EVALUATION OF EMERGENCY

PREPAREDNESS EXERCISE

for

Consumers Power Company

Big Rock Point Nuclear Plant

GP-R-12001

July 11, 1980

GENERAL PHYSICS CORPORATION

COLUMBIA, MARYLAND

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SECTION 1.0 INTRODUCTION

The state of Michigan was one of the states most heavily impacted by the emergency planning requirements that were formulated as a result of Three Mile Island. The state has four operating commercial reactors in service and three commercial reactors under construction. Consumers Power has two commercial reactors in service with two more under construction.

Since early in the planning process, Consumers Power and the State of Michigan, have adhered to the philosophy that an integrated approach to the development of response plans to radiological hazards will provide the best protection to the public. Close cooperation has insured that emergency plans were not developed in a vacuum, and that each party has a clear understanding of its and others roles in emergency preparedness.

To fully test the existing emergency plans and organizations, a full scale exercise was held on June 24, 1980. The exercise involved the state of Michigan's government; the organizational components of Charlevoix and Emmet Counties; and the Big Rock Point Plant.

Intensive planning for the exercise commenced on April 8, 1980 when representatives of Consumers Power Company, Michigan State Police - Emergency Services Division, and General Physics Corporation met in Lansing, Michigan to discuss the exercise and the status of the various emergency plans.

During the months of March and April, 1980, General Physics Corporation prepared Emergency Plan Implementing Procedures for the Big Rock Point and Palisades Plants. Plant and offsite emergency reponse personnel attended formal training sessions during May 1980. Additionally personnel from Big Rock Point Plant and General Physics Corporation participated in practice drills for the county and state emergency operating centers on May 27-29 and June 10, 1980.

The following sections describe the actions taken by emergency response personnel during the June 24 exercise. Any deficiencies observed are described along with recommended corrective actions.

SECTION 2.0 TECHNICAL SUPPORT CENTER

The Technical Support Center, which is located in the Shift Supervisors office and adjacent hallways, served as the in-plant command post for accident assessment and mitigation, offsite communications, and management support. The plant management staff, as well as the Vice President for Nuclear Operations were in this center. (Also located in this area were observers from the N.R.C., Consumers Power Company, and General Physics Corporation.)

As indicated in Appendix 1, all action cards were given to the Site Emergency Director for his action.

In general, the Technical Support Center and its personnel performed adequately. The physical facilities and equipment were also adequate, except for certain communications deficiencies as noted below.

The Control Room and operations personnel performed their duties satisfactorily, following their established emergency procedures correctly.

2.1 Deficiency: An order to communicate with the state on-scene emergency operations center in Petoskey, the Technical Support Center had to use commercial telephone service. During the exercise the lines became overloaded, often delaying communications. Certainly in case of a real emergency, such dependence on commercial telephone lines could become critical. All observers (General Physics, N.R.C., and F.E.M.A.) as well as participants recognized this deficiency.

Recommendation: It is recommended that a direct dedicated line be installed between the Technical Support Center (Shift Supervisors Office) and the state on-scene emergency operations center at the state police post in Petoskey. It is anticipated that this recommendation will also be made by the F.E.M.A. and the N.R.C. critiques.

2.2 Deficiency: Throughout the exercise, communications between the Technical Support Center and the Operations Support Center were often delayed due to total dependence on the intra-plant telephone system. Personnel in the Operations Support Center, including the first aid team, often found the extension in the Technical Support Center busy, thus delaying communications. Also, it was noted that due to high levels of background noise in the area, the public address system is often inaudible in the machine shop and Operations Support Center areas.

Recommendation: It is recommended that a direct telephone line (intercom type) be installed between the Technical Support Center and the Operations Support Center. Additionally, it is recommended that the telephone set in the Operations Support Center be equipped with an adjustable volume control to counteract the high background noise levels. It is anticipated that this recommendation will be made in the N.R.C-critique.

2.3 Deficiency: In order to communicate with the Charlevoix County Sheriff's Department and the Power Controller in Jackson, the Site Emergency Director must go into the Control Room. This draws the Site Emergency Director away from the Technical Support Center as well as causing unnecessary congestion in the Control Room.

Recommendations

1. To consolidate all offsite communications in one location, it is recommended that all such communications be extended into the Technical Support Center. Such extensions would alleviate the need for non-operations personnel to be in the Control Room.

2. When the communications links are extended to the Technical Support Center, it is recommended that a direct telephone or intercom be installed between the Technical Support Center and the Control Room. It is anticipated that the N.R.C. will mandate that this communications link be installed when the plant establishes its permanent Technical Support Center.

2.4 Deficiency: It was recognized by both the participants and observers that the physical facilities of the Technical Support Center are not maximized. It was recognized that with all of the communications hardware located in the Shift Supervisors office there was a high noise level caused by the radios and personnel using the telephones and communicating among themselves. The noise level could become a severe handicap in case of a real emergency extending over several days. Additionally, all personnel were grouped in the Shift Supervisors Office, which in its present configuration provides no areas for private conversations or areas where manuals, books, and the like may be spread out for reference.

Recommendations in place 9/22/80

1. It is recommended that the offsite communicator be equipped with a headset-type device to mitigate the high background noise levels and to enable him to have both hands free. Such devices are available from Bell Telephone and are adaptable to most types of telephone desk sets presently in use.

2. It is recommended that the audible bells on the telephones be replaced with flashing lights. Such equipment has on/off

in place 9/22

switches. The flashing lights would decrease the noise levels and aid the communicator in quickly identifying which line has the incoming call.

3. It is recommended that in cases of low level radiation, personnel use the adjacent hallways for conferencing and work. Foldir tables and chairs could be readily moved into the area. Telephones could also be extended into this area by the use of walljacks and/or long extension cords. The implementation of these recommendations would alleviate the congestion in the Shift Supervisors office, reduce the background noise, and afford personnel more working space.

2.5 Deficiency: Technical Support Center personnel were not always cognizant of the actions being taken by other personnel and groups.

Recommendation: The addition of a status board to the area is recommended. Such a board could be either portable or permanently installed. It is anticipated that this recommendation will be made in the N.R.C. critique.

2.6 Deficiency: The offsite communicator expressed the concern that the volume of notifications and required updates was a heavy burden.

Recommendation: It is felt that this problem will be somewhat alleviated by: the installation of the direct dedicated telephone line to the State Emergency Operations Center and the modification of the Boyne City Facility notification procedures to assume some of the communications burden. The Site Emergency Director must be aware of this potential problem and be prepared to assign another person to assist with offsite communications as circumstances dictate.

2.7 Deficiency: The utility is required to provide recommended courses of action to the state/county emergency operations facilities. These recommendations are to be based on plant operating condition, projected offsite dose calculations, and the potential for further deterioration and/or offsite releases (NUREG-0654, II-E-4). The failure to provide recommended protective actions for consideration by state/county authorities was specifically noted by the N.R.C. in its post exercise critique.

Recommendation: The development of a standard form for notifying offsite authorities would assist the offsite communicator and assure consistency in the information provided. Such a form could also provide valuable documentary records of actions taken and recommendations made. The form should follow the foremat outlined in NUREG-0654, II-E-4. Providing copies of the form to offsite agencies would also facilitiate notifications and help to assure the accurate transmittal of information. (The offsite communicator must also have all offsite agency communicators repeat back all messages. This requirement was emphasized in the N.R.C post exercise critique.)

SECTION 3.0 OPERATIONS SUPPORT CENTER

The Operations Support Center located in the machine shop area served as Assembly Area II, and subsequently as the mustering point and control area for health physics personnel.

The assembly and accountability of personnel assigned to the area was carried out efficiently and with no significant problems. It was noted that with only a few exceptions personnel brought their hardhats with them and were prepared to evacuate the plant when so directed. Communications within the area was somewhat hampered due to the background noise level and the large amount of people in the area. (Personnel in the area reported that the public address system was often inaudible.)

Evaluations and recommendations concerning site evacuation and accountability, environmental monitoring teams, and first aid teams are discussed in other sections.

3.1 Deficiency: Communications with the Technical Support Center were often delayed to the overloaded intra-plant telephone system.

Recommendation: As previously discussed, the installation of a direct telephone link (or intercom system) is required for maximum efficiency.

3.2 Deficiency: Personnel assigned to the area expressed the concern that they were often unaware of actions being taken elsewhere in the plant.

Recommendation: The direct telephone link to the Technical Support Center would assist the Operations Support Center in keeping up to date on plant activities. A status board, similar to the one recommended for the Technical Support Center would provide all personnel with updated information on a timely basis.

SECTION 4.0 BOYNE CITY EMERGENCY OPERATIONS FACILITY

The near site emergency operations facility is located at the Consumers Power Company Service Center, Boyne City, Michigan. The facility was staffed by personnel from the general office and the plant.

All personnel involved, as well as the observers felt that the facility and its personnel performed in an excellent manner. The N.R.C. site team leader, in the post exercise critique, described the facility as the strongest part of the exercise.

The facility assisted the plant by performing dose calculations and other support functions. (See the detailed scenario in Appendix 1-A for the actual requests for logistical support sent to the facility.)

The location of the facility does not fulfill the currently published requirement (NUREG-0654) to be located within one to three miles of the plant. Various alternatives have been explored in the past, but no other acceptable location has been identified. The final rule, to be published in July 1980, may call for all near site facilities to be within this one to three mile distance. The final determination of the location for the facility will have to be resolved at a future time.

4.1 Deficiency: It was noted that the plant personnel responsible for activating the facility did not have the keys to all of the equipment lockers.

Recommendation: Proper keys must be available for personnel and their alternates who are assigned duties at the facility. Duplicate keys should also be kept at the plant for use in an emergency.

4.2 Deficiency: The facility should take more responsibility for notifications, updates, and communications with other offsite agencies. The facility should also take more responsibility for providing management and logistical support that during the exercise was handled by the Technical Support Center.

Recommendations

1. The facilities responsibilities for notifications, updates, and communications should be clarified to achieve the goal of relieving the Technical Support Center of its communications responsibilities. The procedure will specify that once the facility is fully activated, all notifications to and communications with offsite agencies be handled by the facility. This will necessitate the extension of the recommended direct dedicated telephone link

with the on-scene state emergency operating center from the plant to the facility.

2. Emergency Plan Implementing Procedures 3-C and 7-B should be expanded to reflect that once established, the facility will handle all offsite communications. Emergency Plan Implementing Procedure 2 should also be amended to reflect the facilities notification responsibilities . (Recommended modifications are included in Appendix 4-A.)

3. During the N.R.C. post exercise critique it was pointed out that top level management personnel should be located at the near site facility to coordinate liaison with other agencies (N.R.C., etc.), to better support the media relations effort, and to provide top level management and logistical support to the plant. It is recommended that the Vice President for Nuclear Operations be the director of the Boyne City Emergency Operations Facility.

4.3 The facility will require additional resource materials and equipment to carry out its responsibilities in an efficient manner. At a minimum this equipment should include:

1. Controlled copies of the Site Emergency Plan and Emergency Plant Implementing Procedures.

2. Area maps and isopleths.

3. Resource documents containing telephone numbers of vendors, consultants, offsite agencies, etc.

4. Engineering drawings and blueprints.

5. Any additional resource materials which will be necessary may be brought from the General Office with the responding personnel.

