200
12:10	225	8,450	200	820	200	200	200	200	200	200	200	200	200
12:20	225	8,600	200	840	200	200	200	200	200	200	200	200	200
12:30	225	28,600	200	2,800	200	200	200	200	200	200	200	200	200
12:40	225	2,800	200	280	200	200	200	200	200	200	200	200	200
> 12:50	225	200	200	200	200	200	200	200	200	200	200	200	200

Counter BKGD and other segments 200 CPM at ALL TIMES

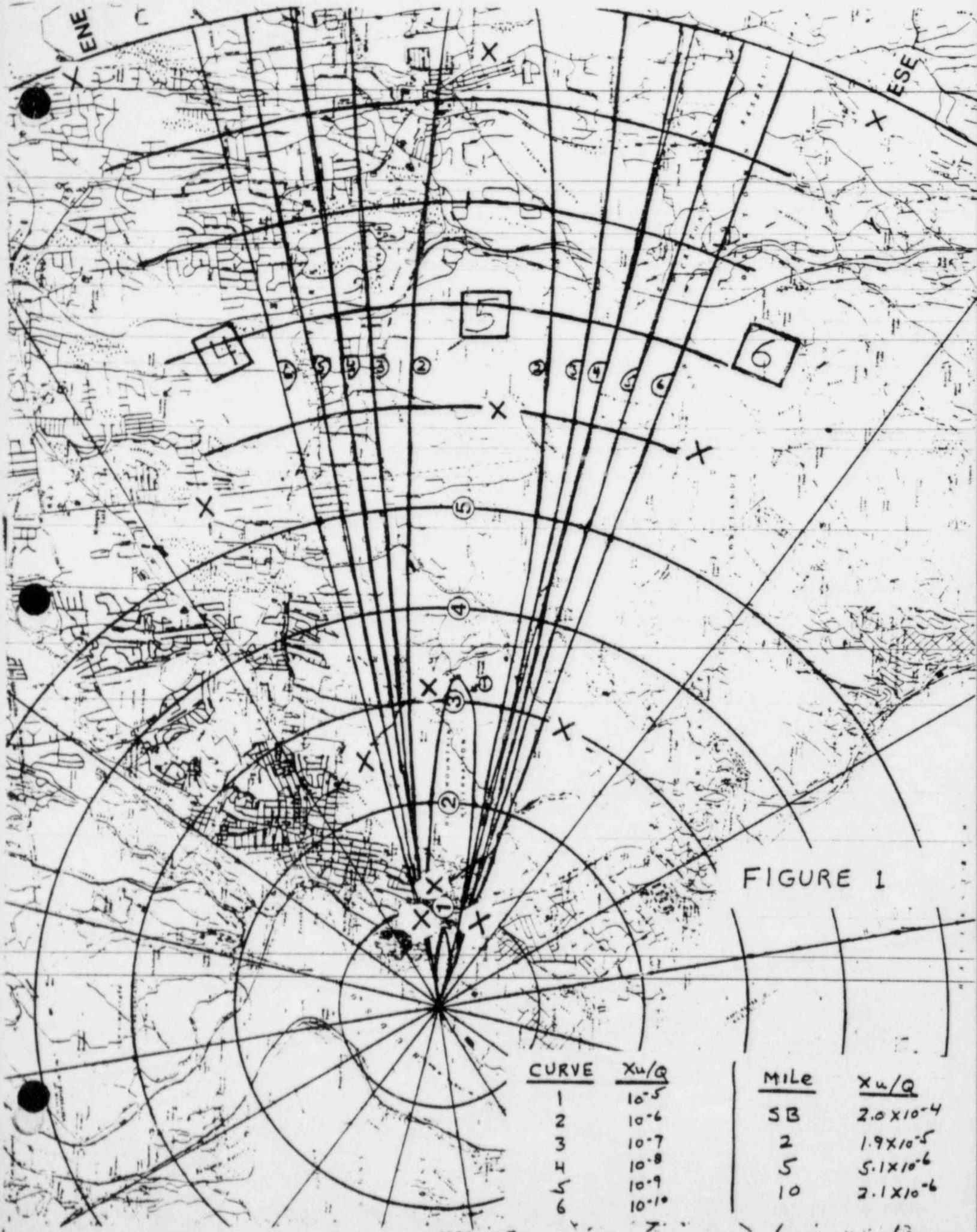

