

**POINT BEACH NUCLEAR PLANT**

**1993 EMERGENCY PREPAREDNESS**

**EXERCISE**

**DECEMBER 8, 1993**

CONTROLLED COPY NO. 5

MANUAL HOLDER \_\_\_\_\_

## POINT BEACH NUCLEAR PLANT

### 1993 EMERGENCY PREPAREDNESS EXERCISE

#### FORWARD

The Point Beach Nuclear Plant (PBNP) Emergency Plan describes the nuclear emergency response capabilities at PBNP and at Wisconsin Electric Power Company (WE), including support provided by federal, state and local governments and private organizations. The Plan describes a program of continuous emergency preparedness, one element of which is an annual evaluated exercise.

The conduct of this exercise provides the opportunity to test the emergency plan and its associated implementation procedures, and to activate and enable the evaluation of major portions of the emergency response organizations (ERO), as required in 10CFR50.47(b) and Appendix E. This exercise provides an opportunity to further enhance emergency response capabilities of the Wisconsin Electric Power Company.

The 1993 Point Beach Nuclear Plant (PBNP) Emergency Exercise to be conducted on December 8 will be a utility only exercise. The scenario will test the capabilities of the Emergency Response Organization to respond to a simulated emergency and test the effectiveness of the PBNP Emergency Preparedness Program.

This Exercise Manual provides the basis for the conduct of this exercise. This manual is to be used as the control mechanism for the conduct and evaluation of the exercise and consists of two parts. Sections 1 through 3 define the scope and objectives of the exercise and provide information for those who are not familiar with the area. Sections 4 through 10 and the Appendices describe the scenario in detail, including the specific sequence of events and pertinent data. This manual is subject to a limited, controlled distribution. Exercise participants will not have prior knowledge of the nature of the simulated accident or any parts thereof.

Note: As exercise development efforts progress, minor changes may be required to the Exercise Manual. Any such changes will be identified during pre-exercise briefings.

**SPECIAL NOTE:** The Point Beach Nuclear Plant Exercise, to be held on December 8, will not be evaluated by NRC Regional Personnel. The Resident Inspectors of Point Beach and Kewaunee Nuclear Plants will conduct the evaluation. In addition to the normal exercise evaluation by the Wisconsin Electric Controller Organization, Special Assessments of the Exercise will be conducted by a Wisconsin Electric Nuclear Quality Assurance Team which includes Wisconsin Public Service Emergency Preparedness Staff as subject matter experts, and by the Institute of Nuclear Power Operations.



## POINT BEACH NUCLEAR PLANT

### 1993 EXERCISE SCENARIO DEVELOPMENT TEAM

Mike Baumann	Radiological Engineering
Bruce Carlson	Operations
Chip Cerovac	Operations
Richard Chojnacki	Emergency Planning
Gary DuChateau	Maintenance
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Jeff Gundersen	Radiological Engineering
Bill Harms	Plant Support Engineering
Bill Hennessy	Engineer (DTA)
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Renee Hetue	Emergency Planning
Clay Hill	Training (Simulator)
Norm Hoefert	DCS
Steve Johnson	Training
Steve Kloss	Maintenance
Don LeClair	Health Physics
Pat Matson	Training (Simulator)
Joan McCullum	Security
Ed Mercier	Probabilistic Safety Assessment
John Papierniak	Health Physics
Rick Parlato	Chemistry (DTA)
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## ERRATA

The following is a list of known errata items in this Manual. These items will be provided in the final Exercise Manual, and as an update to the NRC's Exercise Manuals.

The below items will be assembled as scenario development progresses. It is expected that considerable [ minor ] changes will occur as a result of simulator runs and plant changes. These items **MUST** be available to the NRC as an update prior to the Exercise date, and incorporated into the Exercise Manual prior to the final Controller briefing. Every effort should be made to adhere to the original timeline.

<u>Section</u>	<u>Item</u>
Section 0	Forward updated with special note regarding the evaluation and assessments being conducted. <b>DONE</b>
	Table of Contents updated to reflect addition of Simulator Timeline. <b>DONE</b>
Section 1	Updated scope to include initial communications with offsite agencies. <b>DONE</b>
	Objective 1.2.5.f bolded. <b>DONE</b>
Table 2.1	Controller list and communications links completed. <b>DONE</b>
Section 3	Dates and times of some events were confirmed. <b>DONE</b>
Section 4	Common Equipment Out-of-Service updated to reflect actual changes in real plant status. <b>DONE</b>
	Simulator Timeline was added. <b>DONE</b>
Section 5	Added Controller Note and Chemistry technical data to Message 7. <b>DONE</b>
	Removed some information that could be considered prompting from Message 8. <b>DONE</b>
	Added values for the alarming Victoreen monitor in the controller note on Message 9. <b>DONE</b>

- Added picture of valve to Message 12. **DONE**
- Removed some information that could be considered prompting from Message 13. **DONE**
- Added where to locate vehicle drawings and a controller note to Message 15. **DONE**
- Removed some information that could be considered prompting from Message 16. **DONE**
- Section 7.1      Added Table 7.1.1 **DONE**  
In-Plant Radiological maps smoothed and upgraded. **DONE**
- Section 7.2      Added Section 7.2.1, Table 7.2.1, Table 7.2.2, and Table 7.2.3  
**DONE**
- Section 7.4      Added Table 7.4.1 and offsite maps. **DONE**
- Section 8        Added mock-up information for lead shielding to Mini-Scenario 2.  
**DONE**
- Added Victoreen Monitor values to Mini-Scenario 3. **DONE**
- Added Controller Note regarding personnel contamination to Mini-Scenario 6. **DONE**
- Section 9        Added public information package. **DONE**
- Appendix 1      Shift Turnover Information is provided. Possible changes may be made, closer to exercise time, to enhance credibility and to reflect current plant conditions.

## 1.0 SCOPE AND OBJECTIVES

Contents of this Section:

- 1.1 Scope
- 1.2 Primary Objectives - 1993 Exercise



## 1.0 SCOPE AND OBJECTIVES

The scope of the exercise is defined in Section 1.1. Wisconsin Electric Power Company (WE) Point Beach Nuclear Plant exercise objectives are provided in Section 1.2.

### 1.1 Scope

The 1993 Point Beach Nuclear Plant (PBNP) emergency plan exercise to be conducted on December 8 will be a full-scale, utility only exercise. The scenario will test the capabilities of the plant emergency response organization to respond to a simulated emergency and test the effectiveness of the PBNP Emergency Preparedness Program. State, county and federal participation will not be tested. However, Initial Event Notifications will be made to appropriate state and county agencies and subsequent notifications and updates will be made to an internal control cell. Some agencies may be contacted during the course of the drill, but they will not be required to respond to scenario events.

- 1.1.1 The exercise will require activation of the Wisconsin Electric Technical Support Center, Operations Support Center, Emergency Operations Facility, Offsite Health Physics Facility, Joint Public Information Center, and various corporate support facilities.
- 1.1.2 Scenario events will escalate to the Site Emergency level. A General Emergency may be declared based on fission product barrier status.
- 1.1.3 Scenario events will allow the emergency response organization to demonstrate its ability to plan and prioritize their actions to deal with various threats to the plant, the public, and emergency response organization members.
- 1.1.4 Scenario events lead to a radiological release of sufficient magnitude to be tracked by field teams.
- 1.1.5 The Scenario will require protective action recommendations based on plant conditions and a release of radionuclides to the environment.
- 1.1.6 The scenario will be designed to allow the participants the opportunity to terminate the release and perform recovery actions within a reasonable time period.
- 1.1.7 The scenario will allow the participants to demonstrate their ability to deal with controllable amounts of contamination.

## 1.2 PRIMARY OBJECTIVES -- 1993 EXERCISE:

### NOTE

Bolded objectives are those which the scenario team has concentrated on in response to noted concerns.

#### 1.2.1. Assessment and Classification

- a. **ASSESS and CLASSIFY** conditions based on the Emergency Action Level Table.
- b. **EVALUATE** plant parameters, safety systems, core, and fission product barriers.

#### 1.2.2. Notification and Communication

- a. WARN all personnel in the controlled area of events.
- b. DISSEMINATE initial emergency messages from the plant.
- c. TRANSMIT information to offsite governmental agencies.
- d. COMMUNICATE with federal emergency response organizations.
- e. PROVIDE periodic updates to state/county agencies using previously agreed upon elements.
- f. **COMMUNICATE effectively between ERFs.**

#### 1.2.3. Radiological Assessment and Protective Actions

- a. OBTAIN meteorological data.
- b. ESTIMATE dose from projected/actual dose rates - compare with PAGs.
- c. **RECOMMEND protective actions to appropriate state/county authorities.**
- d. ENSURE appropriate personnel dosimetry and exposure control.

- e. PROVIDE respiratory equipment and PCs for emergency personnel.
- f. PROVIDE for radiological monitoring of personnel evacuated from the site.
- g. PROVIDE for personnel decontamination.
- h. PERFORM field monitoring sufficient to define the extent of a radiological release; this may include direct radiation measurements, or air, soil, water, and vegetation samples as necessary.
- i. MAINTAIN records of inplant survey information.
- j. MAINTAIN accumulated exposure records for selected personnel.

#### 1.2.4. Emergency Facilities

- a. STAFF all facilities listed in the Emergency Plan in a timely manner.
- b. DEMONSTRATE the adequacy of facilities and displays to support emergency operations.

#### 1.2.5. Emergency Direction and Control

- a. AUGMENT staff to provide full Emergency Response Organization.
- b. AUGMENT onsite personnel IAW the Emergency Plan.
- c. AUGMENT staff to provide management level interface with government authorities.
- d. DIRECT rescue operations for injured personnel.
- e. PERFORM accountability.
- f. Aggressively PURSUE actions to identify and terminate a radiological release (or other hazardous condition).
- g. VERIFY habitability of station.
- h. DETERMINE if site evacuation of non-essential personnel is appropriate.
- i. PROVIDE guidance for work in high radiation fields.

- j. AUTHORIZE personnel exposure beyond 10 CFR 20 limits.
- k. REQUEST extra manpower / materials to combat emergency from offsite EP.
- l. AUGMENT staff to provide technical support for planning / recovery / reentry.
- m. DEMONSTRATE capability for 24-hour operations, including shift relief.

1.2.6. Public Information

- a. AUGMENT staff to provide information to media during emergencies.
- b. ACTIVATE the JPIC.
- c. ESTABLISH a rumor control center.
- d. PROVIDE accurate and timely information to the public from the JPIC.

1.2.7. Reentry and Recovery

- a. PERFORM plans and procedures for reentry and recovery.
- b. PERFORM core damage assessment.

## **2.0 EXERCISE INFORMATION**

### **2.1 EXERCISE PARTICIPANTS**

The participants in the Exercise will include the following groups.

#### **2.1.1 Wisconsin Electric Power Company (WE)**

- a. PBNP staff
- b. PBNP and Corporate Emergency Response Organization
- c. WE Public Affairs Department

#### **2.1.2 Offsite Organizations**

- a. The State of Wisconsin will participate in this off-year exercise for Initial Event Notification only.
- b. Kewaunee County will participate in this off-year exercise for Initial Event Notification only.
- c. Manitowoc County will participate in this off-year exercise for Initial Event Notification only.
- d. Mishicot ambulance service will participate in this exercise, but only for the onsite portion of the injured person. Two Rivers Community Hospital will not participate.

### **2.2 EXERCISE ORGANIZATION**

The organization for this Exercise will consist of the Exercise Coordinator, the Lead Exercise Controller, other Exercise controllers, participants, and observers. The role of each of these is discussed in this section.

- 2.2.1 The Exercise Coordinator will coordinate all preparations for the conduct of the Exercise, including the development of the scenario and Exercise manual. After the Exercise has been completed, he will chair the controller debriefing sessions, and coordinate the compilation of a consolidated critique report delineating strengths and weaknesses identified by these individuals. He will also chair the post-Exercise critique meeting. He will coordinate the preparation of an itemized list of corrective actions and improvement items identified during the conduct of the Exercise, in accordance with the PBNP Emergency Plan.

2.2.2 The Lead Exercise Controller is responsible for the safe conduct of the Exercise. He shall interface, as required, with the Lead Facility Controllers, to resolve any inter-facility questions concerning the Exercise scenario and shall determine the amount of "free play" that will be permissible on the part of the participants (particularly in the Control Room). He shall have sole authority to terminate the Exercise if, in his judgment, events have occurred which require that the Exercise be suspended to direct appropriate resources to resolution of an actual problem or emergency. Upon receiving verification from all Lead Facility Controllers that the objectives have been satisfactorily demonstrated, he shall authorize distribution of the Exercise termination message.

2.2.3 Controllers are qualified personnel selected to perform functions as follows:

- a. A Lead Facility Controller is assigned to each emergency response facility. The Lead Facility Controller is responsible for all Controller and Observer activities for that facility and, if appropriate, its associated teams. Controllers for teams or subareas of a facility report to the Lead Controller of that facility.
- b. The Controllers may deliver verbal Exercise Messages to designated participants at specified times and places during the Exercise and deliver additional contingency messages as may be required to keep the Exercise action moving according to the scenario and Exercise objectives. They will observe the Exercise at their assigned locations and complete evaluation forms. Controllers submit written recommendations to the Lead Facility Controller, who in turn summarizes all comments for submittal to the Exercise Coordinator prior to the scheduled critique.

Controllers will record their observations using evaluation forms provided and will make recommendations. They will evaluate participant performance on the basis of requirements contained in the Emergency Plan, appropriate Implementing Procedures, and Exercise messages as described herein. Each Controller shall keep an on-going record (chronology) of significant events as they occur.

Controllers will be identified by wearing controller vests or hats.



- 2.2.4 Participants include Point Beach Nuclear Plant, Wisconsin Electric Power Company, and, as available, state and county communicators.

PBNP participants will be identified by wearing orange wrist bands or vests.

- 2.2.5 Observers from the Nuclear Regulatory Commission, INPO, QA and KNPP will participate in the Exercise solely for the purpose of observing Exercise activity. They will be provided with orientation information and appropriate Exercise publications.

## 2.3 EMERGENCY RESPONSE FACILITIES

During the Exercise, special facilities may be activated to manage, assess, and support emergency response.

### 2.3.1 On-Site Facilities

#### a. Control Room Simulator

The Control Room simulator is the primary facility at the Point Beach Nuclear Plant in which Exercise conditions are monitored and controlled and corrective actions are taken to mitigate any abnormal occurrence. It is operated under the direction of the Duty Shift Superintendent and is the location where initial assessment, emergency classification and emergency response for the exercise begins.

The controls and instrumentation necessary to operate the plant under the simulated emergency conditions are located in the Control Room simulator. The Control Room simulator is equipped with parameter instrumentation such as area and process radiation monitoring systems and alarm annunciators that give early warning of a potential emergency and provide for a continuing evaluation of the emergency situation. Additional equipment such as meteorological readouts and communications equipment is also located in the Control Room simulator. The Control Room simulator has communication lines to the Technical Support Center (TSC), Operations Support Center (OSC) and Emergency Operations Facility (EOF).

The PBNP Simulator is located in the North Service Building, fifth floor, within the protected area.

b. Technical Support Center

The Technical Support Center (TSC) is located on the El. 8' of the Technical Support Building. This location is in close proximity to the actual Control Room, and somewhat further from the control room simulator. It is capable of accommodating more than 30 people. The TSC has the necessary plant engineering data and safety parameter displays to support Control Room and simulator operations.

The TSC is activated upon the declaration of an Alert, Site Emergency or General Emergency. It operates under the direction of the Site Manager and serves as the coordination point for technical support activities during emergency and Exercise operations. The TSC provides the communications interface between the Control Room and simulator, the Operations Support Center and the Emergency Operations Facility. Follow-up communications with federal, state and local response organizations are coordinated in the TSC prior to the activation of the Emergency Operations Facility (EOF). The TSC has communication lines to the Control Room and EOF. It also has direct (dial-select) communication lines to the Emergency Operations Centers (EOC) for both Kewaunee and Manitowoc counties; the State of Wisconsin EOC in Madison; the Kewaunee Nuclear Plant TSC and EOF; and the Point Beach Nuclear Plant EOF. State and local organizations can also be contacted directly from the TSC over the NAWAS network.

Adequate equipment exists in the TSC to provide the TSC staff with the capability to monitor reactor systems status and to evaluate plant abnormalities. This equipment includes signal display instrumentation, data displays and information storage and retrieval devices. The data displays provide current indications and time history displays of plant parameters. Terminals have the capability of displaying Exercise data from the plant process computer.

The TSC staff monitors radiological process and effluent parameters for use in predicting radiological consequences. In addition, the TSC staff analyzes plant information and corrective measures to mitigate the consequences of the incident and makes recommendations to the Emergency Support Manager on plant operations.

The TSC is designed to have the same radiological habitability as the Control Room under accident conditions and has permanent monitoring systems which indicate radiation dose rates and airborne radioactivity concentrations. The air purification system design includes particulate and charcoal filters to meet the requirements for post-accident habitability.

c. Operations Support Center

The Operations Support Center (OSC) is located adjacent to the TSC. The OSC is activated during an Alert, Site Emergency or General Emergency. It is operated under the direction of the Operations Support Director and is the primary location for team preparation and dispatch during an emergency. The OSC serves as a staging area for briefing emergency maintenance and non-shift operating personnel. The OSC has communication links to the Control Room and simulator, TSC and EOF. The OSC is designed to have the same radiological habitability as the TSC.

d. Emergency Operations Facility

The Emergency Operations Facility (EOF) is located in the PBNP Site Boundary Control Center located about one mile south of PBNP.

The EOF is activated during a Site Emergency or a General Emergency. It is operated under the direction of the Emergency Support Manager. The EOF has adequate space to accommodate representatives from various federal, state and local organizations. The EOF is the focal point for the coordination of offsite emergency response activities. Management and technical personnel assigned to the EOF are responsible for protective action recommendations, liaison with offsite governmental organizations and response facilities, and overall management of the emergency organization.

The EOF has communication lines to the Control Room (simulator), TSC, OSC and the Joint Public Information Center. The EOF has direct (dial-select) communication links to the Technical Support Center, the Kewaunee and the Manitowoc County Emergency Operations Centers (EOC); the Kewaunee Nuclear Plant TSC and EOF; and the State of Wisconsin EOC in Madison.

e. Joint Public Information Center

The Joint Public Information Center (JPIC) is located in the Holiday Inn in the city of Manitowoc, Wisconsin. The JPIC is activated during a Site Emergency or a General Emergency or at the direction of the Emergency Support Manager. The JPIC Director supervises PBNP activities at the JPIC. The JPIC is utilized to formulate and coordinate the development of news statements for the news media. This facility provides periodic updates of the situation and facilitates the coordination of the general public information activities of PBNP and the appropriate federal, state and local agencies to ensure that only authorized news statements are released. The general public will be provided with a telephone number to call to receive the most up-to-date information regarding emergency conditions (rumor control).

f. Corporate Emergency Center (CEC)

The WE Corporate Emergency Center is located in the Nuclear Power Department offices in Milwaukee, WI. Department Managers and supporting staff review accident events and provide support to PBNP as required.

## 2.4 EXERCISE CONDUCT

### 2.4.1 Overview

The Exercise will simulate abnormal incidents at the Point Beach Nuclear Plant and test the capabilities of PBNP staff to respond to a series of postulated events. Exercise events will initially progress to the declaration of an Alert Classification and later escalate to a Site or General Emergency with a release of radioactivity to the environment.

The conduct of the Exercise will demonstrate the effectiveness of selected organizations, personnel, functions, and/or activities. It will also demonstrate the ability of response personnel to implement actions, plans and instructions for the protection of the public's health and safety.

Once the simulated emergency has been brought under control by the participants, the Lead Exercise Controller will review the Exercise objectives and terminate the Exercise when appropriate.

### 2.4.2 Actions

Emergency response actions during the Exercise may include: recognition and classification of emergency conditions; assessment of on-site/off-site radiological consequences; alert/notification and mobilization of emergency response organizations; implementation of in-plant corrective actions; activation/operation of emergency response facilities and equipment; preparation of reports, messages, and recordkeeping; and recommendation of protective actions.

### 2.4.3 Communications

The Exercise will also demonstrate the effective use of communications systems. An actual emergency operation usually requires the extensive use of both telephone and radios. The primary means of communication will be attempted first, then the backup if required. Designated telephone numbers will be used for Controller communications to prevent the participants from learning in advance of situations to which they will be subjected during the Exercise. Close cooperation and coordination among Controllers is essential due to the number of persons assigned to the Controller role.



#### 2.4.4 Simulator

The Control Room Simulator will be the central point for the distribution of Exercise data and the majority of the message traffic; this facility is, therefore, the key to ensuring that the Exercise remains on schedule. Plant parameters will be provided using the Simulator "Live." All data and parameter information is made available in the Control Room Simulator. All information, except annunciator and control rod status, is provided in the EOF and the TSC via the Plant Process Computer System.

Due to the complex nature of operational data produced by allowing the operators a "free play" situation, the provision of operational back up data is deemed impractical.

In the event that the simulator should fail to present the projected scenario data as intended, and in a manner that cannot be promptly reconciled by the operators or that the simulator fails to present any scenario data ("freezes"), the operators/controllers of the exercise will take actions to restore the simulator in the least interruptive manner possible. Details on the general steps to be followed are found in Section 6.2 of this manual.

#### 2.4.5 Participants

The success of the Exercise is largely dependent upon participant reaction, knowledge of appropriate procedures, and an understanding of the purpose of the Exercise. Initial conditions which will affect participant actions will be provided to the participants at the time the Exercise begins. However, most of the elements of the Exercise play will be introduced through the use of controlled casualties on the live simulator and in the field. Participants, therefore, are responsible for initiating actions during the Exercise in accordance with instructions for their particular function.

This Exercise is designed to assess participant effectiveness and response. Participants will be reminded not to be excessively concerned with the mechanics or cause of the Exercise scenario.

The Participants are expected to "free play" the scenario to the extent permitted by their Controllers. Response to each situation should be as realistic as possible, consistent with maintenance of personnel and plant safety. Notifications of, and contact with supervisors, plant management, and off-site agencies will be made in accordance with applicable procedures and instructions (unless a Controller issues instructions to the contrary). Only those simulations identified by a Controller or specifically identified in briefings are permissible.



#### 2.4.6 Controllers

Lead Facility Controllers are assigned to the Control Room Simulator, OSC, TSC, EOF, JPIC and other places of Exercise action. Only Lead Facility Controllers, with the concurrence of the Lead Exercise Controller, can modify Exercise messages or initiate "free play" messages. All controllers assigned to a facility or function are responsible to their Lead Facility Controller for ensuring that the actions of participants do not divert the sequence of events. Refer to Section 2.7 for a complete listing of all Controllers assisting in the conduct of this Exercise.

#### 2.4.7 Evaluation and Critique

Controllers will assess participant response and performance on the basis of requirements contained herein.

After the Exercise is completed, the Lead Facility Controllers will conduct a Post-Exercise critique for their respective areas of responsibility. Deficiencies in the Emergency Plan, Implementing Procedures, the emergency preparedness training program, facilities, equipment and/or other areas will be identified through the critique process.

Controllers will prepare evaluation forms and provide them to the Exercise Coordinator. The deficiencies will be documented by the Exercise Coordinator and corrected by the individuals who have responsibility in the area identified.

The schedule for the critiques is shown in Section 3.0.

## 2.5 PRECAUTIONS AND LIMITATIONS

This section provides rules and guidelines to be followed throughout the conduct of this Exercise. Prior to initiation of the Exercise, a pre-Exercise briefing will be held to review the entire Exercise process with all the Exercise Controllers, Participants and Observers.

- 2.5.1 Should, at any time during the conduct of this Exercise, an actual emergency situation arise, all activities and communications related to the Exercise will be suspended. It will be the responsibility of any Exercise Controller or Observer who becomes aware of an actual emergency to suspend Exercise response in his/her immediate area and to inform the Lead Exercise Controller of the situation. Upon notification of an actual emergency, the Lead Exercise Controller will notify all other Controllers/Observers to suspend all Exercise activities.

The Lead Exercise Controller will make a determination at that point whether to continue, place a temporary hold on, or terminate the Exercise.

- 2.5.2 Should, at any time during the conduct of this Exercise, an Exercise Controller or Observer witness a participant undertake any action which would, in the opinion of the Controller/Observer, place either an individual or component in an unsafe condition, the Controller/Observer is responsible for intervening in the individual's actions and terminating the unsafe activity immediately. Upon termination of the activity, the Controller/Observer is responsible for contacting the Lead Exercise Controller and informing him of the situation.
- 2.5.3 No pressurization of fire hoses, discharging of fire extinguishers, or initiation of any fire suppression systems will be required for the Exercise.
- 2.5.4 Manipulation of any plant operating systems, valves, breakers, or controls in response to this Exercise is only to be simulated. There is to be no alteration of any plant operating equipment, systems, or circuits during the response to this Exercise.
- 2.5.5 All repair activities associated with the scenario will be simulated or performed on equipment mock-ups, with extreme caution emphasized around operating equipment.
- 2.5.6 All telephone communications, radio transmissions, and public address announcements related to the Exercise must begin and end with the statement, "THIS IS A DRILL." Should a Controller or Observer witness an Exercise participant not observing this practice, it is the Controller's/Observer's responsibility to remind the individual of the need to follow this procedure.

- 2.5.7 Any motor vehicle response to this Exercise, whether it be ambulance, fire fighting equipment, police/security vehicles or field monitoring teams, should observe all normal motor vehicle operating laws, including posted speed limits, stop lights/signs, one way streets, etc.
- 2.5.8 Should any on-site security actions be required in response to this Exercise, Exercise participants are to cooperate as directed by Site Security.
- 2.5.9 Exercise participants are to inject as much realism into the Exercise as is consistent with its safe performance.
- 2.5.10 Care must be taken to assure that any non-participating individuals who may observe Exercise activities or overhear Exercise communications are not misled into believing that an actual emergency exists. Any Exercise Controller or Observer who is aware of an individual or group of individuals in the immediate vicinity who may have become alarmed or confused about the situation, should approach that individual or group and explain the nature of the Exercise and its intent.
- 2.5.11 Entry into high radiation areas or areas posted as having high airborne or surface contamination will be PROHIBITED in this Exercise. All controllers and participants are responsible for ensuring compliance with existing plant procedures and ALARA practices.

## 2.6 CONTROLLER/EVALUATOR INSTRUCTIONS

Each controller also evaluates his/her portion of this Exercise. Thus each controller/evaluator should be familiar with the following:

- a. The objectives of the Exercise.
- b. The assumptions and precautions being taken.
- c. The Exercise scenario, including the initiating events and the expected course of action to be taken.
- d. The various locations that will be involved and the specific items to be observed when at those locations.
- e. The purpose and importance of the evaluation checklist and record sheets.

### 2.6.1 Controller Instructions

- Controllers will preposition themselves at their assigned locations prior to the activation of the facility for which they have responsibility.
- Communications will be tested to ensure satisfactory communications among Controllers prior to Exercise commencement. Note that this does not relieve Participants of their responsibility to verify equipment operability as part of the facility activation process. All watches and clocks will be synchronized with the Plant Process Computer System (PPCS) screen clock as part of the communications testing.
- All Controllers will comply with instructions from the Lead Exercise Controller.
- Each Controller will have copies of the messages controlling the progress of the exercise scenario. No message shall be delivered out of sequence or other than as written unless specifically authorized by the Lead Exercise Controller.
- Messages controlling the progress of the scenario are designated with a number. Contingency messages are noted with a number followed by the letter "C" (e.g., 10C). Contingency messages are only delivered if certain predetermined conditions identified in the "Controller Notes" portion of the Sequence of Events (Section 4.2) have been met.
- Plant operations data will be generated by the PBNP Simulator and "distributed" to the TSC and EOF Plant Process Computer Terminals. Paper messages and data sheets are to be used in conjunction with the Simulator.
- Controllers will not provide information to the Participants regarding scenario development or resolution of problem areas encountered in the course of the simulated emergency. The Exercise participants are expected to obtain information through their own organizations and exercise their own judgment in determining response actions and resolving problems. However, exercise controllers may provide information that participants would have if the situation were real; e.g., a controller may have to describe a room as "smoke filled" or state that a pump shaft is seized. Participants must earn such information by going through the appropriate actions to obtain the data, e.g., enter the room or attempt to turn the pump shaft.

- If Participants insist that certain parts of the scenario are unrealistic, the Lead Controllers have the sole authority to clarify any questions regarding scenario content.

## 2.6.2 Evaluation Instructions

Each Controller will take detailed notes regarding the progress of the Exercise and the response of the Exercise participants at their respective assigned locations. Each Controller should carefully note the arrival and departure times of participants, the times when major activities or milestones occur, and problem areas encountered. The Controllers will retain their notes for the purposes of reconstructing the Exercise chronology and assisting with the written evaluation. Evaluation packages will be provided at pre-Exercise briefings.

The standards below should be used by Controllers to evaluate assigned objectives. A dual purpose will be served by this rating system. First, the capability of each facility or response area will be evaluated, and second, the system will provide a vehicle for guiding and directing improvement. The rating scale is as follows:

[ 1 ] Well Done - No problems noted.

[ 2 ] Satisfactory - Performance was adequate, but could be improved.

[ 3 ] Weak - A few problems were noted, but they would not seriously affect our ability to protect the health and safety of the public and/or plant personnel.

[ 4 ] Deficient - Problems were noted which could affect our ability to protect the health and safety of the public and/or plant personnel.

NA - Not Applicable to the situation or no activities related to the objective were observed.

As appropriate, Evaluator comments should consider the demonstration of the following facility and team evaluation elements:

### Facility

- Accurate and timely determination of emergency action levels.
- Timely activation and staffing for each emergency action level.
- Familiarity of personnel with appropriate emergency instructions, duties and responsibilities.



- Timely notification of plant, corporate, local, state and federal personnel/agencies (information updates performed).
- Adequacy of internal information systems (i.e., message handling, displays, status boards and maps).
- Properly controlled documentation and accurate, timely recordkeeping.
- Utilization of correct communications procedures and techniques.
- Capability of facility supervisor/directors to interface with personnel and coordinate facility activities.
- Consideration for personnel safety (exposure control).
- Adequacy of interface between emergency response facilities.
- Adequacy of equipment and supplies.
- Timely initiation of on-site protective/corrective actions.
- Development of protective action recommendations.
- Radiological surveys and assessment of plant damage and hazardous conditions performed.
- Timely request of emergency support services.
- Coordinated, accurate and orderly dissemination of information to the news media.

#### Team

- Timely notification and activation.
- Adequacy of staffing.
- Familiarity with appropriate emergency instructions, duties and responsibilities.
- Availability and utilization of proper equipment.
- Performance of contamination/decontamination control.
- Proper interface with emergency support personnel.



- Utilization of correct communications instructions and techniques.
- Adequacy of briefing sessions prior to dispatch.
- Direction and control by team leaders.
- Timely requests for off-site assistance.
- Coordination and interface between emergency response team members.
- Proper interface with plant supervisory personnel.
- Availability of reference documents to team members.
- Utilization of proper radiological control practices (i.e., access control, protective clothing, shielding, stay time).
- Performance of radiological surveys.
- Timely and proper performance of damage assessment.
- Properly maintained survey records and maps.

## 2.7 PERSONNEL ASSIGNMENTS

Table 2.1 lists the Controller Organization assignments for this Exercise.

TABLE 2.1

**POINT BEACH NUCLEAR PLANT  
1993 EXERCISE CONTROLLER ASSIGNMENTS**

<u>Area</u>	<u>Position Covered</u>	<u>Individual</u>	<u>Phone #</u>
	<b>Lead Exercise Controller</b>	<b>Rick Chojnacki</b>	x6491
<b>CR (SIM)</b>	<b>Lead Controller</b>	<b>Chip Cerovac</b>	x3502
	Controller - DCS	Norm Hoefert	x3502
	Controller - DSS/DOS	Chip Cerovac	x3502
	Controller - DOS	Bruce Carlson	x3502
	Simulator Interface	Bill Harms	x6140
	Simulator Operator	Pat Matson	x6141
	Simulator Operator	Clay Hill	x6141
	Computer Interface	Sam Reid	x6140
	Controller - Fuel Movement	Bill Hennessy	GAI-TRONICS
	Controller - Injured Man (IM)	Steve Kloss	GAI-TRONICS
<b>TSC</b>	<b>Lead Controller</b>	<b>Norm Hoefert</b>	x6585
	Controller	Bill Hennig	x6398
	Controller	Bill Hennessey	x6398
	Controller	Doc Finch	x6398
<b>OSC</b>	<b>Lead Controller</b>	<b>Larry Epstein</b>	x6531
	Controller - Chem	Rick Parlato	x6531
	Controller - Maint.	Gerry Young	x6531
	Controller - Maint.	Gary DuChateau	x6531
	Controller - I&C	Steve Bowe	x6531
	Controller - HP	Don LeClair	x6531
	Controller - HP	Randy Lowden	x6531
	Controller - OPS	John Burish	x6531
	Controller - OPS	Lee Stock	x6531
<b>EOF/ OSHPPF</b>	<b>Lead Controller</b>	<b>Mike Baumann</b>	<b>x6509</b>
	Controller	Carl Onesti	x6509
	Controller - OSMST	John Papierniak	x6587
	Controller - OSMST	Steve Johnson	x6587
	Controller - Chem	Doug Johnson	x6587

<u>Area</u>	<u>Position Covered</u>	<u>Individual</u>	<u>Phone #</u>
JPIC(WE)	Lead Controller	Steve Goldman	451-3608
	Controller (MCC)	Deb Traverso	221-2165*
	Controller	Doug Day	451-3608
	Controller	Ken Draska	451-3608
Security	Lead Controller	Cheryl Andrews	x6531
External	Lead Controller	Rick Chojnacki	x6491
Control	Controller	Renee Hetue	x6591
Cell	Controller	Jill Glaser	x6431
(PBNP)	Controller	Steve Kloss (IM)	x6111
NPD	Lead Controller	Ed Mercier	221-4393*
(Milwaukee)	Controller	Tom Malanowski	221-4393*

*\* IF DIALING FROM A PLANT EXTENSION, THE "78" TIE-LINE SHOULD BE USED VS. "221"*

### 3.0 1993 POINT BEACH EXERCISE EVENTS SCHEDULE

<u>Day/Date</u>	<u>Time</u>	<u>Event</u>	<u>Location</u>
Monday December 6	0800 - 1130	PBNP Controllers Training	NSB 208 - 214
	0800	PBNP Participants Briefing	By Handout
Tuesday December 7	1500 - 1700	PBNP Exercise Set-up	PBNP
	0800 - 1200	JPIC/MCC Participants Briefing	PSB Auditorium
Wednesday December 8	0700 - 1330	<b>Exercise</b>	PBNP/WE/JPIC
	1330 - 1500	WE In-Facility Critiques	PBNP/CEC JPIC/MCC
Thursday December 9	0700 - 0900	WE Lead Controller Debriefing;	NSB 208 - 214
	0930 - 1130	WE Formal Critique	NSB 208 - 214

## 4.0 SCENARIO

### Contents of this Section:

- 4.1 Initial Conditions - 0700
- 4.2 Sequence of Events Summary
- 4.3 Simulator Timeline
- 4.4 Termination Criteria

# POINT BEACH NUCLEAR PLANT

## 1993 EXERCISE

### 4.1 INITIAL CONDITIONS, 0700

#### Unit 1

#### 4.1.1 Primary Plant Conditions - MOL

Reactor Power	100%
Tavg	570 degrees F
RCS Pressure	1985 psig
Boron	422 ppm

#### 4.1.2 Secondary/Electric Plant Conditions

Normal full power lineup  
Electrical output, 510 MWe gross

#### 4.1.3 Other overall plant conditions

- a. 1RE-109 has begun increasing within the past 24 hours to about 2 times the normal value. 1RE-109 reached Alert level at ~0330. The chemists sampled the RCS at 0510 and turned the sample over to the oncoming shift to verify and track primary coolant activity levels.
- b. 1P2B is decoupled for motor replacement.
- c. Radiography in progress north of C-59 on SW-282 (north supply to CCHX A-D).
- d. B08/B09 tie breaker replacement in progress.
- e. Moving fuel @ SFP.