SECTION 5.0 RADIOLOGICAL MONITORING TEAMS

Radiological monitoring teams were dispatched from the Operations Support Center under the direction of the Plant Health Physicist. Two teams were dispatched to conduct offsite monitoring, and additional technicians were dispatched onsite to conduct monitoring and to frisk personnel who were evacuated. (For exercise purposes it was postulated that the portal monitor was offscale due to the background radiation).

The offsite personnel performed their monitoring responsibilities in a timely and technically proficient manner. The monitoring equipment was found to be operable and properly calibrated. The portable radios were found to have excellent transmission and reception capabilities and no problems were encountered in communicating with the plant. The offsite monitoring personnel were judged to be well trained, qualified and proficient in their duties. They were able to quickly overcome the two immediate problems they faced: no company vehicles available for offsite transportation; unfamiliarity with how to assemble the antennas for the portable radios. (Offsite monitoring teams were observed by N.R.C. and General Physics monitors.)

The onsite monitoring personnel, under the direction of the Plant Health Physicist performed simulated monitoring of the assembly areas and the Technical Support Center. (For exercise purposes it was postulated that the survey in the Techanical Support Center indicated a dose of 65 mrem/hr. This dose was posted on a piece of paper, but not everyone appeared to be aware of the posting. The recommended addition of a status board would alleviate this problem.) Monitoring personnel posted high radiation warning signs and barriers according to the postulated dose rates. (The on-site monitoring teams were observed by N.R.C., Consumers Power and General Physics observers.)

Additional health physics support was provided by Technical Support Center personnel who assisted in performing dose calculations and predictions. There were adequate maps, overlays, isopleths, etc., to perform these calculations and predictions. The Boyne City facility also assisted in performing dose calculations. This support could be further expanded by the supplying of duplicate maps, overlays, and isopleths to the facility. This equipment will be necessary to assist the facility in its expanded notification and communications responsibilities.

5.1 Deficiency: Offsite monitoring teams were not equipped with personnel protective equipment such as anticontamination clothing and respirators.

Recommendation: Personnel conducting offsite monitoring must have such protective clothing and equipment immediately available. The clothing

and equipment should be made part of the emergency kits or made immediately available to the monitoring teams in some other acceptable manner.

5.2 Deficiency: Personnel who attempted to pick up the environmental monitoring equipment at the Charlevoix County Emergency Operations Center were initially denied entrance and then required to leave immediately, rather than be allowed to utilize the communications links to the plant as was planned.

Recommendation: The Charlevoix County Emergency Services Coordinator should be furnished with a list of personnel who could be expected to be picking up the equipment. Arrangements should also be made for monitoring team personnel to use the communications and physical facilities of the Emergency Operations Center when not actually in the field.

5.3 Deficiency: Only one technician was assigned to monitor personnel evacuated from the site. (For exercise purposes the monitoring was conducted at the Security Building entrance rather than at the access road control point.) It took approximately fifteen minutes for all personnel to be cleared in the exercise. Some congestion was experienced, causing personnel being screened to have to stand outside. The correct evacuation procedures were followed or simulated.

Recommendation: If sufficient personnel are available, an extra technician should be assigned to assist with the monitoring of personnel and vehicles at the control point.

5.4 Additionally, the N.R.C. as part of its post exercise critique, noted that all environmental monitoring instruments and equipment must be operationally tested on a quarterly basis and after each use. The equipment must also be calibrated according to the manufacturers specifications. (NUREG-0654, II-H-10) Applicable procedures should be reviewed to assure compliance with this requirement.

SECTION 6.0 FIRST AID/MEDICAL CARE

To test the training, equipment and procedures developed to provide first aid assistance to radioactively contaminated patients, part of the exercise involved a simulated injured worker, who was contaminated and had to be transferred to an offsite facility (Charlevoix Hospital).

The victim was postulated to have a fractured left humerus (upper arm) and dislocated left shoulder (see full description in scenario). The victim was also radiologically contaminated, principally on his external garments. Another employee was directed to notify the Technical Support Center of the injury. After some delay due to the intra-plant telephones being overloaded, the employee was able to report the injured worker. Within two minutes the first aid team was dispatched and on the scene. The victim was properly surveyed for contamination and immediate life threatening injuries. The team leader demonstrated expertise in directing the initial decontamination procedures. All team personnel know their responsibilities and appeared to be adequately trained in decontamination procedures.

The interface with the ambulance crew was adequate, although sending three plant employees along with the victim badly overcrowded the ambulance which already had four crewmen aboard.

The Charlevoix Hospital Emergency Department physicians and personnel appeared to be well trained and equipped to handle the radioactivity contaminated victim. The treatment area was properly prepared and all personnel were properly wearing protective clothing. The victim's "injuries" were appropriately treated by the emergency department staff, including simulated x-rays and decontamination procedures.

The hospital procedures were monitored by observers from Consumers Power Company, the N.R.C., and General Physics Corporation. The N.R.C. observer rated the hospital's procedures and techniques as "above average" and specifically commended the health physics personnel from the plant for the assistance they provided to the hospital.

6.1 Deficiency: The first aid rendered to the simulated injured worker was inadequate and in a real situation would have probably actually aggreviated the initial injuries. While the first aid crew seemed well trained and equippped to handle the radioactive contamination, the crew was not equipped to handle the simulated fractured arm and dislocated shoulder. The team's first aid kit was not designed to be used for more than simple cuts and wounds. The team had no splints for the fractures with them, and none were available for use. They borrowed a small board from the machine shop area and attempted to affix it to the simulated injury with roller gauze bandage and a field compress. The

board used for the splint was much too small and the materials used to splint the arm were inappropriate. Also, the simulated dislocated shoulder was not properly cared for, and was roughly handled during the treatment process.

Recommendations

1. First aid teams must have adequate equipment to care for the anticipated wide range of potential industrial accidents. The team should have available a large well equipped kit equivalent to at least a 36-unit industrial first aid kit. Such kits are commercially available or could be put together with readily available materials as specified by the company physician. First aid personnel must be oriented to the contents of the upgraded kits and the proper use of the equipment. The kits must be checked regularly to assure that they are properly stocked.

The plant must have adequate materials on hand to be used for splinting injuries. Such splinting materials are commercially available (inflatable plastic or foam padded boards) or can be made by plant personnel using marine grade plywood. A 4' x 8' sheet of at least ½" marine grade plywood can be cut up into an adequate supply of 4" wide splints of lengths from 12" to 36". The splints can then be bundled together with the basket stretcher for convenience.

6.2 The plant is committed to having at least one person onsite at all times who has been trained in the American Red Cross Multi-Media First Aid Course. This training is generally considered adequate in industrial settings, however in the exercise the team was so hampered by the lack of supplies, that it was difficult to assess the actual skill level.

1. One recommendation to upgrade the first aid capabilities would be to train more personnel in first aid in case of a multiple victim accident.

2. The benefits of having personnel trained to the American Red Cross Advanced First Aid level are difficult to gauge. One other successful approach is to use the Basic (Multi-Media) First Aid training and expand on it to deal specifically with local problems-life support, industrial accidents, chemical hazards and work-related emergencies. (See Appendix 3 for a suggested training outline.)

3. Personnel should be exercised and retrained as necessary in first aid procedures on at least an annual basis using simulated injured victims, with the practice exercises being evaluated by qualified observers. Such simulations could be in conjunction with fire brigade and offsite fire company training. (The Multi-Media course must be completely retaken every three years.)

SECTION 7.0 LIAISON WITH STATE/COUNTY EMERGENCY OPERATING CENTERS

County Emergency Operating Centers were located at the respective Sheriff's Departments in Charlevoix (Charlevoix County) and Petoskey (Emmet County). The state of Michigan activated its State Emergency Operating Center in Lansing and its on-scene E.O.C. at the state police post in Petoskey. These E.O.C.'s were observed by representatives from the Federal Emergency Management Agency (F.E.M.A.) and the Regional Advisory Committee (R.A.C.), composed of representatives from various federal agencies having responsibility for emergency preparedness.

The F.E.M.A. representative handling the critique, stated that the state and county E.O.C.'s were manned by knowledgeable, well-trained persons. The state and counties demonstrated that they could effectively carry out their plans. The results of the exercise were described as "one of the best anywhere," and that the federal observers "were by and large well impressed".

The federal observers noted several deficiencies in the state and county operations, having to do with utility and plant liaison. These deficiencies and recommendations are discussed below.

7.1 Deficiency: Communications between the state E.O.C. in Petoskey and the plant where dependent on commercial telephone lines.

Recommendation: It is anticipated that the F.E.M.A. critique will concur with the N.R.C. critique in mandating that a direct dedicated telephone link be installed between the plant and the state on-scene E.O.C. This recommendation was discussed in depth earlier in this report.

7.2 Deficiency: The utility liaison personnel at the state and county E.O.C.'s should be more involved in the flow of information to & from the utility. The plant often found itself uniformed as to the actions of the state and county E.O.C.'s. Also at times, the state and county E.O.C.'s needed some "on-the-spot" technical information.

Recommendation:

1. Amend E.P.I.P. 4V such that the Administrative Supervisor is dispatched to the state on-scene E.O.C. (Petoskey State Police Post) rather than the county E.O.C. for the duration of the emergency.

2. Amend E.P.I.P. 4AA to reflect that the Chemical and Radiation Protection Technician will also serve as the utility liaison to Charlevoix County.

3. Amend both E.P.I.P.s to reflect that the liaison personnel should be responsible for maintainining communications between the plant (or Boyne City facility) and the state/county E.O.C.s. These liaison personnel should take an active part in providing briefings concerning plant conditions and other technical matters.

4. Provisions should be made to provide relief to these liaison personnel.

SECTION 8.0 MEDIA CENTER

The Joint Public Information Center (J.P.I.C.) was established at the Holiday Inn, Petoskey, Michigan. The center was staffed by representatives from Consumers Power Company, Charlevoix and Emmet counties, and the state of Michigan (Governor's office). Also present were approximately seven media representatives, and observers from F.E.M.A. Approximately five other media representatives also called into the center for press releases.

The physical facilities were certainly adequate for the exercise, and probably would be adequate for the expected quantity of media representatives who would respond to a real emergency. Security was adequate and appropriate. Some media representatives questioned if the telephones would be sufficient in case of a real emergency. Also, some media representatives seemed unaware that additional support equipment (typewriters, photocopying machines, audiovisual equipment, etc.) would be available in a real emergency.

The F.E.M.A. observer noted that the Media Center received timely and thorough data from the plant and the state and county E.O.C.s which enabled it to provide complete and accurate information to the media and the public.

8.1 Deficiency: It was noted that personnel assigned to the center, as well as the various media representatives were not wearing any form of identification. This would become a much more severe problem with several hundred media representatives who can be expected to respond in a real emergency.

Recommendation: All personnel assigned to the center should wear some form of identification showing their name, center position, and organization they represent. All media representatives who respond to the center should be issued some form of identification, showing their name and affiliation. This identification could then serve as their clearance for entrance to the center for the duration of the emergency.

8.2 Deficiency: Some media representatives complained of time delays in their receiving information during the exercise.

Recommendations:

1. Recognizably some of the delays were due to the fact that the exercise was "compressed" in time with events taking place much quicker than in reality.

2. Some press releases were delayed due to their having to be typed by the members of the Joint Public Information Team. Thought should be given to providing clerical support to the center. This support could initially come from personnel evacuated from the plant.

3. When significant information is to be disseminated to the media, all of the representatives should be called together and briefed by the appropriate J.P.I.C. team member(s). This would assure that all media representatives receive the same information at the same time.