FIGURE 1

CURVE	Xu/Q
1	10^{-5}
2	10^{-6}
3	10^{-7}
4	10^{-8}
5	10^{-9}
6	10^{-10}

MILE	Xu/Q
SB	2.0×10^{-4}
2	1.9×10^{-5}
5	5.1×10^{-6}
10	2.1×10^{-6}

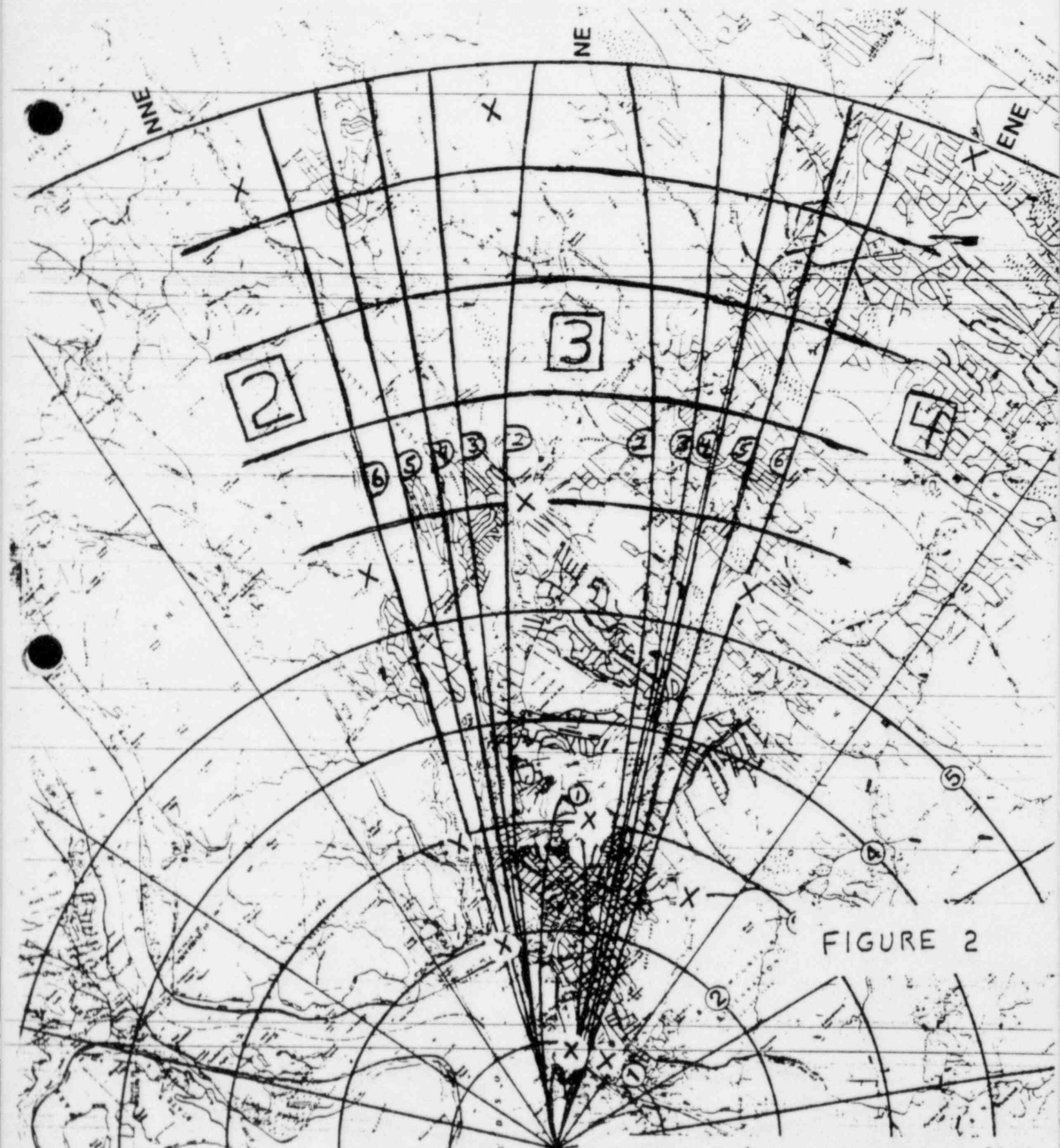

FIGURE 2

CURVE	X_u/Q
1	10^{-5}
2	10^{-6}
3	10^{-7}
4	10^{-8}
5	10^{-9}
6	10^{-10}

MILE	X_u/Q
SB	2.0×10^{-4}
2	1.9×10^{-5}
5	5.1×10^{-6}
10	2.1×10^{-6}

FIGURE 3

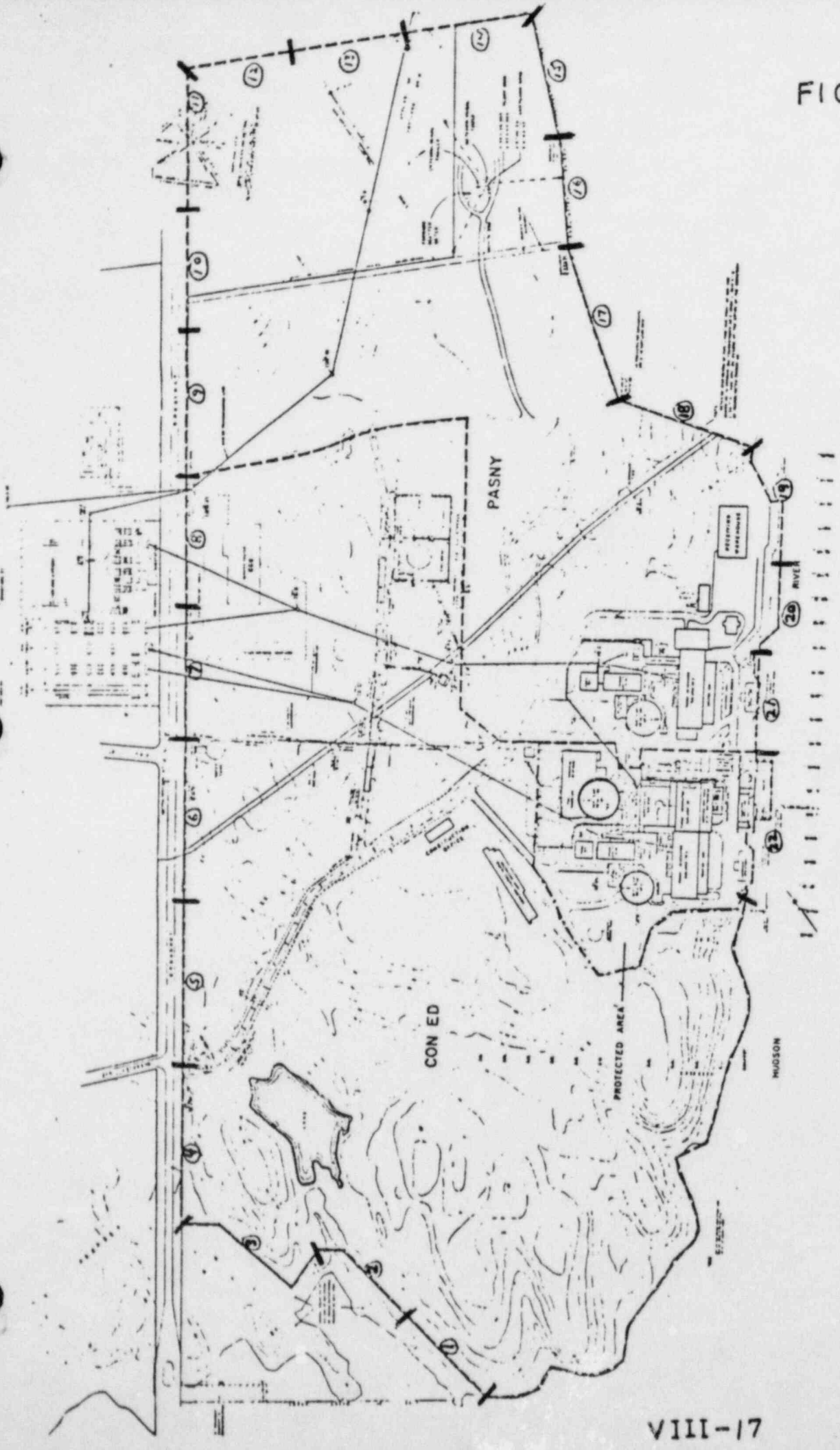

TABLE 8

OFFSITE TLD READINGS

SECTOR	MILE RING	MREM	SECTOR	MILE RING	MREM
1	1		9	1	
	5			5	
	10			10	
2	1	6	10	1	
	5	1		5	
	10			10	
3	1	6,200	11	1	
	5	4,300		5	
	10			10	
4	1		12	1	
	5			5	
	10			10	
5	1	5,600	13	1	
	5	92		5	
	10			10	
6	1		14	1	
	5			5	
	10			10	
7	1		15	1	
	5			5	
	10			10	
8	1		16	1	
	5			5	
	10			10	

NOTE: Data to be supplied to Offsite Radiological Assessment Director.