# POINT BEACH NUCLEAR PLANT

## 1993 EXERCISE

### Unit 2

#### 4.1.1 Primary Plant Conditions - BOL

Reactor Power	98%
Tavg	571 degrees F
RCS Pressure	1988 psig
Boron	1022 ppm

#### 4.1.2 Secondary/Electric Plant Conditions

Normal full power lineup  
Electrical output, 510 MWe gross

#### 4.1.3 Other overall plant conditions

- a. Work in progress on 211-602 CCW temperature indicator off of Unit 2 SG blowdown sample HX.

# POINT BEACH NUCLEAR PLANT

## 1993 EXERCISE

### RAD/MET STATUS

No known releases

Wind Speed 10 mph

Wind Direction 35 degrees

### EQUIPMENT OUT OF SERVICE

#### Unit 1

HA-967 H2 Monitor  
LI-495 Rx Level  
EHC "A" Pwr Supply (Tmp Pwr)  
1P-2B Charging Pump  
P-73F "A" SGFP Attached L/O Pump  
1P-27A HDT Pump  
G-07 Rod Drive MG Set

#### Unit 2

PORV RC-430  
MS-2015

#### Common

HX-12D CCW  
SEI 6213 (Aux Feed Rm Seismic Detector)  
B08/B09

# POINT BEACH NUCLEAR PLANT

## 1993 EXERCISE

### 4.2 SEQUENCE OF EVENTS SUMMARY

<u>Time</u>	<u>Key Event</u>
0645	Exercise crew on station in (Simulator) Control Room for ground rules briefing and introduction to Exercise communications.
0700	<p>Exercise is initiated with (Simulator) CR brief. 1RE-109 showing elevated readings since ~ 0330, Primary sample was taken at 0510 and analysis is in progress. An ice storm has passed through the area. Several stations are off the grid, and the need to hold power is evident, even though fluctuations are expected.</p> <p>In plant, radiography is in progress north of C-59. Charging pump 1P2B is OOS for motor replacement. Unit 2 containment inspection is planned for relief crew at 0900. B08/B09 OOS for B08/B09 tie breaker replacement. Moving fuel at the SFP using the off-set handling tool. I/C working 2TI-602 CCW temperature indicator off of Unit 2 SG blowdown sample heat exchanger.</p>
0735	There are indications of failed fuel in latest U1 primary sample, being in the 0.9 uCi/cc range, but not increasing, as judged by 1RE-109 levels.
0740	The following RMS monitors show sustained elevated readings: 1RE-216B reads 40 mR/hr; 2RE-216B reads 90 mR/hr; RE-111, the C-59 monitor, reads ~120 mR/hr.
~0742	The Control Room is informed that the radiography source has become stuck while cranking it in after an exposure. The HP Tech reports that a field survey indicates an 1100 REM/hour field in the area immediately near the source.
~0744	The Control Room is informed that the I&C technician has fallen from his work area (overhead near the CCW valve) and has injured his head and leg. He is now unconscious and may have head, back and leg injuries. The HP Tech with him reports that the radiography field prevents his leaving that area.

# POINT BEACH NUCLEAR PLANT

## 1993 EXERCISE

<u>Time</u>	<u>Key Event</u>
0805	A fuel handling event occurs while moving fuel with the offset fuel handling tool. The tool breaks near the top (crane end) while engaged on an old fuel assembly which is being placed into storage beneath the north walkway. Considerable damage is done to the assembly, gas bubbles are seen rising in the pool, and alarms are reported on the spent fuel pit bridge Victoreen and RE-221. The tool has fallen into the pool and initial conditions indicate that another assembly may be threatened. The full extent of the damage cannot be fully determined.
0810	A limited plant evacuation should be announced for the Primary Auxiliary Building.
0820	ALERT declaration based upon fuel handling accident with release of radioactivity to the aux building.
~0850	TSC/OSC should be activated.
0913	1RE-109 level readings rapidly increase to > 120 mR/hr.
0925	Load rejection as generator output breaker trips due to icing induced ground fault in line. Unit 1 MSIVs trip shut and Code Safety valve on 1A SG lifts and sticks open. Reactor trips, SI begins.
0926	SGTR of ~500 gpm occurs in 1A SG with no prior indication.
0941	SITE EMERGENCY declaration, based upon Category 4., Secondary Coolant Anomaly, or a more conservative GENERAL EMERGENCY based upon fission product barrier criteria may be declared.
~0945	Plant evacuation is conducted with special regard to the plume location, which at this time will be moving south-south-west across the western edge of the south parking lot and the EIC.
0930 - 1200	Several vehicles in the south parking lot are contaminated, and are detected <u>IF</u> used in the evacuation to the SBCC.
~1030 - 1230	Field teams work to determine extent of radiological footprint.

# POINT BEACH NUCLEAR PLANT

## 1993 EXERCISE

<u>Time</u>	<u>Key Event</u>
~1100	Safety for 1A SG closes/can be closed.
1100 - 1230	Complete resolution of problems - initiate recovery plans and actions.
~1300 - 1330	Termination of exercise when: <ul style="list-style-type: none"><li>• SGTR cooling problems resolved</li><li>• Injured man out of protected area</li><li>• Extent of exposures determined</li><li>• Potential radiological problem (Fuel handling tool) secured, or plans made</li><li>• Extent of onsite and offsite contamination determined</li><li>• PARs completed for event</li><li>• Release termination VERIFIED, and</li><li>• Recovery plans made.</li></ul>
~1300 - 1330	Secure from Exercise.
1330 - 1600	In-facility critiques.
December 9	
0700 - 0900	Controller debrief/ critique/ evaluation completion.
0930 - 1130	Exercise critique with exercise controllers/ players/ observers.

# POINT BEACH NUCLEAR PLANT

## 1993 EXERCISE

### 4.3 SIMULATOR TIMELINE

#### INITIAL CONDITIONS

--:--

INIT into IC-61

MAL, RCS8A, value=12, JCRFTR (approx. 500 gpm A SGTR when the reactor trips)

Comp. Fail., VLV, SGN5, option=3, JCRFTR (safety valve on A SG sticks open when the reactor trips)

MAL, RTC1, value=15 (sets RCS activity to indicate a potential small amount of fuel failure)

Plant Parameters, MET, set wind speed equal to 10 mph, wind direction equal to 35 degrees, air temperature to 23°F, noise on MET19 to 12 and noise on MET20 to 3

Comp. Fail., XMT, RMS10(RE111) option 1, value=10 (over reacts slightly to failed fuel)

Comp. Fail., XMT, RMS13(RE114) option 1, value=32 (over reacts slightly to failed fuel)

Comp. Fail., XMT, RMS63(1RE109) option 1, value=1000 (sets detector to above alert alarm)

Comp. Fail., XMT, RMS74(1RE216B) option 1, value=40 (over reacts slightly to failed fuel)

Comp. Fail., XMT, RMS20(2RE216B) option 1, value=35 from Unit 2 console (set up slightly to indicate the effects of the letdown gas stripper lines)

Comp. Fail., BKR, CVC6,6,ACT removes 1P2B charging pump from service

Comp. Fail., BKR, FWH1,6,ACT removes 1P27A HDT pump from service

LOA, CFW82,2,ACT turns on 1P73D DC oil pump for 1P28A main feedwater pump. This pump would be running if the attached lube oil pump was broken

Ovr, IND, SGN8B, red light on to simulate an actual plant problem with one of the condenser steam dump valves position indication



# POINT BEACH NUCLEAR PLANT

## 1993 EXERCISE

Ovr, ANN, CRF4, 1, Control Rod Bkr Open annunciator energized to simulate G-07 rod drive MG set out of service

### START OF SCENARIO

- 07:40      Comp. Fail., XMT, RMS10(RE111) option 1, value=800 (120 mr/hr)
- Comp. Fail., XMT, RMS74(1RE216B) option 1, value=20,000 (34 mr/hr)
- Comp. Fail., XMT, RMS20(2RE216B) option 1, value=60,000 (93 mr/hr) from Unit 2 console
- Note 1:      Above three items should be enter so that they occur almost simultaneously
- Note 2:      Above three items will have to ramped down slowly depending on actions taken
- For RE111 a value of 400 gives 62 mr/hr
- For 1RE216B a value of 10,000 gives 17 mr/hr
- For 2RE216B a value of 30,000 gives 46 mr/hr
- 08:05      Comp. Fail., XMT, RMS22(RE221) option 1, value=500,000 ramped over 180 seconds wait about 2 minutes and then ramp to a value of 14 over 360 seconds (simulates a puff release from a dropped fuel assembly)
- 08:55      Comp. Fail., XMT, RMS63(1RE109) option 1, ramp to value=8000 over 1000 seconds (ramped value used to control event classification)
- 09:25      MAL, GEN1, option 2, fault #2 (causes a generator lockout and resultant reactor trip)
- Comp. Fail. XMT, RMS81(1RE231) option 1, ramp to a value of 400 over 5400 seconds
- 11:00      Clear the component failure on the SG safety valve to allow it to go shut
- Comp. Fail., XMT, RMS81(1RE231) option 1, ramp to value=50 over 6000 seconds

# POINT BEACH NUCLEAR PLANT

## 1993 EXERCISE

### 4.4 TERMINATION CRITERIA

The following are the criteria for termination of the Point Beach Nuclear Plant 1993 PBNP Emergency Preparedness Exercise

- 4.4.1. A real event occurs at the plant that, in the opinion of the Duty Shift Superintendent, presents a threat to the safety of plant personnel or requires the declaration of a real emergency.

OR

- 4.4.2. Appropriate mini-scenarios have been initiated and performed to the expected conclusion as stated in the "Restoration Guidelines" for each mini-scenario. Note that some mini-scenarios may not be concluded.  
AND,

- 4.4.3 Additionally, a consensus has been reached between the Emergency Director, Site Manager and the Emergency Support Manager, based upon EPIP 12.1, "Event Termination and Recovery Planning," that the PBNP emergency response organization may enter plant recovery operations.  
THEN,

- 4.4.4 The Lead Exercise Controller will determine when to terminate the 1993 PBNP Emergency Preparedness Exercise based upon participant decisions, responses and actions.

SECTION 5.0

MESSAGES

## Section 5.0 Message Index:

MSG #	TIME	LOCATION & MESSAGE	NOTES
1	0645	Drill Control: Simulator brief of crew	
2	0700	Drill Control: Shift Turnover/Initial Conditions	w/ attach
3	0700	Drill Control: Panel walkdown	
4	0730	Lead Controller: Exercise start message	
5	0735	C-59: Radiography in progress annuc.	
6	0740	C-59: Radiography source stuck out.	w/ attach
7	0735	RCT with RCS analyses	w/ attach
8	0745	C-59: Injured man description	
9	0805	SFP: Fuel Handling event	w/ attach
10	0830 to 1200	Spent Fuel Pool re entry description	
11C	0835	Drill Control: Contingency for ALERT	
12	0930 to 1100	SG 1A Safety: Description and controller instructions.	w/ attach
13	0945	Call-in on steam release plume	
14C	0956	Drill Control: Contingency for SITE EMERGENCY	
15	0950 to 1230	Vehicle contamination description/ controller instruction	w/ attach
16	1045 to 1115	1A SG Safety - description of reshut.	
17C	~ 1230	Request from Corporate for recovery action item list.	
18	~ 1300	Lead Controller: Exercise Termination.	

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POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: 0645

Message #: 1

Message For: Simulator Operator/Lead Drill Control Controller

- Message:
- Brief the shift crew on the differences between the simulator and the actual plant.
  - Tell participants to assume everything is modeled, but if they are unsure about something, ask.
  - Important: Operators are to treat every alarm as actual.
  - Inform participants that they can change displays (e.g., PPCS) as they desire.
  - Tell participants that the simulator Gai-tronics and plant evacuation alarm are now connected to the plant Gai-tronics system. Each may be used as in the actual control room, except that the simulator should be referred to as "Drill Control."
  - Important: Emphasize the use of "This is a Drill" for Gai-tronics, radio, and telephone communications.
  - If an evacuation is declared, simulator participants should account at the card reader in the simulator.

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POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: 0700

Message #: 2

Message For: Control Room Simulator Shift Crew

Message: APPENDIX 1 contains the following documents for shift turnover:

- Duty Shift Supervisor (DSS) Short Term Log
- DSS Turnover Notes
- DSS Long Term Log
- Station Log
- Red Tag Index
- Equipment Out Of Service
- Technical Specification Equipment Out of Service
- Maintenance Work Requests
- PM Task Sheets
- Danger Tag Location Sheets
- Procedure Feedback Forms
- Control Room Chemistry summary sheets (posted in simulator)

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POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: ~ 0700

Message #: 3

Message For: Control Room Simulator Shift Crew

Message: Perform panel walkdown for initial plant conditions and familiarity.

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POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: 0730

Message #: 4

Message For:      Lead Exercise Controller

Message:      1. Notify the actual Control Room DSS of the commencement of the Exercise.  
Discuss any conditions which could impact the exercise or participant response.

2. Make the following plant PA announcement:

**"Attention all personnel, attention all personnel. We have commenced the  
1993 Emergency Plan Exercise."**

Repeat the announcement.

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POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: 0735

Message #: 5

Message For: "Radiography" personnel at C-59

Message: Pass the following Gai-tronics message.

**"THIS IS A DRILL**

Attention all personnel, attention all personnel, Radiography is being conducted on the 26 foot elevation of the PAB north of C-59. All personnel stand clear of this area and obey all postings.

**THIS IS A DRILL"**

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POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: 0740

Message #: 6

Message For: Radiography area personnel at C-59

Message: "THIS IS A DRILL. The radiography source is stuck in the exposed position. No amount of jiggling or run-in/run-out will cause it to move.

**THIS IS A DRILL"**

CONTROLLER NOTE

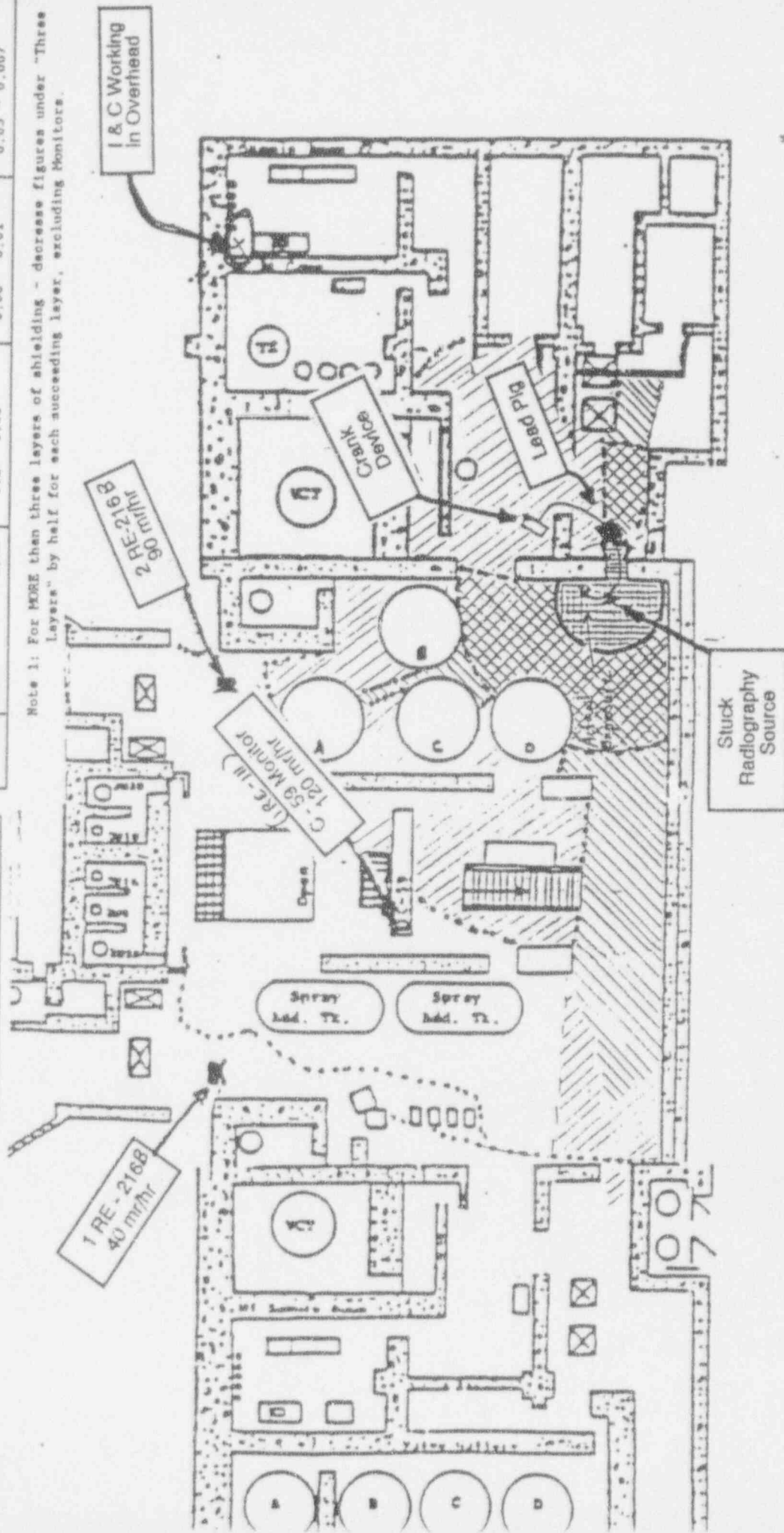
Provide this information to the radiography personnel and monitor their response. WHEN the HP Tech on the scene checks levels in the area, THEN use the attached map to provide the appropriate readings.

**\*\*FOR DRILL USE ONLY\*\***

Unshielded Source	With Shielding		
	One Layer	Two Layers	Three Layers
1RE-216B	40 mr/hr	25 mr/hr	AS READ
2RE-216B	90 mr/hr	75 mr/hr	AS READ
C-59 Monitor	120 mr/hr	80 mr/hr	AS READ

Unshielded Source	With Shielding ( R/hr )		
	One Layer	Two Layers	Three Layers
1100	726	240	110
900 - 320	500 - 210	180 - 64	80 - 26
320 - 30	210 - 23	64 - 6	26 - 2.4
30 - 0.25	20 - 0.2	6 - 0.06	2.4 - 0.03
0.25 - 0.05	0.2 - 0.03	0.06 - 0.01	0.03 - 0.007

Note 1: For MORE than three layers of shielding - decrease figures under "Three Layers" by half for each succeeding layer, excluding Monitors.



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POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: 0735

Message #: 7

Message For: RCT conducting analyses on RCS sample.

Message: When finished with analyses, provide this information to Drill Control.

**THIS IS A DRILL**

CONTROLLER NOTE

Using the following guidelines, provide appropriate portions of the attached information to the chemistry technician assigned to analyze the samples. Actual samples should not be taken, but a complete discussion of analyses, time requirements and results should be conducted. Following a successful discussion of a procedure, provide the exercise analysis results and monitor the technician's response. When analysis information is provided to Drill Control, this message will be complete.

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**\*\*FOR DRILL USE ONLY\*\***

**TECHNICAL DATA FOR RADIOCHEMICAL  
ANALYSIS OF REACTOR COOLANT SYSTEM**

**Prior to Exercise**

1RE-109 increases slowly to the alert setpoint (25 mR/hr) at 0315. Chemistry is called in to sample. Sample is obtained at 0510. Analysis is being performed during the exercise turnover. 1RE-109 is reading 30 mR/hr at 0700.

If another sample is analyzed after 0700, but before major fuel failure occurs, increase the values by 10 percent.

Detector dead time:

**Iodine analysis:**

10 ml to 1 liter (100:1) will result in a dead time of 22%. Dead time should be a ratio of this for the volume used.

Maximum dilution for detectable iodine is 10,000:1.

**Isotopic analysis:**

Single point will result in the same dead time as above.

**Secondary Coolant analysis:**

#1 is an analysis performed before reactor trip.

#2 is an analysis after the trip and tube rupture (within 20 minutes).

For samples taken later, multiply the activity by 2 in the A SG for each 20 minute interval until the activity is 75% of the initial RCS activity.

Air ejector analysis is prior to the reactor trip.

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**Beta Gamma analysis result (if performed):**

*NOTE: If 1 ml or more of sample is used, the count rate will exceed the maximum capability of the 2401F (5.0E5 cpm), leading to a low result. If 1 ml or more is used, report the result as 5.0E5 cpm which yields a value of 0.62  $\mu\text{Ci/cc}$ .*

*If less than 1 ml is used, ratio the result using the information below: (note that the result must be modified for the actual volume used, i.e., if 0.5 ml is used, the instrument will readout 0.32  $\mu\text{Ci/cc}$  since the program is set for 1.0 ml).*

Actual Activity: 0.64  $\mu\text{Ci/cc}$  (5.19E5 cpm/cc)

**Iodine Analysis (if performed):**

I-131	9.70E-2 $\mu\text{Ci/cc}$
I-132	7.20E-2 $\mu\text{Ci/cc}$
I-133	1.21E-1 $\mu\text{Ci/cc}$
I-134	5.44E-2 $\mu\text{Ci/cc}$
I-135	4.34E-2 $\mu\text{Ci/cc}$

**Radgas Analysis (if performed):**

Ar-41	1.00E-02 $\mu\text{Ci/cc}$
Kr-85m	6.50E-03 $\mu\text{Ci/cc}$
Kr-87	5.40E-03 $\mu\text{Ci/cc}$
Kr-88	1.67E-02 $\mu\text{Ci/cc}$
Xe-131m	4.40E-03 $\mu\text{Ci/cc}$
Xe-133	3.54E-01 $\mu\text{Ci/cc}$
Xe-133m	1.21E-01 $\mu\text{Ci/cc}$
Xe-135	4.03E-02 $\mu\text{Ci/cc}$
Xe-135m	8.12E-03 $\mu\text{Ci/cc}$
Xe-138	2.05E-02 $\mu\text{Ci/cc}$

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**RCS Isotopic Analysis**

Cs-134	4.41E-02 $\mu\text{Ci/cc}$
Cs-137	5.71E-02 $\mu\text{Ci/cc}$
Cs-138	2.01E-02 $\mu\text{Ci/cc}$
F-18	1.22E-01 $\mu\text{Ci/cc}$
Rb-88	1.34E-01 $\mu\text{Ci/cc}$
I-131	9.70E-02 $\mu\text{Ci/cc}$
Rb-89	5.78E-02 $\mu\text{Ci/cc}$
Ba-139	8.44E-04 $\mu\text{Ci/cc}$
Co-58	9.63E-03 $\mu\text{Ci/cc}$
Br-84	1.05E-02 $\mu\text{Ci/cc}$
I-132	7.20E-02 $\mu\text{Ci/cc}$
I-133	1.21E-01 $\mu\text{Ci/cc}$
Np-239	4.63E-03 $\mu\text{Ci/cc}$
Te-132	1.51E-02 $\mu\text{Ci/cc}$
I-134	5.44E-02 $\mu\text{Ci/cc}$
Mo-99	7.93E-03 $\mu\text{Ci/cc}$
Co-60	5.63E-06 $\mu\text{Ci/cc}$
I-135	4.34E-02 $\mu\text{Ci/cc}$
Na-24	3.60E-03 $\mu\text{Ci/cc}$
Cs-136	3.11E-03 $\mu\text{Ci/cc}$

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**\*\*FOR DRILL USE ONLY\*\***

POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: ~ 0745

Message #: 8

Message For: HP Technician in Vicinity of I&C Technician who is injured

Message: The I&C technician performing maintenance on CCW temperature gauge has fallen, injuring his head and leg. Although he informed you of his injuries initially, he is now unconscious.

**THIS IS A DRILL**

CONTROLLER NOTE

The person playing the I&C Technician may be instructed to play out the role as described above. The controller is allowed to provide clarification of the situation if it can be readily determined by the participant.

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POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: 0805

Message #: 9

Message For: Spent Fuel Handling Supervisor

Message: While using the off-set fuel handling tool to move old (> 10 years since discharge) fuel into position under the north walkway, the tool broke at the top and the whole tool rotated down into the pool.

The tool appears to be still attached to the top of the fuel assembly, which is half in - half out of storage location SC-2 and the assembly is badly twisted, pulled over the edge of the storage chamber, with the top half flattened down against adjacent cell(s).

It looks as though the tool arm is up from the bottom and the counterweight is above some of the row 3 assemblies.

The Victoreen is alarming and bubbles can be seen still rising from the broken assembly.

**THIS IS A DRILL**

CONTROLLER NOTE

Visual information can be supplied from the provided sketch of the tool and location in the pool. Details should be provided consistent with the time available for inspection prior to evacuation. If personnel check the Victoreen on the refueling bridge, it will read 35 mR/hr for the first 15 minutes (until 0820) and decrease from there to background (2 - 4 mR/hr) over the next 15 minutes (until 0835).

**\*\*FOR DRILL USE ONLY\*\***

# POINT BEACH EP EXERCISE 1993

View of

Fuel Handling Event

0830 - 1300

BRIDGE CRANE SUPPORT

- Fuel Assembly crumpled
- Counterweight unstable, swaying slightly
- Fuel twists with counterweight movement
- A few bubbles ascending every so often



**\*\*FOR DRILL USE ONLY\*\***

POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: 0830-1200

Message #: 10

Message For: Fuel Handling Area Controller

Message: Observation of the spent fuel pool where the event occurred will reveal the following:

- The off-set fuel handling tool is lying across the top of the spent fuel cells; its counterweight is still elevated, and moving every so often -- back and forth. Support cables for the counterweight are coiled on top of the spent fuel cells.
- The fuel cell is badly bent, somewhat twisted, and still attached to the tool. The attachment grippers appear to be bent and possibly jammed in the element nozzle.
- The counterweight is suspended over cell SE-3, which may contain freshly offloaded fuel.
- A few occasional bubbles are seen ascending from the damaged fuel assembly.

CONTROLLER NOTE

WHEN a reentry is made to the spent fuel pool area, the above information should be provided to the entry personnel, along with the sketch for Message #9, IF they are in a position to observe the area.

**\*\*FOR DRILL USE ONLY\*\***

**\*\*FOR DRILL USE ONLY\*\***

POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: 0835

Message #: 11C

**\*\* CONTINGENCY \*\***

Message For: Drill Control Room, DSS

Message: Although you may not agree, DECLARE an ALERT, based upon Category 11, Fuel Handling Accident, indicated by a fuel damage accident resulting in the release of radioactivity to the auxiliary building.

This action is necessary to preserve the continuity of the exercise.

**THIS IS A DRILL**

**\*\*FOR DRILL USE ONLY\*\***

**\*\*FOR DRILL USE ONLY\*\***

POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: 0930-1100

Message #: 12

Message For: SG 1A Code Safety Investigators / Maintenance Teams

Message: It is very noisy within the facade; noise level increases in the vicinity of the safety header [ tailor the stated noise level to the time after 0926 -- the more time, the lower the noise level ] . Steam is seen coming from the bottom opening in the 1MS-2010 release pipe.

- Communications directly from the area should not be allowed due to excessive background noise.

**THIS IS A DRILL**

CONTROLLER NOTE

Attempts to remove the valve cap will not succeed -- until near 1100-- and then only if efforts are well thought out and feasible in the controller's opinion.

IF attempts are made to reset the valve with the manual release lever, NO change in the valve position will occur.

IF attempts are made to remove the valve cap, THEN the set screw will shear.

IF the set screw is drilled out, THEN the threads on the cap will bind.

Other attempts to reset the safety valve will be delayed by the controller until predetermined conditions and/or events occur in the operations sector.

**\*\*FOR DRILL USE ONLY\*\***

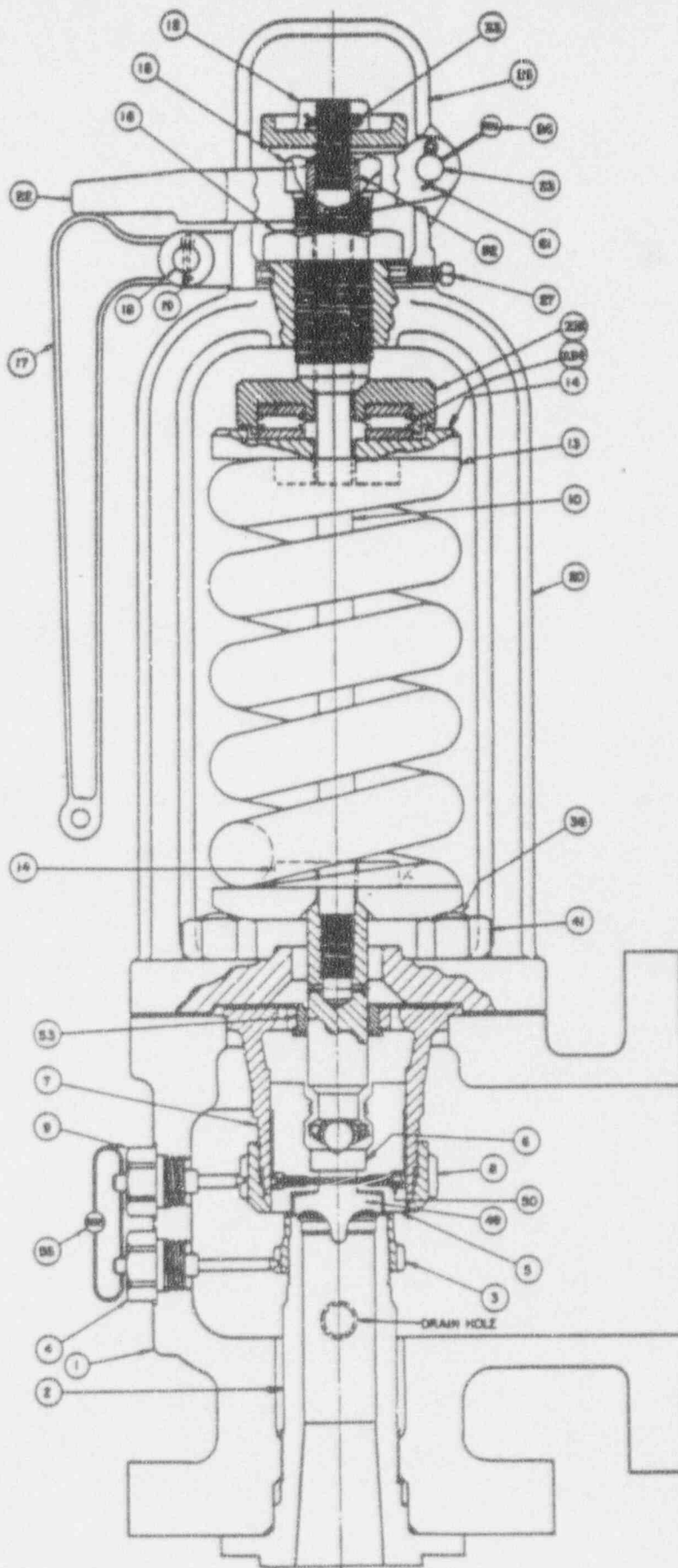


FIG. 1

**\*\*FOR DRILL USE ONLY\*\***

POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: 0945

Message #: 13

Message For: Drill Control

Message:

**"THIS IS A DRILL"**

"This is Northgate Security. Do you know you have steam coming out the roof?  
Is there a problem? Can't you hear it? It's really loud out here. [ short pause ]

From here I can't tell where it's coming from ... might be the south facade."

**THIS IS A DRILL"**

**\*\*FOR DRILL USE ONLY\*\***

**\*\*FOR DRILL USE ONLY\*\***

POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: 0956

Message #: 14 C

Message For: TSC - Classifier

Message: Although you may not agree, DECLARE a SITE EMERGENCY, based upon Category 4, "Secondary Coolant Anomaly", indicated by a steam line break with >50 gpm primary to secondary leakage and an indication of fuel damage. This action is necessary to preserve the continuity of the exercise.

**\*\*FOR DRILL USE ONLY\*\***



**\*\*FOR DRILL USE ONLY\*\***

POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: 0950 - 1230

Message #: 15

Message For: Controller observing vehicle surveys -- in the southwest parking area or at the Site Boundary Control Center.

Message: **THIS IS A DRILL**

IF the vehicle surveyed is one of the marked/selected "contaminated" vehicles, THEN use one of the sketches in **Mini-Scenario #6** to inform the participant surveyor of the readings he is "observing" from his scan of the vehicle.

IF questions are raised about personnel contamination, THEN one individual can be chosen to have comparable levels to the vehicle contamination on his/her gloves or hands. A discussion of actions should be held, but decontamination does not need to be performed.

DO NOT ALLOW ACTUAL SWIPES TO BE TAKEN ON THE VEHICLE.

Note all surveyor responses and actions.

**THIS IS A DRILL**

**\*\*FOR DRILL USE ONLY\*\***

**\*\*FOR DRILL USE ONLY\*\***

POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: 1045 to 1115

Message #: 16

Message For: Participant(s) in vicinity of 1A SG Safety valve

Message: **THIS IS A DRILL**

"Sound level has decreased to normal and no steam or water is seen from the opening at the exhaust pipe."

**THIS IS A DRILL**

CONTROLLER NOTE

This message may be passed to the participant(s) in the vicinity of the Safety Valve during the time frame indicated when: (1) A particularly noteworthy effort at shutting the valve is observed -- as close to 1100 as possible, OR (2) when informed to issue the message by the Lead Exercise Controller.

**\*\*FOR DRILL USE ONLY\*\***

**\*\*FOR DRILL USE ONLY\*\***

POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: -1230

Message #: 17C

Message For: Facility in Command and Control

Message:

This is a contingency message for Mr. Link to deliver to the Emergency Support Manager:

**THIS IS A DRILL**

"What is being done to in the way of recovery?

Who, outside the company, has been informed of the actions taken here today and the intended actions to be taken? Other than the NRC, State and County officials, that is.

Send me a list of your planned actions items right away. We should be prepared to discuss this by 2 p.m. today."

**THIS IS A DRILL**

CONTROLLER NOTE

Issue this message when directed to do so by the Lead Exercise Controller.

**\*\*FOR DRILL USE ONLY\*\***

**\*\*FOR DRILL USE ONLY\*\***

POINT BEACH NUCLEAR PLANT  
1993 EMERGENCY PLANNING EXERCISE  
MESSAGE FORM

Time: ~1300

Message #: 18

Message For: Lead Exercise Controller

Message: Make the following announcement over the Plant PA System:

"The 1993 Emergency Plan Exercise is terminated."

Repeat the message.

Ensure that the EOF, OSHPF, and JPIC receive the same information.

Ensure that all communications contacts with corporate offices and offsite agencies (State and Counties) are informed that the exercise is terminated.

**\*\*FOR DRILL USE ONLY\*\***

## 6.0 PLANT DATA

- 6.1 This section is set aside for plant data and parameters resulting from the postulated sequence of events. As this exercise is to allow free play by the operators, as initiated by the Point Beach Nuclear Plant simulator and responded to by the participants, it is impracticable to attempt to duplicate the detailed branching of events which could result from operator responses. Any attempt to bridge the gap between postulated responses and actual responses could result in a major break in the scenario flow. It would also result in the creation of a large number of possible scenario tracks which in turn, could result in confusion and a high potential for loss of control of the exercise.

Section 6.2, therefore, outlines the intended response to ANY major problem with the simulator and data flow of the scenario.

- 6.2 IF the simulator should fail to present the projected scenario data as intended, IF in a manner that cannot be reconciled by the operators quickly, OR the simulator fails to continue to present scenario data ("freezes"), THEN the operators/controllers of the exercise will take the following actions:

- 6.2.1 An "Exercise Hold" will be announced by the Lead Controller, in which all participants will be asked to standby and remain in position until the exercise is reinitiated.
- 6.2.2 Before restarting the simulator, a brief update of current exercise conditions and, in particular, TIME orientation will be given over the Gai-tronics. Time will be reset on the simulator, PPCS, and RMS clocks and the lead controller will instruct all controllers in matching restart scenario data with their event timelines.
- 6.2.3 IF the simulator break time will extend long enough to threaten the credibility of the scenario, the Lead Exercise Controller will confer with the ERF Controllers to determine if the Exercise should continue as in step 6.2.1 and 6.2.2, THEN a determination will be made as to IF, and HOW to continue the Exercise.

## 7.0 RADIOLOGICAL DATA

### Contents of this Section:

- 7.1 In-Plant Radiological Data
- 7.2 Chemistry/Effluent Sample Data
- 7.3 Meteorology
- 7.4 Plume Maps/Field Team Data
- 7.5 Dose Projection Data



## 7.1 In-Plant Radiological Data






In-plant maps showing area radiation levels follow. Data are given for the following areas and times:

26' El. PAB in C-59 area - Good from 0740 until the source is stowed or the exercise terminated. Table is provided on area map.