8.3 There is still confusion about who should be the "lead" member of the Joint Public Information Team - i.e., state, county, or utility. Also the actual roles of the N.R.C. and F.E.M.A. in the J.P.I.T. briefings is still unclear. It is recommended that the actual roles of the state, county and utility representatives be clarified in the respective plans to delineate the responsibilities. The roles of the N.R.C. and F.E.M.A. will probably become clearer in time. (F.E.M.A. has not yet been actively involved in a power plant emergency.)

SECTION 9.0 SUMMARY OF RECOMMENDATIONS

The recommendations discussed at length in previous sections at this report are summarized below with a priority level for implementation.

In general, the deficiencies noted as a result of the exercise are relatively minor and can be remedied with a minimum of expense and in a short period of time. Several of the deficiencies noted were procedural in nature, and draft recommended modifications are included in Appendix 4 of this report.

Table 9.1 Priority Level

Level	
1	The deficiency is of a critical nature and requires immediate implementation of corrective measures within 60 days.
2	The deficiency is of an important nature and requires implementation of corrective measures within 60-90 days.
3	The deficiency causes less than maximum efficiency and implementation of corrective measures are recommended within 90-120 days.
4	The recommended action is desirable because it will increase efficiency and can be implemented with a minimum of expense and effort.

Recommendation		Level
9.1	Establish a direct dedicated telephone link to the state on-scene emergency operations center (Petoskey) from the Technical Support Center.	1
9.2	Establish a direct dedicated telephone or intercom link between the Technical Support Center and the Operations Support Center.	2

	Recommendations	Level
9.3	Extend all offsite communications links into the Technical Support Center.	3
9.4	Install a direct communications link between the Technical Support Center and the Control Room.	3
9.5	Reduce the background noise level in the Technical Support Center by providing the communicator with a headset and equipping all telephones with flashing lights.	4
9.6	Reduce the congestion in the Technical Support Center by having support personnel utilize the adjacent offices and hallways when radiation levels permit.	4
9.7	Install a status board in the Technical Support Center.	2
9.8	Relieve the communicator of some of his responsibilities by having the Boyne City facility carry out most of the notifiations and updates.	2
9.9	Review the Site Emergency Directors responsibilities to assure that the state/county centers are provided with recommended protective actions for consideration. Development of a standard message form would assist in this responsibility.	1
9.10	Install a status board in the Operations Support Center.	3
9.11	An adequate supply of keys to the equipment lockers at the Boyne City facility should be obtained and furnished to appropriate personnel.	3
9.12	The Boyne City should assume more responsibility for coordinating communcations between the plant and offsite agencies.	2
9.13	Utility top level management personnel should be assigned to the Boyne City facility to provide direction, control, and managerial and logistical support to the plant.	2
9.14	Additional equipment and resource materials should be provided to the Boyne City facility. (maps, isopleths, manuals, etc.)	2

	Recommendations	Level
9.15	Offsite radiological monitoring teams must be equipped with protective anti-contamination clothing and respirators.	1
9.16	Liaison should be established with the Charlevoix County Emergency Services Director to assure that offsite radiological monitoring teams have ready access to the equipment stored in the Emergency Operations Center.	3
9.17	More than one radiation monitoring technician should be assigned to assist in monitoring evacuated employees at the access control points.	3
9.18	All environmental monitoring equipment must be operationally tested at least quarterly and after each use.	2
9.19	The first aid teams must have adequate equipment available to care for a wide spectrum of industrial accidents.	1
9.20	First aid personnel should receive regular testing and retraining to assure an adequate skill level.	3
9.21	Plant and utility personnel who are assigned to the State and County E.O.C.s should take an active part in the communications between the plant and centers.	3
9.22	Personnel assigned to the Joint Public Information Team at the Media Center should wear identification.	3
9.23	Clerical support should be furnished to the Media Center to relieve the team members from clerical duties.	4
9.24	The specific responsibilities of the personnel at the center should be more clearly defined, i.e. - who is the "lead" team member.	2
9.25	It will be recommended by the N.R.C. that a specific plan be developed by the Michigan State Police - Emergency Services division and Consumers Power Company to provide at least annual training for off-site personnel in emergency procedures.	3

APPENDIX 1-A

EXERCISE SCENARIO

Actual Time	Exercise Time	EXERCISE SCENARIO
0700	T=@1:00 a.m.	The primary system leak rate calculation tests (T1-02) indicate a leak of approximately 12 gpm. The Site Emergency Director declares an Unusual Event; notifications are made to the NRC; Charlevoix County; Petosky State Police; and Power Controller.
0830	T=-1/2 hr	Plant instrumentation now reveals a leak of greater than 50 gpm from the primary coolant system. The plant has initiated shutdown procedures. The Site Emergency Director has declared an Alert; sounded the emergency siren; initiated personnel accountability and evacuation; performs notifications; and initiated the Site Emergency Plan. *The county and state Emergency Plans will be placed in effect with EOC's activated and personnel notified.*
0900	T = 0	LOSS OF COOLANT ACCIDENT (LOCA) from primary coolant system downstream of the recirculation system isolation valves; complete reactor shutdown (SCRAM) has occurred. REACTOR INDICATIONS: 1. Off gas monitor alarm was at 50,000 μc/sec or 2.5(E10^3) counts per second. 2. Off gas system isolation valve has closed 3. Sphere cam Radiation indication 4. Core Spray system initiation 5. Meteorological Instrumentation-wind from the west at10 mph;partly cloudy (0.7 at 8,000 feet)

0900	T=0 min	Based on the LOCA and instrumentation the Site Emergency Director will declare a SITE EMERGENCY. 1. Initiate personnel assembly and accountability 2. Complete activation of Tech. Support Center 3. Notify Plant Emergency Personnel 4. Continue to implement the Site Emergency Plan
0905	T= 5 min	Technical Support Center provides updates to Charlevoix and Emmett Counties; Petoskey State Police; NRC; General Office; Boyne City
0900 - 0925	T= 0 - 25 min	*Initial public notification and warning by Charlevoix and Emmett Counties; all county and state EOCs are fully activated and staffed.*
0900 - 0930	T= 0 - 30 min	Consumers Power Company monitoring teams dispatched to carry out on site monitoring and report results to TSC. H Physics personnel dispatched to be on alert at Charlevoix County EOC. Site evacuation of non essestial personnel initiated and completed. Operations Support Center activated.
0930	T= 1/2 hr	TSC provides plant update condition report and radiological dose exposure calculations and projections to Charlevoix and Emmett EOCs; Petoskey State Police EOC; NRC; General Office Control Center; Boyne City EOC . NOTE: Upon the Declaration of a State of Disaster by the Governor and the activation of the Petoskey EOC, all updates from the Utility will be to that EOC and then forwarded to the appropriate counties by the State EOC

1000	T = 1 hr	CORE SPRAY SYSTEM FAILURE - A decrease in the water level in the reactor vessel; sphere radiological monitors indicate fission products are present in the containment; the ventilation valves which did not fully close at SCRAM are releasing fission products into the atmosphere. The High Stack Gas Monitor is reading 0.8 R/hr (800 ci/sec). Based on this information the Site Emergency Director declares a GENERAL EMERGENCY. (Meteorological instrumentation is the same as at 0800)
1015	T=1 1/4 hr	Notification to off site authorities of upgraded emergency condition. Postulated dose rates of: 1.6 rem at 3 miles for 2 hours; ___rem at 5 miles for 2 hours (whole body).
1015 - 1100	T=1 1/4 to 1 3/4 hr	PLANT: Continued environmental monitoring and assessment; Technician in the field measuring for iodine release measures 6000 c/m for 10 minute air sample at 2 cfm (pancake probe) for a projected dose rate of 7.38×10^{-2} rem or 73.8 mrem. (at 3 miles distance) Determine extent of core damage (instrumentation shows 800 R/hr for 2 hours for estimated 6.2% damage); update dose calculations and confirm plume direction and activity concentration. Attempt to close the open sphere ventilation valves. Continue to update offsite agencies on a 15 minute interval basis.

1015 - 1100	T= 1 1/4 to 2 hr	*STATE AND COUNTY:* *Receive notification of the escalated condition and projected plume pathway and projected dose calculations. Determine the appropriate Protective Action Guidelines based on environmental monitoring results. Order public evacuation up to 3 miles and sheltering in place up to 5 miles; initiate isolation of exposed areas; activate public relocation shelters.*
Approx. 1030		A plant maintenance worker is injured in the decontamination room (room # 121); he is radioactively contaminated and his injury is serious enough to require transportation by ambulance to a hospital for treatment. The worker is found laying on his back wearing a set of anti-contaminant clothing. He is unconscious and reading 25 mR/hr over the upper one-half of his body. After initial decontamination, the reading will be 0.75 mR/hr over the upper one half of his body with a few cuts on his left forearm reading 5 mR/hr. He has regained consciousness and is diagnosed as having a broken left humerus and a dislocated left shoulder. An ambulance from Charlevoix will be requested and the victim will be transported to Charlevoix Hospital for decontamination and treatment.

1100 - 1200	T = 2 - 3 hours	PLANT: Carry out rescue, decontamination and first aid procedures for injured worker; continue to update off-site agencies at 15 minute intervals; initiate and/or plan for damage control and repair operations. *STATE AND COUNTY:* *Simulate public evacuation and activation of relocation centers; simulate isolation procedures; the Department of Public Health (Div. Rad. Health) will carry out confirmatory off site environmental monitoring.* *The Emergency Operations Centers will continue to receive and assess plant operating conditions and environmental monitoring reports.* *Provide ambulance support to the plant for the injured workman.* GENERAL OFFICE CONTROL CENTER: Simulate the activation of the Mutual Assistance Agreement with Detroit Edison and Toledo Edison, requesting assistance as requested by the plant; conduct communications with the NRC, USDOE, insurance carriers, etc. Carry out other support functions as requested. BOYNE CITY EOC: Carry out support functions for the plant. Continue liaison activities with other off site EOCs and the plant.

1200	T = 24 - 30 hrs of elapsed time	The condition is downgraded to an ALERT status by the Site Emergency Director based on; 1. The previously open reactor building ventilation valves have been closed and on and off-site monitoring indicates that off-site radioactive releases have been terminated. 2. All off-site dose projections are now within allowable limits.
1215		Off-site agencies are notified of the downgraded status: State EOC - Petoskey; NRC; Boyne City; General Office Control Center; counties thru State EOC
1215 - 0100		Based on the downgraded situation the plant and off-site agencies will begin planning the re-entry and recovery procedures. PLANT: Health Physics and damage control and repair teams are insuring that: 1. The reactor is shut down 2. The reactor is being cooled sufficiently 3. The containment integrity is intact. *STATE AND COUNTY:* *Initiate public notifications concerning re-entry procedures; deactivate relocation centers; determine long term actions for protection and monitoring of the food and water supply*

Approx.
1:00 pm

After sufficient time has been given for the off-site EOCs (including Boyne City and the General Office)to demonstrate the planning process for re-entry and recovery procedures,the exercise will be terminated.