TABLE 9

POST ACCIDENT SAMPLES

SAMPLE MEDIUM	SECTOR MILE	TIME TAKEN	TIME COUNT	ISOTOPES IDENTIFIED	RADIOACTIVE CONCENTRATION*
SOIL	5-2	1400	1800	I-131	0.039
				I-133	0.085
				I-135	0.039
SOIL	5-2	1400(1)	1800	I-131	0.031
				I-133	0.040
SOIL	5-2	1400(2)	1800	I-131	0.026
SOIL	5-5	1400	1800	I-131	0.007
				I-133	0.015
				I-135	0.010
SOIL	5-5	1400(1)	1800	I-131	0.004
				I-133	0.005
SOIL	5-5	1400(2)	1800	I-131	0.001
SOIL	5-10	1400	1800	I-131	0.001
				I-133	0.002
				I-135	0.002
SOIL	5-10	1400(1)	1800	NONE	

* SOIL = uCi/kg
Water = uCi/liter
Vegetation = uCi/g dry weight

NOTE 1: one day later
NOTE 2: two days later
NOTE 3: Data to be provided to Offsite Radiological Assessment Director after samples have been collected and processed.

TABLE 9(Continued)

POST ACCIDENT SAMPLES

SAMPLE MEDIUM	SECTOR MILE	TIME TAKEN	TIME COUNT	ISOTOPES IDENTIFIED	RADIOACTIVE CONCENTRATION*
SOIL	3-2	1400	1800	I-131	0.252
				I-133	0.549
				I-135	0.503
SOIL	3-2	1400(1)	1800	I-131	0.132
				I-133	0.268
SOIL	3-2	1400(2)	1800	I-131	0.006
SOIL	3-5	1400	1800	I-131	0.044
				I-133	0.096
				I-135	0.088
SOIL	3-5	1400(1)	1800	I-131	0.020
				I-133	0.044
SOIL	3-5	1400(2)	1800	I-131	0.004
SOIL	3-10	1400	1800	I-131	0.006
				I-133	0.014
				I-135	0.013
SOIL	3-10	1400(1)	1800	NONE	

* SOIL = uCi/kg
Water = uCi/liter
Vegetation = uCi/g dry weight

NOTE 1: one day later
NOTE 2: two days later
NOTE 3: Data to be provided to Offsite Radiological Assessment Director after samples have been collected and processed.

TABLE 10

POST ACCIDENT OFFSITE CONTAMINATION LEVELS

SECTOR MILE	SMEAR CHECK RESULTS-CPM 1400 HRS	1500 HRS (1)	1500 HRS (2)
5-SB	OFFSCALE (50K)	21,500	450
5-2	28,200	4,500	300
5-5	4,950	650	30
5-10	700	BKGD	BKGD
3-SB	OFFSCALE (50K)	OFFSCALE (50K)	4,400
3-2	OFFSCALE (50K)	31,700	450
3-5	31,700	5,000	300
3-10	4,500	BKGD	BKGD

NOTE 1: Time represents one (1) day later
2: Time represents two (2) days later
3: Data to be provided to Offsite Radiological Assessment Director after checks are simulated.

TABLE 11

MEDICAL EMERGENCY DATA

NOT REQUIRED FOR THIS SCENARIO

CONSOLIDATED EDISON COMPANY OF NEW YORK

INDIAN POINT UNIT NO. 2

DRILL SCENARIO NO. 4B REV. 0

IX. LOGISTICS

A. Drill Size

There will be a full scale activation of the following facilities.

- Control Room
- Technical Support Center
- Operational Support Center
- Emergency Operations Facility

B. Participation

Assembly and accountability will be limited to approximately 100 personnel from Nuclear Power who will be designated and instructed before the drill that they are participants. After accountability has been completed, personnel not participating as players, controllers or observers will be permitted to return to their normal work locations.

C. Arm Band Use

The following arm band color coding will be used during the drill.

Green - Controller
Red - Observer
White - Player
Blue - NRC (available if they desire them)

D. Access Lists

Access lists will only be prepared for the EOF for use by the Security Guard assigned to that post. All other Nuclear Power personnel not participating will be directed by their Department Managers to refrain from entering the TSC and OSC areas. Non drill participants requiring entry to the Control Room will be directed to contact the SWS assigned to the watch.

E. Lunch

Lunch will be provided to all players, observers and controllers at their respective facilities in order that the drill can continue without interruptions.

F. Critique

The Chief Controller will hold a critique at 0800 hours on May 10, 1984 at the Simulator Cafeteria. All controllers and observers shall attend.