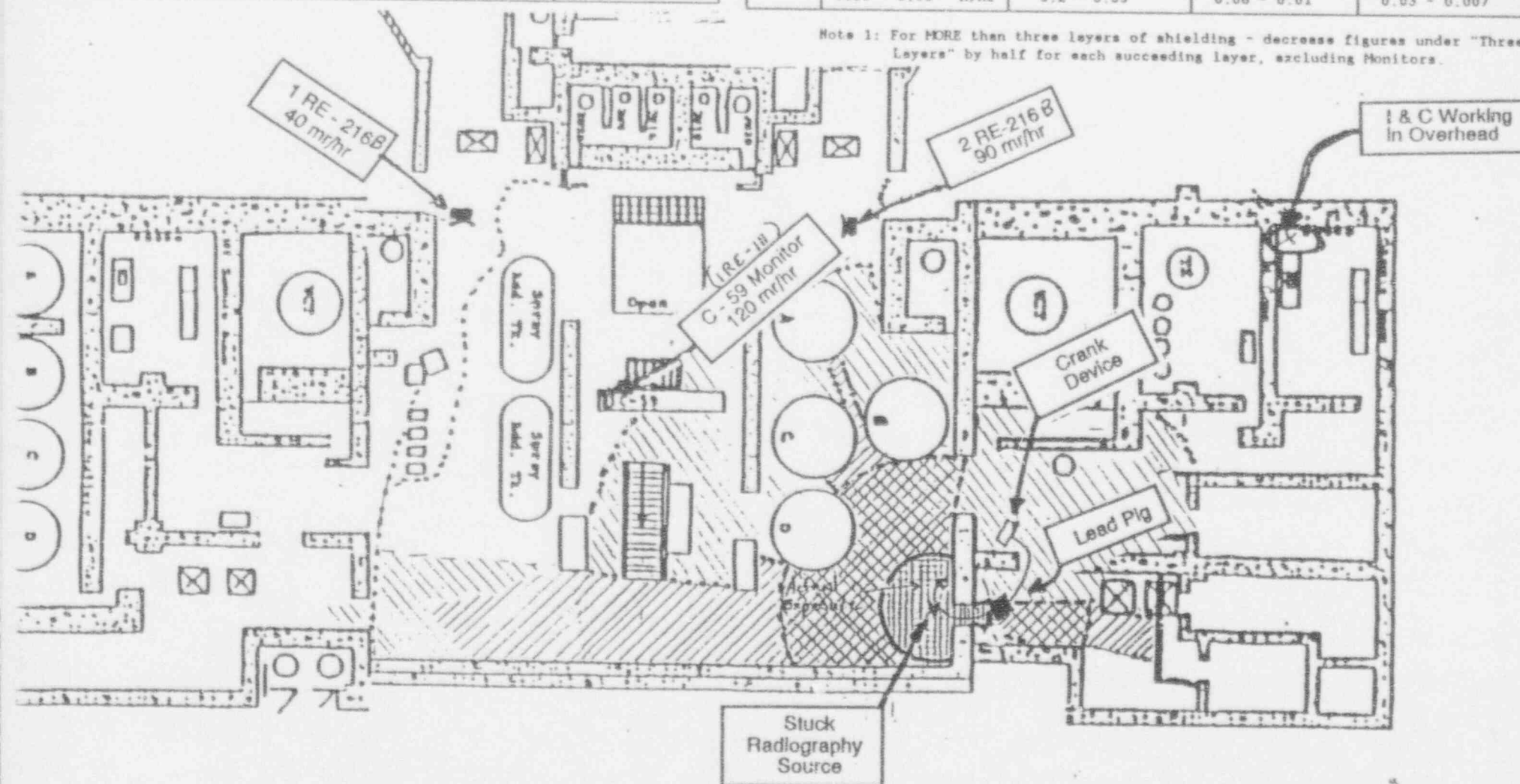
85' El. U1 Facade Steam Header area - Good from 0926 until times as noted in sample analysis tables. Sample results are provided in Table 7.1.1

All other areas within the plant will be unaffected during the exercise and, therefore, will be "As Read." (Maps of unaffected areas are not provided.)

	Unshielded Source	With Shielding		
		One Layer	Two Layers	Three Layers
1RE-216B	40 mr/hr	25 mr/hr	9 mr/hr	AS READ
2RE-216B	90 mr/hr	75 mr/hr	20 mr/hr	AS READ
C-59 Monitor	120 mr/hr	80 mr/hr	26 mr/hr	AS READ

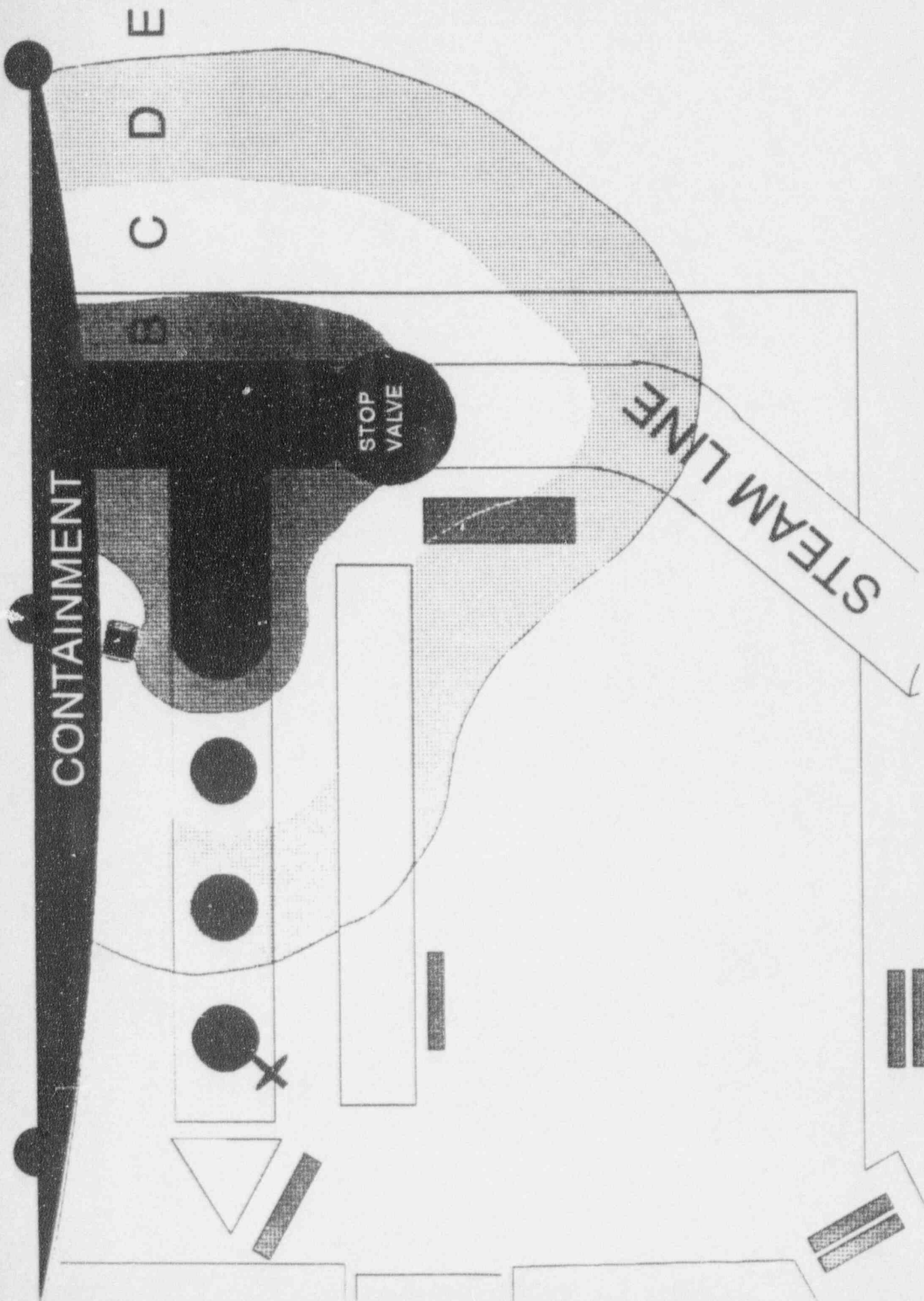
	Unshielded Source	With Shielding ( R/hr )		
		One layer	Two Layers	Three Layers
	1100 R/hr	726	240	110
	900 - 320 R/hr	600 - 210	180 - 64	80 - 26
	320 - 30 R/hr	210 - 20	64 - 6	26 - 2.4
	30 - 0.25 R/hr	20 - 0.2	6 - 0.06	2.4 - 0.03
	0.25 - 0.05 R/hr	0.2 - 0.03	0.06 - 0.01	0.03 - 0.007

Note 1: For MORE than three layers of shielding - decrease figures under "Three Layers" by half for each succeeding layer, excluding Monitors.



Area 32

Stuck Radiography Source EVENT



1A Steam Header Radiation Levels

TABLE 7.1.1

TIME: 0926 - 1300

"Unit 1 A" STEAM HEADER RADIATION RESULTS

TIME	0926-0935	0935-0945	0945-0955	0955-1005	1005-1015	1015-1025	1025-1035	1035-1045
CONTACT - RED A	6 mR/hr	13 mR/hr	20 mR/hr	27 mR/hr	35 mR/hr	43 mR/hr	52 mR/hr	60 mR/hr
2 FEET - ORANGE B	3 mR/hr	6 mR/hr	10 mR/hr	14 mR/hr	18 mR/hr	21 mR/hr	26 mR/hr	30 mR/hr
4 FEET - YELLOW C	1.5 mR/hr	3 mR/hr	5 mR/hr	7 mR/hr	9 mR/hr	10 mR/hr	13 mR/hr	15 mR/hr
6 FEET - GREEN D	0.5 mR/hr	1.0 mR/hr	1.5 mR/hr	2.0 mR/hr	3 mR/hr	4 mR/hr	4.5 mR/hr	5 mR/hr
8 FEET - BLUE E	<0.2 mR/hr	0.4 mR/hr	0.8 mR/hr	1 mR/hr	1.2 mR/hr	1.5 mR/hr	1.7 mR/hr	2 mR/hr

RADIATION LEVELS DECREASE BY RADIOACTIVE DECAY AFTER 1045 WITH A SIX HOUR HALF LIFE.

TIME	1100-1300	1300-1500
CONTACT - RED A	50 mR/hr	40 mR/hr
2 FEET - ORANGE B	25 mR/hr	20 mR/hr
4 FEET - YELLOW C	10 mR/hr	8 mR/hr
6 FEET - GREEN D	4 mR/hr	3 mR/hr
8 FEET - BLUE E	1.6 mR/hr	1 mR/hr

## 7.2 Chemistry/Effluent Sample Data

Section 7.2.1, "Technical Data," provides technical information for the radiochemical analysis of the reactor coolant system for the sample simulated to be taken at 0510 on the morning of December 8 in response to the increase in 1RE-109 readings. The information also provides guidance for subsequent samples taken after the start of the exercise and before the major fuel failure event. Analysis results are also provided for secondary coolant (Steam Generators and Air Ejectors) before and after the reactor trip/tube rupture.

The following tables are provided for expected samples in other plant locations:

Table 7.2.1 outlines the results of an air sample if taken in the spent fuel pit area during the period of 0805 and 0835. Any air samples taken in the spent fuel pit area outside of this period will be "As Read."

Table 7.2.2 outlines the results of a gamma scan on a 1 liter liquid sample from the spent fuel pool following the 0805 Fuel Handling Accident. The results will be good for the entire exercise.

Table 7.2.3 contains four parts and outlines the results of facade airborne and smear samples after the start of the radioactive release to the environment. The parts are identified as follows:

Part A - Noble Gas results in the Steam Header Area from 0926 - 1100.

Part B - Iodine results in the Steam Header Area from 0926 - 1100.

Part C - Air Particulate results in the Steam Header Area from 0926 - 1100.

Part D - Smear results in the Steam Header Area from 0926 to END.



## SECTION 7.2.1 TECHNICAL DATA

### TECHNICAL DATA FOR RADIOCHEMICAL ANALYSIS OF REACTOR COOLANT SYSTEM

#### Prior to Exercise

1RE-109 increases slowly to the alert setpoint (25 mR/hr) at 0315. Chemistry is called in to sample. Sample is obtained at 0510. Analysis is being performed during the exercise turnover. 1RE-109 is reading 30 mR/hr at 0700.

If another sample is analyzed after 0700, but before major fuel failure occurs, increase the values by 10 percent.

Detector dead time:

#### Iodine analysis:

10 ml to 1 liter (100:1) will result in a dead time of 22%. Dead time should be a ratio of this for the volume used.

Maximum dilution for detectable iodine is 10,000:1.

#### Isotopic analysis:

Single point will result in the same dead time as above.

#### Secondary Coolant analysis:

#1 is an analysis performed before reactor trip.

#2 is an analysis after the trip and tube rupture (within 20 minutes).

For samples taken later, multiply the activity by 2 in the A SG for each 20 minute interval until the activity is 75% of the initial RCS activity.

Air ejector analysis is prior to the reactor trip.



### Beta Gamma analysis result (if performed):

**NOTE:** If 1 ml or more of sample is used, the count rate will exceed the maximum capability of the 2401F (5.0E5 cpm), leading to a low result. If 1 ml or more is used, report the result as 5.0E5 cpm which yields a value of 0.62  $\mu\text{Ci/cc}$ .

If less than 1 ml is used, ratio the result using the information below: (note that the result must be modified for the actual volume used, i.e., if 0.5 ml is used, the instrument will readout 0.32  $\mu\text{Ci/cc}$  since the program is set for 1.0 ml).

Actual Activity: 0.64  $\mu\text{Ci/cc}$  (5.19E5 cpm/cc)

### Iodine Analysis (if performed):

I-131	9.70E-2 $\mu\text{Ci/cc}$
I-132	7.20E-2 $\mu\text{Ci/cc}$
I-133	1.21E-1 $\mu\text{Ci/cc}$
I-134	5.44E-2 $\mu\text{Ci/cc}$
I-135	4.34E-2 $\mu\text{Ci/cc}$

### Radgas Analysis (if performed):

Ar-41	1.00E-02 $\mu\text{Ci/cc}$
Kr-85m	6.50E-03 $\mu\text{Ci/cc}$
Kr-87	5.40E-03 $\mu\text{Ci/cc}$
Kr-88	1.67E-02 $\mu\text{Ci/cc}$
Xe-131m	4.40E-03 $\mu\text{Ci/cc}$
Xe-133	3.54E-01 $\mu\text{Ci/cc}$
Xe-133m	1.21E-01 $\mu\text{Ci/cc}$
Xe-135	4.03E-02 $\mu\text{Ci/cc}$
Xe-135m	8.12E-03 $\mu\text{Ci/cc}$
Xe-138	2.05E-02 $\mu\text{Ci/cc}$

## RCS Isotopic Analysis

Cs-134	4.41E-02 $\mu\text{Ci/cc}$
Cs-137	5.71E-02 $\mu\text{Ci/cc}$
Cs-138	2.01E-02 $\mu\text{Ci/cc}$
F-18	1.22E-01 $\mu\text{Ci/cc}$
Rb-88	1.34E-01 $\mu\text{Ci/}$
I-131	9.70E-02 $\mu\text{Ci/cc}$
Rb-89	5.78E-02 $\mu\text{Ci/cc}$
Ba-139	8.44E-04 $\mu\text{Ci/cc}$
Co-58	9.63E-03 $\mu\text{Ci/cc}$
Br-84	1.05E-02 $\mu\text{Ci/cc}$
I-132	7.20E-02 $\mu\text{Ci/cc}$
I-133	1.21E-01 $\mu\text{Ci/cc}$
Np-239	4.63E-03 $\mu\text{Ci/cc}$
Te-132	1.51E-02 $\mu\text{Ci/cc}$
I-134	5.44E-02 $\mu\text{Ci/cc}$
Mo-99	7.93E-03 $\mu\text{Ci/cc}$
Co-60	5.63E-06 $\mu\text{Ci/cc}$
I-135	4.34E-02 $\mu\text{Ci/cc}$
Na-24	3.60E-03 $\mu\text{Ci/cc}$
Cs-136	3.11E-03 $\mu\text{Ci/cc}$

**Analysis of Secondary Coolant #1**(All units in  $\mu\text{Ci/cc}$ )

	SG A	SG B
I-131	2.2E-07	1.4E-07
Cs-137	3.4E-07	4.5E-07
Xe-133	4.8E-07	5.9E-07
I-134	<LLD	2.3E-07
Xe-135	4.7E-07	5.6E-07

**Analysis of Secondary Coolant #2**(All units in  $\mu\text{Ci/cc}$ )

	SG A	SG B
I-131	6.3E-03	1.4E-07
Cs-137	3.9E-03	4.6E-07
I-132	8.7E-04	<LLD
I-133	6.9E-03	<LLD
Cs-134	3.6E-03	<LLD
F-18	5.6E-04	<LLD
I-134	1.3E-04	2.4E-07
Br-84	4.7E-04	<LLD
Np-239	8.9E-05	<LLD
Te-132	5.6E-04	<LLD
I-135	9.4E-04	<LLD
Na-24	3.6E-05	<LLD
Cs-136	2.1E-05	<LLD
Xe-133	1.8E-02	5.6E-07
Xe-135	8.4E-04	<LLD
Kr-85m	5.4E-03	<LLD
Kr-85	1.4E-02	<LLD
Kr-88	9.3E-03	<LLD
Kr-87	1.0E-04	<LLD

**Analysis of Air Ejector (If done prior to reactor trip)**(All units in  $\mu\text{Ci/cc}$ )

Xe-133	5.8E-06
Kr-88	2.3E-07
Xe-135	7.0E-06
Xe-133m	1.2E-06

Air ejector flow rate = 5.4 scfm

TABLE 7.2.1

TIME: 0805-0835

SAMPLE RESULTS - WEST OF SPENT FUEL POOL AREA - FUEL HANDLING EVENT

ISOTOPE	NOBLE GAS SAMPLE	IODINE SAMPLE	AIR PARTICULATE SAMPLE
Kr-85	5.58E-6 $\mu\text{Ci/cc}$	$\leq$ MDA	$\leq$ MDA

TABLE 7.2.2

DATA FOR SPENT FUEL PIT ANALYSIS

Printout of gamma scan for 1 liter liquid:

SB-125	1.4E-04 $\mu\text{Ci/cc}$
Co-58	8.0E-04 $\mu\text{Ci/cc}$
Cs-137	5.4E-03 $\mu\text{Ci/cc}$
Kr-85	6.8E-04 $\mu\text{Ci/cc}$

**TABLE 7.2.3 - PART A****TIME: 0926-1100****STEAM HEADER AREA NOBLE GAS SAMPLE RESULTS**

ISOTOPE	SAMPLE TAKEN 0926-1000	SAMPLE TAKEN 1000-1030	SAMPLE TAKEN 1030 - 1100
Kr-85	9.30E-5 $\mu\text{Ci/cc}$	4.75E-5 $\mu\text{Ci/cc}$	3.30E-5 $\mu\text{Ci/cc}$
Kr-85m	3.00E-6 $\mu\text{Ci/cc}$	1.50E-6 $\mu\text{Ci/cc}$	1.00E-6 $\mu\text{Ci/cc}$
Kr-87	1.10E-7 $\mu\text{Ci/cc}$	5.50E-8 $\mu\text{Ci/cc}$	3.20E-10 $\mu\text{Ci/cc}$
Kr-88	7.80E-7 $\mu\text{Ci/cc}$	4.00E-7 $\mu\text{Ci/cc}$	2.20E-9 $\mu\text{Ci/cc}$
Xe-133	1.03E-6 $\mu\text{Ci/cc}$	5.15E-7 $\mu\text{Ci/cc}$	3.11E-7 $\mu\text{Ci/cc}$
Xe-135	4.00E-7 $\mu\text{Ci/cc}$	2.00E-7 $\mu\text{Ci/cc}$	1.20E-7 $\mu\text{Ci/cc}$
Xe-138	1.30E-6 $\mu\text{Ci/cc}$	6.60E-7 $\mu\text{Ci/cc}$	2.87E-7 $\mu\text{Ci/cc}$
Total	9.96E-5 $\mu\text{Ci/cc}$	5.08E-5 $\mu\text{Ci/cc}$	3.50E-5 $\mu\text{Ci/cc}$

SAMPLES TAKEN AFTER 1100 HAVE LESS THAN MINIMUM DETECTABLE ACTIVITY.

**TABLE 7.2.3 - PART B****TIME: 0926-1100****STEAM HEADER AREA IODINE SAMPLE RESULTS**

ISOTOPE	SAMPLE TAKEN 0926 - 1000	SAMPLE TAKEN 1000 - 1030	SAMPLE TAKEN 1030 - 1100
I-131	3.47E-9 $\mu\text{Ci/cc}$	1.55E-9 $\mu\text{Ci/cc}$	1.01E-9 $\mu\text{Ci/cc}$
I-132	6.70E-10 $\mu\text{Ci/cc}$	3.50E-10 $\mu\text{Ci/cc}$	2.00E-10 $\mu\text{Ci/cc}$
I-133	2.69E-9 $\mu\text{Ci/cc}$	1.50E-9 $\mu\text{Ci/cc}$	6.20E-9 $\mu\text{Ci/cc}$
I-134	3.50E-9 $\mu\text{Ci/cc}$	1.00E-9 $\mu\text{Ci/cc}$	5.20E-10 $\mu\text{Ci/cc}$
I-135	2.79E-9 $\mu\text{Ci/cc}$	1.15E-9 $\mu\text{Ci/cc}$	8.11E-10 $\mu\text{Ci/cc}$
Total	1.31E-8 $\mu\text{Ci/cc}$	5.55E-9 $\mu\text{Ci/cc}$	8.74E-9 $\mu\text{Ci/cc}$

SAMPLES TAKEN AFTER 1100 HAVE LESS THAN MINIMUM DETECTABLE ACTIVITY.



**TABLE 7.2.3 - PART C**

TIME: 0926-1100

**STEAM HEADER AREA AIR PARTICULATE SAMPLE RESULTS**

ISOTOPE	SAMPLE TAKEN 0926 - 1000	SAMPLE TAKEN 1000 - 1030	SAMPLE TAKEN 1030 - 1100
Cs-138	1.54E-7 $\mu\text{Ci/cc}$	6.65E-8 $\mu\text{Ci/cc}$	5.10E-8 $\mu\text{Ci/cc}$
Rb-88	1.64E-7 $\mu\text{Ci/cc}$	6.00E-8 $\mu\text{Ci/cc}$	4.00E-8 $\mu\text{Ci/cc}$
Total	3.18E-7 $\mu\text{Ci/cc}$	1.26E-7 $\mu\text{Ci/cc}$	9.10E-8 $\mu\text{Ci/cc}$

SAMPLES TAKEN AFTER 1100 HAVE LESS THAN MINIMUM DETECTABLE ACTIVITY.

**TABLE 7.2.3 - PART D**

TIME: 0926-1100

**STEAM HEADER SMEAR SAMPLE RESULTS**

ISOTOPE	SAMPLE TAKEN 0926 - 1000	SAMPLE TAKEN 1000 - 1030	SAMPLE TAKEN 1030 - 1100
Cs-138	2.99E-3 $\mu\text{Ci/filter}$	6.55E-4 $\mu\text{Ci/filter}$	9.1E-5 $\mu\text{Ci/filter}$
Rb-88	1.67E-3 $\mu\text{Ci/filter}$	6.00E-4 $\mu\text{Ci/filter}$	3.0E-5 $\mu\text{Ci/filter}$
I-131	2.03E-4 $\mu\text{Ci/filter}$	1.03E-5 $\mu\text{Ci/filter}$	5.0E-6 $\mu\text{Ci/filter}$
I-133	1.0E-5 $\mu\text{Ci/filter}$	5.03E-6 $\mu\text{Ci/filter}$	3.0E-6 $\mu\text{Ci/filter}$
Gross count	12,000 - 15,000 dpm/100 $\text{cm}^2$	8,000-11,000 dpm/100 $\text{cm}^2$	6000 - 10000 dpm/100 $\text{cm}^2$

FOR SAMPLES AFTER 1100, REDUCE VALUES BY ONE-HALF EVERY HALF HOUR.

### 7.3 Meteorology

Table 7.3.1 lists the Exercise meteorological data as participants would access it. This information will be input as part of the simulator data bank and thus will be available on the plant process computer system (PPCS).

TABLE 7.3.1 METEOROLOGICAL DATA / PRIMARY AND INLAND TOWERS

TIME	WIND DIR DEGREES		WIND SPEED MPH		DT/DH	SIGMA THETA	TEMP DEG F°	STABILITY CLASS	
	10m	45m	10m	45m				80	$\Delta T/\Delta H$
0730	033	035	8	10	-1.0	8.5	23	D	C
0745	030	024	9	11			23	D	
0800	017	015	7	8			24	D	
0815	012	012	6	8		8.8	24	D	C
0830	009	010	10	11			24	D	
0845	006	006	11	12	-1.2		25	D	C
0900	000	004	11	11		9.3	25	D	
0915	000	000	12	13			25	D	
0930	355	354	12	12			26	D	
0945	346	348	11	12	-1.8	9.5	26	D	A
1000	342	345	13	13			26	D	
1015	340	343	14	15			26	D	
1030	338	340	14	14			27	D	
1045	340	339	11	12	-1.8	9.6	27	D	A
1100	338	338	12	13			27	D	
1115	338	337	13	13			28	D	
1130	340	338	11	12			28	D	
1145	337	336	12	14			28	D	
1200	334	335	14	14	-2.0	10.5	28	D	A
1215	335	335	13	14			28	D	
1230	330	333	11	12			28	D	
1245	330	330	13	12			29	D	
1300	329	329	11	11			29	D	
1315	325	325	10	10	-2.1	12.0	29	D	A
1330	324	326	11	11			28	D	
1345	330	328	10	12			28	D	
1400	329	328	9	10			28	D	
1415	327	325	10	10			28	D	
1500	325	322	10	11	-2.0	12.0	28	D	A

BACKUP STABILITY CLASS DETERMINATION: Class "D" should be assumed for overcast conditions during day or night.

#### 7.4 Plume Maps/Field Team Data

This section contains offsite plume data. Table 7.4.1 contains four parts and lists the field team analysis results as a function of plume radiation fields for given time periods. The parts are identified as follows:

Part A - Offsite Noble Gas Results for times 0926 - 1000, and 1000 - 1030.

Part B - Offsite Iodine Results for times 0926 - 1000, and 1000 - 1030.

Part C - Offsite Air Particulate Results for times 0926 - 1000, and 1000 - 1030.

Part D - Offsite Ground Deposition Results for time 0926 - 1100.

The maps show the plume location as a function of time. Since it is not expected that ANY field data would be found for the fuel handling accident, all values are assumed to be "As Read" and, therefore, no field maps are provided for this event. The plume maps that are included are for the Steam Generator Tube Rupture/Release.

*NOTE: Although the release will commence at 0926, the first plume map begins at 0930 to allow the simulated plume to reach offsite areas. The release driving force will be very small between 1030 - 1040 and the plume will start to dissipate. The release termination will be finalized by the Main Steam Safety Valve being or going closed @ 1100.*

The following offsite plume maps are provided:

- 0930 - 0945 Nearsite Plume Map
- 0945 - 1000 Large Area Plume Map
- 1000 - 1015 Large Area Plume Map
- 1015 - 1030 Nearsite Plume Map
- 1015 - 1030 Large Area Plume Map
- 1030 - 1040 Large Area Plume Map (Plume Dissipation Begins)
- 1040 - 1050 Large Area Plume Map
- 1050 - 1100 Large Area Plume Map
- 1100 - 1110 Large Area Plume Map (Plume Moving Away From Plant)
- 1110 - 1120 Large Area Plume Map
- 1120 - 1130 Large Area Plume Map (Plume Moves Off Shore)

**TABLE 7.4.1 - PART A**

TIME: 0926-1000

**OFF-SITE NOBLE GAS SAMPLE RESULTS**

ISOTOPE	SAMPLE TAKEN IN 1-2 mR/hr FIELD	SAMPLE TAKEN IN 0.5 - 1.0 mR/hr FIELD	SAMPLE TAKEN IN 0.2 - 0.5 mR/hr FIELD
Kr-85	5.58E-5 $\mu\text{Ci/cc}$	2.75E-5 $\mu\text{Ci/cc}$	1.90E-5 $\mu\text{Ci/cc}$
Kr-85m	1.80E-6 $\mu\text{Ci/cc}$	9.00E-7 $\mu\text{Ci/cc}$	6.00E-7 $\mu\text{Ci/cc}$
Kr-87	6.60E-8 $\mu\text{Ci/cc}$	3.30E-8 $\mu\text{Ci/cc}$	2.20E-8 $\mu\text{Ci/cc}$
Kr-88	4.56E-7 $\mu\text{Ci/cc}$	2.25E-7 $\mu\text{Ci/cc}$	1.20E-7 $\mu\text{Ci/cc}$
Xe-133	6.30E-7 $\mu\text{Ci/cc}$	3.15E-7 $\mu\text{Ci/cc}$	2.11E-7 $\mu\text{Ci/cc}$
Xe-135	2.40E-7 $\mu\text{Ci/cc}$	1.20E-7 $\mu\text{Ci/c}$	8.20E-8 $\mu\text{Ci/cc}$
Xe-138	7.80E-7 $\mu\text{Ci/cc}$	3.60E-7 $\mu\text{Ci/cc}$	1.87E-7 $\mu\text{Ci/cc}$
Total	5.98E-5 $\mu\text{Ci/cc}$	2.95E-5 $\mu\text{Ci/cc}$	2.02E-5 $\mu\text{Ci/cc}$

**TABLE 7.4.1 - PART A (cont)**

TIME: 1000-1030

**OFF-SITE NOBLE GAS SAMPLE RESULTS**

ISOTOPE	SAMPLE TAKEN IN 1-2 mR/hr FIELD	SAMPLE TAKEN IN 0.5 - 1 mR/hr FIELD	SAMPLE TAKEN IN 0.2 - 0.5 mR/hr FIELD
Kr-85	9.30E-6 $\mu\text{Ci/cc}$	4.75E-6 $\mu\text{Ci/cc}$	3.30E-6 $\mu\text{Ci/cc}$
Kr-85m	3.00E-7 $\mu\text{Ci/cc}$	1.50E-7 $\mu\text{Ci/cc}$	1.00E-7 $\mu\text{Ci/cc}$
Kr-87	1.10E-8 $\mu\text{Ci/cc}$	5.50E-9 $\mu\text{Ci/cc}$	3.20E-9 $\mu\text{Ci/cc}$
Kr-88	7.80E-8 $\mu\text{Ci/cc}$	4.00E-8 $\mu\text{Ci/cc}$	2.20E-8 $\mu\text{Ci/cc}$
Xe-133	1.03E-7 $\mu\text{Ci/cc}$	5.15E-8 $\mu\text{Ci/cc}$	3.11E-8 $\mu\text{Ci/cc}$
Xe-135	4.00E-8 $\mu\text{Ci/cc}$	2.00E-8 $\mu\text{Ci/c}$	1.20E-8 $\mu\text{Ci/cc}$
Xe-138	1.30E-7 $\mu\text{Ci/cc}$	6.60E-8 $\mu\text{Ci/cc}$	2.87E-8 $\mu\text{Ci/cc}$
Total	9.96E-6 $\mu\text{Ci/cc}$	5.08E-6 $\mu\text{Ci/cc}$	3.50E-6 $\mu\text{Ci/cc}$

**TABLE 7.4.1 - PART B**

TIME: 0926-1000

**OFF-SITE IODINE SAMPLE RESULTS**

ISOTOPE	SAMPLE TAKEN IN 1-2 mR/hr FIELD	SAMPLE TAKEN IN 0.5 - 1.0 mR/hr FIELD	SAMPLE TAKEN IN 0.2 - 0.5 mR/hr FIELD
I-131	6.94E-10 $\mu\text{Ci/cc}$	3.65E-10 $\mu\text{Ci/cc}$	2.10E-10 $\mu\text{Ci/cc}$
I-132	1.34E-10 $\mu\text{Ci/cc}$	6.00E-10 $\mu\text{Ci/cc}$	3.00E-10 $\mu\text{Ci/cc}$
I-133	5.38E-10 $\mu\text{Ci/cc}$	2.30E-10 $\mu\text{Ci/cc}$	1.20E-10 $\mu\text{Ci/cc}$
I-134	7.64E-10 $\mu\text{Ci/cc}$	4.25E-10 $\mu\text{Ci/cc}$	2.20E-10 $\mu\text{Ci/cc}$
I-135	5.58E-10 $\mu\text{Ci/cc}$	3.15E-10 $\mu\text{Ci/cc}$	2.11E-10 $\mu\text{Ci/cc}$
Total	2.69E-10 $\mu\text{Ci/cc}$	1.94E-10 $\mu\text{Ci/cc}$	1.06E-9 $\mu\text{Ci/cc}$

**TABLE 7.4.1 - PART B (cont)**

TIME: 1000-1030

**OFF-SITE IODINE SAMPLE RESULTS**

ISOTOPE	SAMPLE TAKEN IN 1-2 mR/hr FIELD	SAMPLE TAKEN IN 0.5 - 1 mR/hr FIELD	SAMPLE TAKEN IN 0.2 - 0.5 mR/hr FIELD
I-131	3.47E-10 $\mu\text{Ci/cc}$	1.55E-10 $\mu\text{Ci/cc}$	1.01E-10 $\mu\text{Ci/cc}$
I-132	6.70E-11 $\mu\text{Ci/cc}$	3.50E-11 $\mu\text{Ci/cc}$	2.00E-11 $\mu\text{Ci/cc}$
I-133	2.69E-10 $\mu\text{Ci/cc}$	1.50E-10 $\mu\text{Ci/cc}$	6.20E-10 $\mu\text{Ci/cc}$
I-134	3.50E-10 $\mu\text{Ci/cc}$	1.00E-10 $\mu\text{Ci/cc}$	5.20E-11 $\mu\text{Ci/cc}$
I-135	2.79E-10 $\mu\text{Ci/cc}$	1.15E-10 $\mu\text{Ci/cc}$	8.11E-11 $\mu\text{Ci/cc}$
Total	1.31E-9 $\mu\text{Ci/cc}$	5.55E-10 $\mu\text{Ci/cc}$	8.74E-10 $\mu\text{Ci/cc}$



**TABLE 7.4.1 - PART C**

TIME: 0926-1000

**OFF-SITE AIR PARTICULATE SAMPLE RESULTS**

ISOTOPE	SAMPLE TAKEN IN 1-2 mR/hr FIELD	SAMPLE TAKEN IN 0.5 - 1.0 mR/hr FIELD	SAMPLE TAKEN IN 0.2 - 0.5 mR/hr FIELD
Cs-138	2.99E-8 $\mu\text{Ci/cc}$	1.55E-9 $\mu\text{Ci/cc}$	9.10E-10 $\mu\text{Ci/cc}$
Rb-88	1.67E-7 $\mu\text{Ci/cc}$	6.00E-8 $\mu\text{Ci/cc}$	3.00E-8 $\mu\text{Ci/cc}$
Total	1.97E-7 $\mu\text{Ci/cc}$	6.16E-8 $\mu\text{Ci/cc}$	3.09E-8 $\mu\text{Ci/cc}$

**TABLE 7.4.1 - PART C (cont)**

TIME: 1000-1030

**OFF-SITE AIR PARTICULATE SAMPLE RESULTS**

ISOTOPE	SAMPLE TAKEN IN 1-2 mR/hr FIELD	SAMPLE TAKEN IN 0.5 - 1.0 mR/hr FIELD	SAMPLE TAKEN IN 0.2 - 0.5 mR/hr FIELD
Cs-138	1.54E-8 $\mu\text{Ci/cc}$	6.65E-9 $\mu\text{Ci/cc}$	5.10E-9 $\mu\text{Ci/cc}$
Rb-88	1.94E-8 $\mu\text{Ci/cc}$	6.00E-9 $\mu\text{Ci/cc}$	4.00E-9 $\mu\text{Ci/cc}$
Total	3.18E-8 $\mu\text{Ci/cc}$	1.26E-8 $\mu\text{Ci/cc}$	9.10E-9 $\mu\text{Ci/cc}$