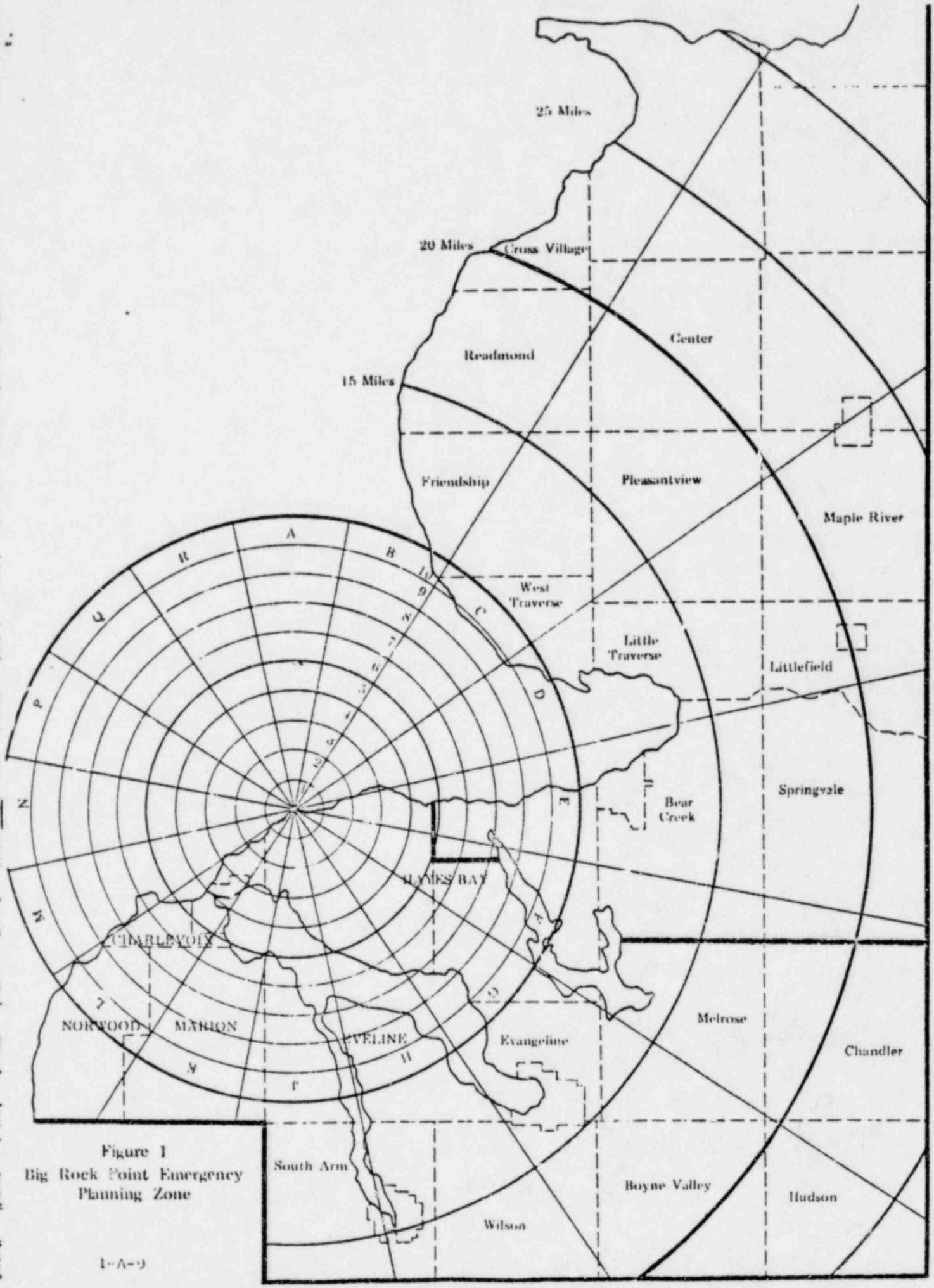


Figure 1
Big Rock Point Emergency
Planning Zone

APPENDIX 1-B

CHRONOLOGY OF INITIATING EVENTS AND SUBSEQUENT ACTIONS

Chronology of Initiating Events and Subsequent Actions

TIME	ACTION TAKEN
0715	*To: Control Room* *You have just received the results of the primary system leak.* *Rate calculations (Test T1-02) which indicates a leak rate of approximately 12 gallons per minute.* *Perform appropriate notifications.* *Take appropriate action.* Initiated drill - classified as unusual event; problem in primary coolant system. *Immediate action level notifications made within 15 minutes as well as subsequent actions accomplished. *Tech Spec allowable limit exceeded slightly.
0809	Charlevoix County EOC requested assistance of liaison from plant to Charlevoix County Sheriff's office. CRAbel dispatched EADziedzic (BRP lisison) at 0810.
0810	State E.O.C. fully activated at Petoskey State Police Post.
0826	Governor declared a disaster based on unusual event at 0827.
0829	*To: Control Room* *Your control room and plant instrumentation indicates a leak from the primary coolant system of greater than 50 gallons per minute over the last several hours.* *Take appropriate action.* *Initiate notifications.* Control Room and plant instrumentation indicates a leak from primary coolant system over 50 gallons per minute.

Chronology of Initiating Events and Subsequent Actions (Cont'd.)

TIME	ACTION TAKEN
0830	Site Emergency Director elevated the emergency (alert) and instructed sounding of siren and accompanying public address system instructions.
0830	Siren sounded and public address announcement made.
0830	State dispatchers radiological monitoring teams from E.O.C.
0835	Reported to NRC upgrading of classification to Alert status. No impact to public at this time. NRC hot lines need not be informed any more per Bill Axelson (NRC on-site evaluator).
0835	Control room reports that reactor is in safe shutdown condition.
0835	RESchrader completed accountability of TSC--all personnel accounted for and verified with security.
0837	Requested Prop Prot Supv to key out all non-essential personnel from Control Room.
0840	Secured current weather conditions from Pellston weather station.
0841	Reported all individuals on-site accounted for.
0842	Reported shutdown proceeding with all on-site and off-site conditions normal--no impact to public at this time.
0842	Announced the Health Physics telephone network in TSC not working - network dead.
0847	On-site surveys normal at this time.
0848	Reported to Charlevoix County elevation to Alert conditions; allowable release exceeded - on-site conditions normal. Reported Governor declared disaster and all of your further contacts would be made via the State Police.

Chronology of Initiating Events and Subsequent Actions (Cont'd.)

TIME	ACTION TAKEN
0848	Attempted minor repair to HP phone network - successful and phone now in order.
0849	Reported DPHoffman was now in charge of General Office EOC in Jackson.
0850	Reported on HP network that plant condition was now Alert and that on-site conditions normal and in process of shutting down. Off-site conditions normal.
0850	Performed weather calculations and placed overlay on map in TSC.
0858	*To: Control Room/Technical Support Center* *You have just experienced a Loss of Coolant Accident (LOCA) from the Primary Coolant System downstream of the recirculation system isolation valves: Complete reactor shutdown has occurred (SCRAM). The reactor indications are as follows:* *1. Off gas monitor alarm was at 50,000 mc/sec or 2.5 ($E10^3$) counts per second* *2. The off gas isolation valve has closed* *3. Sphere cam radiation indication* *4. Core spray system initiation* *5. Meteorological instrumentation - wind from the west at 10 mph; partly cloudy (0.7 at 8,000 feet).* *Take appropriate actions.* *Perform appropriate notifications.* Loss of coolant downstream of isolation valves; reactor scram.
0858	Noted that the TSC is now considered activated.

Chronology of Initiating Events and Subsequent Actions (Cont'd.)

TIME	ACTION TAKEN
0859	Emergency elevated to "Site Emergency."
0859	State EOC requested update. JSRang reported loss of primary coolant system downstream of recirculation valve. Complete reactor shutdown has occurred with reactor indications as follows: off-gas monitor alarm was at 50,000 mc/per sec. or 2.5 x 10^{-3} counts per second. Off-gas isolation valve closed. Sphere cam radiation indication initiation of core spray. Wind from the west at 10 mph, partly cloudy .7 factor, 8,000 feet.
0903	Paged JJPopa on plant phone.
0904	Repaged JJPopa on plant phone.
0905	Reported site emergency and instructed to evacuate all non-essential personnel and to activate the Operations Support Center; dispatch off-site monitoring teams.
0906	Reported simulated dose rates in machine shop in excess of 100 MR; evacuation beginning.
0908	Reported to TSC that EPIP 4-V in effect with 15 minute updates required.
0909	Reported simulated dose rates in TSC 55 MR per hour in TSC.
0910	Verified condition as site emergency and reported present status update.
0910	Reported to State EOC site emergency condition update, that a site emergency had been declared, giving present conditions.
0910	Reported that a site emergency had been declared, leakage over 50 gallons per minute; 50,000 uCi/sec stack gas with reactor water low; RDS actuated and core spray valves open.
0911	Reported to Charlevoix County that a site emergency had been declared with no high off-site radiation.

Chronology of Initiating Events and Subsequent Actions (Cont'd.)

TIME	ACTION TAKEN
0913	Boyne City EOF performing radio test.
0913	Reported dose rate still 100 MR per hour in machine shop; taking iodine samples and evacuation is in process.
0915	Reported that a site emergency had been declared at 0855 hours this morning.
0919	General Office EOC inquired if additional support was needed. CJHartman reported not at this time; will request assistance as needed.
0919	Property Protection Department provides information and update on evacuation progress.
0920	All non-essential personnel evacuation complete. Reported that the machine shop evacuation at BRP began at 0910.
0921	*To: Boyne City EOC* *From: Tech Support Center/BRP* *Personnel may be responding from offsite to assist in the control, repair and re-entry operations. Please prepare to brief them on the plant layout with specific emphasis on the reactor and containment building.* *Determine the availability of blue prints, engineering drawings, and the necessity and appropriateness of constructing mock ups.*
0921	Gave instructions on personnel reporting to Boyne City EOC.
0921	Reported all individuals accounted for as of 0921. JSRang instructed GWDafoe to to allow personnel back in plant for normal work routine (per drill plan).
0923	Boyne City EOC officially activiated; repair work order initiated for the Health Physics phone there.

Chronology of Initiating Events and Subsequent Actions (Cont'd.)

TIME	ACTION TAKEN
0924	Reported air tested; everything normal at Operations Support Center.
0926	Reported iodine sampling in TSC indicates normal. Dispatching off-site sampling teams to Charlevoix County Sheriff's Office.
0928	*To: Health Physics Support Group, General Office Control Center* *From: Plant Health Physicist, BRP* *The plant has determined that whole body counting of emergency workers is indicated. However, the whole body counter in the training building is not functional due to background radiation. Please secure a portable unit for use offsite.* Plant determined whole body counting of emergency workers is indicated. Whole body counter in Training Building not functional due to background radiation. Secure portable unit for use off-site.
0929	Joint Public Information Center - initial contact - reported plant status as of 0929.
0930	Report air sample outside OK-55 MR/hr outside Control Room.
0930	Update of plant conditions to State EOC - status same as last report; no indication of off-site releases.
0930	CEAxtel noted he had contacted Halgeson Nuclear and that they have a unit at Dresden or Zion. Will position at the Charlevoix County Sheriff's Office within 12 hours.
0932	Reported, per request, that E[illegible]CNamara was the individual assigned to Boyne City EOC.
0933	Reported 200 mr per hour at fence lines.

Chronology of Initiating Events and Subsequent Actions (Cont'd.)

TIME	ACTION TAKEN
0936	Noted the Sheriff had dispatched ambulance although not requested and it was presently onsite. Decision made to keep it onsite until needed.
0938	Reported the ambulance requests release until needed. Instructed release of ambulance due to false alarm by Sheriff.
0939	General Office EOC requested update - CJHartman reported weather conditions at time of emergency; off-site conditions still normal.
0942	Reported that liaison at Charlevoix EOC reported Charlevoix is not getting updates.
0944	State EOC request TSC use 347-8102 telephone number.
0945	Update to Power Control - no change in status.
0945	HP Network Telephone check - successful.
0947	Routine 15 minute contact with State EOC - status same.
0948	HP monitoring team directed to area 1/2 mile north of Maple Grove/Upper Bay Shore Road intersection - requested verification of radio check.
0948	Boyne City EOF manning activities on schedule; BRP persons (EMCNamara and HEBlack) on duty now.
0949	Routine 15 minute contact with Media Center (JPIC)- status same.
0950	State EOC provided additional telephone number (347-3998); requested TSC keep 169 open. JSRang respond not possible. JSRang reported to State Police TSC was not reporting to Charlevoix County; all contacts with State Police.
0951	No change in status reported to Boyne City EOF.

Chronology of Initiating Events and Subsequent Actions (Cont'd)

TIME	ACTION TAKEN
0958	GLFox dispatching man to post hallways by TSC/Control Room.
0958	*To: Control Room/Technical Support Center* *You have just experienced a core spray system failure as indicated by:* *1. A decrease in the water level in the reactor.* *2. Sphere radiological monitors indicate fission products are present in the containment.* *3. The ventilation valves which did not fully close at SCRAM are releasing fission products into the atmosphere.* *4. The high stack gas monitor is reading 0.8 R/hr (800 ci/sec).* *5. Meteorological instrumentation remains the same - wind from the west at 100 mph; partly cloudy (0.7 at 8,000 feet).* *Take appropriate actions.* *Make appropriate notifications with dose predictions.* Update to Power Control - reported General Emergency declared; core spray system failure; falling reactor water level; rad monitors indicate fission products in sphere; vent valves open since scram (scram occured at 0833); high stack gas monitor .8R/hr (800 ci/sec); winds from west 10 mph, 70% cloud cover at 8000 ft. Upgraded condition to General Emergency. Prior this updating radiation fields outside Control Room -65 mr/hr.

Chronology of Initiating Events and Subsequent Actions (Cont'd.)

TIME	ACTION TAKEN
1000	Update to State EOC - reported General Emergency declared. Vent valves not closed; breach of containment with indication of release of environs to outside at rate of 800 curies per second; lost containment integrity.
1002	Boyne City EOF requested status; update provided reporting General Emergency declared and plant conditions as above. (required contact complete per procedures)
1003	Informed Charlevoix County of an alert to change out environmental TLDs, iodine filters, particulate filters, possibly milk.
1005	Reported status change to Media Center to General Emergency and update of conditions given.
1005	Reported BRP plant status to Coast Guard as General Emergency giving all pertinent details (call completed 1013).
1010	Power Control made contact through Bell system to determine if they are to get any further information; informed them that GO Operations Support Center was now contact for site emergency drill.
1013 1015	Reported environmental survey teams on location. 2nd monitoring team dispatched; 1/2 mile N Upper Bay Shore Rd/Burnett Road.
1015	Reported iodine sample at core spray was background when originally taken (report/test just completed). Report no change in status; hallway roped off; fields of 20 R/hr; ~75 mR/hr outside Control Room.
1016	Report to State EOC that whole body dose, due to noble gases, is 1.6 R per 2/hours three miles from plant in Sector E.
1020	Boyne City EOF requested off-site calculations; CEAxtell reported 1.6 R per 2/hr three miles from plant (Sector E). Questioned accessibility of reactor vent valves by RSWinderman.

Chronology of Initiating Events and Subsequent Actions (Cont'd)

TIME	ACTION TAKEN
1020	State recommends sheltering in place in sectors D, E, F up to 5 miles.
1023	*To: Technical Support Center* *Determine the extent of core damage: Dispatch personnel to perform this function. The postulated indications are: instrumentation shows a rate of 800 r/hr for 2 hours.* Determine the extent of core damage; dispatch personnel to perform function. Instrumentation shows rate of 800 R/hr for 2 hours (CRAbel questions 2 hours indicated on card).
1025	Update to News Media Center with dose rate data.
1025	Reported to General Office EOC that state was recommended to consider Sector E evacuation.
1025	Boyne City EOF reports that on information given, may have doses up to 2 R whole body--Request TSC consider advising people up to 3 miles off-site to seek shelter and take precautions.
1028	Core damage calculated to be 5.3%.
1028	Report to State EOC the recommendation for evacuation in Section E based on 1.6 whole body dose rate.
1028	Whole body dose 1.6 R/h three miles into Sector E based on reports by field monitoring technicians.
1028	Boynes City EOF requests dose rate above failed valves. CEAxtell reported containment monitor reading 800 R per hour, essentially same as valves. General Office investigating other means.
1028	Reported air samples from 1/2 mile N Maple Grove/Upper Bay Shore Road intersection 2.01 E to the -8 mc per cc. Request another location. TSC reported negative location at this time.

Chronology of Initiating Events and Subsequent Actions (Cont'd.)

TIME	ACTION TAKEN
1034	Reported to Boyne City EOF the passing on of information to evacuate to State Police and noted requests for assistance from General Office on stuck vent valve problem. Request FWBuckman contact Bechtel support for malfunction of valves--FWBuckman noted that at 1020 he requested assistance from General Office Control.
1034	Update to Media Center; informed of advice to State Police to evacuate Sector E.
1034	Corrected dose rate of previous update; 1.6R/2hr integrated dose whole body.
1035	*To: Technical Support Center* *You have just received a report that an injured maintenance worker has been found in the decontamination room (Room #121). He is unconscious, his injuries are unknown at this time, and he is thought to be radiologically contaminated.* *Take appropriate action.* *To: First Aid Team* *You have just found this injured worker. He is unconscious and is thought to be radiologically contaminated. He is lying on his back and his left arm and shoulder appear to be injured. Perform appropriate first aid measures.* *Initial radiological indications are: 25 mR/hr over the upper one-half of his body.* *To: First Aid Team* *Congragulations by properly performing decontamination procedures. You have found this instruction card!*

Chronology of Initiating Events and Subsequent Actions (Cont'd.)

TIME	ACTION TAKEN
1035	*Your victim is now reading only 0.75 mR/hr over the upper one half of his body, with a few cuts on his left forearm reading 5mR/hr. He is now conscious and is discovered to have a fractured left humerus and a dislocated left shoulder.* *Perform appropriate first aid procedures.* *Request appropriate assistance - due to contamination and the extent of his injuries, the victim will have to be transported to the hospital via ambulance.*
1035	TSC received report of injured person in Room 121; contacted Health Physicist and instructed the implementation of EPIP 6E actions.
1037	Reported that at 1020 to 1030 the air sample outside the TSC is: activity particulate 1.5 x 10-10 ci/M^3; iodine sample, background.
1037	HP monitoring team requests further instructions.
1038	*To: General Office Control Center thru Boyne City EOC* *From: Tech Support Center/EEP* *Establish contact with Bechtel (AE) for assistance in determining the reason for the stuck open sphere ventilation valves and for assistance in planning a strategy for closing the valves.* Passed on request for Bechtel assistance. Requested identification of which valves not closed. JSRang reported from light indications in Control Room, exhaust valves.
1039	Calculated thyroid dose - .073R/2hr at approximately 3 miles, Sector E.
1040	Reported injury at plant to Charlevoix Hospital.

Chronology of Initiating Events and Subsequent Actions (Cont'd)

TIME	ACTION TAKEN
1042	Offsite communicator instructed to report injured and contaminated person.
1042	Charlevoix Fire Department requested dispatch ambulance, reported extent of injured worker's injuries as unknown.
1044	Report thyroid dose .073 R/2hr at 3 miles from site; injured/contaminated person; no change in evacuation recommendations.
1045	Boyne City EOF reported that 125 V breaker distribution panel 72-D-126 breaker should be closed.
1046	Reported reading at Maple Grove Road site - 1.9 x 10-8 ci/M^3.
1047	Boyne City EOF request confirmation of recommendation to state. CEA-Hall reported report given to State Police by DEDeMoor.
1049	Report of update on the dose rates - 2 hour integrated dose .073R - thryoid dose based on iodine sampling. Again requested consideration of evacuation of Sector E - plant status otherwise unchanged with exception of an injured/contaminated employee.
1053	General Office EOC requested if all valves open or just exhaust? JSRang reported exhaust valves open.
1054	Report received from Burnett Road HP team site: (¼ mile N Burnett Road/Upper Bay Shore Road) 2.07 x 10-8 ci/m^3 which is very similar to concentration on Maple Grove Road.
1055	Contacted off-site monitoring teams--Requested they drive up roads to be familiar with area; take kits back to Sheriff's Office in Charlevoix and check kits over for use. Report back to BRP.
1056	Update to News Media Center - report of injured/contaminated person.

Chronology of Initiating Events and Subsequent Actions (Cont'd.)

TIME	ACTION TAKEN
1057	*To: General Office Control Center thru Boyne City EOF.* *From: Technical Support Center/BRP* *Please establish contact with the appropriate vendors in case the following additional supplies are required:* *1. Anti-contamination clothing - coveralls, shoe covers, etc.* *2. Silver zeolite cartridges* *3. Rechargable batteries for portable radios* *4. Portable air samplers* *Please determine availability and predicted delivery times.* Talked with AAYoung at Boyne City EOC--requested establishment of vendors in case supplies and services are needed: Requested anti-c clothing silver zeolite cartridges radio rechargeable batteries portable air samplers Requested determination of availability and predicted delivery times.
1059	Reported to General Office EOC no status change from last update. Relayed that it is state's determination of Sector E evacuation.
1102	Victim in ambulance - proceeding to hospital.
1103	Ambulance left site with injured person and accompanying team.
1104	SED reports no change in status; holding.
1104	Discuss vent valve problem with Boyne City EOF.

Chronology of Initiating Events and Subsequent Actions (Cont'd.)

TIME	ACTION TAKEN
1106	Reported that RSWinderman will call in shortly.
1110	*To: Boyne City EOC* *The emergency situation will last for at least several days, possibly longer. At least 25 off-site personnel will be responding to assist in operations.* *1. Set up the Boyne City EOC to support around-the-clock operations.* *2. Determine the best method for housing and feeding responding personnel.* *3. Secure adequate vehicles, protective clothing, respirators, etc. for personnel responding to the plant after assembling at Boyne City.* *To: General Office Control Center thru Boyne City EOC* *From Tech Support Center/BRP* *Establish contact with vendor/contractor for disposal of radioactive waste from LOCA.* *To: General Office Control Center thru Boyne City EOF* *From Tech Support Center/BRP* *Please determine from Detroit Edison and Toledo Edison the availability of additional skilled personnel to assist with the damage control, repair, re-entry and recovery operations.* *Also determine the availability of spare equipment which could be loaned to BRP.* Informed them that exhaust valves closed; but have additional requests--for purpose of drill continue emergency; (emergency would last several days). Set up Boyne City EOC to support around-the-clock operations; determine best method for housing and feeding

Chronology of Initiating Events and Subsequent Actions (Cont'd.)