**TABLE 7.4.1 - PART D**

TIME: 0926-1100

**OFF-SITE GROUND DEPOSITION SAMPLE RESULTS**

ISOTOPE	SAMPLE TAKEN IN 1-2 mR/hr FIELD	SAMPLE TAKEN IN 0.5 - 1.0 mR/hr FIELD	SAMPLE TAKEN IN 0.2 - 0.5 mR/hr FIELD
Cs-138	2.99E-5 $\mu\text{Ci/filter}$	1.55E-6 $\mu\text{Ci/filter}$	9.1E-7 $\mu\text{Ci/filter}$
Rb-88	1.67E-5 $\mu\text{Ci/filter}$	6.00E-6 $\mu\text{Ci/filter}$	3.0E-6 $\mu\text{Ci/filter}$
I-131	2.03E-8 $\mu\text{Ci/filter}$	1.03E-8 $\mu\text{Ci/filter}$	5.0E-9 $\mu\text{Ci/filter}$
I-133	1.0E-9 $\mu\text{Ci/filter}$	5.0E-10 $\mu\text{Ci/filter}$	3.0E-10 $\mu\text{Ci/filter}$
Gross count	200-300 dpm/100 $\text{cm}^2$	100-200 dpm/100 $\text{cm}^2$	< 100 dpm/100 $\text{cm}^2$

TAPAWINGO ROAD

GATE

0930 - 0945

LEGEND

1-2 mR/hr

0.5-1.0 mR/hr

HIGHWAY 42

NUCLEAR ROAD

GATE

TWIN ELDER ROAD

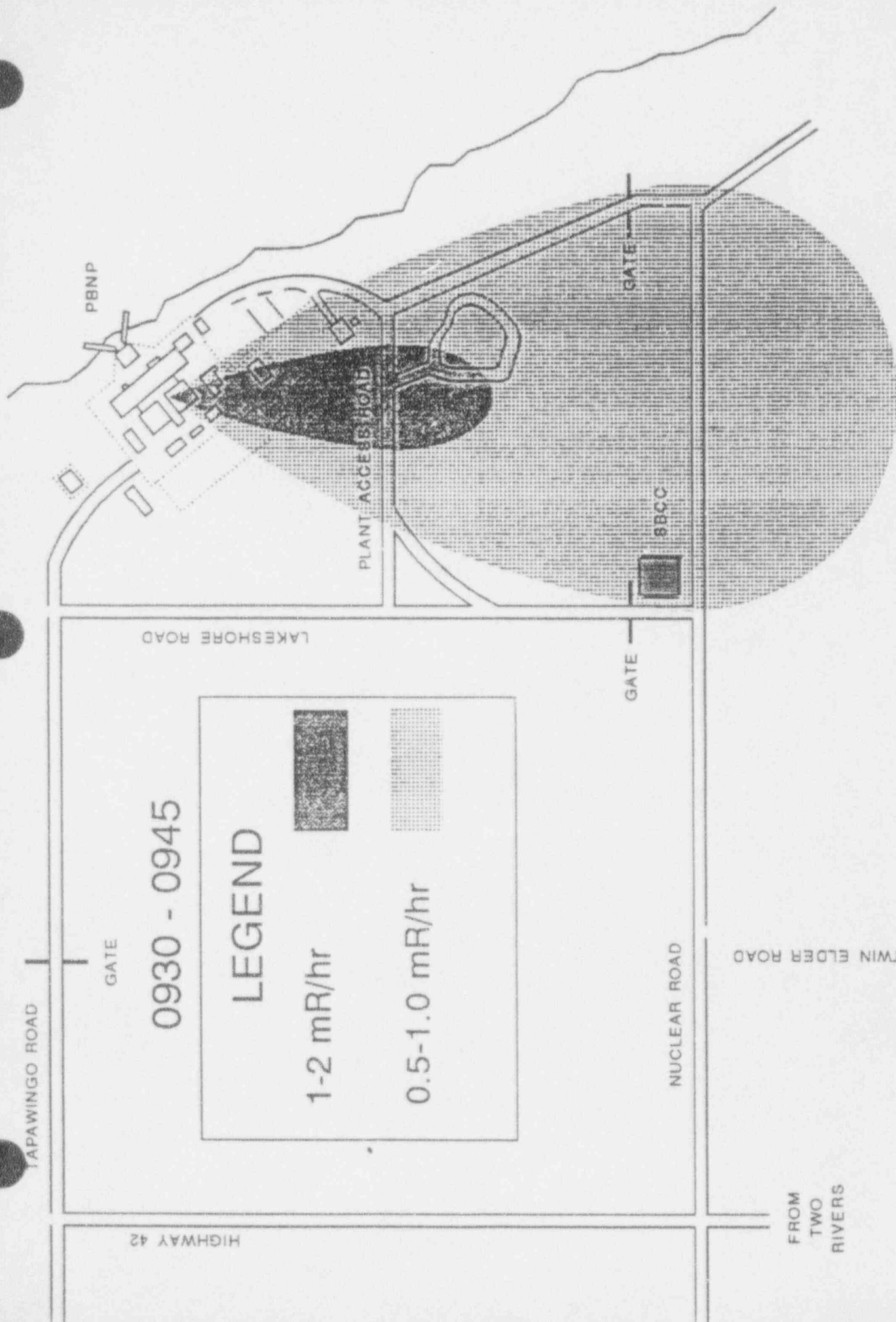
FROM  
TWO  
RIVERS

PBNP

PLANT ACCESS ROAD

GATE

SBCC

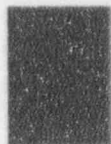


0945-100C

# LEGEND



0.2-0.5  
mR/hr



0.5-1.0  
mR/hr



1.0-1.5  
mR/hr

POINT BEACH  
NUCLEAR PLANT

LAKESHORE ROAD

MEYER ROAD

RAVINE DRIVE

TWIN ELDER  
ROAD

42

TWO CREEKS ROAD

TAPAWINGO ROAD

NUCLEAR ROAD

IRISH ROAD

HWY V

TANNERY ROAD

ASSMAN ROAD

BENZINGER ROAD

ELMWOOD ROAD

CHURCH STREET

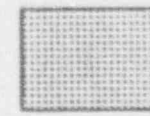
SAXONBURG ROAD

SAXONBURG ROAD

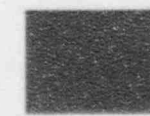
1000-101

# LEGEND

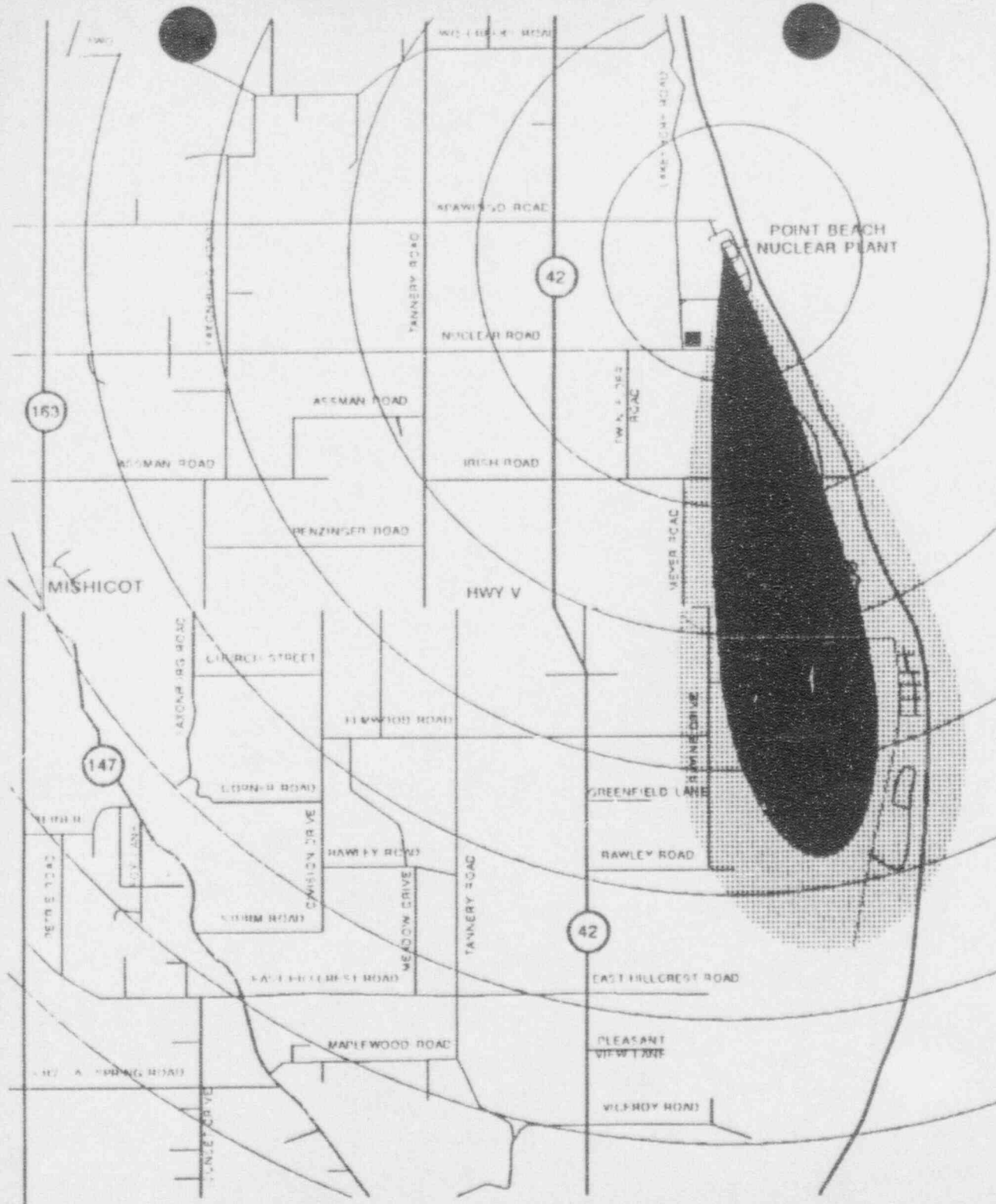
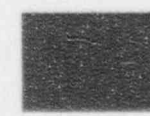
0.2-0.5  
mR/hr



0.5-1.0  
mR/hr



1.0-1.5  
mR/hr



TAPAWINGO ROAD

GATE

1015 - 1030

# LEGEND

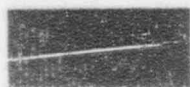
1.0-1.5 mR/hr



0.5-1.0 mR/hr



0.2-0.5 mR/hr



<0.2 mR/hr



LAKESHORE ROAD

PLANT ACCESS

GATE

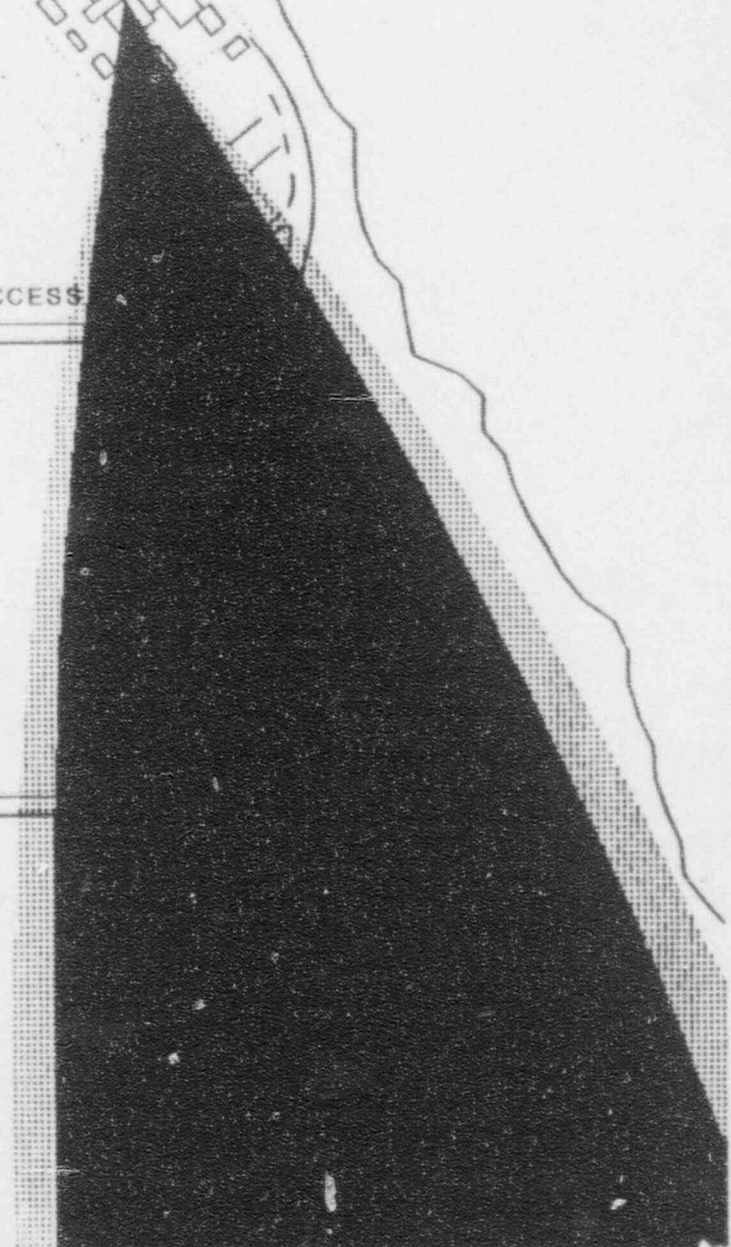
SBCC

NUCLEAR ROAD

FROM  
TWO  
RIVERS

TWIN ELDER ROAD

PBNP





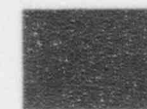
1015-1036

# LEGEND

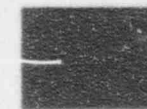
<0.2  
mR/hr



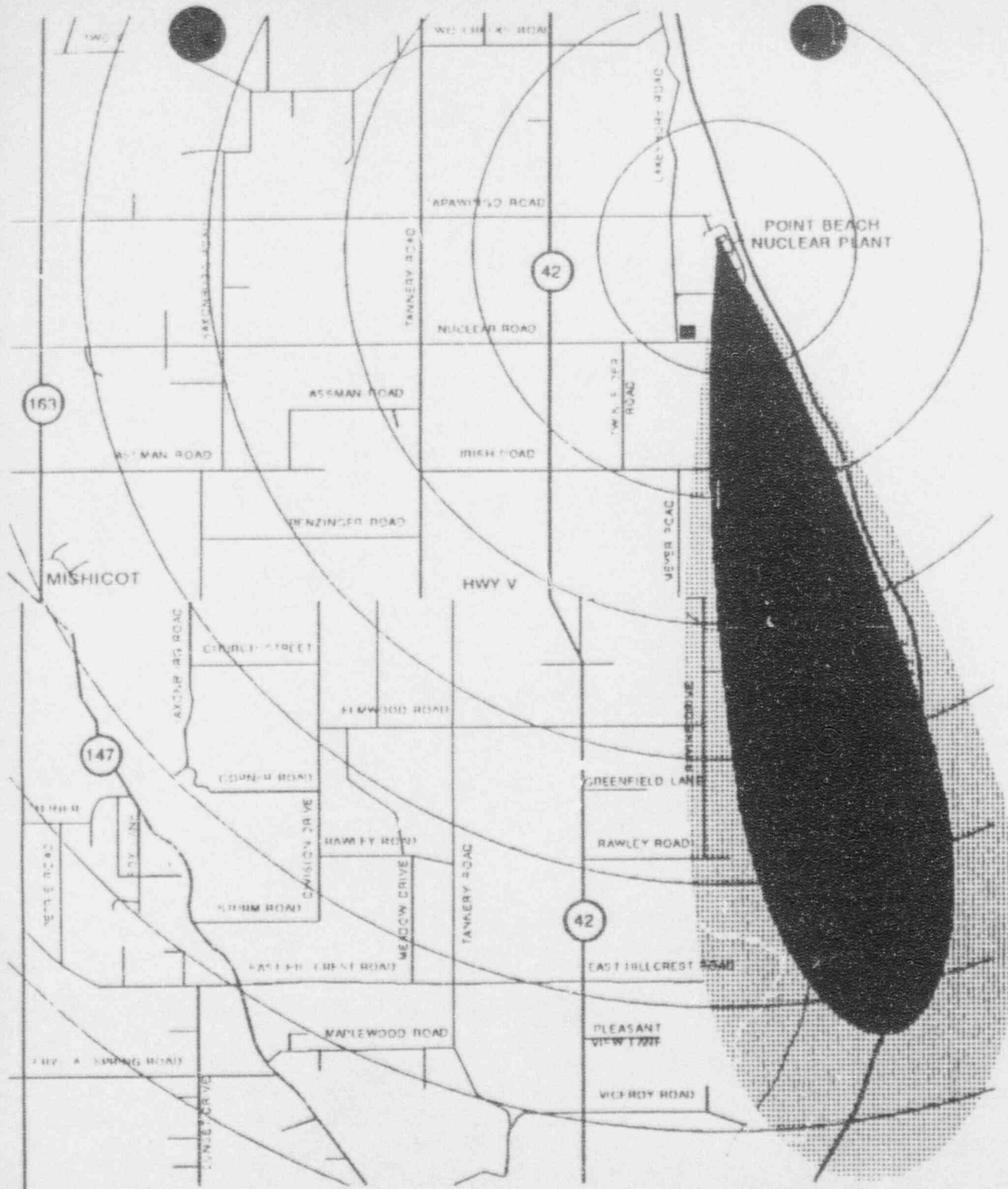
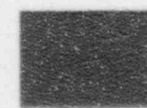
0.2-0.5  
mR/hr



0.5-1.0  
mR/hr



1.0-1.5  
mR/hr





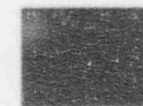
1030-104

# LEGEND

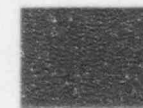
<0.2  
mR/hr



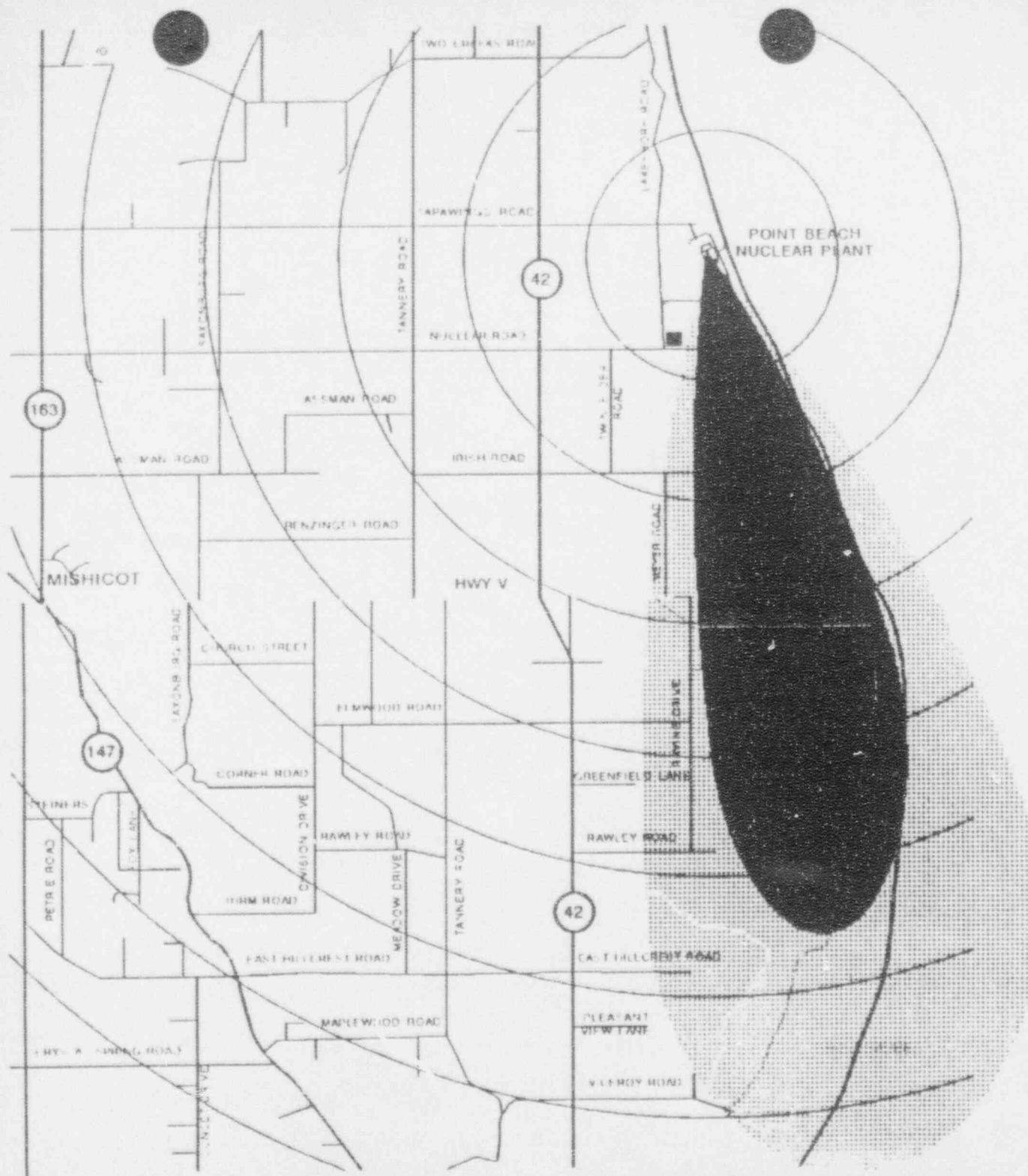
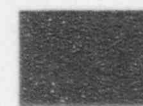
0.2-0.5  
mR/hr



0.5-1.0  
mR/hr



1.0-1.5  
mR/hr





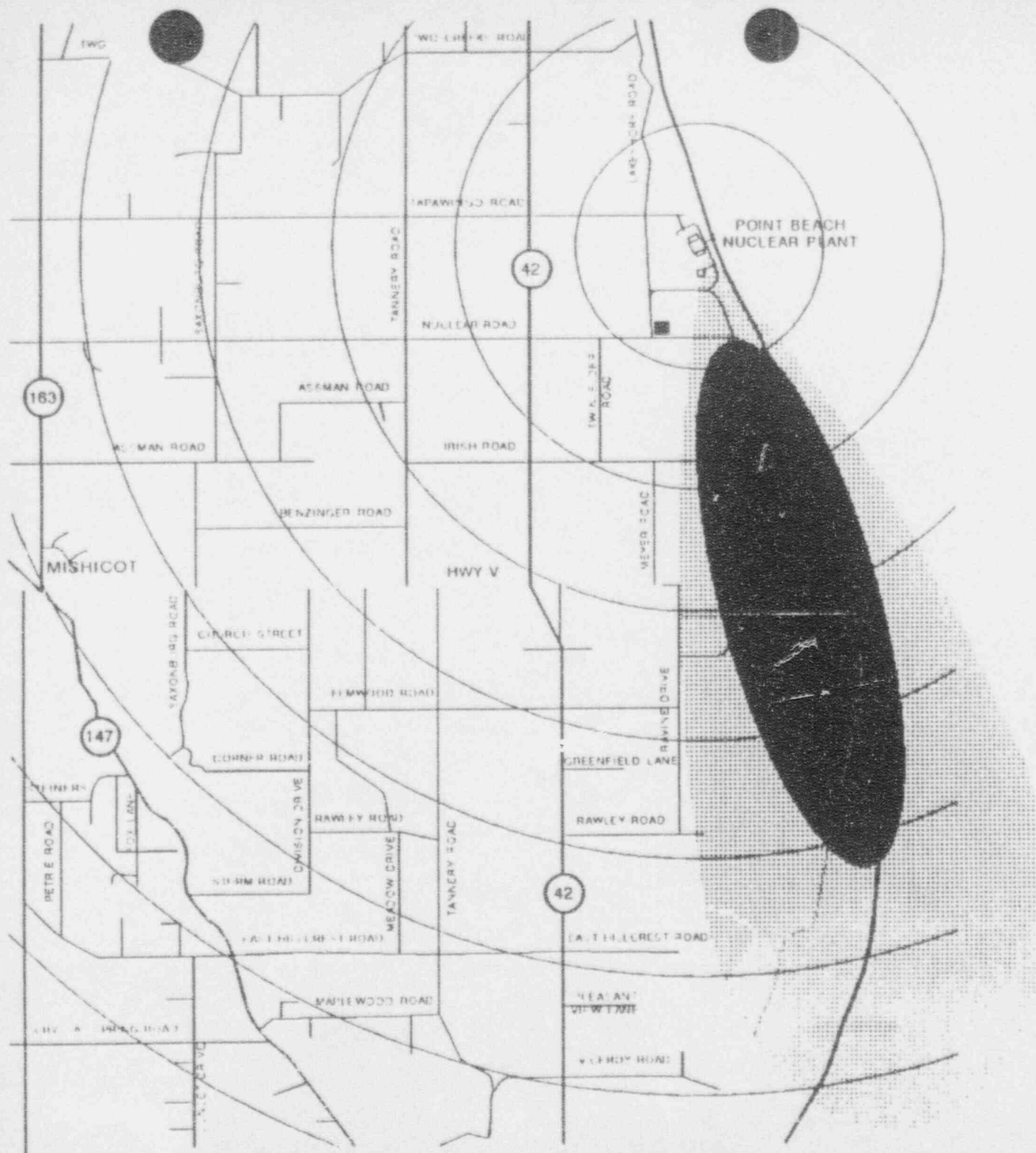
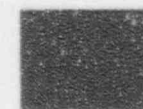
1050-110

# LEGEND

<0.2  
mR/hr



0.2-0.5  
mR/hr

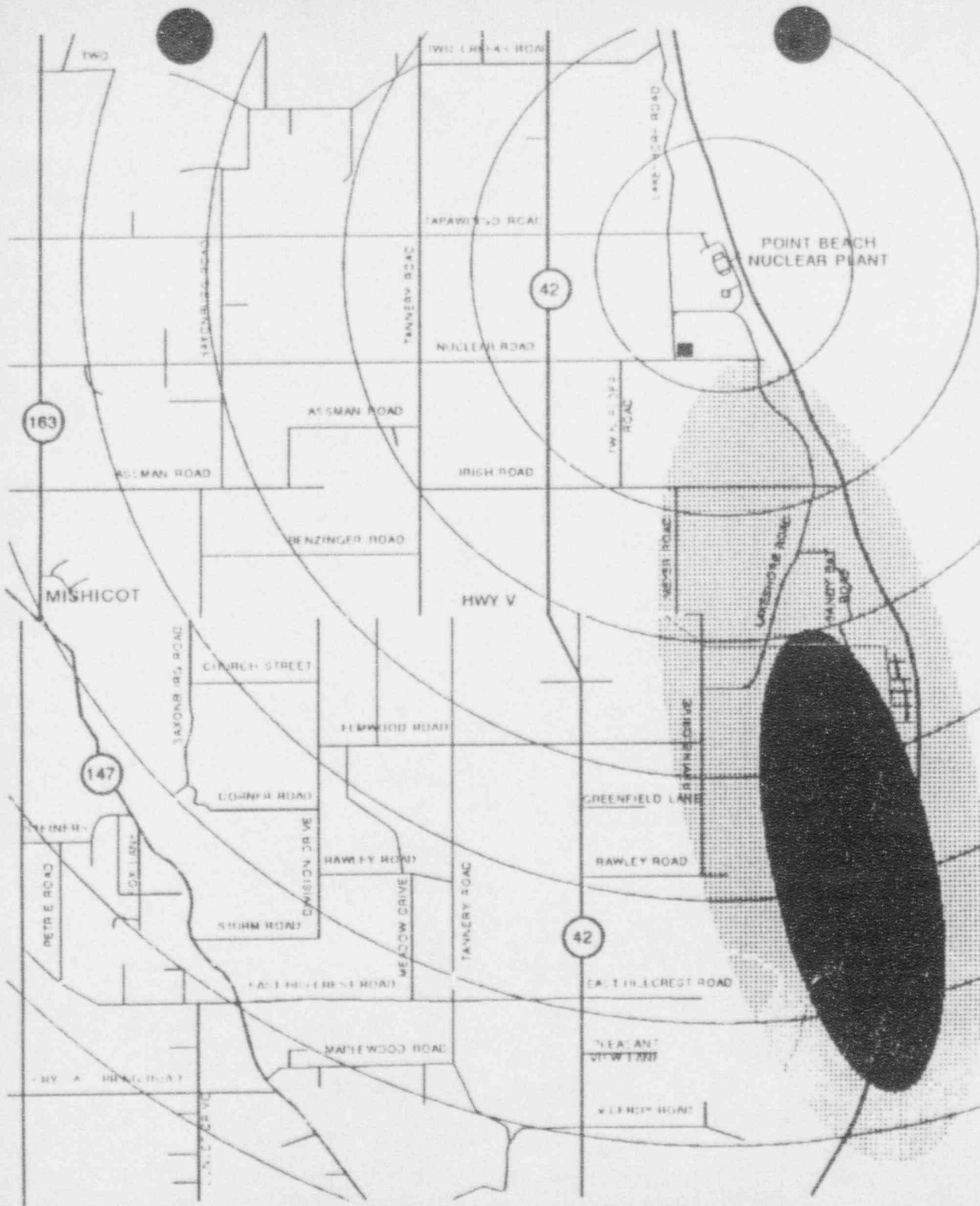


1100-1110

## LEGEND

<0.2  
mR/hr

0.2-0.5  
mR/hr





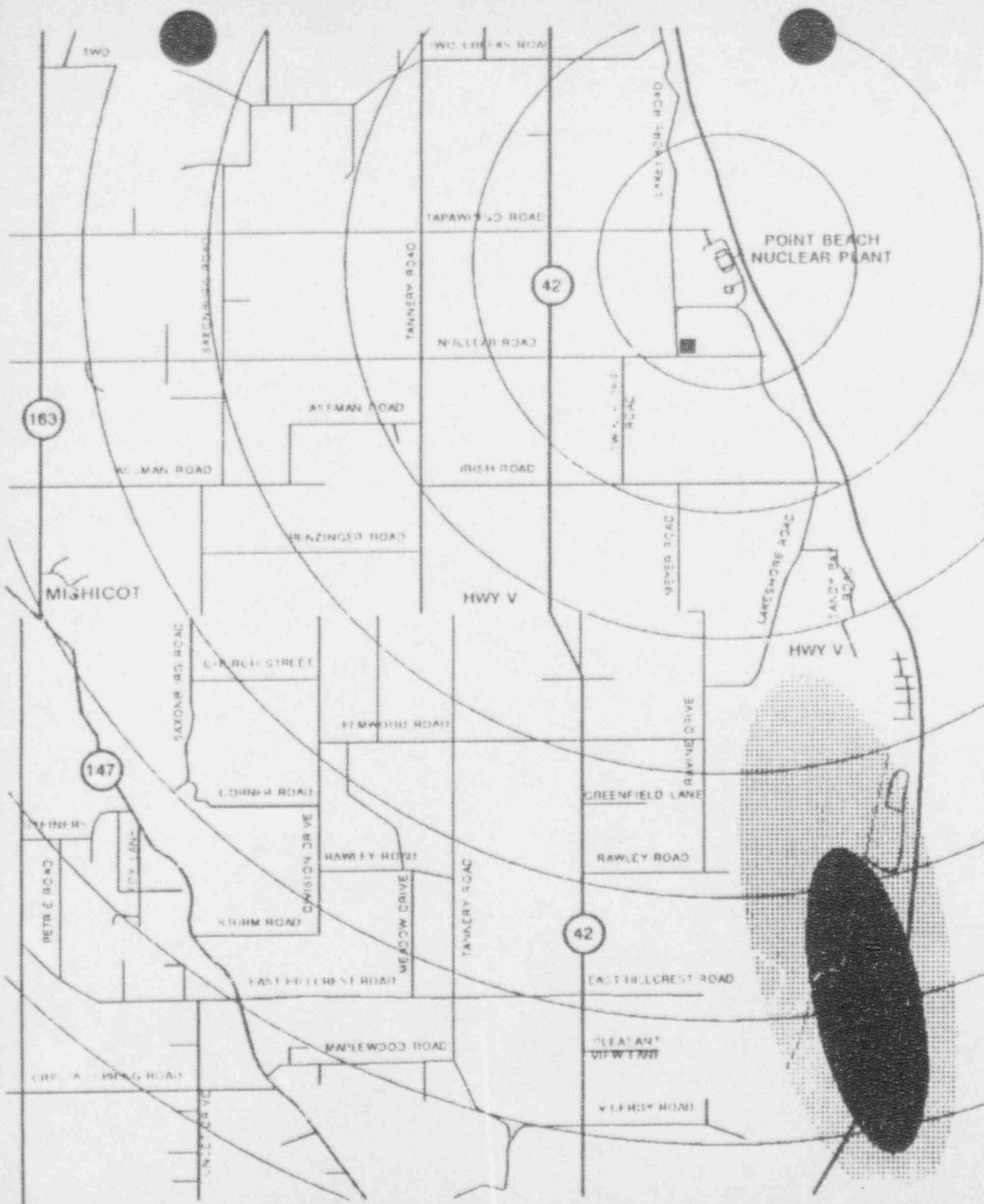
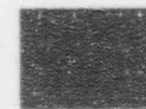
1110-112

# LEGEND

<0.2  
mR/hr



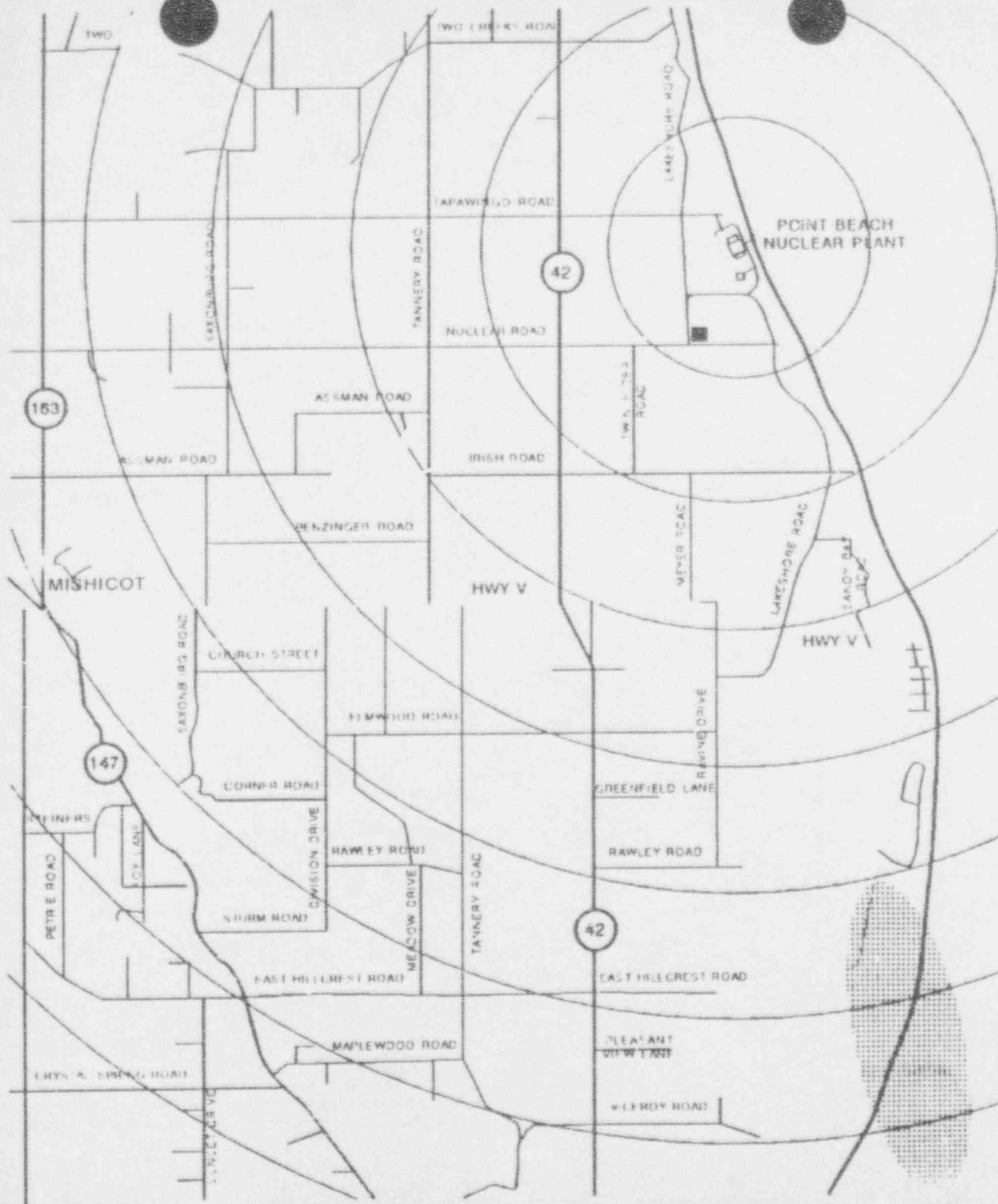
0.2-0.5  
mR/hr



1120-1130

# LEGEND

<0.2  
mR/hr





## 7.5 Dose Projection Data

For the major release of radioactivity, Table 7.5.1 lists the dose projection data summary, the source term and major assumptions.