TIME	ACTION TAKEN
1110	responding personnel; secure adequate vehicles, protective clothing, respirators, etc. for personnel. Request EOC to request GO ECO to establish contact with vendor/contractor for disposal of radioactive waste from LOCA. Request EOC to request GO EOC to determine from Detroit Edison and Toledo Edison availability of additional skilled personnel to assist with damage control, repair, re-entry and recovery conditions. Also, determine availability of spare equipment loanable to BRP.
1112	Boyne City EOF requests clarification of core damage and calculations for RCYoungdahl.
1119	Report update to State EOC; injured victim. Reinterated consideration for evacuation of Sector E. State Police did not indicate any action.
1125	GWithrow requests verification of core melt percentages; CRAbel discussed with him and Ron Voll to clarify questions raised by RCYoungdahl.
1125	Governor authorizes re-entry into affected areas.
1129	No change in status reported to General Office EOC.
1136	JJPopa request if finished with Operational Support Center -- negative replied; still General Emergency.
1136	Boyne City EOF questions if vent valves closed; CRAbel replied "not certain, thinks valves are closed"; advised them not to abandon Bechtel team.
1140	Reported that FJValade (liaison at State Police) reported that State Police are evacuating people in Section E and evacuation is in progress. Call came in at 1135 - time of evacuation not known.
1142	Report to State EOC no change of status since last update; request status of action at State Police and confirmation as to evacuation -- limited evacuation reported begun in Section E within last half hour.

Chronology of Initiating Events and Subsequent Actions (Cont'd.)

TIME	ACTION TAKEN
1143	Boyne City EOC questioned if they could be of assistance in core spray difficulty--will have back in service shortly was response given by CRAbel. CRAbel again requested information from Bechtel on vent valves.
1145	Informed News Media Center. State started evacuation in Sector E within last half hour.
1145	Reported to General Office EOC evacuation of Sector E in progress ~1135.
1148	Verified with Bechtel they have four people standing by to assist with vent valves. DEDeMoor informed EOC of State Police evacuation of Sector E in progress.
1154	*To: Site Emergency Director/Tech Support Center* *It is now 24 - 48 hours later, and your instrumentation and other factors indicate that:* *1. The previously open reactor building ventilation valves have been closed and the on-site and off-site monitoring indicates that off-site radioactive releases have been terminated.* *2. All off-site dose projections are now within allowable limits.* *3. All other plant conditions are stable* *a. The reactor is shut down* *b. The reactor is being cooled sufficiently* *c. The containment integirty is intact.* *Take appropriate actions.* *Make appropriate notifications.*
1154	Previously open vent valves have been closed. Containment integrity intact.

Chronology of Initiating Events and Subsequent Actions (Cont'd)

TIME	ACTION TAKEN
1154	Informed SED of new status.
1154	To: *Site Emergency Director* *You have now downgraded the condition to an alert status. The reactor is shut down, is being cooled, and the containment is intact. You should begin planning long range damage control and repair operations and re-entry and recovery procedures.* *As necessary request appropriate outside assistance.* Reported downgrade to Alert and being plan for re-entry and recovery.
1154	Reported to Boyne City EOF by DEDeMoor that vent valves closed and downgrading beginning.
1154	CEAxtell report change of status--dispatch someone to remove radiation boundaries.
1158	Request Wayne Woods replace TLDs according to procedure 5F which includes iodine particulate samples and wait 48 hours to collect milk.
1158	JSRang reported to Boyne City EOF change from General Emergency to Alert - reporting closure of vent valves and shutdown of reactor with containment integrity intact. On-site and off-site monitoring indicates off-site radioactive releases terminated by off-site dose projections within allowable limits. All other plant conditions stable; reactor shutdown, reactor being cooled sufficiently, containment integrity intact. EOC reported earlier requests have been fulfilled for supplies/services -- available when needed.
1158	Reported change of status to State EOC - downgrade from General Emergency to Alert status. Containment integrity intact; all off-site dose projections within allowable limits.

Chronology of Initiating Events and Subsequent Actions (Cont'd.)

TIME	ACTION TAKEN
1158	State Radiological Health Division confirmed readings with CEAxtell.
1159	Reported status change to General Office EOC - vent valves closed; off-site and on-site monitoring indicates releases terminated; dose projections in allowable limits; reactor shutdown, core being cooled, containment integrity intact; drill downgraded to Alert. No information on injured person yet.
1207	Update to News Media Center from General Emergency to Alert reported.
1212	Message over public address system - "On-site personnel secure from emergency".
1213	Reported to Boyne City EOF that the Operations Support Center secure-TSC still available for phone calls. EOC responded that EOC completed all tasks; sending personnel home--will maintain telephone contact until 1300.
1215	General Office EOC reported secured from drill.
1219	Reported Operations Support Center secured.
1230	Reported to State EOC that TSC will keep Alert status until State Police work completed ~1300.
1255	Reported emergency status ended-plant operation normal.
1258	Emergency status ended; plant operation normal.

APPENDIX 1-C

EMERGENCY PREPAREDNESS EXERCISE OBJECTIVES

EMERGENCY PREPAREDNESS EXERCISE OBJECTIVES

(General)

The Emergency Preparedness exercise will be an event that tests the intergrated capability and major portions of the basic elements within the existing emergency preparedness plans and organizations.

The exercise will require the mobilization of State and local emergency personnel in order to verify their capability to respond to an accident.

The exercise will test and evaluate the plant's Site Emergency Plan with respect to prearrangements, directives and organizational responsibilities to assure that all emergency conditions can be effectively and efficiently resolved in order to safeguard the general public, plant personnel, and utility property.

The exercise scenario will be planned such that major elements of the utility, county and state plans and preparedness organizations are tested.

The exercise will be observed by qualified observers from the utility and Federal, State and County Governments. A critique will be conducted the day after the exercise; and any deficiencies noted will form the basis for corrective action. The exercise will be designed to familiarize the personnel assigned to all on-site and all off-site emergency response organizations with the emergency plan(s) and their responsibilities in case of an emergency.

SPECIFIC OBJECTIVES

Big Rock Point Site Emergency Plan

- Test the ability of Operations personnel to effectively assess and respond to an abnormal operating condition which may produce an actual or potential off-site radioactive release.

- To test the abilities of Health Physics personnel, operating under emergency conditions, to monitor and assess radiological dose rates; to determine specific contamination levels of airborne, waterborne, and/or surface deposited concentrations; and to assess specific indications (including their rates of change) that may be used as thresholds for initiating emergency measures.

- To test the plant's site warning and evacuation plans with regards to effectiveness and operability.

- To test the plant's communications systems including: internal plant communications; communications links to off-site company emergency centers; and communications links to off-site emergency centers for county and state authorities. The assessment will cover adequacy, reliability and operability of the communications hardware; the adequacy of emergency communications plans and procedures; and the training of personnel in operating the equipment.

- To test the operations of the Technical Support Center and the ability of staffing personnel to assess the plant status and provide support to the Operations personnel.

- To test the plant's on-site first aid capabilities with respect to caring for an accident victim who may be radiologically contaminated. The exercise will also test the interface of the plant's emergency medical organization with that of off-site emergency medical service providers-ambulance service, hospital.

- To ensure that the emergency response personnel are familiar with their duties and responsibilities.

- To test the adequacy and operability of emergency equipment (other than engineered systems) and to identify any deficiencies in the quantity or quality of equipment, and to identify any deficiencies in personnel training.

- To test the operations of the utilities off-site support centers in Boyne City and Jackson with respect to facilities, operations, communications, and assistance given to the plant.

- To test the plants public information and news media relations programs.

County Emergency Plans

- To test and evaluate the operations of the Charlevoix and Emmet County Emergency Operations Centers. The specific components tested will include:

  - adequacy of facilities to support operations under emergency conditions
  - interface of the various organizational components
  - adequacy of resource materials to assist in decision making and in carrying out decisions
  - adequacy of communications systems to maintain contact with county responders and other Emergency Operations Centers.

- To test the ability of the components of the county emergency system to properly assess the impact of a radiological emergency and to institute appropriate protective actions to safeguard the public.

- To test the county's emergency warning system for operability and adequacy.

- To test the response capabilities of the county public safety organizations-law enforcement, fire protection, emergency medical service.

- To test the county's ability to keep the public informed of actual or potential threat; to test the preplans for the evacuation of the public in case of a significant radiological release; to test the plans to evacuate and shelter the public.

Michigan Emergency Preparedness Plan (MEPP)

- To test and assess the initiation and implementation of the MEPP, with respect to a radiological emergency at the Big Rock Point Plant.

- To test the ability of the State Government to assess the impact of a radiological emergency on the public and to carry out the required notification plans.

- To test the Emergency Operations Centers in Petoskey and Lansing with respect to:

  - adequacy of facilities to support operations under emergency conditions
  - interface of the various organizational components
  - adequacy of resource materials to assist in decision making and in implementing decisions
  - adequacy of communications systems to maintain contact with other components of the emergency response system.

- To test the ability of the offsite radiological monitoring program to accurately determine the public danger and institute appropriate protective actions.

  - manpower and resource activation and development
  - adequacy of radiological monitoring equipment
  - adequacy of the communications system

APPENDIX 2-A

EXERCISE EVALUATORS AND LOCATIONS

EXERCISE EVALUATORS

OBSERVER	LOCATION
Randolph Harper General Physics Corporation	Exercise Controller; Technical Support Center and First Aid Team
Neil Midkiff General Physics Corporation	Technical Support Center
Walt Strodl Midland Nuclear Plant CPCo	Operations Support Center and Center and First Aid Team
J.B. Bone V.C. Summer Nuclear Station South Carolina Electric & Gas Co.	Boyne City Emergency Operations Facility
Steve Oliver General Physics Corporation	Operations Support Center and Radiological Monitoring Teams
Janice Jackson General Physics Corporation	Charlevoix County Emergency Operations Center and Charlevoix Hospital
Patricia Luckey General Physics Corporation	State Emergency Operations Center - Petoskey

APPENDIX 2-B

EXERCISE EVALUATION CRITERIA

EXERCISE EVALUATION CRITERIA

GENERAL PROCEDURES

1. Each evaluator has been furnished and should be familiar with:

   a. General Emergency Preparedness Exercise Objectives

   b. The Specific Objectives to test the Big Rock Point Plant, Emmet County, Charlevoix County, and Michigan Emergency Preparedness Plans as they pertain to the area being exercised.

   c. The Exercise scenario, initiating events, and expected courses of action to be undertaken.

2. For each area to be surveyed the following has been prepared and distributed to the evaluators.

   a. A summary and description of the area's location, emergency mission, and personnel and their emergency responsibilities.

   b. Exercise Evaluation checklist

   c. Chronological record sheet.

3. Evaluators will be at their assigned posts between 30 and 45 minutes prior to the commencement of the exercise, even though the area being evaluated may not be activated until later in the exercise.

4. If evaluators are to provide information (initiating events, instrumentation readings, environmental monitoring results, etc.) to the exercise participants, the information must be provided exactly as prescribed and exactly when prescribed. Failure to provide the information appropriately may invalidate the results of the exercise.

5. A Chronological Record must be kept for areas surveyed. The record will show the actual time, the event or occurrence, the result or action taken, the elapsed drill time and pertinent comments.

6. Evaluators should offer no information, advice or assistance to the exercise participants. Any such requests should be respectfully declined. Evaluators will only interpose themselves if the evaluees are taking an action that will cause the exercise to go far afield of the anticipated time schedule and/or outcome. Examples of problems requiring such interpositions may include: a dose calculation/projection that is so grossly inaccurate that an action level other than the one postulated for the scenario would be instituted; an activity that is taking so much longer than predicted that the exercise scenario is in danger of not progressing as postulated.

PERFORMANCE EVALUATION CRITERIA

To ensure validity of the evaluation, all exercise evaluators must utilize the same grading criteria. The following grading standards should be utilized.

I. Recording Times of Actions

a. For grading purposes, it will be assumed that on-site personnel have been alerted when the emergency siren is sounded.

b. For calculating elapsed times, evaluators will be given the actual time the exercise is initiated. Thi will be T = 0 on all reports. All elapsed time calculations will be based on this time, regardless of when the separate evaluated activities are initiated.

c. An EOC or other activity will be deemed to be in service when its personnel accountability check is completed and reported or when the EOC has sufficient manpower present to carry out its mission.

d. The "Chronological Events Summary" should be the primary evaluation record; it is intended to be used to complete the evaluation form upon completion of the exercise. The form calls for the actual time, the initiating event, the resultant activity, evaluator comments, and the elapsed drill time (T = ?).

II. Evaluation Standards

Excellent: Personnel and equipment always functioned without error the first time, every time. There were no problems encountered, and all personnel and equipment functioned at a level much greater than could reasonably be anticipated.

Good: Personnel and equipment generally performed better than expectations. Any errors or problems were minor, and easily correctable.

Satisfactory: Personnel and/or equipment performed according to expectations, with few minor exceptions. Any errors noted were not severe and could be corrected without undue labor and/or expense.

Poor: Personnel and/or equipment generally performed below expectations and/or there were several significant deficiencies noted. The area's ability to carryout its mission was diminished.

Fail: Personnel and/or equipment consistently failed to perform as required and/or there were serious deficiencies noted which severely impaired the ability of the area to carry out its mission.

III. Categories for Evaluation

A. Mission Performance

1. Command Functions - did the area carry out its mission of directing the activities of other components?
2. Assessment and Evaluation - was information promptly and correctly received, assessed and evaluated?
3. Personnel Functions - Did personnel know and carry out their duties with efficiency and without undue direction?
4. Communications - Did the area establish and maintain communications with other components? Was the information received and/or transmitted accurate, concise, appropriate, and timely?
5. Records - Was the recordkeeping system designed and implemented to record significant events and actions for future use?

B. Facilities and Equipment

1. Physical Facilities - Was the area utilized appropriate by virtue of its size and location? Was there enough furniture, adequate ventilation, rest rooms, office supplies, etc. to

support the mission? Could the area support the personnel assigned to it?

2. Resource Materials - Were there resource materials readily available to assess the emergency situation and to plan corrective actions - maps, reference books, copies of emergency plans and procedures?

3. Communications Equipment - Was the on-site and off-site communications equipment adequate in quantity, operability and availability? Did personnel know how to utilize the equipment efficiently?

4. Emergency Equipment - Was emergency equipment readily available, completely operable, appropriate to the task or situation, and did personnel know how to use it efficiently? Emergency equipment includes: portable environmental monitoring equipment; personal protective equipment, clothing, respirators; decontamination supplies and equipment; first aid and fire-fighting equipment; and communications equipment.

5. Personnel Quantity - Were there enough trained personnel to carry out the mission? Too few? Too many?

6. Area Access Control - Did all assigned personnel respond to their areas promptly and stay in assigned area for the duration of the exercise? Was the area secured against unauthorized persons being present? Was there an identification system developed and used that effectively identified authorized personnel and their duties?

7. Recordkeeping - Was all data accurately recorded and maintained in a systematic readily retrievable manner for future reference?

C. Interface with Other Areas and Groups

Although this is not specifically addressed on all evaluation forms, obviously it is an item of extreme importance. An area that performs its own mission satisfactorily but that does not interfere adequately with other areas, has not performed in an overall satisfactorily

manner. Any deficiencies noted in an area interfacing with another area should be noted. Such deficiencies may be due to inadequate communications hardware, organizational deficiencies, or inadequacies in plans and procedures.

IV. Summary

A. Describe any problems noted by the area being evaluated, a description of the problem, its outcome or effect, and any recommended corrective courses of action to mitigate or correct the deficiency.

B. After completely filling out the evaluation form total up the actual number of points the area was awarded.

C. The evaluator(s) is to sign the evaluation form and promptly return it as directed.

D. A critique of the exercise will be held the following day with all participants, evaluators and NRC/FEMA observers present.

APPENDIX 2-C

EVALUATOR CHECKSHEETS

GENERAL PHYSICS CORPORATION

GP-R-12001

RANDOLPH HARPER
G. NEIL MIDKIFF
EVALUATOR

BIG ROCK POINT NUCLEAR PLANT

EXERCISE EVALUATION

TECHNICAL SUPPORT CENTER

7:10 am
TIME BEGAN

1:15 pm
TIME ENDED

I. Establishment of T.S.C.	0-5	5-10	10-15	+15	(MINUTES)
A. After the emergency was sounded how long did it take before:					
1. Site Emergency Director arrived	(15)	10	5	0	
2. Other personnel arrive (personal acct.)	(15)	10	5	0	
3. Recordkeeping established	(7)	5	3	0	
4. Offsite communications established (Jackson, NRC, Charlevoix, State)	7	(5)	3	0	
5. Onsite communications established (control, security, O.S.C.)	(7)	5	3	0	
6. Personnel dispatched to Charlevoix and Petoskey E.O.C.	7	6	5	3 (+20 = Ø)	

B. TSC Activation

1. Was personnel accountability check performed and reported	(Yes (5))	No (0)
2. Was radiological survey made of the area (less than 10 mr/hr)	(Yes (5))	No (0)

II. How did the TSC carry out its:	EXC	GOOD	SATIS	POOR	FAIL
1. Overall command functions	10	7	(4)	1	0
2. Assessment and evaluation functions	10	(7)	4	1	0
3. Control room support functions	10	(7)	4	1	0
4. On-site communications	10	7	(4)	1	0
5. Off-site communications	10	7	(4)	1	0
6. First aid coordination	5	4	(3)	1	0

III. Facilities

Rate of the adequacy of:	EXC	GOOD	SATIS	POOR	FAIL
A. Physical facilities	10	7	(4)	1	0
B. Resource materials	10	7	(4)	1	0
C. Communications equipment	10	7	(4)	1	0
D. Emergency equipment	10	7	(4)	1	0
E. Personnel resources	10	(7)	4	1	0
F. Area access control	10	(7)	4	1	0
G. Recordkeeping	(10)	7	4	1	0

IV. Mission Performance

	EXC	GOOD	SATIS	POOR	FAIL
A. Did Site Emergency Director take and maintain control?	25	(20)	15	5	0
B. Did all assigned personnel know and carry out their duties?	(25)	20	15	5	0
C. Was information promptly and correctly assessed?	(25)	20	15	5	0
D. Were the corrective actions ordered prompt and appropriate?	(25)	20	15	5	0
E. Were communications established and maintained with offsite agencies-adequate updates at 15 minute intervals?	20	(15)	10	5	0

V. Describe any problems noted with recommended corrective actions

SEE REPORT

VI. Summary:

AREA	MAX SCORE	MIN SCORE	ACTUAL
I	68	51	59
II	55	23	29
III	70	28	40
IV	120	70	110
Overall	313	172	238

= 76%

GP-R-12001

Steve Oliver
Walt Strodl
EVALUATOR

0715 AM
TIME BEGAN

1:00 pm
TIME ENDED

BIG ROCK POINT NUCLEAR PLANT

OPERATIONS SUPPORT CENTER

EXERCISE EVALUATION

I. O.S.C. Activation

A. How long did it take after emergency was sounded for the O.S.C. to become functional - i.e. on-site personnel present

(0-5 min (20))
5-10 min (10)
10-15 min (5)
+15 min (0)

E. How long after notification did it take the OSC director to be on location and assume duties

(0-10 min (10))
10-20 min (5)
+20 min (0)

C. Activation Procedures

1. Was radiation survey performed — (Yes (5)) No (0)

2. Was personnel accountability check performed and reported to the Property Prot. Supervisor — (Yes (5)) No (0)

II.

	EXCELLENT	GOOD	SATIS	POOR	FAIL
A. Did assigned personnel know and carry out their assigned responsibilities?	20	(15)	10	5	0
B. How did the OSC carry out its:					
1. Support Functions	10	(7)	5	3	0
2. Assessment and Evaluations	10	(7)	5	3	0

	EXCELLENT	GOOD	SATIS	POOR	FAIL
3. Onsite communications	10	7	(5)	3	0
4. Personnel control and accountability	(10)	7	5	3	0

III. Rate the adequacy of:	EXCELLENT	GOOD	SATIS	POOR	FAIL
A. Physical facilities	5	4	(3)	2	0
B. Resource documents	(5)	4	3	2	0
C. Communications equipment	5	4	3	(2)	0
D. Emergency equipment	5	(4)	3	2	0
E. Personnel resources	(5)	4	3	2	0
F. Area access control	(5)	4	3	2	0
G. Recordkeeping	5	(4)	3	2	0

IV. Describe any problems noted with recommended corrective actions. SEE REPORT

SUMMARY:

AREA	MAX	MIN	ACTUAL
I	40	25	40
II	60	30	44
III	35	21	28
TOTAL	135	76	116

= 86%

EMERGENCY OPERATIONS CENTER
(BOYNE CITY)
BIG ROCK POINT NUCLEAR PLANT
EXERCISE EVALUATION

J.B. BONE
Evaluator

8:15 am
Time Began

1:00 pm
Time Ended

I. Establishment of Boyne City Facility:

After the emergency was declared:

a. When was the designated individual dispatched: 9:12

b. When did the individual arrive: 9:25

c. When was the facility physically ready for operations: 9:15

d. When were the communications checks completed: 9:19

		EXC	GOOD	SATIS	POOR	FAIL
II.	How did the facility carry out its:					
	a. Plant support functions	(25)	20	15	10	0
	b. Communications functions	25	(20)	15	10	0
	c. Liaison functions	(25)	20	15	10	0
III.	Assess and evaluate					
	a. Adequacy of physical facilities	10	7	(4)	1	0
	b. Resource materials	10	7	(4)	1	0
	c. Communications equipment	10	7	(4)	1	0
	d. Personnel resources	(10)	7	4	1	0
	e. Area access control	10	7	(4)	1	0
	f. Recordkeeping	(10)	7	4	1	0
IV.	Mission performance					
	a. Operation of facility	(20)	15	10	5	0
	b. Did assigned personnel know and carry out their duties	(20)	15	10	5	0
	c. Were communications established and maintained adequately	(20)	15	10	5	0

V. Describe any problems noted with recommended corrective actions: See REPORT

MAXIMUM SCORE = 195
MINIMUM ACCEPTABLE SCORE = 99
ACTUAL SCORE = 166

RADIOLOGICAL MONITORING TEAMS
BIG ROCK POINT NUCLEAR PLANT
EXERCISE EVALUATION

Steve Oliver
Evaluator

Time Begun

Time Ended

I. Activation - How long after the emergency was sounded did it take for:

	0-5	5-10	10-15	+15 minutes
a. Chem & Rad Pro Supervisor on scene	(15)	10	5	0
b. Rad. monitoring teams assembled	(15)	10	5	0
c. Other personnel present & accountability performed	15	(10)	5	0

II. At what time were in plant surveys performed?

0 - 20 min = (10)
20 - 30 min = 7
30 - 40 min = 3
+ 40 min = 0

At what time were the first perimeter fence surveys performed?