Following that are two packets of dose calculations. The data is from the Wisconsin Electric Meteorology and Dose Assessment Program (MAD).

The first package is the results for the fuel handling accident at time 0805.

The second package is for the SGTR and release at 0926.

**TABLE 7.5.1**

**WISCONSIN ELECTRIC POWER COMPANY  
POINT BEACH NUCLEAR PLANT  
1993 EXERCISE**

**START OF RELEASE:** 0926

**END OF RELEASE:** 1100

**LENGTH OF RELEASE:** Approximately 1.5 Hours

**PLUME WIND SPEED:** 11-14 MPH

**STABILITY CLASS:** D

**RELEASE DATA:** Release Rate (Ci/Sec)

Particulates	None (Rb-88 & Cs-138 grow in)
Iodines -	
Equiv. I-131	1.95E-03 Ci/sec
Noble Gases -	
Equiv. Xe-131	2.07E+00 Ci/sec (highest value)
Total (Actual)	1.74E+00 Ci/sec

**REACTOR SOURCE TERM:**

Core	121 Fuel Assemblies
Power	1502 MW Thermal
Burnup	---> 1.952E06 MWD
Flux	---> 2.36E14 N/CM <sup>2</sup> -SEC

TABLE 7.5.1 (Continued)

**ENVIRONMENTAL SOURCE TERM:**

Choice of Radionuclides: Fission and activation products determined by use of FSAR source term data for steam generator tube rupture.

Fraction of Core Released Due to Core Damage: FSAR assumes 1% of gap activity

Assumptions for the various release categories is as follows:

Activation Products: None

Actinides and Daughters: None

	<u>Isotope</u>	<u>Percent of Noble Gases</u>	<u>Percent of Total Release</u>
Noble Gases:	Kr-85	93.33	93.33
	Kr-85m	3.04	3.04
	Kr-87	0.11	0.11
	Kr-88	0.76	0.76
	Xe-133	1.05	1.05
	Xe-135	0.40	0.40
	Xe-138	1.30	1.30

	<u>Isotope</u>	<u>Percent of Iodines</u>	<u>Percent of Total Release</u>
Halogens:	I-131	34.62	3.91E-6
	I-132	6.73	7.60E-7
	I-133	26.92	3.04E-6
	I-134	3.85	4.34E-7
	I-135	27.88	3.14E-6

Particulate Fission Products: None

Plume and Air Concentrations: See Table 7.4.1, Parts A, B and C

\*\*\*\*\* CAUTION \*\*\*\*\*

THIS VERSION OF MAD IS FOR TRAINING PURPOSES ONLY!!

\*\*\*\*\* CAUTION \*\*\*\*\*

FHA  
NG - 6.00E-3 c/sec  
I - None

PRESS ENTER TO CONTINUE

```
*****
*****
**
**
** MM MM AAAAAA DDDDDDD **
** MMM MMM AAAAAAAA DDDDDDDD **
** MMMM MMMM AA AA DD DD **
** MM MMM MM AAAAAAAA DD DD **
** MM M MM AAAAAAAA DD DD **
** MM MM AA AA DD DD **
** MM MM AA AA DDDDDDDD **
** MM MM AA AA DDDDDDD **
**
**
*****
*****
```

EMERGENCY METEOROLOGY AND DOSE ASSESSMENT PROGRAM

WRITTEN BY: E. J. LIPKE  
WISCONSIN ELECTRIC POWER COMPANY - POINT BEACH NUCLEAR PLANT  
COPYRIGHT 1982

REVISED: 8-01-86 IBMPC REVISION: 08-25-88

PRESS ENTER TO CONTINUE

NEW OR RELOAD?  
NEW

TODAY'S DATE IS 11-24-88

COMPASS SECTOR ORIENTATION TABLE:

-----WIND-----				-----RECEPTOR-----			
NO ALPHA COMPASS DIREC				DIREC COMPASS ALPHA NO			
1	A	N	.0 ---	180.0	S	J	9
2	B	NNE	22.5 ---	202.5	SSW	K	10
3	C	NE	45.0 ---	225.0	SW	L	11
4	D	ENE	67.5 ---	247.5	WSW	M	12

5	E	E	90.0	---	270.0	W	N	13
6	F	ESE	112.5	---	292.5	WNW	P	14
7	G	SE	135.0	---	315.0	NW	Q	15
8	H	SSE	157.5	---	337.5	NNW	R	16
9	J	S	180.0	---	.0	N	A	1
10	K	SSW	202.5	---	22.5	NNE	B	2
11	L	SW	225.0	---	45.0	NE	C	3
12	M	WSW	247.5	---	67.5	ENE	D	4
13	N	W	270.0	---	90.0	E	E	5
14	P	WNW	292.5	---	112.5	ESE	F	6
15	Q	NW	315.0	---	135.0	SE	G	7
16	R	NNW	337.5	---	157.5	SSE	H	8

DO YOU WANT DIRECTIONS? ANSWER Y OR N:

N

ENTER TIME OF SHUTDOWN:

0800,1

SHUTDOWN IS ASSUMED AT 800 HOURS ON DAY ONE

INDICATE 'OK' OR 'REPEAT':

OK

BEGIN CASE 1:

ENTER STABILITY CLASS (A-G):

D

WERE A LAKE-EFFECT BREEZE PRESENT (Y OR N)?

N

ENTER WINDSPEED(MPH), DIRECTION(DEGREES), START TIME, AND DAY NUMBER:

10,0,0800,1

YOU ENTERED:

WINDSPEED: 10.0 MPH

WIND DIRECTION: 0 DEGREES

START TIME: 805

DAY NUMBER: 1

IS THIS CORRECT (Y OR N)?

Y

CASE: 1

TIME = 805

WIND SPEED = 10.0

DIR = 0

STABILITY = D

LAKE-EFFECT BREEZE IS NOT PRESENT

DISLANCE  
(MILES)

X/Q  
(SEC/M\*\*3)

ISOPLETH  
LABEL

X/Q  
(SEC/M\*\*3)

1

1.34E-05

A

2.24E-05

2	4.79E-06	B	2.24E-06
3	2.62E-06	C	2.24E-07
4	1.70E-06	D	2.24E-08
5	1.23E-06	E	2.24E-09
6	9.44E-07	F	2.24E-10
7	7.58E-07	G	2.24E-11
8	6.26E-07	H	2.24E-12
9	5.30E-07	I	2.24E-13
10	4.59E-07	J	2.24E-14
		K	2.24E-15
		L	2.24E-16

SECTOR  
DIRECTION:

DIFFUSION FACTOR (X/Q)  
DISTANCE (MILES)

1 2 3 5 10

N					
NNE					
NE					
ENE					
E					
ESE					
SE	2.24E-15	2.24E-16	0.00E+00	0.00E+00	0.00E+00
SSE	2.24E-06	2.24E-06	2.24E-06	2.24E-07	2.24E-07
S	1.34E-05	4.79E-06	2.62E-06	1.23E-06	4.59E-07
SSW	2.24E-06	2.24E-06	2.24E-06	2.24E-07	2.24E-07
SW	2.24E-15	2.24E-16	0.00E+00	0.00E+00	0.00E+00
WSW					
WNW					
NW					
NNW					

ESTIMATED PLUME ARRIVAL TIMES: 835 (5 MILES)  
905 (10 MILES)

IS MET DATA OK? ANSWER 'OK' OR 'REPEAT':

OK

ENTER SOURCE TERM TYPE: LOCA, GAP, SGEN, FHA, OR USER:

FHA

DO YOU HAVE ANY NOBLE GAS DATA? ENTER Y OR N:

Y

IS NOBLE GAS RELEASE DATA FROM PLANT OR FIELD?

PLANT

ENTER RELEASE RATE IN XE-133 EQUIVALENT CURIES PER SECOND:

.006

YOU ENTERED:

RELEASE RATE: 6.00E-03 XE-133 EQUIVALENT CURIES PER SECOND

IS THIS CORRECT (Y OR N)?

Y

DO YOU HAVE ANY IODINE DATA? ENTER Y OR N:

Y



IS IODINE RELEASE DATA FROM PLANT OR FIELD?

PLANT

IS IODINE TOTAL OR INDIVIDUAL?

TOTAL

RELEASE RATE IN I-131 EQUIVALENT CURIES PER SECOND:

YOU ENTERED:

RELEASE RATE: 0.00E+00 I-131 EQUIVALENT CURIES PER CC

IS THIS CORRECT (Y OR N)?

Y

USER SUPPLIED BOTH NOBLE GASES AND IODINES:

SOURCE TERM SPECIFICATION CHANGES TO 'USER'.

DO YOU WANT A DOSE PROJECTION FOR THE MOST RECENT CASE? Y OR N:

Y

ENTER THE NUMBER OF HOURS DURATION FOR THE MOST RECENT CASE:

1

YOU ENTERED:

HOURS OF DURATION: 1.0

IS THIS CORRECT (Y OR N)?

Y

CASE: 1 ELAPSED TIME = .1 HOURS

BASIS FOR WHOLE BODY DOSE CALCULATIONS: PLANT DATA  
BASIS FOR THYROID DOSE CALCULATIONS: PLANT DATA

NOBLE GAS RELEASE RATE: 6.00E-03 Ci/sec  
RADIOIODINE RELEASE RATE: 0.00E+00 Ci/sec

MAXIMUM SITE BOUNDARY DOSE RATES FOR ADVERSE METEOROLOGY:

WHOLE BODY: 5.24E-05 REM/HR  
THYROID: 0.00E+00 REM/HR

MAXIMUM SITE BOUNDARY DOSE RATES FOR ACTUAL METEOROLOGY:

WHOLE BODY: 2.70E-06 REM/HR  
THYROID: 0.00E+00 REM/HR

\*\*\*\*\* THE FOLLOWING DOSE DATA IS BASED ON ACTUAL METEOROLOGY: \*\*\*\*\*

SECTOR  
DIRECTION

WHOLE BODY DOSE RATES (REM/HR)  
DISTANCE (MILES):

1 2 3 5 10

N					
NNE					
NE					
ENE					
E					
ESE					
SE	4.51E-16	4.51E-17	0.00E+00	0.00E+00	0.00E+00
SSE	4.51E-07	4.51E-07	4.51E-07	4.51E-08	4.51E-08
S	2.70E-06	9.65E-07	5.28E-07	2.47E-07	9.25E-08
SSW	4.51E-07	4.51E-07	4.51E-07	4.51E-08	4.51E-08
SW	4.51E-16	4.51E-17	0.00E+00	0.00E+00	0.00E+00
WSW					
W					
WNW					
NW					
NNW					

SECTOR  
DIRECTION

THYROID DOSE RATES (REM/HR)  
DISTANCE (MILES):

1 2 3 5 10

N  
NE  
ENE  
E  
ESE  
SE  
SSE  
S  
SSW  
SW  
WSW  
W  
WNW  
NW  
NNW

INTEGRATED DOSES FOR THIS CASE:

CASE DURATION = 1.0 HOURS

OR  
DIRECTION

WHOLE BODY DOSES FOR THIS CASE (REM)  
DISTANCE (MILES):

	1	2	3	5	10
N					
NNE					
NE					
ENE					
E					
ESE					
SE	4.51E-16	4.51E-17	0.00E+00	0.00E+00	0.00E+00
SSE	4.51E-07	4.51E-07	4.51E-07	4.51E-08	4.51E-08
S	2.70E-06	9.65E-07	5.28E-07	2.47E-07	9.25E-08
SSW	4.51E-07	4.51E-07	4.51E-07	4.51E-08	4.51E-08
SW	4.51E-16	4.51E-17	0.00E+00	0.00E+00	0.00E+00
WSW					
W					
WNW					
NW					
NNW					

SECTOR  
DIRECTION

THYROID DOSES FOR THIS CASE (REM)  
DISTANCE (MILES):

	1	2	3	5	10
N					
NNE					
NE					
ENE					
E					
ESE					
SE					
SSE					
S					
SSW					
SW					
WSW					
W					
WNW					
NW					
NNW					

IS DOSE DATA OK? ANSWER 'OK' OR 'REPEAT':

OSPRINT OPTION TO PRINT DOSE SUMS IF DESIRED.

1  
SUMMARY REPORT FOR CASE 1

METEOROLOGICAL

DATA TIME \_\_\_\_\_ hrs  
WIND SPEED \_\_\_\_\_ 10.0 MPH  
WIND DIRECTION \_\_\_\_\_ 0 °  
SIGMA THETA \_\_\_\_\_ °  
Delta T/Delta H \_\_\_\_\_ °  
STABILITY CLASS \_\_\_\_\_ D  
LAKE-EFFECT BREEZE \_\_\_\_\_ No

RADIO

PLANT RELEASES DATA TIME

RELEASE START TIME \_\_\_\_\_  
NOBLE GAS RELEASE RATE \_\_\_\_\_ 6.  
IODINE RELEASE RATE \_\_\_\_\_ 0.

ESTIMATED RELEASE DURATION  
PROJECTED PLUME ARRIVAL TIME  
PROJECTED PLUME ARRIVAL TIME

PROTECTIVE ACTIONS

DOSE PROJECTION (in downwind

RECOMMENDED: DATA TIME \_\_\_\_\_ hrs

DISTANCE WHOLE B

DOSE RATE

ONE MILE 2.70E-06 R/hr  
TWO MILES 9.65E-07 R/hr  
FIVE MILES 2.47E-07 R/hr  
TEN MILES 9.25E-08 R/hr

FIELD MEASUREMENTS

WHOLE BODY

DOSE RATE

IMPLEMENTED: DATA TIME \_\_\_\_\_ hrs

SITE BOUNDARY \_\_\_\_\_ R  
TWO MILES \_\_\_\_\_ R  
FIVE MILES \_\_\_\_\_ R  
TEN MILES \_\_\_\_\_ R

INTEGRATED DOSE DATA

CURRENT CASE

DISTANCE (Miles)	WHOLE BODY (REM)	SECTOR	THYROID (REM)	SECTOR	WHOLE (REM)
1	2.70E-06	J	0.00E+00		2.70E-
2	9.65E-07	J	0.00E+00		9.65E-
3	5.28E-07	J	0.00E+00		5.28E-
4	3.43E-07	J	0.00E+00		3.43E-
5	2.47E-07	J	0.00E+00		2.47E-
6	1.90E-07	J	0.00E+00		1.90E-
7	1.53E-07	J	0.00E+00		1.53E-
8	1.26E-07	J	0.00E+00		1.26E-
9	1.07E-07	J	0.00E+00		1.07E-
10	9.25E-08	J	0.00E+00		9.25E-

\*\*\*\*\*  
 \*\*\*\*\* TREND SUMMARY \*\*\*\*\*  
 \*\*\*\*\*

\*\*\* TIME OF SHUTDOWN: 800 HOURS

\*\*\* CASE SUMMARY:

CASE NO:	START TIME:	DAY NO:	ELAPSED TIME:	CASE LENGTH	SRCE TYPE	CONTAIN SPRAY:	NOBLE GAS BASIS:	IODINE BASIS:
1	805	1	.08	.92	USER	NA	PLANT DATA	PLANT DATA

\*\*\* METEOROLOGY SUMMARY:

CASE NO:	STAB CLASS	LAKE-EFFECT BREEZE	WIND SPEED	WIND DIR	MAXIMUM X/Q AT ONE MILE	WORST SECTOR
1	D	NO	10.0	0	1.34E-05	S

DOSE AND RELEASE SUMMARY:

CASE NO:	MAX DOSE AT 1 MILE R/HR WB	WB R/HR THY	WB TREND	THY TREND	EQUIVALENT PLANT RELEASES CI/SEC NG	CI/SEC I	NG TREND	I TREND
1	2.70E-06	0.00E+00	NA	NA	6.00E-03	0.00E+00	NA	NA

\*\*\* PLUME EXIT TIMES:

TIME TO EXIT 5-MILE SECTOR:	.50 HRS
CLOCK TIME AT 5-MILE EXIT:	930 HOURS
TIME TO EXIT 10-MILE SECTOR:	1.00 HRS
CLOCK TIME AT 10-MILE EXIT:	1000 HOURS



\*\*\*\*\* THE FOLLOWING POPULATION DOSE DATA ASSUMES NO EVACUATION OCCURRED \*\*\*\*\*

\*\* \*\* POPULATION DOSES FOR THE ENTIRE ACCIDENT ARE AS FOLLOWS:

WHOLE BODY DOSE: 1.428E-03 PERSON-REM  
THYROID DOSE: 0.000E+00 PERSON-REM

\*\*\*\*\* MAXIMUM DOSE TO ANY INDIVIDUAL:

WHOLE BODY DOSE: 2.476E-06 REM AT 1 MILES IN THE S SECTOR  
THYROID DOSE: 0.000E+00 REM AT 0 MILES IN THE S SECTOR

\*\*\*\*\* AVERAGE DOSES IN AFFECTED SECTORS:

WHOLE BODY DOSE: 9.049E-08 REM  
THYROID DOSE: 0.000E+00 REM  
TOTAL AFFECTED POPULATION: 15785

\*\*\*\*\* AVERAGE DOSES OVER ENTIRE EPZ:

WHOLE BODY DOSE: 6.294E-08 REM  
THYROID DOSE: 0.000E+00 REM  
TOTAL EPZ POPULATION: 22696

MAD TERMINATED: DATA SAVED IN CRASHFIL

TO RESTART MAD TURN MASTER SWITCH OFF, THEN BACK ON

IF IT IS NECESSARY TO RELOCATE THE COMPUTER SYSTEM  
THE READ-WRITE HEADS FOR THE HARD DISK MUST BE LOCKED.  
TO LOCK THE HEADS TYPE "LOCK" AND CHOOSE ITEM NUMBER 3.

NOTE: IF THE COMPUTER SYSTEM IS TO BE PLACED IN STORAGE,  
LOCK THE THE READ-WRITE HEADS AS DESCRIBED ABOVE  
Stop - Program terminated.

5	E	E	90.0	---	270.0	W	N	13
6	F	ESE	112.5	---	292.5	WNW	P	14
7	G	SE	135.0	---	315.0	NW	Q	15
8	H	SSE	157.5	---	337.5	NNW	R	16
9	J	S	180.0	---	.0	N	A	1
10	K	SSW	202.5	---	22.5	NNE	B	2
11	L	SW	225.0	---	45.0	NE	C	3
12	M	WSW	247.5	---	67.5	ENE	D	4
13	N	W	270.0	---	90.0	E	E	5
14	P	WNW	292.5	---	112.5	ESE	F	6
15	Q	NW	315.0	---	135.0	SE	G	7
16	R	NNW	337.5	---	157.5	SSE	H	8

DO YOU WANT DIRECTIONS? ANSWER Y OR N:

N

ENTER TIME OF SHUTDOWN:

0926,1

SHUTDOWN IS ASSUMED AT 926 HOURS ON DAY ONE

INDICATE 'OK' OR 'REPEAT':

OK

BEGIN CASE 1:

ENTER STABILITY CLASS (A-G):

D

WHERE A LAKE-EFFECT BREEZE PRESENT (Y OR N)?

ENTER WINDSPEED(MPH), DIRECTION(DEGREES), START TIME, AND DAY NUMBER:

12,0,0935,1

YOU ENTERED:

WINDSPEED: 12.0 MPH

WIND DIRECTION: 0 DEGREES

START TIME: 935

DAY NUMBER: 1

IS THIS CORRECT (Y OR N)?

Y

CASE: 1

TIME = 935

WIND SPEED = 12.0

DIR = 0

STABILITY = D

LAKE-EFFECT BREEZE IS NOT PRESENT

DISTANCE  
(MILES)

X/Q  
(SEC/M\*\*3)

ISOPLETH  
LABEL

X/Q  
(SEC/M\*\*3)

1

1.12E-05

A

1.86E-05

2	3.99E-06	B	1.86E-06
3	2.18E-06	C	1.86E-07
4	1.42E-06	D	1.86E-08
5	1.02E-06	E	1.86E-09
6	7.87E-07	F	1.86E-10
7	6.32E-07	G	1.86E-11
8	5.22E-07	H	1.86E-12
9	4.42E-07	I	1.86E-13
10	3.82E-07	J	1.86E-14
		K	1.86E-15
		L	1.86E-16

SECTOR  
DIRECTION:

DIFFUSION FACTOR (X/Q)  
DISTANCE (MILES)

	1	2	3	5	10
N					
NNE					
NE					
ENE					
E					
ESE					
SE	1.86E-15	1.86E-16	0.00E+00	0.00E+00	0.00E+00
SSE	1.86E-06	1.86E-06	1.86E-06	1.86E-07	1.86E-07
S	1.12E-05	3.99E-06	2.18E-06	1.02E-06	3.82E-07
SSW	1.86E-06	1.86E-06	1.86E-06	1.86E-07	1.86E-07
SW	1.86E-15	1.86E-16	0.00E+00	0.00E+00	0.00E+00
WSW					
W					
WNW					
NW					
NNW					

ESTIMATED PLUME ARRIVAL TIMES: 959 (5 MILES)  
1024 (10 MILES)

IS MET DATA OK? ANSWER 'OK' OR 'REPEAT':

OK

ENTER SOURCE TERM TYPE: LOCA, GAP, SGEN, FHA, OR USER:

SGEN

DO YOU HAVE ANY NOBLE GAS DATA? ENTER Y OR N:

Y

IS NOBLE GAS RELEASE DATA FROM PLANT OR FIELD?

PLANT

ENTER RELEASE RATE IN XE-133 EQUIVALENT CURIES PER SECOND:

2.07

YOU ENTERED:

RELEASE RATE: 2.07E+00 XE-133 EQUIVALENT CURIES PER SECOND

IS THIS CORRECT (Y OR N)?

Y

DO YOU HAVE ANY IODINE DATA? ENTER Y OR N:

N

WAS CONTAINMENT SPRAY USED? Y OR N:

N

IS THE PRIMARY RELEASE PATH THROUGH THE CONDENSER?

N

DO YOU WANT A DOSE PROJECTION FOR THE MOST RECENT CASE? Y OR N:

Y

ENTER THE NUMBER OF HOURS DURATION FOR THE MOST RECENT CASE:

1.5

YOU ENTERED:

HOURS OF DURATION: 1.5

IS THIS CORRECT (Y OR N)?

N

ENTER THE NUMBER OF HOURS DURATION FOR THE MOST RECENT CASE:

2

YOU ENTERED:

HOURS OF DURATION: 2.0

IS THIS CORRECT (Y OR N)?

Y

CASE: 1 ELAPSED TIME = .2 HOURS

BASIS FOR WHOLE BODY DOSE CALCULATIONS: PLANT DATA  
FACTORS FOR THYROID DOSE CALCULATIONS: ESTIMATED

NOBLE GAS RELEASE RATE: 2.07E+00 Ci/sec  
RADIOIODINE RELEASE RATE: 3.29E-03 Ci/sec

MAXIMUM SITE BOUNDARY DOSE RATES FOR ADVERSE METEOROLOGY:

WHOLE BODY: .018 REM/HR  
THYROID: 1.165 REM/HR

\*\*\*\*\* SITE EMERGENCY CRITERIA ARE EXCEEDED \*\*\*\*\*

MAXIMUM SITE BOUNDARY DOSE RATES FOR ACTUAL METEOROLOGY:

WHOLE BODY: 7.77E-04 REM/HR  
THYROID: 5.00E-02 REM/HR

\*\*\*\*\* THE FOLLOWING DOSE DATA IS BASED ON ACTUAL METEOROLOGY: \*\*\*\*\*

SECTOR                      WHOLE BODY DOSE RATES (REM/HR)  
DIRECTION                    DISTANCE (MILES)

	1	2	3	5	10
N					
NNE					
NE					
ENE					
E					
ESE					
SE	1.30E-13	1.30E-14	0.00E+00	0.00E+00	0.00E+00
SSE	1.30E-04	1.30E-04	1.30E-04	1.30E-05	1.30E-05
S	7.77E-04	2.77E-04	1.52E-04	7.11E-05	2.66E-05
SSW	1.30E-04	1.30E-04	1.30E-04	1.30E-05	1.30E-05
SW	1.30E-13	1.30E-14	0.00E+00	0.00E+00	0.00E+00
WSW					
W					
WNW					
NW					
NNW					

SECTOR                      THYROID DOSE RATES (REM/HR)  
DIRECTION                    DISTANCE (MILES):

	1	2	3	5	10
N					
NNE					
ENE					
E					
ESE					
SE	8.35E-12	8.35E-13	0.00E+00	0.00E+00	0.00E+00
SSE	8.35E-03	8.35E-03	8.35E-03	8.35E-04	8.35E-04
S	5.00E-02	1.79E-02	9.77E-03	4.58E-03	1.71E-03
SSW	8.35E-03	8.35E-03	8.35E-03	8.35E-04	8.35E-04
SW	8.35E-12	8.35E-13	0.00E+00	0.00E+00	0.00E+00
WSW					
W					
WNW					
NW					
NNW					



INTEGRATED DOSES FOR THIS CASE:

CASE DURATION = 2.0 HOURS

OR  
DIRECTION

WHOLE BODY DOSES FOR THIS CASE (REM)  
DISTANCE (MILES):

	1	2	3	5	10
N					
NNE					
NE					
ENE					
E					
ESE					
SE	2.59E-13	2.59E-14	0.00E+00	0.00E+00	0.00E+00
SSE	2.59E-04	2.59E-04	2.59E-04	2.59E-05	2.59E-05
S	1.55E-03	5.55E-04	3.03E-04	1.42E-04	5.32E-05
SSW	2.59E-04	2.59E-04	2.59E-04	2.59E-05	2.59E-05
SW	2.59E-13	2.59E-14	0.00E+00	0.00E+00	0.00E+00
WSW					
W					
WNW					
NW					
NNW					

SECTOR  
DIRECTION

THYROID DOSES FOR THIS CASE (REM)  
DISTANCE (MILES):

	1	2	3	5	10
N					
NNE					
NE					
ENE					
E					
ESE					
SE	1.67E-11	1.67E-12	0.00E+00	0.00E+00	0.00E+00
SSE	1.67E-02	1.67E-02	1.67E-02	1.67E-03	1.67E-03
S	1.00E-01	3.57E-02	1.95E-02	9.15E-03	3.42E-03
SSW	1.67E-02	1.67E-02	1.67E-02	1.67E-03	1.67E-03
SW	1.67E-11	1.67E-12	0.00E+00	0.00E+00	0.00E+00
WSW					
W					
WNW					
NW					
NNW					

IS DOSE DATA OK? ANSWER 'OK' OR 'REPEAT':

ND NOT RECOGNIZED. TRY AGAIN.

IS DOSE DATA OK? ANSWER 'OK' OR 'REPEAT':

1  
PRIMARY REPORT FOR CASE 1

METEOROLOGICAL

DATA TIME \_\_\_\_\_ hrs  
WIND SPEED \_\_\_\_\_ 12.0 MPH  
WIND DIRECTION \_\_\_\_\_ 0 °  
SIGMA THETA \_\_\_\_\_ °  
Delta T/Delta H \_\_\_\_\_ °  
STABILITY CLASS \_\_\_\_\_ D  
LAKE-EFFECT BREEZE \_\_\_\_\_ No

RADIO

PLANT RELEASES DATA TIME  
RELEASE START TIME \_\_\_\_\_  
NOBLE GAS RELEASE RATE \_\_\_\_\_ 2.  
IODINE RELEASE RATE \_\_\_\_\_ 3.

ESTIMATED RELEASE DURATION  
PROJECTED PLUME ARRIVAL TIME  
PROJECTED PLUME ARRIVAL TIME

PROTECTIVE ACTIONS

DOSE PROJECTION (in downwind

RECOMMENDED: DATA TIME \_\_\_\_\_ hrs

DISTANCE \_\_\_\_\_ WHOLE B  
DOSE RATE

ONE MILE 7.77E-04 R/hr  
TWO MILES 2.77E-04 R/hr  
FIVE MILES 7.11E-05 R/hr  
TEN MILES 2.66E-05 R/hr

FIELD MEASUREMENTS

IMPLEMENTED: DATA TIME \_\_\_\_\_ hrs

WHOLE BODY  
DOSE RATE

SITE BOUNDARY \_\_\_\_\_ R  
TWO MILES \_\_\_\_\_ R  
FIVE MILES \_\_\_\_\_ R  
TEN MILES \_\_\_\_\_ R

INTEGRATED DOSE DATA

CURRENT CASE

DISTANCE (Miles)	WHOLE BODY (REM)	SECTOR	THYROID (REM)	SECTOR	WHOLE (REM)
1	1.55E-03	J	1.00E-01	J	1.55E
2	5.55E-04	J	3.57E-02	J	5.55E
3	3.03E-04	J	1.95E-02	J	3.03E
4	1.97E-04	J	1.27E-02	J	1.97E
5	1.42E-04	J	9.15E-03	J	1.42E
6	1.09E-04	J	7.05E-03	J	1.09E
7	8.79E-05	J	5.66E-03	J	8.79E
8	7.26E-05	J	4.68E-03	J	7.26E
9	6.15E-05	J	3.96E-03	J	6.15E
10	5.32E-05	J	3.42E-03	J	5.32E

## 8.0 MINI-SCENARIOS

This section contains Mini-scenario packages for the several detailed events that occur in this Exercise.

The following Mini-scenarios are found in this Section:

1. Fuel Damage / High Coolant Activity
2. Radiography Source / Injured Man
3. Fuel Handling Event w/ Off-Set Tool
4. Load Rejection, Steam Generator Safety Fails Open
5. Steam Generator Tube Rupture and Release
6. Vehicle Contamination

Each Mini-scenario generally contains the following parts as applicable:

- Approximate Time
- Location
- Summary of Event
- Required Setup
- Initial Indications/Notifications
- Postulated Events
- Controllers Notes
- Restoration Guidelines
- Attachments

Each Mini-scenario allows for participant free play, but is integral to the action of the main scenario. Controllers may have to make adjustments as noted.

**1993 PBNP EXERCISE  
MINI SCENARIO NO. 1**

**Fuel Damage / High Coolant Activity**

**APPROXIMATE TIME:**

0700 - 0913: 1RE-109 is as indicated in Initial conditions, and RCS activity will hold at approximately 0.9 uCi/cc.

**LOCATION:**

Initial conditions report, Control Room, and follow up samples from Chemistry.

**EVENT SUMMARY:**

The condition will require investigation and analysis, but will be uncorrectible.

**REQUIRED SETUP/MOCKUPS:**

Initial conditions chemistry sample reports. Followup sample results -- provided by controller. Utilize Primary chemistry lab and Unit 1 sample room. A fairly sharp up ramp of 1RE-109 between 0913 and the isolation of letdown on the reactor trip will occur. 1RE-109 will exceed 120 mR/hr during this period.

**INITIAL INDICATIONS/NOTIFICATIONS:**

1RE-109 levels on brief upramp, but below 1.0 uCi/cc to prevent a Technical Specification problem.

**POSTULATED EVENTS:**

Failure from unknown cause. Set analysis results to show [ minor] fuel failure as indicated from Iodine, Beta-gamma, and Isotopic analysis. Levels should NOT drive a shutdown.

1993 PBNP EXERCISE  
MINI SCENARIO NO. 1

**CONTROLLER NOTES:**

Observe and critique sample / analysis techniques – detailed description by sampler may substitute for actual sampling if desired. Observe and note actions and recommendations resulting from [ provided ] sample results.

**RESTORATION GUIDELINES:**

None.

**ATTACHMENTS:**

Chemistry data sheets.

## TECHNICAL DATA FOR RADIOCHEMICAL ANALYSIS OF REACTOR COOLANT SYSTEM

### Prior to Exercise

1RE-109 increases slowly to the alert setpoint (25 mR/hr) at 0315. Chemistry is called in to sample. Sample is obtained at 0510. Analysis is being performed during the exercise turnover. 1RE-109 is reading 30 mR/hr at 0700.

If another sample is analyzed after 0700, but before major fuel failure occurs, increase the values by 10 percent.

Detector dead time:

#### Iodine analysis:

10 ml to 1 liter (100:1) will result in a dead time of 22%. Dead time should be a ratio of this for the volume used.

Maximum dilution for detectable iodine is 10,000:1.

#### Isotopic analysis:

Single point will result in the same dead time as above.

#### Secondary Coolant analysis:

#1 is an analysis performed before reactor trip.

#2 is an analysis after the trip and tube rupture (within 20 minutes).

For samples taken later, multiply the activity by 2 in the A SG for each 20 minute interval until the activity is 75% of the initial RCS activity.

Air ejector analysis is prior to the reactor trip.



**Beta Gamma analysis result (if performed):**

**NOTE:** *If 1 ml or more of sample is used, the count rate will exceed the maximum capability of the 2401F (5.0E5 cpm), leading to a low result. If 1 ml or more is used, report the result as 5.0E5 cpm which yields a value of 0.62  $\mu\text{Ci/cc}$ .*

*If less than 1 ml is used, ratio the result using the information below: (note that the result must be modified for the actual volume used, i.e., if 0.5 ml is used, the instrument will readout 0.32  $\mu\text{Ci/cc}$  since the program is set for 1.0 ml).*

Actual Activity: 0.64  $\mu\text{Ci/cc}$  (5.19E5 cpm/cc)

**Iodine Analysis (if performed):**

I-131	9.70E-2 $\mu\text{Ci/cc}$
I-132	7.20E-2 $\mu\text{Ci/cc}$
I-133	1.21E-1 $\mu\text{Ci/cc}$
I-134	5.44E-2 $\mu\text{Ci/cc}$
I-135	4.34E-2 $\mu\text{Ci/cc}$

**Radgas Analysis (if performed):**

Ar-41	1.00E-02 $\mu\text{Ci/cc}$
Kr-85m	6.50E-03 $\mu\text{Ci/cc}$
Kr-87	5.40E-03 $\mu\text{Ci/cc}$
Kr-88	1.67E-02 $\mu\text{Ci/cc}$
Xe-131m	4.40E-03 $\mu\text{Ci/cc}$
Xe-133	3.54E-01 $\mu\text{Ci/cc}$
Xe-133m	1.21E-01 $\mu\text{Ci/cc}$
Xe-135	4.03E-02 $\mu\text{Ci/cc}$
Xe-135m	8.12E-03 $\mu\text{Ci/cc}$
Xe-138	2.05E-02 $\mu\text{Ci/cc}$

## RCS isotopic Analysis

Cs-134	4.41E-02 $\mu\text{Ci/cc}$
Cs-137	5.71E-02 $\mu\text{Ci/cc}$
Cs-138	2.01E-02 $\mu\text{Ci/cc}$
F-18	1.22E-01 $\mu\text{Ci/cc}$
Rb-88	1.34E-01 $\mu\text{Ci/cc}$
I-131	9.70E-02 $\mu\text{Ci/cc}$
Rb-89	5.78E-02 $\mu\text{Ci/cc}$
Ba-139	8.44E-04 $\mu\text{Ci/cc}$
Co-58	9.63E-03 $\mu\text{Ci/cc}$
Br-84	1.05E-02 $\mu\text{Ci/cc}$
I-132	7.20E-02 $\mu\text{Ci/cc}$
I-133	1.21E-01 $\mu\text{Ci/cc}$
Np-239	4.63E-03 $\mu\text{Ci/cc}$
Te-132	1.51E-02 $\mu\text{Ci/cc}$
I-134	5.44E-02 $\mu\text{Ci/cc}$
Mo-99	7.93E-03 $\mu\text{Ci/cc}$
Co-60	5.63E-06 $\mu\text{Ci/cc}$
I-135	4.34E-02 $\mu\text{Ci/cc}$
Na-24	3.60E-03 $\mu\text{Ci/cc}$
Cs-136	3.11E-03 $\mu\text{Ci/cc}$

# Analysis of Secondary Coolant #1

(All units in  $\mu\text{Ci/cc}$ )

	SG A	SG B
I-131	2.2E-07	1.4E-07
Cs-137	3.4E-07	4.5E-07
Xe-133	4.8E-07	5.9E-07
I-134	<LLD	2.3E-07
Xe-135	4.7E-07	5.6E-07

# Analysis of Secondary Coolant #2

(All units in  $\mu\text{Ci/cc}$ )

	SG A	SG B
I-131	6.3E-03	1.4E-07
Cs-137	3.9E-03	4.6E-07
I-132	8.7E-04	<LLD
I-133	6.9E-03	<LLD
Cs-134	3.6E-03	<LLD
F-18	5.6E-04	<LLD
I-134	1.3E-04	2.4E-07
Br-84	4.7E-04	<LLD
Np-239	8.9E-05	<LLD
Te-132	5.6E-04	<LLD
I-135	9.4E-04	<LLD
Na-24	3.6E-05	<LLD
Cs-136	2.1E-05	<LLD
Xe-133	1.8E-02	5.6E-07
Xe-135	8.4E-04	<LLD
Kr-85m	5.4E-03	<LLD
Kr-85	1.4E-02	<LLD
Kr-88	9.3E-03	<LLD
Kr-87	1.0E-04	<LLD

# Analysis of Air Ejector (If done prior to reactor trip)

(All units in  $\mu\text{Ci/cc}$ )

Xe-133	5.8E-06
Kr-88	2.3E-07
Xe-135	7.0E-06
Xe-133m	1.2E-06

Air ejector flow rate = 5.4 scfm

# DRILL CONTROL ROOM SUMMARY SHEET FOR 07-DEC-93

## UNIT 1

### CONCENTRATIONS

BORON	RCS	HOTLEG/RHR	422.0 ppm	07-DEC-93 07:43
		PZR	423.0 ppm	07-DEC-93 08:07
	BAST	A	12.5% Boric Acid	07-DEC-93 14:18
		B	12.3% Boric Acid	07-DEC-93 15:19
	RWST	(OLD)	2361.0 ppm	25-NOV-93 07:45
		(NEW)	2353.0 ppm	02-DEC-93 08:10
	SF PIT	(OLD)	2517.0 ppm	26-NOV-93 08:13
		(NEW)	2518.0 ppm	03-DEC-93 07:47
	RMWT		0.3 ppm	01-DEC-93 09:55
	ACCUM	A	2285.0 ppm	01-DEC-93 13:11
		B	2188.0 ppm	01-DEC-93 09:55
% NaOH	SPRAY ADD TANK		31.0% NaOH	03-DEC-93 13:11
H2	RCS		32.30 cc/kg	06-DEC-93 10:01

### ACTIVITIES

PRIMARY	GROSS	0.13	uCi/cc	07-DEC-93 07:43
	100/E		uCi/cc	
	GASEOUS	5.21E-02	uCi/cc	06-DEC-93 10:01
STM GEN	A	<MDA	uCi/cc	06-DEC-93 10:10
	B	<MDA	uCi/cc	06-DEC-93 10:10

### PRIMARY TO SECONDARY LEAKAGE SECTION

CHEM MEAS PRI/SEC LEAK RATE	0.32 GPD	06-DEC-93 10:44
LEAK RATE CORR FACTOR	TOTAL RADGAS OR RE215 NOT APPLICABLE	

# DRILL CONTROL ROOM SUMMARY SHEET FOR 07-DEC-93

## UNIT 2

### CONCENTRATIONS

BORON	RCS	HOTLEG/RHR	1022.0 ppm	07-DEC-93 07:53
		PZR	1023.0 ppm	07-DEC-93 08:17
	BAST	B	12.5% Boric Acid	07-DEC-93 14:28
		C	12.3% Boric Acid	07-DEC-93 15:29
	RWST	(OLD)	2371.0 ppm	25-NOV-93 08:45
		(NEW)	2333.0 ppm	02-DEC-93 09:10
	ACCUM	A	2245.0 ppm	02-DEC-93 13:11
		B	2148.0 ppm	02-DEC-93 09:55
NaOH	SPRAY ADD TANK		31.0% NaOH	03-DEC-93 13:21
H2	RCS		34.30 cc/kg	06-DEC-93 10:11

### ACTIVITIES

PRIMARY	GROSS	0.16 uCi/cc	07-DEC-93 08:43
	100/E	uCi/cc	
	GASEOUS	5.11E-02 uCi/cc	06-DEC-93 10:31
STM GEN	A	1.21E-05 uCi/cc	06-DEC-93 10:10
	B	3.95E-06 uCi/cc	06-DEC-93 10:10

### PRIMARY TO SECONDARY LEAKAGE SECTION

CHEM MEAS	PRI/SEC LEAK RATE	8.34 GPD	06-DEC-93 10:44
	K RATE CORR FACTOR	1.06	

1993 PBNP EXERCISE  
MINI SCENARIO NO. 2

Radiography Source / Injured man

**APPROXIMATE TIME:**

~0740

**LOCATION:**

Radiography is in progress in the PAB, EL 26', north of the C-59 panel -- near Service Water SW-282.

I&C troubleshooting is in progress at a CCW gauge (2TI-602), approximately 12 feet into the overhead. Work is being allowed behind the radiography barrier due to the short duration of the exposures.

**EVENT SUMMARY:**

At ~0740, the radiography source gets stuck while cranking it in after an exposure. HP Tech will check the dose rates, inform the HP station, control, and other technicians assigned to the job. The HP tech can survey the field to establish its level and limits -- the 100 Curie source provides a field at the door (see map) in the range of 1100 REM/hour when unshielded. The last person informed of the problem is the I&C technician.

The I&C technician performing maintenance on CCW temperature gauge is informed of the stuck source, becomes excited, falls, injures his head and leg. He informs the HP technician with him of his injuries, and becomes unconscious. His position is inaccessible except for one entry path, and that path is preempted by a ~300 mrem per **SECOND** field.

**REQUIRED SETUP/MOCKUPS:**

Mock-up of radiography device (to provide a target for the team to shield against). Map of radiation field and intensities (to provide a target for the investigators and a guide for the controllers).

Mock-ups of lead shielding will be used instead of real lead blankets. The personnel, if they choose to use lead blankets, will be directed by the controller to the mock-up shielding AFTER they identify the real shielding they would use.

An ambulance service will be utilized to rescue the injured man. This has the additional impact of involving non-utility personnel in a potentially hazardous situation.



**1993 PBNP EXERCISE  
MINI SCENARIO NO. 2**

**INITIAL INDICATIONS/NOTIFICATIONS:**

Initial Conditions list radiography to be done, I&C work efforts listed with other [ innocuous ] scheduled work events. Stuck source event will be called in by radiography workers. Some RMS monitors are affected by the source field: 1RE-216B reads 40 mrem/hr, 2RE-216B reads 90 mrem/hr, the C-59 monitor reads ~120 mrem/hr. The HP technician, who has had first aid training, reports the potential for head, neck and back injuries.

**POSTULATED EVENTS:**

As the only access to the injured man is through the high radiation field -- and repair of the device will not be permitted within the frame of the exercise, the participants will be challenged to provide protection from the stuck source by:

- verifying the safety of isolated persons in the sample room,
- bypassing the source,
- shielding the source,
- considering, calculating, and possibly approving exposure levels beyond 10 CFR 20 limits,
- verifying safe conditions prior to removing the victim,
- safely and properly removing the victim.

**CONTROLLER NOTES:**

Ensuring safety in the removal of the "victim", along with observations and critique of the methods used in the accident response and use of ALARA principles are the controller's primary responsibility.

**RESTORATION GUIDELINES:**

Other anticipated actions involve defining the exact location and strength of the field, shielding the source prior to attempting the rescue, plans to remove the "victim" and planning to secure the source for its removal.

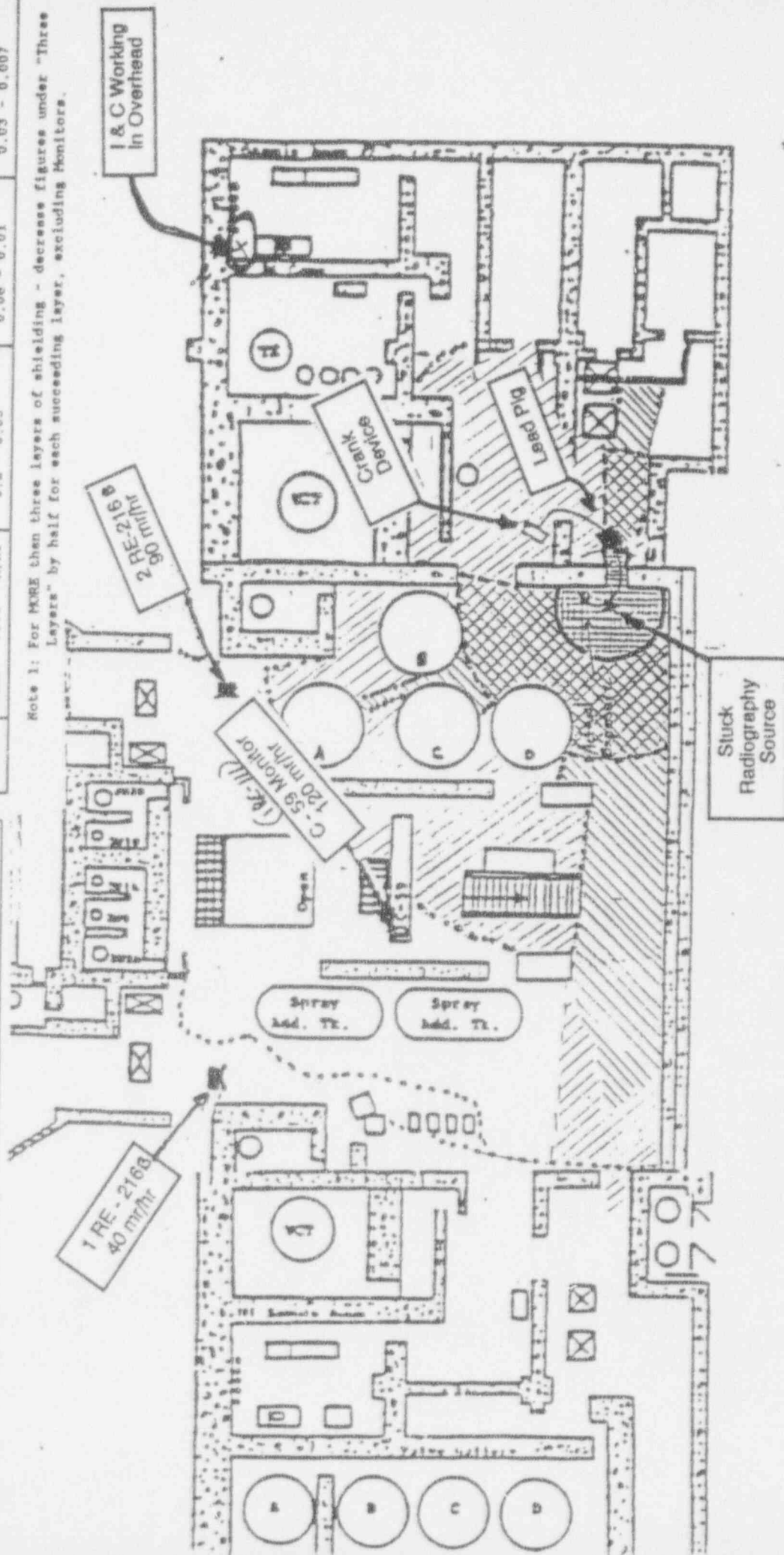
**ATTACHMENTS:**

- Map of area of incident.

Unshielded Source	With Shielding		
	One Layer	Two Layers	Three Layers
1RE-216	40 mr/hr	25 mr/hr	9 mr/hr
2RE-216	90 mr/hr	75 mr/hr	20 mr/hr
C-59 Monitor	120 mr/hr	80 mr/hr	26 mr/hr

Unshielded Source	With Shielding ( R/hr )		
	One Layer	Two Layers	Three Layers
1100 R/hr	726	240	110
900 - 320 R/hr	600 - 210	180 - 64	80 - 26
320 - 30 R/hr	210 - 20	64 - 6	26 - 2.4
30 - 0.25 R/hr	20 - 0.2	6 - 0.06	2.4 - 0.03
0.25 - 0.05 R/hr	0.2 - 0.03	0.06 - 0.01	0.03 - 0.007

Note 1: For MORE than three layers of shielding - decrease figures under "Three Layers" by half for each succeeding layer, excluding Monitors.



1993 PBNP EXERCISE  
MINI SCENARIO NO. 3

Fuel Handling Event

**APPROXIMATE TIME:** 0805

**LOCATION:** Spent Fuel Pool.

**EVENT SUMMARY:**

While using the off-set fuel handling tool to move old (> 10 years since discharge) fuel into positions under the north walkway, a weld breaks at the top of the upper frame, resulting in severe damage to the element being placed into position and dropping the tool into the pool. A release is created into the area sufficient to alarm the spent fuel pit bridge Victoreen and RE-221. The damage is such that there is a significant potential for further damage unless corrective actions are taken, although the problem may not be imminent.

**REQUIRED SETUP/MOCKUPS:**

No mockups. Detailed description or sketch of what the personnel may see during the accident and when investigating subsequent conditions in the spent fuel pool. A graphic description of the spent fuel element, caught halfway into position, and literally pulled apart by the twisting, lever motion of the off-set tool and the at-rest position of the tool are key to the analysis of this problem. This is provided by either a graphic description, or a sketch, or both.

**INITIAL INDICATIONS/NOTIFICATIONS:**

RE-221 alarm, Spent Fuel Pit Bridge Victoreen alarm, verbal report from fuel handlers. The tool is seen to be still attached to the top of the severely damaged spent assembly and totally submerged in the pool, with the tool arm and counterweight hanging over a freshly unloaded fuel assembly. Bubbles are seen to be rising from both parts of the assembly.

**1993 PBNP EXERCISE  
MINI SCENARIO NO. 3**

**POSTULATED EVENTS:**

Initially, a "puff" release of minor significance, and a classification of ALERT based upon the event reports and alarms. In the followup, a need to devise a method to prevent further damage should be assessed.

**CONTROLLER NOTES:**

Using the sketch, references, and sufficient descriptive material, try to make the situation VERY clear to the operators. Descriptions may be varied as to the view point each operator would have, to allow them to analyze the situation in a realistic manner.

If personnel investigate the Victoreen monitor on the Refueling Bridge, the monitor will read 35 mR/hr for the first 15 minutes (until 0805) and then decrease to background (2 - 4 mR/hr) over the next 15 minutes (until 0835).

**RESTORATION GUIDELINES:**

Following the initial response, which should involve a limited plant evacuation, most attention should be given to placing the assemblies(s) in a safe, stable condition. Planning and procurement / construction of special tool(s) should be evaluated.

**ATTACHMENTS:**

- Description / photo / sketch of conditions following the offset fuel handling tool accident.

# POINT BEACH EP EXERCISE 1993

View of  
Fuel Handling Event  
0830 - 1300

291028 CANAL SUPPORT

- Fuel Assembly crumpled
- Counterweight unstable, swaying slightly
- Fuel twists with counterweight movement
- A few bubbles ascending every so often

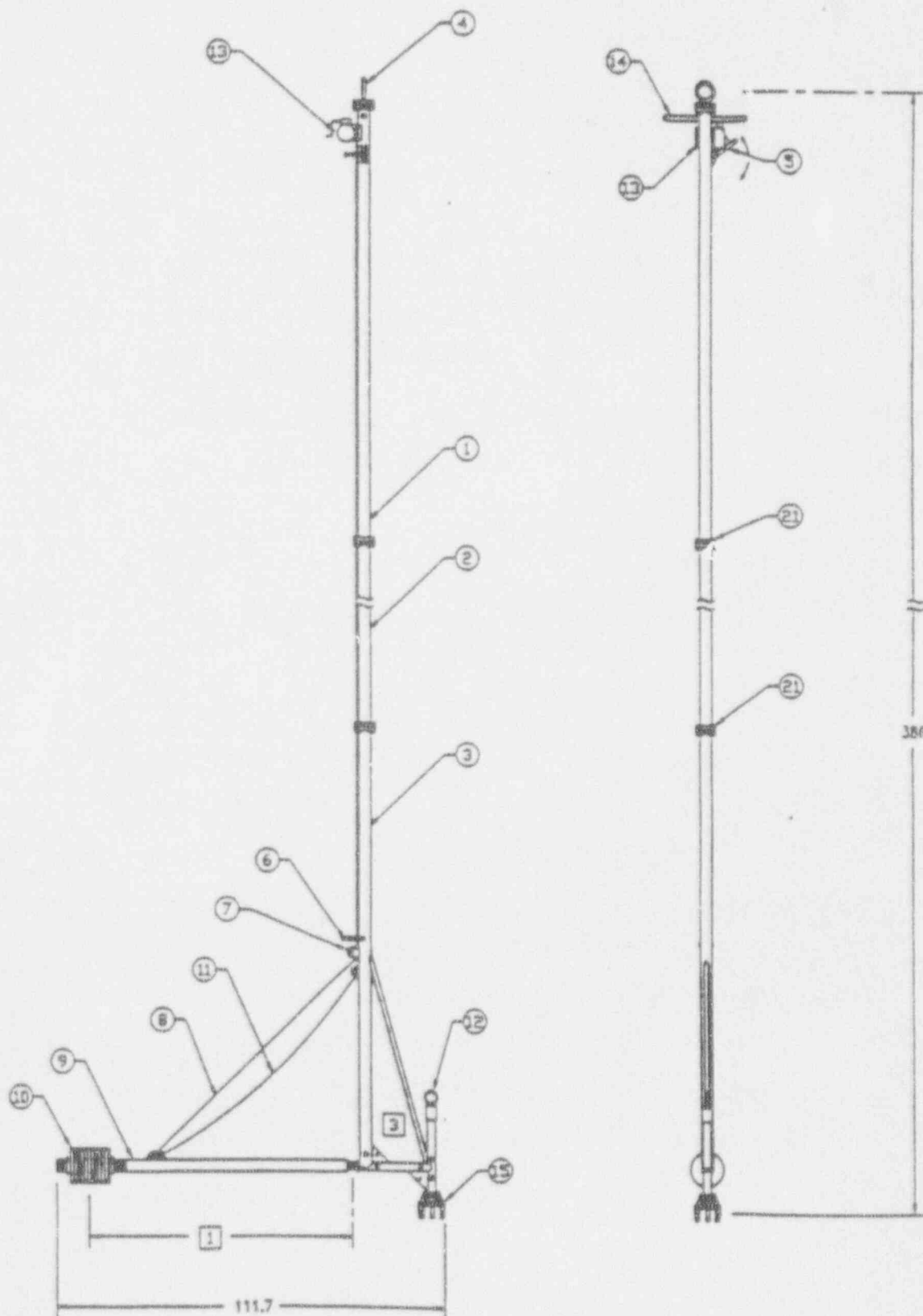




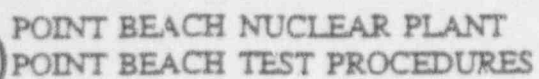
POINT BEACH NUCLEAR PLANT  
POINT BEACH TEST PROCEDURES  
SPENT FUEL PIT OFF-SET FUEL HANDLING TOOL

PBTP-013  
MINOR  
IPTE  
Revision 0  
July 14, 1993

ATTACHMENT A

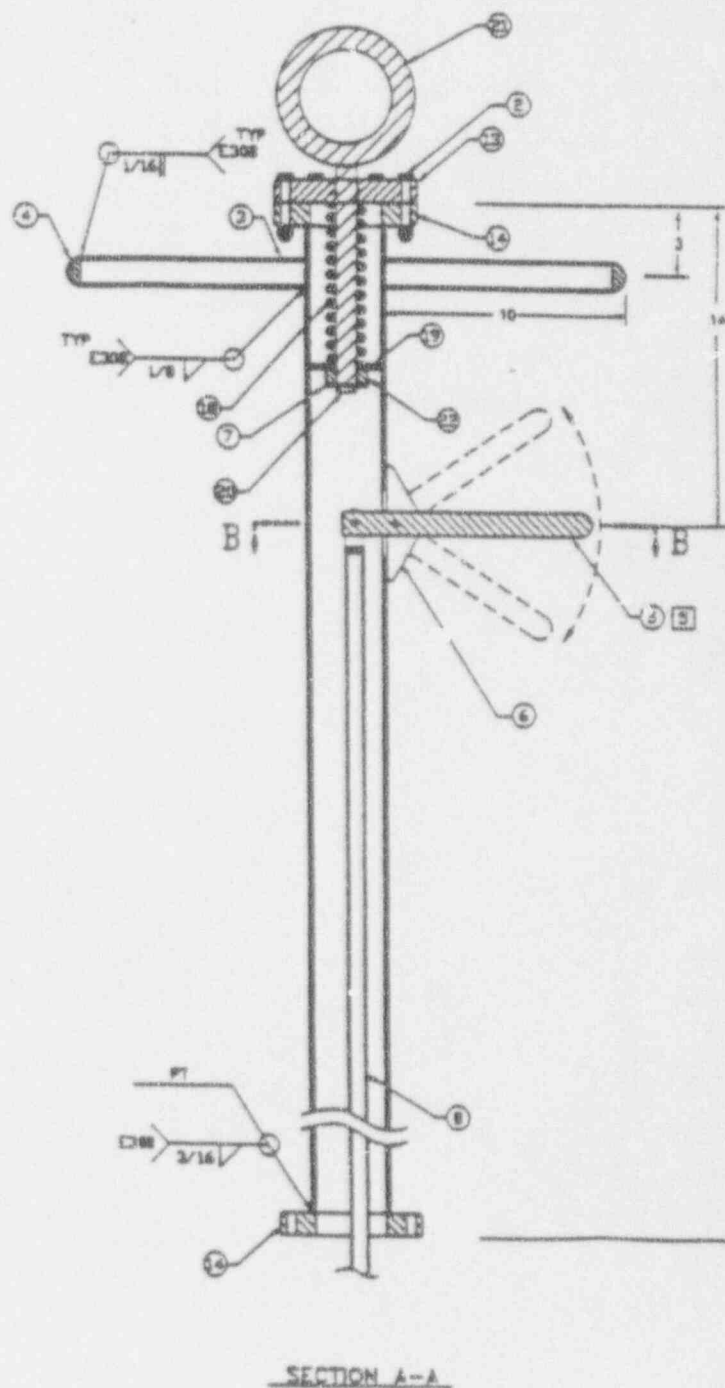






PBTP-013  
MINOR  
IPTE  
Revision 0  
July 14, 1993

FIG. 1 is a side view of a mechanical assembly. The assembly includes a main vertical shaft (1) with a base (14) and a top flange (2). A horizontal arm (16) is attached to the shaft, featuring a bracket (17) and a pin (18). A vertical rod (9) passes through the shaft, secured by a nut (10) and a washer (11). A horizontal rod (5) is also shown, with a pin (6) and a washer (8). Various dimensions and tolerances are indicated, such as 3.5, 4.25, 3/16, 1/8, and 0.005. Section lines A-A and C-C are shown.



INVENTORY 08/17/93									
SA- 1	SA- 2	SA- 3	SA- 4	SA- 5	SA- 6	SA- 7 J07	SA- 8	SA- 9 M09 PD	SA-10 L61 PD
SC- 1	SC- 2	SC- 3	SC- 4	SC- 5 K60	SC- 6 K62	SC- 7 K23	SC- 8 K33	SC- 9 Q52	SC-10 P25 PD
SD- 1	SD- 2	SD- 3	SD- 4	SD- 5 L02 14P101	SD- 6 M03 14P102	SD- 7 M15 PD	SD- 8	SD- 9 L56 PD	SD-10 Q70
SE- 1	SE- 2	SE- 3	SE- 4 N23	SE- 5 M08 14P105	SE- 6 M01 14P100	SE- 7 H14 PD	SE- 8 H05 4P140	SE- 9 P13 PD	SE-10 P35 PD
SF- 1	SF- 2	SF- 3	SF- 4 ROD CAN			SF- 7 SPA CER	SF- 8 L22 PD	SF- 9 S52	SF-10 S57
SG- 1	SG- 2	SG- 3	SG- 4 Q80 OPD			SG- 7 C75	SG- 8 M20 PD	SG- 9 N07 PD	SG-10 Q73 PD
SH- 1	SH- 2	SH- 3	SH- 4 Q63	SH- 5 M17 PD	SH- 6 S55	SH- 7 M13 PD	SH- 8 M03 PD	SH- 9	SH-10 M64 PD
SJ- 1	SJ- 2	SJ- 3	SJ- 4 N16 PD	SJ- 5 L19 PD	SJ- 6 M31 PD	SJ- 7 M12 PD	SJ- 8 L05 PD	SJ- 9 P21 PD	SJ-10 M73 PD
SK- 1	SK- 2	SK- 3	SK- 4 N17 PD	SK- 5 N01 PD	SK- 6 H17	SK- 7 S62 R18	SK- 8 N04 PD	SK- 9 Q69	SK-10 M74 PD
SL- 1	SL- 2	SL- 3	SL- 4 N18	SL- 5 E64	SL- 6 E80	SL- 7 D64	SL- 8 L57	SL- 9 L54	SL-10 L53
SFP MAP SECTION 1									

NOTE: FUEL IDS IN BOLD TYPE ARE F/A# QUALIFIED FOR REUSE OR  
< 1 YR OLD. DO NOT MOVE TO LOCATIONS < 12" FROM SFP WALLS.

LOCATIONS WITH PROTRUDING ANGLES OR OTHER INTERFERENCE.  
UNUSABLE FUEL (NOT IN BOLD TYPE) MAY BE MOVED INTO THEM WITH  
PRIOR APPROVAL BASED ON DEGREE OF INTERFERENCE. FUEL SHOWN  
IN BOLD SHALL NOT BE INSERTED THERE. MAY REMOVE FUEL.

LOCATIONS NOT YET INSPECTED. INSERTION OF ANY FUEL INTO  
THESE LOCATIONS IS PROHIBITED.

DAMAGED LOCATIONS THAT SHOULD NOT BE USED FOR REMOVAL OR INSERTION.

"R" "T" "U" and "V" inserts are control rods.

**1993 PBNP EXERCISE  
MINI SCENARIO NO. 4**

Load Rejection, Steam Generator Safety fails open

**APPROXIMATE TIME:**

0925

**LOCATION:**

Unit 1 rejection of load -- switchyard breaker icing up and tripping. Unit 2 remains as before.

**EVENT SUMMARY:**

Load rejection drives pressure high, causing SG Safety valve to open and not reset. This blowdown to atmosphere allows the SGTR, which occurs within one minute of the Reactor trip, to have an almost immediate release of radioactive material.

**REQUIRED SETUP/MOCKUPS:**

Simulator driven. Usual trip indications, and indications of very high flow from 1A SG, along with a rapid cooldown.

**INITIAL INDICATIONS/NOTIFICATIONS:**

Simulator driven. Detection of steam Safety can be driven by external messages (sound, outside sighting of plume) if necessary.

**POSTULATED EVENTS:**

Operators are challenged to identify the problem and take the appropriate actions. This is complicated by the next event, which occurs very shortly after this event.

**CONTROLLER NOTES:**

None. Simulator driven.

**RESTORATION GUIDELINES:**

See "Restoration Guidelines" for Scenario #5.

**ATTACHMENTS:**

None. Scenario driven.

1993 PBNP EXERCISE  
MINI SCENARIO NO. 5

Steam Generator Tube Rupture and Release

**APPROXIMATE TIME:**

0926

**LOCATION:**

A steam generator tube rupture occurs in Steam Generator 1A, the rupture should have an initial break size of ~500 gpm.

**EVENT SUMMARY:**

The pre-existing open code safety (1MS-2010) valve allows a release path to the atmosphere. There will be a reactor trip and SI. The operators will be unable to shut the safety valve for some time (~1.5 hours) complicates the operator actions for dealing with a SGTR. In effect, they have both a SGTR and a High Energy Line Break. Depending upon the efforts made, or the plant conditions attained, the safety valve will be allowed to shut at approximately 1100.

**REQUIRED SETUP/MOCKUPS:**

Simulator driven for operator actions. May need drawings or photos of steam plume -- which should be highly visible at that time of the year.

**INITIAL INDICATIONS/NOTIFICATIONS:**

Simulator driven for initial indications and for operator responses in controlling the cooldown and depressurization of the unit. RMS responses are to be modeled to reflect the release of high activity vapor and steam -- however, this will basically be an unmonitored release.

Investigators of the Code Safety failure to reset will have specific descriptive information, with a drawing, indicating that there may be a bend in the spindle of the valve.

1993 PBNP EXERCISE  
MINI SCENARIO NO. 5

**POSTULATED EVENTS:**

Initial investigation, at the site, will indicate an open safety valve. Noise and steam will be present, but no obvious visible problems with the valve - except maybe the spindle does not "look right." ANY attempts to reshut the safety will not succeed for the first ~1.5 hours. At approximately 1.5 hours into the release, the valve 1) will be allowed to be closed if correct recovery events are in progress, 2) shut when pressure drops to <50 psig, 3) water relief is imminent.

**CONTROLLER NOTES:**

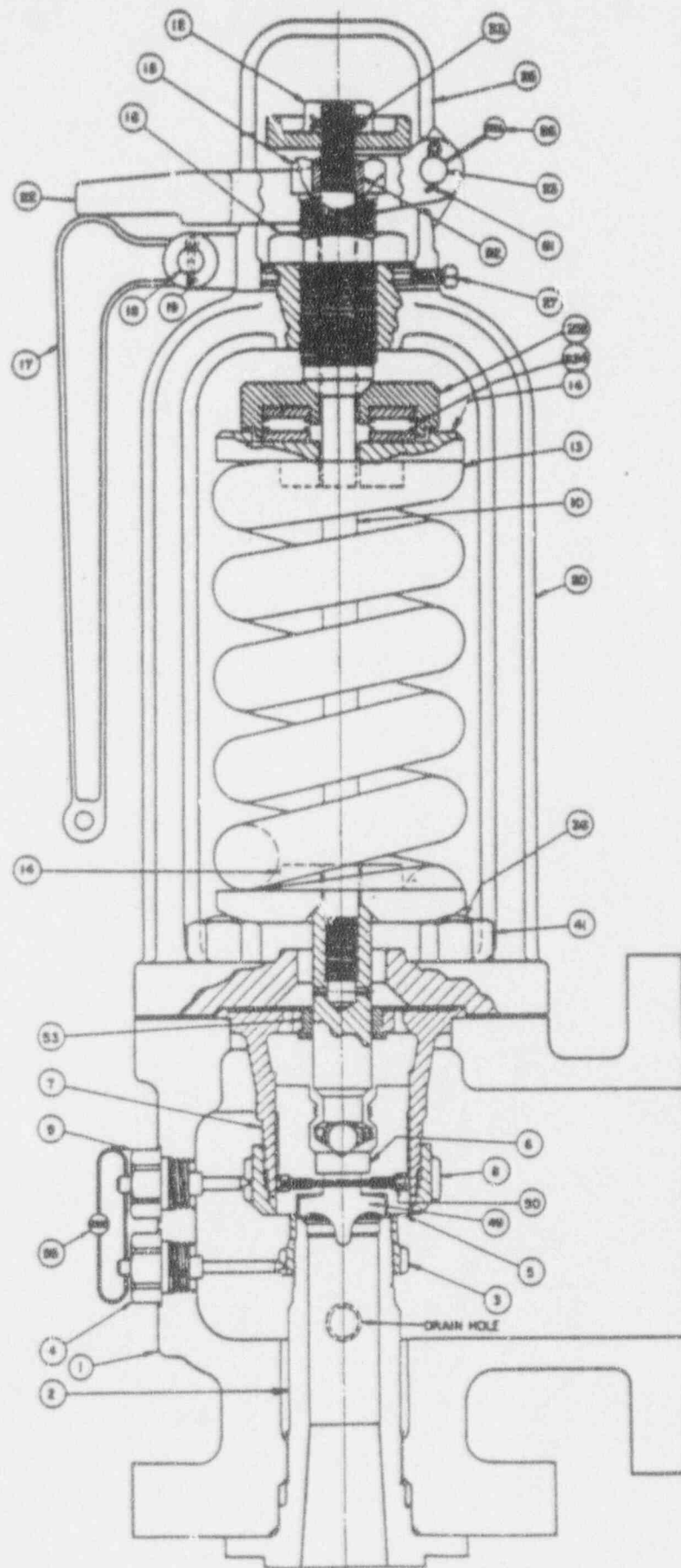
- Communications directly from the area should not be allowed due to excessive background noise.
- Attempts to remove the valve cap will not succeed -- until near 1100-- and then only if efforts are well thought out and feasible in the controller's opinion. IF attempts are made to reset the valve with the manual release lever, NO change in the valve position will occur. IF attempts are made to remove the valve cap, the set screw will shear. IF the set screw is drilled out, THEN the threads on the cap will bind.  
Other attempts to reset the safety valve will be delayed by the controller until predetermined conditions and/or events occur in the operations sector.

**RESTORATION GUIDELINES:**

Restoration (shutting of the valve) may be allowed from early on to the default time/SG pressure selected. The team will be allowed a win path, but only with proper attempts and in a narrow time span, to allow the other participants to play against the situations.

**ATTACHMENTS:**

- Drawing of the safety valve, used with Controller notes above, for display to the investigators.





1993 PBNP EXERCISE  
**MINI SCENARIO NO. 6**

Vehicle Contamination

**APPROXIMATE TIME:** 0930 - 1300

**LOCATION:**

Site Boundary Control Center

**EVENT SUMMARY:**

The plume from the faulted, ruptured steam generator crosses the west side of the south parking lot, contaminating 5 or 6 vehicles. Health Physics should survey the vehicles and evaluate the results to determine actions.

**REQUIRED SETUP/MOCKUPS:**

An Exercise Controller will mark the tires of vehicles driven by personnel being evacuated from the plant with chalk. Contamination level maps for vehicles are attached to aid the controller in locating the contamination on each vehicle.

**INITIAL INDICATIONS/NOTIFICATIONS:**

Plant Evacuation announced upon SGTR event.

**POSTULATED EVENTS:**

1. Release occurs from ruptured faulted steam generator and plume blows south-southeast from the plant.
2. Plant evacuation is announced: WE corporate and Engstrom employees evacuate via the south gate to the SBCC access roadway.
3. Health Physics personnel will survey vehicles prior to release.
4. Upon discovery of contamination, decisions will be made to effect decontamination or impoundment of the vehicle for later decontamination. Health Physics may perform an isotopic analysis and determine that the isotopes are short-lived and may release the vehicles after a short hold.
5. Mini scenario is complete when the decision to decontaminate, impound, or release the vehicle is made.

1993 PBNP EXERCISE  
MINI SCENARIO NO. 6

**CONTROLLER NOTES:**

See drawings for location and quantity of the vehicle contamination.

If questions are raised about personnel contamination, one individual can be identified to have comparable to vehicle contamination levels on his/her gloves or hands. A discussion of actions should be held, but decontamination procedures do not need to be demonstrated.

NOTE: It is important that NO smears be actually taken on the vehicles to preclude the possibility of scratching a personal vehicle.

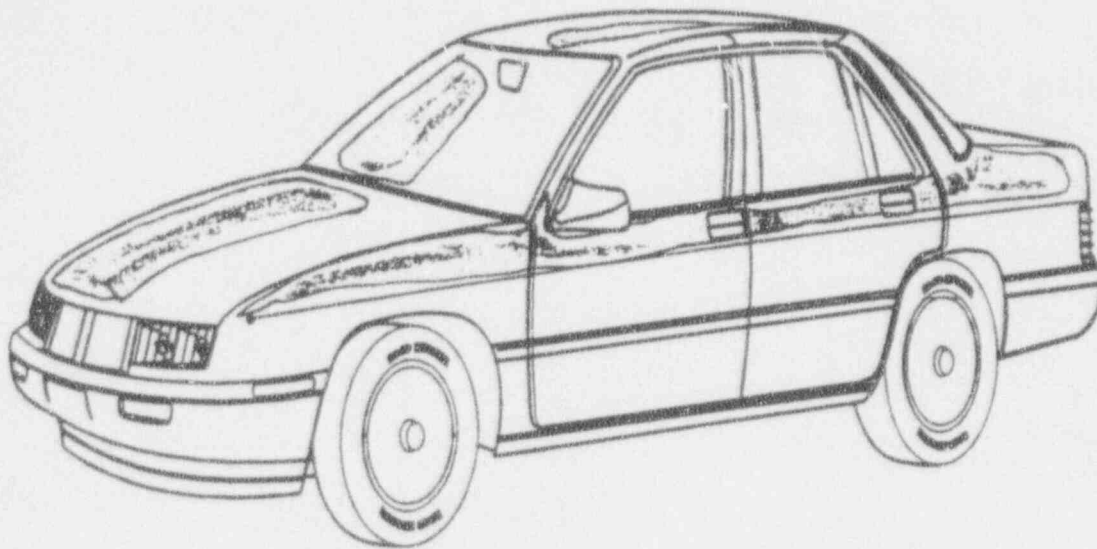
**RESTORATION GUIDELINES:**

Mini scenario is complete when the decision to decontaminate, impound, or release the vehicle is made.

**ATTACHMENTS:**

- Six vehicle drawings with count rates, isotopic and gross smearable contamination results.

# Contaminated Vehicle Mini-Scenario



Driver's  
Side



Passenger's  
Side

## FRISKER RESULTS

20-50 net cpm

## SMEARABLE RESULTS

150 dpm/100cm<sup>2</sup>  
to 300 dpm/100cm<sup>2</sup>

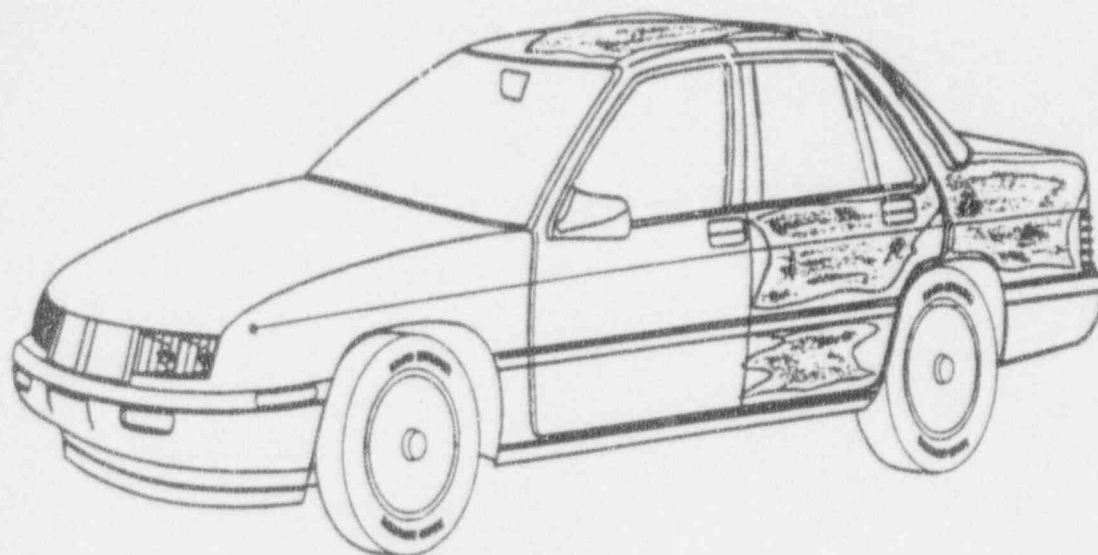
## ISOTOPIC RESULTS

Rb-88 4.0E-5μCi/smear  
to 8.0E-5μCi/smear

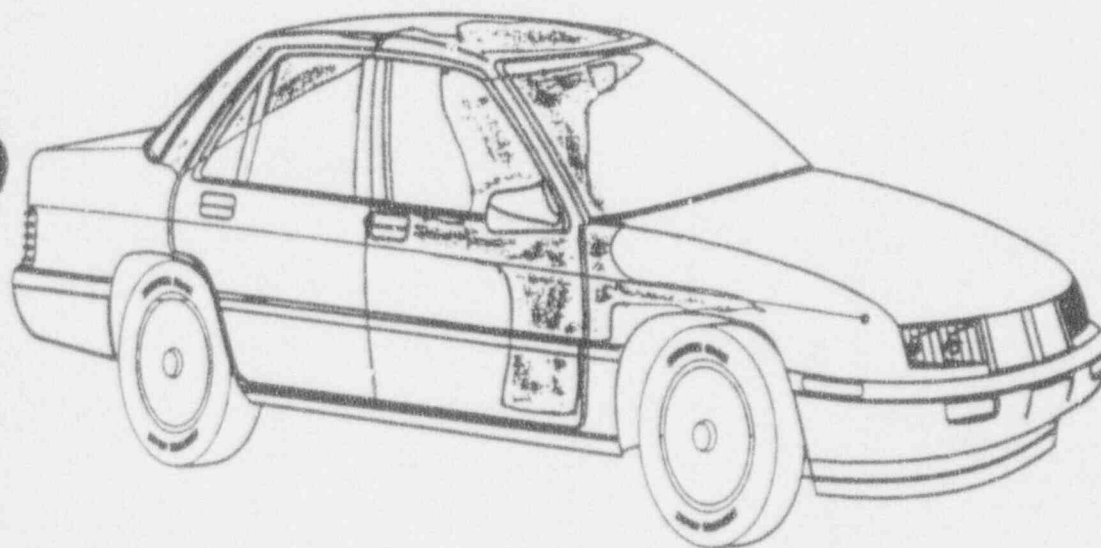
Cs-138 4.5E-5μCi/smear  
to 8.0E-5μCi/smear

I-131 1.0E-7μCi/smear  
to 5.0E-7μCi/smear

# Contaminated Vehicle Mini-Scenario



Driver's  
Side



Passenger's  
Side

## FRISKER RESULTS

20-50 net cpm

## SMEARABLE RESULTS

150 dpm/100cm<sup>2</sup>  
to 300 dpm/100cm<sup>2</sup>

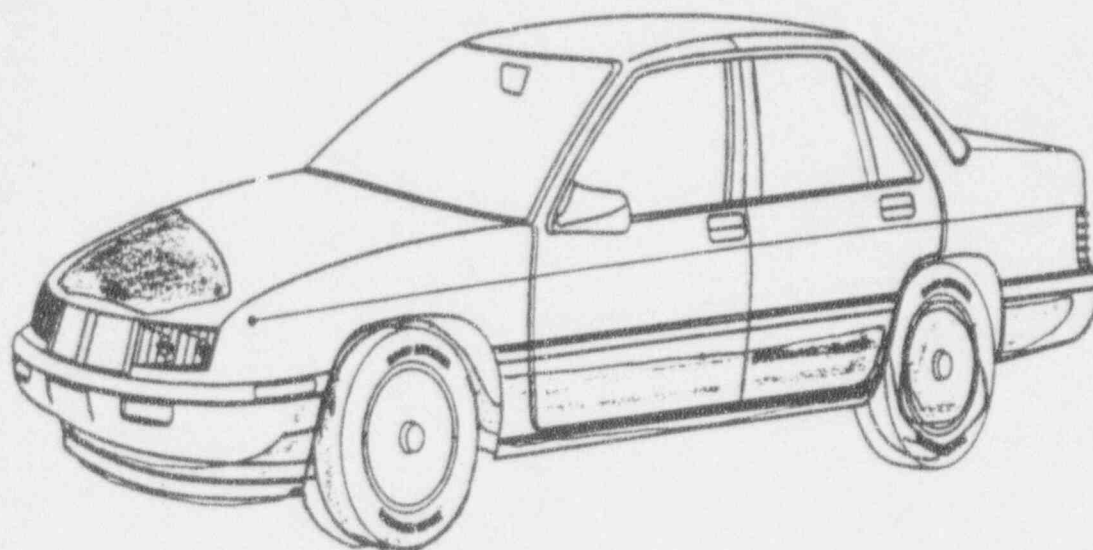
## ISOTOPIC RESULTS

Rb-88 4.0E-5μCi/smear  
to 8.0E-5μCi/smear

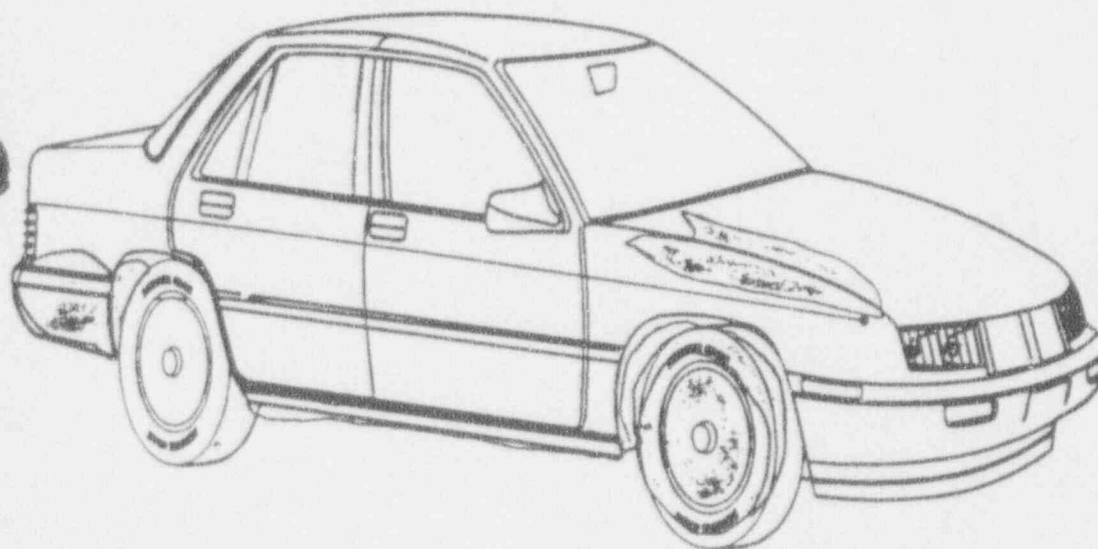
Cs-138 4.5E-5μCi/smear  
to 8.0E-5μCi/smear

I-131 1.0E-7μCi/smear  
to 5.0E-7μCi/smear

# Contaminated Vehicle Mini-Scenario



Driver's  
Side



Passenger's  
Side

## FRISKER RESULTS

20-50 net cpm

## SMEARABLE RESULTS

150 dpm/100cm<sup>2</sup>  
to 300 dpm/100cm<sup>2</sup>

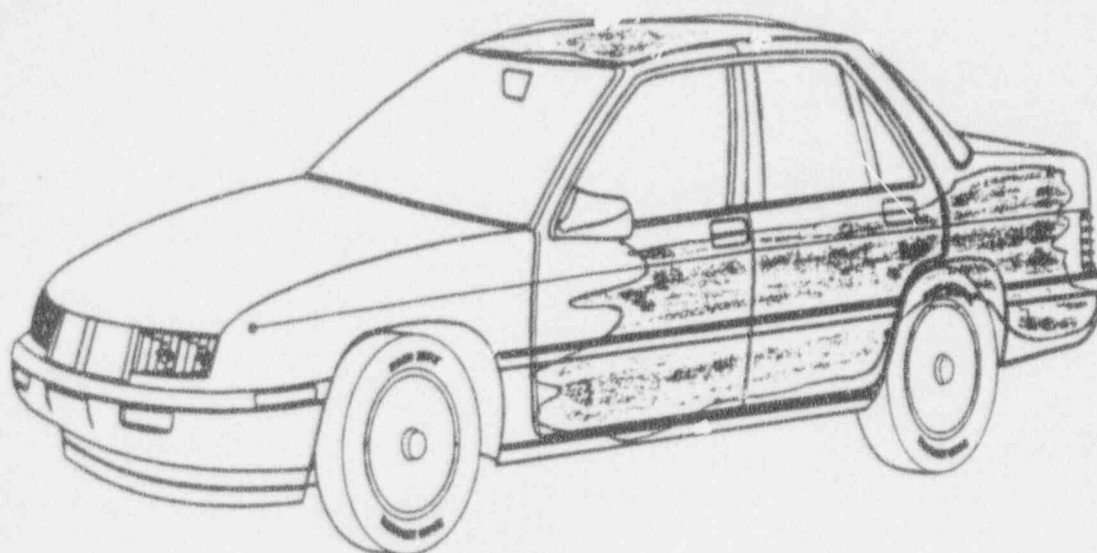
## ISOTOPIC RESULTS

Rb-88 4.0E-5μCi/smear  
to 8.0E-5μCi/smear

Cs-138 4.5E-5μCi/smear  
to 8.0E-5μCi/smear

I-131 1.0E-7μCi/smear  
to 5.0E-7μCi/smear

# Contaminated Vehicle Mini-Scenario



Driver's  
Side



Passenger's  
Side

## FRISKER RESULTS

20-50 net cpm

## SMEARABLE RESULTS

150 dpm/100cm<sup>2</sup>  
to 300 dpm/100cm<sup>2</sup>

## ISOTOPIC RESULTS

Rb-88 4.0E-5μCi/smear  
to 8.0E-5μCi/smear

Cs-138 4.5E-5μCi/smear  
to 8.0E-5μCi/smear

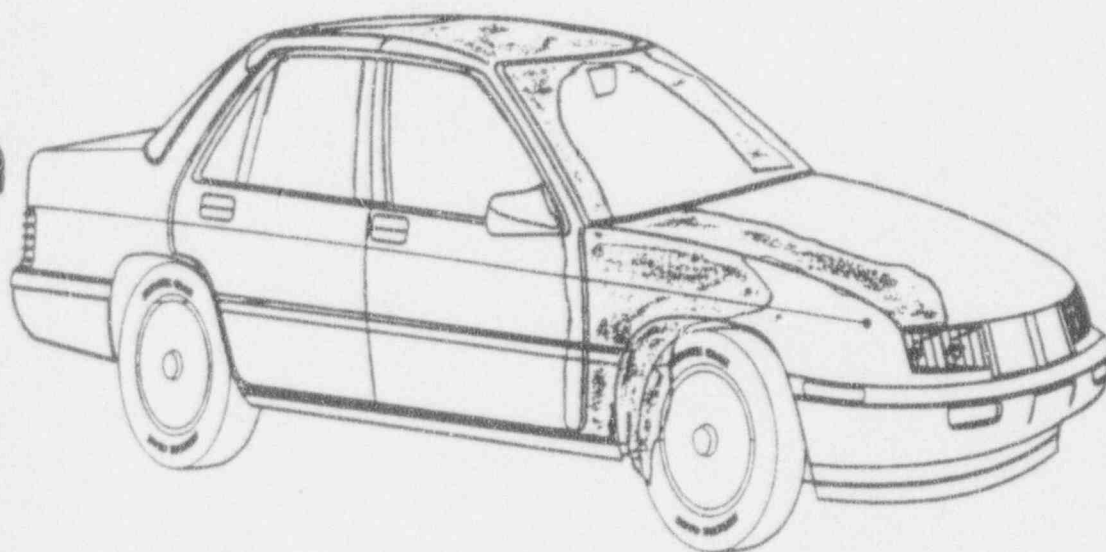
I-131 1.0E-7μCi/smear  
to 5.0E-7μCi/smear



# Contaminated Vehicle Mini-Scenario



Driver's  
Side



Passenger's  
Side

## FRISKER RESULTS

20-50 net cpm

## SMEARABLE RESULTS

150 dpm/100cm<sup>2</sup>  
to 300 dpm/100cm<sup>2</sup>

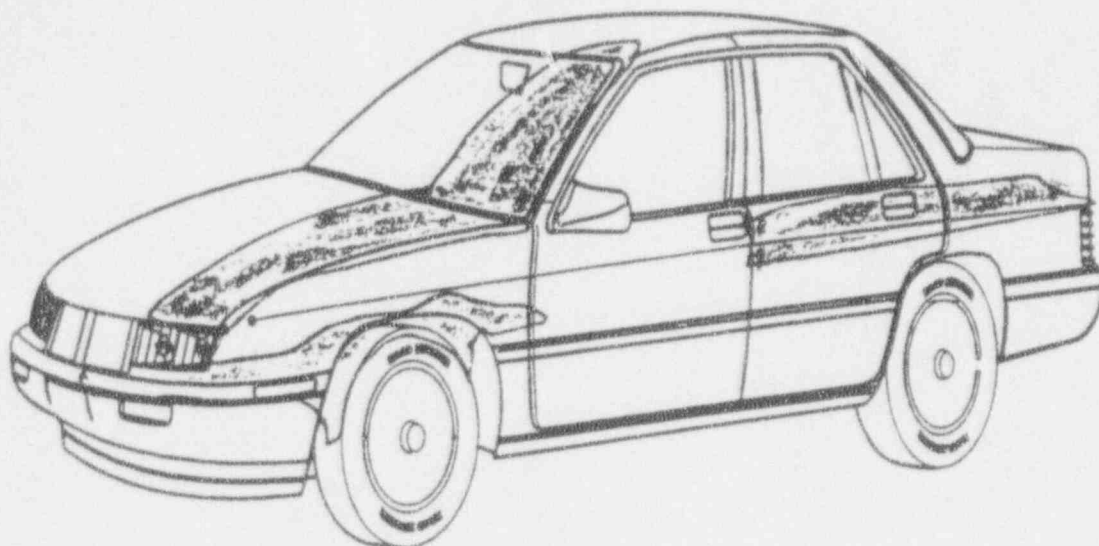
## ISOTOPIC RESULTS

Rb-88 4.0E-5 $\mu$ Ci/smear  
to 8.0E-5 $\mu$ Ci/smear

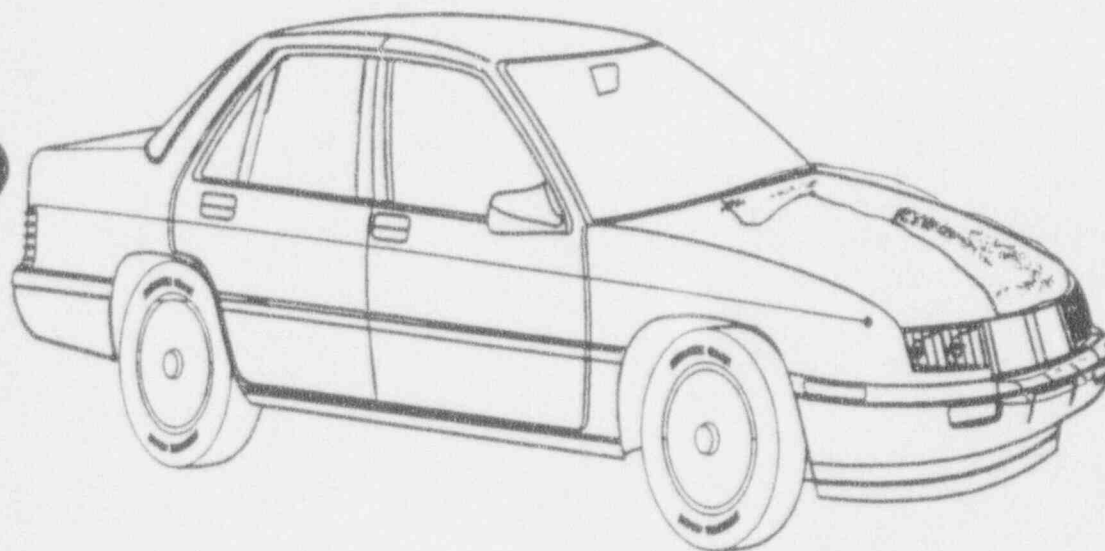
Cs-138 4.5E-5 $\mu$ Ci/smear  
to 8.0E-5 $\mu$ Ci/smear

I-131 1.0E-7 $\mu$ Ci/smear  
to 5.0E-7 $\mu$ Ci/smear

# Contaminated Vehicle Mini-Scenario



Driver's  
Side



Passenger's  
Side

## FRISKER RESULTS

20-50 net cpm

## SMEARABLE RESULTS

150 dpm/100cm<sup>2</sup>  
to 300 dpm/100cm<sup>2</sup>

## ISOTOPIC RESULTS

Rb-88 4.0E-5μCi/smear  
to 8.0E-5μCi/smear

Cs-138 4.5E-5μCi/smear  
to 8.0E-5μCi/smear

I-131 1.0E-7μCi/smear  
to 5.0E-7μCi/smear

## 9.0 PUBLIC INFORMATION MESSAGES

Providing the news media and the public with accurate and timely information about an accident is one of the most important aspects of emergency response. The public's reactions and perceptions are influenced by the information relayed to them. To that end, this Exercise will test public information response to ensure that Wisconsin Electric Power Company is prepared for an emergency at the Point Beach Nuclear Plant. The Public Affairs Department, Milwaukee Communications Center (MCC) and the Joint Public Information Center (JPIC) will be activated.

Controllers will pose questions to participants as concerned citizens, employees, members of the legal and financial communities, government officials, and as members of the media. The phone numbers to be used for each group being tested will be provided to callers during training sessions prior to the Exercise. A name and affiliation must always be used when calls are made.

The following pages include questions for callers to test MCC and JPIC response activities, and for mock media to pose at the news briefings. The questions are grouped in relation to specific events in the Exercise scenario. Free play by callers is encouraged. Additionally, general questions about WE, the state or counties, background of Point Beach, radiation, nuclear power accidents, rates and protective actions can be asked. The State and Counties are not fully participating in this Drill; thus, controllers should not press for off-site spokespersons and information.

Callers should document calls and comment on the responses. Always precede and complete call-in questions with "This is a drill."

Message and Controller forms have been provided here to inject problems into the scenario or to cause the exercising of a certain response aspect. The lead MCC and JPIC controllers have responsibility for handling these messages.

This section contains the following subsections:

- 9.1 Media, citizen and officials calls
- 9.2 Media Monitoring scripts

## **9.1 Media, citizen and officials calls**

**CAUTION: PRECEDE AND FOLLOW ALL CALLS WITH THE STATEMENT:  
"THIS IS A DRILL."**

**0830 - 0900**

**1. TO THE MEDIA HOTLINE - 221-4444**

This is WLTU Radio in Maritowoc. Was there an accident at the plant today?

- What happened?
- Has anyone been injured?
- Has any radiation been released?
- What is the status of the plant?

**2. TO THE GENERAL WE NUMBER - 221-2345**

My name is Mary Hatch. I live near the nuclear plant, and I know something's up. What information can you give me?

**3. TO POINT BEACH NUCLEAR PLANT - 755-2321**

Has there been an accident? I heard it on my scanner. How bad is it?

**4. TO THE MEDIA HOTLINE - 221-4444**

This is WBAY TV in Green Bay. We've got a photographer on the way to the plant. Can you give him clearance to access the property?

**5. TO THE MEDIA HOTLINE - 221-4444**

This is WBAY again. Are the residents around the plant in danger? When are you issuing another news release? Can you call me when it goes out?

**6. TO THE MEDIA HOTLINE - 221-4444**

This is WLTU Radio. We'd like information for our morning newsbreak. Can you give us a full run down of the events?

**7. TO THE TELEPHONE CENTER - 221-3333**

Is this the big one? How does it compare to Three Mile Island or Chernobyl? I live in Milwaukee. Will I be affected by the radiation?

**8. TO THE MEDIA HOTLINE - 221-4444**

This is WBAY TV. Is it true that you released radioactive gas at the nuclear plant? How much was released?

**9. TO THE MEDIA HOTLINE - 221-4444**

This is WLTU Radio. We heard there were several employees injured when the radiation was released in the plant? Is this true?

**CAUTION: PRECEDE AND FOLLOW ALL CALLS WITH THE STATEMENT:  
"THIS IS A DRILL."**

**0900 - 0930**

**1. TO THE MEDIA HOTLINE - 221-4444**

This is the Associated Press. We heard about the accident. Is your news center at the Hamilton House in Two Rivers activated? Will the state and federal agencies be there as well?

**2. TO THE MEDIA HOTLINE - 221-4444**

This is WAUN Radio. I heard there was a nuclear waste leak at the plant. Is this true?

**3. TO THE MEDIA HOTLINE - 221-4444**

This is WPNE TV in Green Bay. What are the details surrounding the accident at Point Beach. We're going with a special update at 11 am.

**4. TO THE TELEPHONE CENTER - 221-3333**

I am a WE customer. How is the accident going to affect my electric bill?

**5. TO THE TELEPHONE GROUP - 221-3333**

I want to talk to Chairman Abdoo. We trusted you people. Now look what happened. I believe you're using the site as a nuclear waste dump? This is awful. What is the company doing about this?

**6. TO THE GENERAL WE NUMBER - 221-3333**

I am a WE customer. Do you have any details on the accident?

**7. TO THE MEDIA HOTLINE - 221-4444**

This is Joan Hamilton at WPNE TV. We're starting to get a lot of calls from concerned and frightened viewers. Do you plan to start evacuation procedures? How bad is this situation?

**8. TO THE GENERAL WE NUMBER - 221-3333**

This is M&I Bank calling. We heard on the radio that something happened at your plant in Two Rivers today. Should we freeze activity on your accounts?

**9. TO THE MEDIA HOTLINE - 221-4444**

This is the Chicago Tribune calling. What is the current status of the situation?



**CAUTION: PRECEDE AND FOLLOW ALL CALLS WITH THE STATEMENT:  
"THIS IS A DRILL."**

**0930 - 1000**

**1. TO THE MEDIA HOTLINE - 221-4444**

This is UPI in Milwaukee. What is the latest information on your situation at Point Beach? Have employees at the plant been evacuated? What about residents around the plant? When will you have more information?

**2. TO THE GENERAL WE NUMBER - 221-2345**

Hello, my name is Jack Thomas, and I live in Tisch Mills. Is this a drill or the real thing? What's up?

**3. TO THE GENERAL WE NUMBER - 221-2345**

Will the Point Beach accident affect my supply of electricity? I own a pizzeria in Mishicot.

**4. TO THE POINT BEACH NUCLEAR PLANT - 755-2321**

My mother lives in Green Bay. Is she in any danger?

**5. TO THE TELEPHONE CENTER 221-3333**

I understand there's an emergency at your nuclear plant. My father is on life-support equipment. Will anything happen to our power? How can I be sure. He lives in Francis Creek.

**6. TO THE MEDIA HOTLINE - 221-4444**

This is Jack Rodgers of WQTC Radio in Two Rivers. We're getting lots of call about the plant. We don't want people calling us. What number should we tell our listeners to call you to get information about the plant?

**7. TO THE GENERAL WE NUMBER - 221-2345**

I'm a Wisconsin Electric stockholder, and I'm concerned about my investment. Should I sell my stock now?

**8. TO THE MEDIA HOTLINE - 221-4444**

This is WQTC Radio. Can you tell us where the nearest fallout shelters are so we can tell our listeners?

**9. TO THE TELEPHONE CENTER - 221-3333**

I am a WE customer. How serious is this situation? What type of people are you hiring up there?

**CAUTION: PRECEDE AND FOLLOW ALL CALLS WITH THE STATEMENT:  
"THIS IS A DRILL."**

**1000 - 1030**

**1. TO GENERAL WE NUMBER - 221-2345**

I live in Two Rivers. What's happening at the plant? What type of actions are underway to get this situation under control?

**2. TO THE TELEPHONE CENTER - 221-3333**

I am a WE customer. I heard something about a fire at Point Beach. Is this true?

**3. TO THE MEDIA HOTLINE - 221-4444**

This is Doug Schultz at the Milwaukee Journal. Can you update me on Point Beach? I need information for my story in the next edition.

**4. TO THE TELEPHONE CENTER - 221-3333**

Hi, I live in Waukesha. What happened at the nuclear plant today? What caused the accident?

**5. TO THE MEDIA HOTLINE - 221-4444**

This is WCUB Radio in Two Rivers. I've seen your first news release. What other details can you give me?

**6. TO THE TELEPHONE CENTER - 221-3333**

What will this accident do to the price of my stock? Should I sell it?

**7. TO THE POINT BEACH NUCLEAR PLANT - 755-2321**

This is WCUB Radio. Are your people out testing the radiation levels to see how bad it is? When we will know the severity of this situation?

**8. TO THE MEDIA HOTLINE - 221-4444**

This is the Chicago Sun Times. We heard that there is major damage in northeast Wisconsin. Does that mean Door County has been affected?

**9. TO THE MEDIA HOTLINE - 221-4444**

This is Jim Mullen from CNN. We're flying in a film crew to get footage of the plant site and surrounding areas. How close can we get? Can we land our helicopter? Where?

**CAUTION: PRECEDE AND FOLLOW ALL CALLS WITH THE STATEMENT:  
"THIS IS A DRILL"**

1030 - 1100

1. TO THE TELEPHONE GROUP - 221-3333

I heard something about a brochure we're supposed to have. What brochure is that? Where can I get one?

2. TO THE GENERAL WE NUMBER - 221-2345

This is Mary Harris. I'm new to the Two Rivers area. I heard about the nuclear accident. How do I know what to do? I'm home alone with my infant son, and I'm really upset.

3. TO POINT BEACH NUCLEAR PLANT - 755-2321

This is WOMT Radio in Manitowoc. What is the latest news we can give our listeners?

4. TO POINT BEACH NUCLEAR PLANT - 755-2321

This is WOMT Radio in Manitowoc again. Can we talk to someone in charge of the situation there?

5. TO THE TELEPHONE GROUP - 221-3333

This is Jackie Hartmann, regional manager in the Rock River Region. How should my staff handle questions that we're receiving from our customers?

6. TO THE TELEPHONE CENTER - 221-3333

How do I protect myself from the radiation? I live within five miles from the plant and know that I'll be exposed if I go outside. How do I evacuate?

7. TO THE MEDIA HOTLINE - 221-4444

This is WFRV TV in Green Bay. We'd like to do an in-depth story at five. Can you give me some background on the company? When can I expect a call back?

8. TO THE GENERAL WE NUMBER - 221-3333

Hi, this is Mary Hill. I was just talking to an employee at your nuclear plant and was cut off. Has there been an accident?

9. TO THE MEDIA HOTLINE - 221-4444

This is WLTU Radio. I recall a scare of a hydrogen explosion at Three Mile Island. Could this happen at Point Beach?

**CAUTION: PRECEDE AND FOLLOW ALL CALLS WITH THE STATEMENT:  
"THIS IS A DRILL."**

**1100 - 1130**

**1. TO THE POINT BEACH NUCLEAR PLANT - 755-2321**

Was anyone killed in the accident this morning? Many of my neighbors work there.

**2. TO THE MEDIA HOTLINE - 221-4444**

This is WAUN Radio. When is your next media briefing? Will it be televised?

**3. TO THE ENERGY FACTS PHONE 221-2000**

What details can you give me about the accident? Don't hold anything back. I need to know. I live in Two Rivers.

**4. TO THE GENERAL WE NUMBER - 221-2345**

This is Joan Simon. My cows were outside this morning. Does this mean they've been exposed to radiation? I live in Valders.

**5. TO THE MEDIA HOTLINE - 221-4444**

This is WLUK TV in Green Bay. We've heard that the NRC is in Two Rivers. Are they going to take control of the plant?

**6. TO THE MEDIA HOTLINE - 221-4444**

This is WAUN Radio in Kewaunee. Has the governor declared the plant a "state of emergency." If so, will the residents be able to be reimbursed with funds for the inconvenience the accident has caused them?

**7. TO THE TELEPHONE CENTER - 221-3333**

This is WPNE TV. I can't get anyone from your information group on the phone? What is the latest information?

**8. TO THE MEDIA HOTLINE - 221-4444**

This is WPNE TV. Exactly, what is a plume? How dangerous is it?

**9. TO THE GENERAL WE NUMBER - 221-2345**

I've heard all sorts of reports to the number of casualties? What's correct? I live in Tisch Mills and know many people who work at the plant.

**CAUTION: PRECEDE AND FOLLOW ALL CALLS WITH THE STATEMENT:  
"THIS IS A DRILL."**

**1130 - 1200**

**1. TO THE GENERAL WE NUMBER - 221-2345**

This is Rick Jones. I work at the plant, but today was my day off. My neighbors are concerned about their spouses. Have all employees been accounted for?

**2. TO THE TELEPHONE CENTER - 221-3333**

My wife will be released from the Manitowoc Hospital today with our newborn daughter. Should I go get them now? Is it better that they not go outside?

**3. TO THE MEDIA HOTLINE - 221-4444**

This is the Manitowoc Herald. Will the residents in Two Rivers be evacuated?

**4. TO THE ENERGY FACTS PHONE - 221-2000**

This is The Boston Globe. I'm calling to verify information I received about the problem at the nuclear plant. Is it true that the plant is shut down and people have been injured as a result of the accident?

**5. TO THE TELEPHONE GROUP - 221-3333**

This is Andy MacMillian from the PSCW. We are getting calls on financial impacts of the Point Beach plant. What should we be telling the media who call?

**6. TO THE GENERAL WE NUMBER - 221-2345**

The reporter on television said that radiation is deadly. How many people at the plant have died so far?

**7. TO THE POINT BEACH NUCLEAR PLANT - 755-2321**

This is Jack Caruso (simulator contract worker). Are we supposed to come into work? I'm on second shift. Is the accident bad?

**8. TO THE TELEPHONE GROUP - 221-3333**

This is State Representative Jeff Swoboda calling from Madison. How bad is the accident? I'm getting calls from my constituents. I want to be kept informed and they want to be kept informed.

**CAUTION: PRECEDE AND FOLLOW ALL CALLS WITH THE STATEMENT:  
"THIS IS A DRILL."**

**1200 - 1230**

**1. TO THE MEDIA HOTLINE - 221-4444**

I'm calling from New York; this is NBC. We have a helicopter headed that way. Who can give us permission for the pilot to make a pass over the site? Are we in any danger of radiation exposure?

**2. TO THE MEDIA HOTLINE - 221-4444**

This is Doug James from ABC Washington. I want details. Everything thus far has been sketchy. I don't particularly want the news release information but something more detailed.

**3. TO THE POINT BEACH NUCLEAR PLANT - 755-2321**

I am scheduled to work second shift today. Should I go in?

**4. TO THE GENERAL WE NUMBER - 221-2345**

This is Senator Herb Kohl from Washington. I heard we have a "little problem" at Point Beach. Can you give me an update? Are things improving or getting worse? What can my office do to help?

**5. TO THE TELEPHONE CENTER - 221-3333**

I'm a fisherman. Are the fish in Lake Michigan contaminated?

**6. TO THE MEDIA HOTLINE - 221-4444**

This is the Wall Street Journal. We heard that your stock may be frozen. What can you tell us. Also, I'd like a brief financial history on the company. Can you fax this to me?

**7. TO THE MEDIA HOTLINE - 221-4444**

This is WCUB Radio. What is the latest information you have regarding Point Beach?



**CAUTION: PRECEDE AND FOLLOW ALL CALLS WITH THE STATEMENT:  
"THIS IS A DRILL."**

**1230 - 1300**

**1. TO THE MEDIA HOTLINE - 221-4444**

This is the Wall Street Journal. Can you give me a brief overview of the type of insurance you have? What is your insurance company's name and number? I'd like to ask them some questions.

**2. TO THE POINT BEACH NUCLEAR PLANT - 755-2321**

I live in Francis Creek. What is a plume and where is it headed?

**3. TO THE GENERAL WE NUMBER - 221-2345**

If I've been exposed to radiation, how can I tell? I live in Two Rivers.

**4. TO THE MEDIA HOTLINE - 221-4444**

This is WPNE TV. When are you issuing your next news release? What information can you give me now?

**5. TO THE MEDIA HOTLINE - 221-4444**

This is WLUK TV. What is the general feeling of the employees there? Will heads roll?

**6. TO THE MEDIA HOTLINE - 221-4444**

This is WOMT Radio. Is the emergency at the stage where residents will need to start receiving those anti-radiation pills?

**7. TO THE POINT BEACH NUCLEAR PLANT - 755-2321**

Will it be safe to use seafood caught in the lake today? We own a seafood restaurant in Two Rivers and only serve fresh fish.

**8. TO THE MEDIA HOTLINE - 221-4444**

This is WBAY TV. Has the radiation leak been contained yet?

## 9.2 Media Monitor scripts

**POINT BEACH NUCLEAR PLANT  
1993 EVALUATED EXERCISE  
MEDIA MONITOR SCRIPT**

**Segment #1**

**Time: 9:00 a.m.**

**THIS IS A DRILL**

"This is Adam Goldman for WTPL Radio in Two Rivers.

We've just learned that an "alert" emergency was declared at Point Beach Nuclear Power Plant this morning after some radioactive gas was released during an accident.

As of this hour, the radiation release is under control and Wisconsin Electric has already dispatched teams to check how high the radiation levels are. We believe that the release was confined to the reactor building, but no one has confirmed this. We have unconfirmed reports that there are people injured at the plant.

According to the utility, an "alert" is declared when events are in progress which involve degradation of plant safety.

The plant is located in Two Creeks, Wis., about 10 miles north of Two Rivers.

This is all the information I have so far. I will be reporting as more details are known.

For WTPL, this is Adam Goldman."

*FOR EXERCISE PURPOSES ONLY - THESE EVENTS DID NOT OCCUR!*

**POINT BEACH NUCLEAR PLANT  
1993 EVALUATED EXERCISE  
MEDIA MONITOR SCRIPT**

**Segment #2**

**Time: 10:00 p.m.**

**THIS IS A DRILL**

"This is Matthew Ellison for WMKE-TV. I'm reporting live from an emergency press center in Milwaukee. We've just come from a briefing where Wisconsin Electric spokespersons made a statement and answered questions regarding the events that have happened this morning.

They report that there has been an injury at the facility. It looks like a mechanic was injured and overexposed to radiation in some kind of freak accident. His condition is unknown at this time.

This morning's release of radioactive gas was stopped, but officials were hesitant to say how dangerous the release was. They say that all the radiation was contained in the facility's reactor building.

The plant is currently still operating. Wisconsin Electric officials say that the power is needed to avoid a major blackout in eastern Wisconsin. Federal officials are on their way to the site.

For WMKE, this is Matthew Ellison."

*FOR EXERCISE PURPOSES ONLY - THESE EVENTS DID NOT OCCUR!*

**POINT BEACH NUCLEAR PLANT  
1993 EVALUATED EXERCISE  
MEDIA MONITOR SCRIPT**

**Segment #3**

**Time: 10:30 p.m.**

**THIS IS A DRILL**

"This is Joan Hamilton for WPNE-TV. I am here with Paul Stewart of the Milwaukee-based Citizens Against Nuclear Power. He has definite opinions on the cause of the emergency at the Point Beach Nuclear Plant."

Paul Stewart: "This disaster is a direct result of Wisconsin Electric's lackadaisical attitude towards this dangerous technology. The cause of this is due to their uneducated operators beating sensitive nuclear equipment with heavy sledge hammers. Wisconsin Electric was fined several million dollars for this, and now we are paying for this with our children's lives."

Joan Hamilton: "We have not been able to reach company officials for comment on this allegation. We will continue to keep you informed."

For WPNE-TV, I am Joan Hamilton."

*FOR EXERCISE PURPOSES ONLY - THESE EVENTS DID NOT OCCUR!*

**POINT BEACH NUCLEAR PLANT  
1993 EVALUATED EXERCISE  
MEDIA MONITOR SCRIPT**

**Segment #4**

**Time: 11:00 a.m. or following the media briefing discussing a radiation release**

**THIS IS A DRILL**

"This is Adam Goldman, WTPL radio, reporting on the ongoing emergency at Point Beach Nuclear Power Plant.

I'm here at a Joint Public Information Center in Manitowoc, and we've learned from company officials that a release of radiation to the environment IS OCCURRING RIGHT NOW! Wisconsin Electric spokespersons are saying that they do not exactly know the reason for the leak.

A "General Emergency" was declared at that time, and employees at the plant were evacuated. A "General Emergency" is declared when a problem is identified at the plant that could result in a meltdown or a release of radiation outside the plant!

We have no reports as to the extent of the plant's damage or number of injuries. We will continue to keep you informed.

This is Adam Goldman, WTPL."

*FOR EXERCISE PURPOSES ONLY - THESE EVENTS DID NOT OCCUR!*



**POINT BEACH NUCLEAR PLANT  
1993 EVALUATED EXERCISE  
MEDIA MONITOR SCRIPT**

**Segment #5**

**Time: 11:30 a.m.**

**THIS IS A DRILL**

*You have heard several reports that have stated that the Wisconsin Public Service Corporation is the owner or operator of the Point Beach Nuclear Plant.*

*FOR EXERCISE PURPOSES ONLY - THESE EVENTS DID NOT OCCUR!*

**POINT BEACH NUCLEAR PLANT  
1993 EVALUATED EXERCISE  
MEDIA MONITOR SCRIPT**

**Segment #6**

**Time: 12:00 p.m.**

**THIS IS A DRILL**

"This is Mary Howard for WBAY-TV.

The situation is improving at the Point Beach Nuclear Power Plant Site. The nuclear reactor has been shut down and the release of radiation to the environment has been stopped. Officials are now discussing what effects are to be seen in the areas around the plant. Long term actions are under discussion.

It remains to be seen who is at fault, how long the effects of this catastrophe will last, and even who will pay for repairs, the lost electricity and the affect on the farms and citizens in this area. For Wisconsin, the real disaster may only be beginning.

For WBAY, this is Mary Howard reporting."

*FOR EXERCISE PURPOSES ONLY - THESE EVENTS DID NOT OCCUR!*

Work in Progress 0700:

- Radiography Renth of C-59 (8W-282)
- 1P2B Motor replacement
- U2 containment inspection, relief crew @ 0900
- B08/B09 OOS for B08/B09 tie breaker replacement
- moving fuel SFP using offset handling tool
- I/C working 2T1-602 ccw temp control indicator  
off of Unit 2 SG blowdown sample HX

Date: Wednesday, 17 November 1993 8:47am CT  
 To: Emc2-News.NP  
 From: WENDY.CARVIDOU  
 Subject: PBNP DAILY PLANT STATUS

DAILY PLANT STATUS

POINT BEACH STATION STATUS

~~11/17/93~~  
 12/8/93  
 DATE

0730 DSS: JLK  
 TIME

	% NIS	MWe (Gross)	Boron Conc (ppm)	Pri/Sec Leak Rate GPD
UNIT 1	100	516.2	436	0.72
UNIT 2	98.0	514.8	1021	15.6

LAKE WATER / FOREBAY TEMP: 45 Degrees F

LOAD CHANGES PLANNED OR IN PROGRESS:

LCO ENTRIES PLANNED OR IN PROGRESS:

VOLUNTARY: <del>U1 72 hr. for 1P-2P</del>	TIME ENTERED:	EXITED:
<del>U2 24 hr. for 2P-10A</del>	TIME ENTERED:	EXITED:

NON-VOLUNTARY: NONE	TIME ENTERED:	EXITED:
	TIME ENTERED:	EXITED:

MAJOR EQUIPMENT OUT OF SERVICE:  
 TECH SPEC

NON TECH SPEC

UNIT 1 HA-967 H2 Monitor 10-19-93  
 LI-495 RX Level 10-26-93  
~~LI-495 RX Level 10-26-93~~

EHC "A" Pwr Supply (Imp Pwr)  
 P73F "A" SGFP Attached L/O Pump  
 1P-27A HDT Pump  
 G-07 Rod Drive MG Set

UNIT 2 PORV RC-430  
~~2P-10A~~

MS-2015

COMMON 4X-12D CCW  
~~D-08 Battery Charger~~  
~~D-08 Station Battery~~  
 SEI 6213 (Aux Feed RM Seismic Detector)  
 9V3P (Yellow Swine Inverter)

~~\*2P (Instr. Air Comp)~~  
 Box/Box

REPORTABLE EVENTS/SIGNIFICANT PROBLEMS/ITEMS OF INTEREST:

~~Need forced vent on U1 Containment.~~

~~Can the facade elevator alarm on IC20 be cleared for U2 elevator so that we can receive a U1 alarm?~~

## SHIFT COMPLEMENT LOG

All personnel assigned to the shift must be listed.

List below additional personnel assigned to the shift:

[illegible]

# Emergency Plan Drill Use Only

POINT BEACH NUCLEAR PLANT

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## STATION LOG

DATE	TIME	ENTRY
12/8/93	2300-0700	CREW D
	0000	UNITS 1 AND 2 AT Full Power EQUIPMENT 005
		UNIT 1: HA TGT CONTAINMENT YELLOW H2 MONITOR LI-495 REACTOR VESSEL WIDE RANGE LEVEL, 607 RCD DRIVE MG SET, P-27A HOT PUMP, P-73F ATTACHED TO PUMP FOR P-27A, TURBINE EH POWER SUPPLY "A", 428 UNIT 2: MS 105 5/6 2 ATMOSPHERIC STM DUMP, P-310 TURBINE DC EMERGENCY 10 PUMP, RC-430 PURV HX 120 CCW HX COMMON: D16 BATTERY, D18 BATTERY CHARGER, DYOD YELLOW MONITOR, SEI-6213 REP ROOM SEISMIC DETECTOR, K-28 IA COMPRESSOR CSIC SAMPLED UNIT 1 RCS (IRE 109 APPROX 2X NORMAL VALUE)



## RED TAG INDEX

A

	SYSTEM	DATE ISSUED	DATE CLEARED
93-720	2MS-270A + 271, Unit 2 Bkdown	11/9/93	11-10-93
93-721	24-1A LICH Mixed Bed	11/10/93	11-11-93
93-722	Gas Analyzer (GA) Pressure Control Valve Work	11/10/93	11-15-93
93-723	P32A Pump Motor ALIGNMENT	11/10/93	11-11-93
93-724	2D-201 IWP 90-150* A1	11/11/93	
93-725	Control Room Zurn	11/11/93	11-12-93
93-726	1P27A	11-12-93	
93-727	W-500A Gas Turbine Glycol Fan	11-12-93	11-15-93
93-728	2P-180 Hydrazine Transfer Pump	11-12-93	
93-729	1G07 Bearing Replacement	11-12-93	
93-730	PI-1016 P20 Disch (waste feed pump)	11-15-93	11-16-93
93-731	PAB Crane Z-15	11-15-93	
93-732	2P181B morpholine pump	11-15-93	11-18-93 11-16-93
93-733	70L-2 Pretreatment lights	11-15-93	11-16-93
93-734	SW HX-12D	11-16-93	
93-735	RHR Oil Change	11-16-93	11-17-93
93-736	Turbine Drive AF Pump Oil Change	11-16-93	11-17-93
93-737	W-35	11-17-93	11-17-93
93-738	Replace SFP H <sub>2</sub> O level alarm switch	11-17-93	
93-739	Repl Change oil in 2P-29	11/17/93	
93-740	2MS-2015 work	11/17/93	
93-741	2P-15B, change oil	11/17/93	
93-742	P-120B Sewage injector pump brg replacement	11/17/93	
93-743	1P26 MOTOR REPLACEMENT	12/1/93	

## RED TAG INDEX

	SYSTEM	DATE ISSUED	DATE CLEARED
93-665	DI water to Unit 2 Facade Freeze Protection (DSS)	10-21-93	
93-666	Unit 2 Purge Supply and Exhaust Valves	10-23-93	
93-681	Unit 2 Bio-Box installation	11-01-93	
93-683	1P-27A, Heater Drain Tank Pump	11-01-93	11/6/93
93-684	D-06, Station Battery, Replacement	11-01-93	
93-685	C-02 Mod, Switch rearrangement	11-01-93	
93-688	P-32A, Service Water Pump	11-01-93	11/10/93
93-689	2P-41, Vacuum Priming Pump	11-01-93	11/12/93
93-690	P-83, Front Office Hot Water Recirc Pump	11-01-93	11/12/93
93-691	2RE-229, Service water discharge monitor	11-01-93	11/10/93
93-692	Isolate Safety Shower Leak (DSS)	11-02-93	
93-694	W-30B, Aux Building Exhaust Fan	11-02-93	11/12/93
93-696	2DT-5416, Unit 2 Hydrogen Dryer Drain Trap (DSS)	11-02-93	11-15-93
93-701	D-109, Swing Battery Charger	11-04-93	11-8-93
93-705	2P-2C, Charging Pump - Brush Inspection	11-04-93	11-5-93
93-706	2P-3, Hotwell Pump	11-05-93	11-5-93
93-707	K-2A, Instrument Air Compressor	11-05-93	11-6-93
93-708	2RE-229	11-5-93	11-6-93
93-709	SEI - 6213 Seismic Detector	11-5-93	
93-710	Water Cooler EWC-9	11-6-93	11/10/93
93-711	7L Bk-10, Diesel Room G-01 Lights	11-6-93	11/8/93
93-712	P-54A Clarifier Sludge pump	11-7-93	11/9/93
93-713	chlorination System Outage	11-7-93	11-11-93
93-714	DY-0D INVERTER WORK	11-7-93	
93-715	Installed Pipe Caps downstream of IMS-290 (DSS)	11-7-93	
93-716	Wastewell Pump out	11/8/93	11/11/93
93-717	G-01, EDC	11/8/93	11-12-93
93-718	D-24A <1 D... D...	11-9-93	11/11/93

## RED TAG INDEX

	SYSTEM	DATE ISSUED	DATE CLEARED
90-202	BA HT. TR. U 72	03-05-90	
90-300	WASTE EVAP DRUM LOOP (DSS)	03-28-90	
90-303	U-1 "B" DEBORATOR (DSS)	03-31-90	
90-680	BA EVAP DRUM LOOP (DSS)	08-21-90	
90-836	SW-50 & SW-64 (DSS)	11-08-90	
91-330	SPARE RCP LIFT PUMP & HEATERS	05-09-91	
91-941	W-65 SOUTH GATE FAN	12-20-91	
92-310	BORIC ACID HEAT TRACING AROUND BS-1177	03-25-92	
92-345	28L, 2HX-72 UNIT HEATER OVERHEAD DOOR (DSS)	04-15-92	
92-441	W-1A CIRC WATER PUMP HOUSE EXHAUST FAN	06-10-92	
92-453	1HV-163 (HX-71C) (DSS)	06-19-92	
92-475	P-81B PRETREATMENT ACID PUMP SUCTION STRAINER	06-26-92	
92-640	WATER TREATMENT TM 92-40 (DSS)	08-19-92	
92-827	2FD-46, Excess Steam Vent (Missing Since 11/3/93)	11-25-92	
92-831	"C" Monitor Tank (Bad Tank Outlet) (DSS)	11-25-92	
93-138	W.T. TOC Detector & Recorder	02-09-93	
93-268	Bkr 11 on 28L {Ballast is faulty}	03-18-93	
93-294	Unit 1 Purge Valves	05-02-93	
93-367	BE-120 (DSS)	06-06-93	
93-467	CO2 FRONT PANEL MODIFICATION	07-24-93	
93-482	PAB SUMPS TO WHUT INLET HEADER INSUL JOB	07-28-93	11/9/93
93-551	HX-8A U-1 BA EVAP P-8B	08-25-93	
93-561	P-55A NEUT TANK PUMP	08-28-93	
93-579	INSTALL INVERTER 1DY201 (COMM. INVERTER) Missing 11/3/93	09-04-93	
93-644	UNIT 2 FACADE FREEZE PROTECTION	09-25-93	
93-651	Repair and Inspect FP-45	10-13-93	11-6-93
93-658	Hx-231 Extension Building Wall Heater	10-18-93	
93-659	TSC sewage injection pump	10-18-93	11-6-93

NOV 9, 1993

# DOS NOTES

## COMMON

- 1 FO-124 Shut (Under Admin Control), and P-105 off.
- 2 (LT-3900 Temp Mod 90-48) Fuel Oil Storage Tanks Level Transmitter
- 3 "C" MT outlet valve diaphragm separated from stem (MWR'd) Red Tag #92-831
- 4 Blown Heat tracing fuses should be MWR'd even if replaced and now working.
- 5 Fire Water is for Fire Use only. Zebra Mussel concerns
- 6 D-07 Battery Charger Trouble Alarm has bad UV relay. On order.
- 7 HP to survey laundry filters prior to change out.
- 8 K2B 2stage packing leaks, fix next overhaul, MWR'd. Run nor. seq.
- 9 W-29 Preheat Coil TCV stuck - Isolated & MWR'd
- 10 Inter plant trouble alarm OOS to Port Wash. MWR'd
- 11 Door 153 PAB north truck access broke Temp Info Tag 93-109
- 12 SW-9 removed, spoolpiece installed, TM 93-14
- 13 P-133 B/D Evap Circ Pump has seal leak.
- ~~14 W-30 trips on thermal overload, MWR'd, Maint. making repairs~~
- 15 Security HUT's (north) powered from 73L-34.
- 16 Old Lime & Htg Boiler Rm Safety Showers & Eyewash Stations RTO, Portable Eyewash in Place & Temp Info Tags 93-110
- 17 Subsoil Pump Level Sw MWR'd, Sticks In Low Position At Times. Backed Up Into RHR Cubicle
- 18 K3A DT-3045 Leaking By, MWR'd & Isolated
- 19 GO-1 Turbo-Chg. => T.M. Installed To Catch Oil
- 20 ~~21 W-30 trips on thermal overload, MWR'd, Maint. making repairs~~
- ~~22 W-30 trips on thermal overload, MWR'd, Maint. making repairs~~

## UNIT 1

- 1 P-75 EH pump unloader doesn't work goes to 2300#. Don't use unless needed.
- 2 P-1B RCP shaft vib. vertical reading >8 mils. Mech Eng monitoring weekly.
- 3 P-116 throttled to 12-15 GPM to prevent run out.
- 4 TG-01 Turb Gen lockout, resistor across coil broken MWR'd
- 5 "A" ltrn GS circ pump seal leakage, 100 DPM
- 6 FD-76A Temp Mod for ferminite repair.
- 7 P-25B patch pressure 14# DED following.
- 8 EH power supply 15V Primary A is OOS. Temp power supply installed.
- 9 P-15A pump casing has small leak, MWR'D.
- 10 P-27A HDT Pump MWR'd, Maint. making repairs. Seal Leak
- ~~11 B/D SW has tube leaks. A on B side.~~
- 12 DMIMS Channels 754 & 756 alarm intermittently, MWR'D.
- 13 P-28A Attached LO Pump Failed, MWR'd. DC on - AC auto
- 14 D-402 Contm/PAB Trouble Supervisory Disabled For Grounds
- 15 D-404 " " " " " " "
- 16

(COMMON)

## UNIT 2

- 1 2F-39A seal injection filter has a 2 micron filter.
- 2 P-116 throttled to 12-15 GPM to prevent run out.
- 3 D207 battery charger failer alarm lit. MWR'd
- 4 2A05/A06 Tie Bkr In 2P27C Bkr Cubicle
- 5 2W-1C2 Fan - Low flow Alarms, Fan Problems
- 6 2 of 4 EH Test Valves Leaking MWR'd
- 7 MS-2015 Atmosphere Stm Dump - Packing Leak
- 8 PRT Press High. Vent Daily
- 9 LO-256/264 MWR'd Control Problems Maint. Developing A W.P.
- 10 Condenser Air In-Leakage
- 11 2P-27C has seal housing leak MWR'd Maint observing
- 12 when 2P-27C goes into alert, contact skidmaster during a conf.
- 13 U2-B BD Hr Outlet Throttle broken, all 25 Klbs going to TK
- 14 LO Rm 11 Fine Scan Skidmaster Alert



ORG. TRAP			CATION			ANION			MIX. BED			BLOW DOWN	
ON	F	D	ON	F	D	ON	F	D	ON	F	D	U1	A
A	✓		A		✓	A		✓	A	✓		B	20
B	✓		B			B			B	✓		U2	A
C		✓	C	✓		C	✓					B	25

HARD 30 pH 10.3 FLOCK 0% NEUT.TK. m- CAKE MAKER ON OFF ✓

NOTES: "A" MB ser. button OOS If trip off, must start inside PLC  
 NALCO being added to clarifier  
 Nuet Tk Disch. Limit 4-8 Ph  
 N.T. Sample Bottles Lot # 912-0793 Act# 524-3-32326  
~~ON P- Check Pump PWR d. Little Or No Capacity~~

\*\*\*\*\*  
 WHUT 36 BDE Wt WDT  
 A 0  
 B 0

	HUT		MT	GDT
U2 L/D	A 13	BAE U1	A 8.5	A 6
	B 44		B 22	B 13
U1 L/D	C 21	BAE U2	C 26	C 8
			D 4	D 44

NOTES: Calgon Lot #4194111  
 Some Calgon Is Now Being Stored On The 66' Elv For OPs

\*\*\*\*\*  
 GAS/CHEM DELIVERY  
 N2 12 PACKS \_\_\_\_\_ CAUSTIC \_\_\_\_\_ OTHER \_\_\_\_\_  
 N2 LIQUID \_\_\_\_\_ ACID \_\_\_\_\_  
 H2 \_\_\_\_\_ SODIUM BISULFATE \_\_\_\_\_  
 FUEL OIL \_\_\_\_\_ SODIUM HYPOCHLORITE \_\_\_\_\_

\*\*\*\*\*  
 NOTES: Fire brigade ineligibility ~~See Memo~~ T.Heine  
 Ordering fuel oil request a truck with One Compartment  
 Diesel project see phone directory

13 November, 1993

## PLANT STATUS CONTROL DSS LONG TERM NOTES

### UNIT #1

1. HP TURBINE LEAK - WEST EHX - MWR'D.
2. P2B CHARGING PUMP - BOTH DISCH PACKING SNUGGED TO STOP LEAK AND HARD TO OPERATE - MWR'D.
3. P25 "B" COND. PUMP - TEMP MOD = PLATE OVER HOLE - TAKING DATA 1 / SHIFT REFERENCE NOB 6/18/93. PATCH PRESSURE 14 PSIG.
4. UNIT #1 IS LOAD FOLLOW UNIT.
5. P75 EH PUMP - EMG USE ONLY = UNLOADER MUST BE REPLACED.
6. EHC - "A" POWER SUPPLY - TEMPORARY 15 V POWER SUPPLY INSTALLED (TEMP MOD).
7. LP1 XOVER LINE FLANGE LEAK AT THE LP-MWR'D.
8. SCREEN WASH AUTO START-SCREENS DON'T START-PRESSURE RELAY BROKE-MWR'D.
9. HA 967 OOS = NO CAL GAS.
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_

### UNIT #2

1. FROM EHW, GENERATOR WARM GAS RTD READING HIGH (PT 9 ON TR-2002), PLACED IT IN BYPASS.
2. GENERATOR "C" PHASE AMP METER READS 0 AT LOW LOAD MWR'D.
3. "A" FEED REG. - STICKY AT 50% - 55% RUB ON YOKE & VALVE OPERATOR FRAME - MWR'D
4. SPRAY ADD TK. EDUCATOR LINE CHECK SI-847 A&B HAVE SLIGHT SEAT LEAKAGE.
5. CONTAINMENT FAN COOLER AVAILABLE SW FLOW IS JUST BELOW THE 1200 GPM REQUIREMENT - CONCERN IF INJECTION GOES ABOVE 72 OF , = TOM KOEHLER EVALUATING.
6. WIC2 LOW FLOW ALARM WHEN RUNNING - MWR'D.
7. 2P-37D EMERG. LO PUMP - FOR EMERGENCY USE ONLY - DO NOT TEST - SPEED PROBLEM.
8. 2RE-219 - BURP ON 11/12 - CONTACT CHEM. IF 2RE-219 GOES INTO ALERT.
9. DIESEL MOD - WILL BE DIGGING UP 8'U2 TB STARTING 11/16.
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_



## COMMON

1. LIVE LOAD PACKING = REFERENCE MI 32.5 FOR PROPER TORQUE VALUES.
2. MOV'S 871 A/B OOS IF LOSS OF RED BUS = (PRESS INTERLOCK).
3. HALON C927 ZONE 1 = CSR DISABLE SWITCH GROUNDED.
4. "C" MT APPEARS TO HAVE BLOCKAGE IN SUCTION (TANK DIAPHRAGM ?) LEVEL INDICATOR QUESTIONABLE - MWR'D.- TANK RTO -> DSS.
5. TS - 10A: LOCTITE SOLVENT = LOT # 915-1704 W1C5C1.
6. CHLORINATION OF FIRE PUMP TEST TS 70/71 = NA IF CIRC WATER <45 gF / SLACK.
7. 2U12 IS FILLED WITH CATION RESIN AND IS RESERVED FOR B HUT CLEANUP.
8. DIESEL PROJECT - JOHN GUILFORD - HOME= 793-5076 PAGER= 635-6625 #3050  
SITE= 6624 / 6142 / 6350 / 6625.

BRUCE SASMAN - PAGER= 3948 CELL PHONE= 791-6832

9. DIESEL BLDG. FIRE HDR. TIE-IN'S MADE (2). BOTH NEW PIV'S SHUT.
10. SWITCHYARD GROUND ON POWER SUPPLY TO 1X03 AUX (FANS) ON BURIED CABLE. ?  
? CHECK ?
11. KEEP NEUT TK PH 4 -> 8 FOR DISCH.
12. FFP PT 416 (2MS 2015) IN BYPASS.
13. NEED KEY FOR ELECT SHOP QA FUSES - CONDITION REPORT - STHRASKY WORKING.
14. \_\_\_\_\_
15. \_\_\_\_\_
16. \_\_\_\_\_

Date: Thursday, 19 August 1993 3:44p.

To: MP-PBNF-DEC MP-PBNF-DEC

From: NORM.HOEFER

Subj: PBNF Work Restrict on

The Schweitzer and I met with John Moldenhauer, Mar. system Control on Aug 17 to discuss what "high risk" work at PBNF should be restricted due to system load or staffing concerns. It was agreed that we do not need to restrict any work in Mar System Control specifically daily calls and work up to do so. This should not be a very common occurrence, but can occur at anytime. We should continue to schedule non-routine "high risk" work in advance with system control as we have in the past.

It was pointed out that between 07:00 and 08:00 every weekday morning the load increase rate for WE is about 300 Mw/hr. This is difficult to keep up with and at a specific time we should avoid any high risk work.

We agreed to rethink when we schedule routine high risk work to appropriately consider system needs and potential adverse consequences. John agreed to have system control personnel come to PBNF to discuss their operations and concerns with us. Ron Salpert has been told to expect a call from system control to make arrangements for these visits. John also encouraged visits to system control to meet their personnel and see their operations firsthand. PFG will continue to work on a definition of work we should consider "high risk".

13 November, 1993

## PLANT STATUS CONTROL DSS SHORT TERM NOTES

### UNIT #1

1. P130A LD GAS STRIPPER PUMP SEAL LEAK = 150 DPM.
2. B/D HX 1A & 1B MAY HAVE TUBE LEAKS - BOTH HEAT EXCHANGERS ON LINE. "B" PLACED ON LINE 11-7-93, B/D TANK LEVEL CONTROL NORMAL - NO PROBLEMS SO FAR. MS 278 INLET TO 1A HX CANNOT BE SHUT DUE TO STRIPPED YOKE BUSHING -
3. P28A ATTACHED LO PUMP FAILED - DC PUMP ON - AC PUMP AUTO - MWR'D
4. P28B OUTBOARD MOTOR BEARING - NO VISIBLE OIL FLOW / LEVEL - MWR'D - MAINT. VERIFIED THERE IS OIL, AND WILL WATCH - WILL DISCUSS WITH WESTINGHOUSE.
5. "B" RCP - SEAL FLOW OSCILLATION = DROPPED TRIM COOLER TEMP 4°F.
6. P-31A SCREEN WASH PUMP - BKR. TRIPPED 11/6 - MOTOR HOT - PER ELECT. PUMP OK TO RUN - MOTOR NEEDS CLEANING AND WILL BE SCHEDULED.
7. 1P-27A HDTP ~~SEAL LEAKS 2-3 GPM WITH PUMP RUNNING~~. MAINT TO WORK 11/15.
8. XO1 A PHASE - OIL LEAK AT PUMP SUCTION TO XFORMER FLANGE (WEST SIDE) APPLETON TO CHECK 11/15 OR 16.
9. 1P11A CCW PUMP SPARE BKR INSTALLED DURING UNEXPECTED MCD.
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_

### UNIT #2

→ SLIDER OPEN TO CLEAR WND 24.20 ALARM TB-89 SLIDERS 749

1. 2DO7 NON SAFEGUARDS BATTERY CHARGER FAILURE ALARM - TEST LOAD 7/3 = OK.
2. P-65B - TB SUMP PUMP - DOES NOT PUMP - MWR'D & ALT. BLOCKED.
3. P-27C BKR USING 2A05-2A06 TIE BKR, NORMAL BKR SENT OUT FOR REPAIR.
4. SEAL OIL PACKAGE - BACK UP REGULATOR SUPPLYING AIR SIDE - SUSPECT 256 REGULATOR WILL NOT CLOSE DOWN FAR ENOUGH TO INCREASE SOP PRESS TO 12 # ABOVE HYDROGEN PRESS - ---->ENGINEERING TO EVALUATE SITUATION = TWO NEW REGULATING VALVES ON ORDER TO REPLACE EXISTING UNITS.
5. FILLED "B" RCP STANDPIPE 2100 31 OCT.
6. PRT PRESSURE SLOWLY GOING UP, SUSPECT HEAD VENT SYSTEM.
7. EH-64 & 65 TEST VALVES ON FRONT TURBINE STANDARD HAVE B/B LEAK (TURBINE OIL) - DRIP TRAYS INSTALLED.
8. HP TURBINE BRG #2 VIB HIGH (4.3 AT 95%) @ FULL LOAD DROPPED TO - 3.9 - BALANCING WOULD REQUIRE VACUUM OUT. EHW TO EVALUATE.
9. MS-2015 - ATMOS. S/D NEEDS TEST YET - LIMIT SWITCH PROBLEM MWR'D.
10. MS-2057 - COND. S/D - GREEN LIGHT SOCKET BAD - MWR'D
11. "B" S/G BLOW DOWN TO TANK - MS-283 NEEDLE VALVE BROKEN BUSHING MWR'D.
12. PRZ. SPRAY LINE BYPASSES ADJUSTED 11/11 - A AT 7/16 TURN, B AT 1/2 TURN.
13. ~~W-51 - STEAM SECURED - WATER HAMMER DUE TO TRAP NOT WORKING - MWR'D.~~
14. U2 T.B WATCH - NEEDS NEW SWITCHYARD KEY - SECURITY INFORMED & HAS BROKEN KEY.
15. GROUND OV U-2 FACADE ELEVATOR MATED.
16. W-51 SIM VENT DOWNSTREAM OF TV OPEN (W/HOSE) TO STOP WATER HAMMER. TRAP WILL NOT PASS WATER - MWR'D.

U-2 FACADE ELEVATOR ALARM RELAY PULLED.

18. U2 TURBINE HILL TRENCH - BUSTED A 2" VENT PIPE FROM OILY SUMP. - TEMP FIX PERV + TUCK & TAPE

## COMMON

- SW-9 REMOVED AND SPOOL PIECE IN PLACE - TEMP MOD. 93-14.
2. WT "A" CATION STBY PUSH BUTTON DOES NOT WORK - USE REGEN & MANUAL ADVANCE TO GET BED IN STBY.
  3. B/D EVAP - P-133 SEAL LEAK APPROX 6 GPH (DISTILLATE WATER) - PLASTIC INSTALLED - SEAL LINE VIBRATING - TEMP BRACE - PUMP VIBRATIONS ARE OK.
  4. WT BRINE FLOW--WORKS IF DI WATER THROTTLED TO ABOUT 23 GPM.
  5. P44B DEARATOR PUMP - INBOARD BEARING HOT - PAINT BURNT. - BKR OPEN -MWR'D.
  6. NEUT. TK. DISCH. TO U#1.
  7. PRE-TREATMENT - SUB SOIL DRAIN CLEAN OUT FLANGE LEAKING - P164 SUB SOIL PUMP NEAR PRE TREATMENT BRINE TANK FOUND FLOODED - TEMP SUMP PUMP INSTALLED MWR'D.
  8. #1 BA EVAP. TAGGED OUT (93-551) FOR P-8B REPLACEMENT. TAGGED OUT IN AUGUST.
  9. G01 OIL LEAK IN AREA BELOW TURBO CHARGER SEAL, MWR'D, FUNNEL INSTALLED TO CATCH LEAK.
  10. AO PAGERS U#1 = 0715 U#2 = 0716 PAB = 0717 WT = 0711
  11. HEATING BOILER ROOM EYE WASH STATION OOS (PORTABLE AVAILABLE) = LEAK ON EYE WASH STATION WHICH HAS SAME WATER SUPPLY (OUTSIDE OLD LINE PREP ROOM).
  12. D06 BATTERY & D08 CHARGER OOS FOR BATT REPLACEMENT, D305 BATTERY & D09 ON -- \*\*\*\* D09 HAD A HUM WHEN LOAD GOES FROM 130 -> 135 - M. LONDO EVALUATING, D08 CHARGING NEW D06.
  13. D-402 - MANY PROBLEMS - ALARMS FUNCTIONAL - IN SUP. DISCONNECT AT D-400.
  14. AFW PUMP ROOM SEISMIC DETECTOR OOS - MOVING TO ACCOMMODATE DIESEL MOD.
  15. TENTS INSTALLED ON SG BD TK LEVEL CONTROLLER.
  - ~~16. HALON RELEASE BOTTLE ASC-8 REMOVED FOR REFILL & REPAIR. N2 LINE CAPPED OFF.~~
  - ~~17. P-32A - IT-07 COMPLETE - DATA NEEDS EVALUATION - MEETS S.O. CRITERIA BUT NOT NEW LIMITS PROVIDED BY ISI.~~
  - DE-SLUDGE PUMPS SECURED - LEAVE OFF FOR D.DYZAK.
  19. JCR HAS U2 TURB. BLDG PAGER #0716.
  20. *D-404 26' PAB → Broken to D-402 Same Symptoms in Sup. disconnect*
  21. *W-13B2 makes a lot of noise and was smelling bad.*
  22. *CLARIFIER P/L SUMP HAS SLUDGE IN IT*
  - 23.
  - 24.

# POINT BEACH NUCLEAR PLANT

## 1993 EXERCISE

### 4.1 INITIAL CONDITIONS, 0700

#### Unit 1

#### 4.1.1 Primary Plant Conditions - MOL

Reactor Power	100%
Tavg	570 degrees F
RCS Pressure	1985 psig
Boron	422 ppm

#### 4.1.2 Secondary/Electric Plant Conditions

Normal full power lineup  
Electrical output, 510 MWe gross

#### 4.1.3 Other overall plant conditions

- a. 1RE-109 has begun increasing within the past 24 hours to about 2 times the normal value. 1RE-109 reached Alert level at ~0330. The chemists sampled the RCS at 0510 and turned the sample over to the oncoming shift to verify and track primary coolant activity levels.
- b. 1P2B is decoupled for motor replacement.
- c. Radiography in progress north of C-59 on SW-282 (north supply to CCHX A-D).
- d. B08/B09 tie breaker replacement in progress.
- e. Moving fuel @ SFP.

# POINT BEACH NUCLEAR PLANT

## 1993 EXERCISE

### Unit 2

#### 4.1.1 Primary Plant Conditions - BOL

Reactor Power	98%
Tavg	571 degrees F
RCS Pressure	1988 psig
Boron	1022 ppm

#### 4.1.2 Secondary/Electric Plant Conditions

Normal full power lineup  
Electrical output, 510 MWe gross

#### 4.1.3 Other overall plant conditions

- a. Work in progress on 2TI-602 CCW temperature indicator off of Unit 2 SG blowdown sample HX.

# POINT BEACH NUCLEAR PLANT

## 1993 EXERCISE

### RAD/MET STATUS

No known releases

Wind Speed 10 mph

Wind Direction 35 degrees

### EQUIPMENT OUT OF SERVICE

#### Unit 1

HA-967 H2 Monitor  
LI-495 Rx Level  
EHC "A" Pwr Supply (Tmp Pwr)  
1P-2B Charging Pump  
P-73F "A" SGFP Attached L/O Pump  
1P-27A HDT Pump  
G-07 Rod Drive MG Set

#### Unit 2

PORV RC-430  
MS-2015

#### Common

HX-12D CCW  
SEI 6213 (Aux Feed Rm Seismic Detector)  
B08/B09