0 - 20 min = (10)
20 - 40 min = 7
40 - 60 min = 3
+ 60 min = 0

III. Evaluate the adequacy of:

	EXC	GOOD	SATIS	POOR	FAIL
a. Physical facilities	5	(4)	3	2	0
b. Resource materials	5	(4)	3	2	0
c. On-site communications	5	4	(3)	2	0
d. Off-site communications	(5)	4	3	2	0
e. Portable instrumentation	5	(4)	3	2	0
f. Fixed instrumentation	5	(4)	3	2	0
g. Personnel resources	5	4	(3)	2	0
h. Recordkeeping	5	4	(3)	2	0

IV. MISSION PERFORMANCE	EXC	GOOD	SATIS	POOR	FAIL
A. Appropriate direction and supervision by Plant Health Physicist	20	(15)	10	5	0
B. Appropriate direction and supervision by Chem & Rad Protection Supervisor	20	(15)	10	5	0
C. Did personnel know and carry out their duties	20	(15)	10	5	0
d. Was information promptly and accurately transmitted to appropriate parties	20	15	(10)	5	0
e. Coordination with off-site radiological monitoring teams	20	(15)	10	5	0
f. Did personnel know location and use of equipment	(10)	7	4	1	0
g. Did personnel adequately support other emergency operations - first aid, egress screening, etc.	20	(15)	10	5	0

V. Note any problems encountered and recommended course of action:

SEE REPORT

MAXIMUM SCORE = 235

Minimum Acceptable Score = 109

Actual Score = 182 = 77%

VI. Hospital Procedures:

A.	Callback for additional personnel	(Y)	N ___
B.	Evacuate treatment area	(Y)	N ___
C.	Remove/cover equipment in room	(Y)	N ___
D.	Assemble needed equipment	(Y)	N ___
E.	Assemble contamination control supplies	(Y)	N ___
F.	Cover floors between entrance and treatment	(Y)	N ___
G.	E.D. personnel in protective clothing	(Y)	N ___
H.	Decontamination procedures	(Y)	N ___

VIII. Evaluate		EXC	GOOD	SATIS	POOR	FAIL
A.	Plant personnel knew and carried out their responsibilities	20	15	(10)	5	0
B.	Performance of first aid treatment	5	4	3	2	(0)
C.	Performance of contamination control	(5)	4	3	2	0
D.	Performance of decontamination procedures	(5)	4	3	2	0
E.	Adequacy of equipment	5	4	3	(2)	0
F.	Adequacy of communications	5	4	(3)	2	0
G.	Interface with ambulance crew	10	(7)	4	1	0
H.	Interface with hospital	(10)	7	4	1	0

SUMMARY: Maximum Points - 65

Minimum Points - 33

Actual Points - 42

FIRST AID SCENARIO

	Actual Time	Elapsed Time T+	Drill Time T+
1. Time injured person introduced	1036	0	3:21
2. Time first aid team alerted	1041	5	3:26
3. Time first aid team dispatched	1041	5	3:26
4. Time first aid team on scene	1042	6	3:27
5. Ambulance requested	1042	6	3:27
6. Hospital notified	1042	6	3:27
7. Victim moved to gate	—	—	—
8. Victim loaded in ambulance At Machine SHOP	1100	24	3:45
9. Victim arrives at hospital	@ 11:15	39	@4:00
10. Treatment initiated			
11. Treatment completed			
12. Decontamination initiated			
13. Decontamination completed			
14. All clear			

Note any problems encountered and recommended corrective actions:

Excellent decontamination procedures, and interface with the ambulance crew and Hospital.

Unsatisfactory first aid performance - see report

Randy HARPER
EVALUATOR

WALT STROBEL

JANICE JACKSON

RANDY HARPER
EVALUATOR

0715 am
TIME BEGUN

1:00 pm
TIME ENDED

BIG ROCK POINT NUCLEAR PLANT

EXERCISE EVALUATION

SECURITY FORCE

I. How long after the emergency was sounded did it take for: (minutes)	0-5	5-10	10-15	+15
A. Property Protection Supervisor to station	(7)	4	1	0
B. Security Shift Supervisor to station	(7)	4	1	0
C. Security Force assembled/accounted	(7)	4	1	0
D. Site Access Control established	(7)	4	1	0
E. Immediate area checked for fishermen, etc. - results not reported to S.E.D.	7	4	1	0 - ?
F. Security Officer dispatched to Assembly Area II	7	(4)	1	0
G. Security Officer dispatched to Assembly Area III	(7)	4	1	0
H. Security Officer(s) dispatched to access road	7	4	1	0

Simulated only

II. Did Security Force personnel know and correctly carry out their duties	EXC	GOOD	SATIS	POOR	FAIL
A. Overall	20	(15)	10	5	0
B. Access control	15	(10)	7	3	0
C. Personnel accountability checks	(15)	10	7	3	0
D. Site evacuation procedures	(20)	15	10	5	0
E. Coordination with offsite emergency response personnel -	10	(7)	5	2	0

Ambulance crew

III. Rate the adequacy of:	EXC	GOOD	SATIS	POOR	FAIL
A. Physical Facilities	5	(4)	3	2	0
B. Resource Materials	5	(4)	3	2	0
C. Communications equipment	5	(4)	3	2	0
D. Personnel resources	5	(4)	3	2	0
E. Recordkeeping	5	(4)	3	2	0

IV. Describe any problems noted with recommended corrective actions

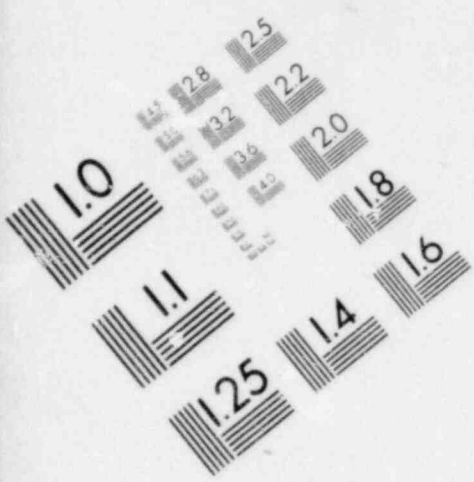
SUMMARY:

AREA	MAX	MIN	ACTUAL
I	56 (42)	32	39
II	80	39	67
III	25	15	20
TOTAL	161 (147)	86	126

= 78%

APPENDIX 3

MODEL TRAINING PROGRAM FOR NUCLEAR POWER PLANT EMERGENCY PERSONNEL



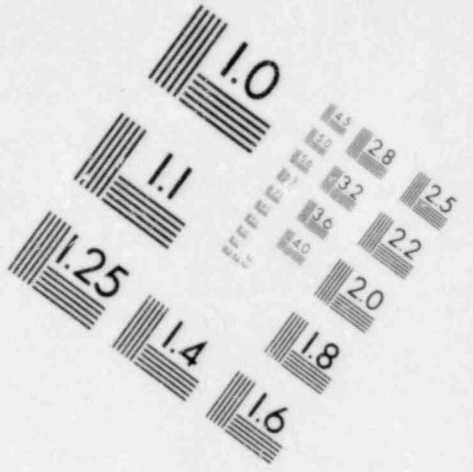
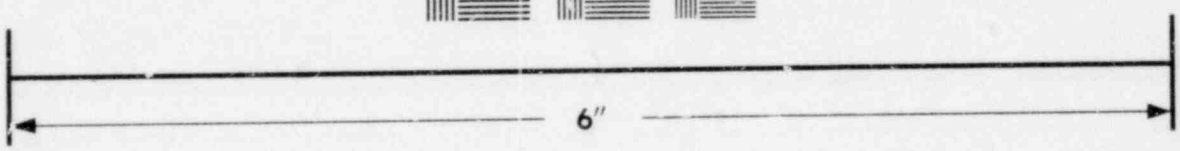
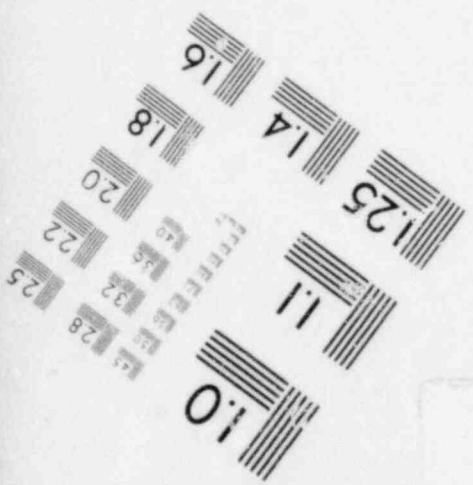
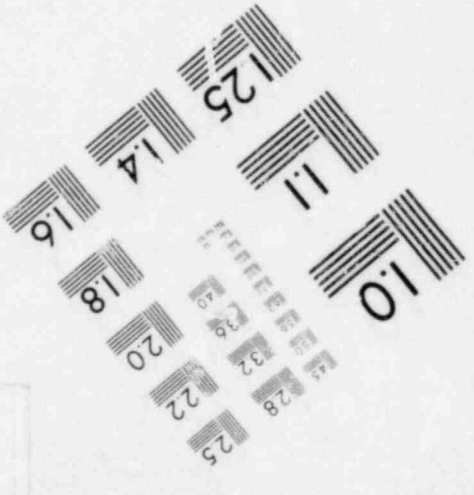
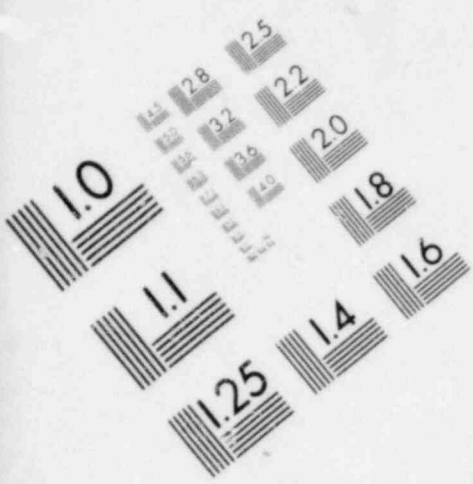


IMAGE EVALUATION TEST TARGET (MT-3)









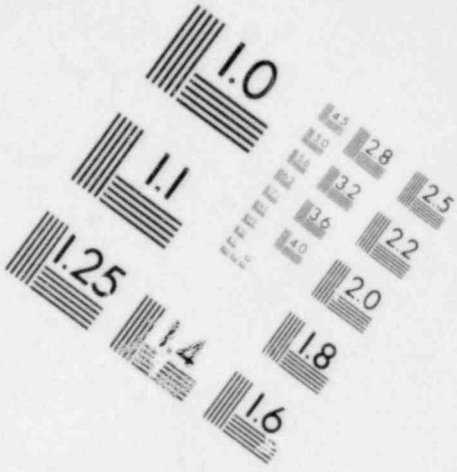
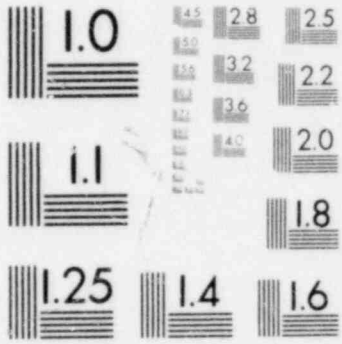
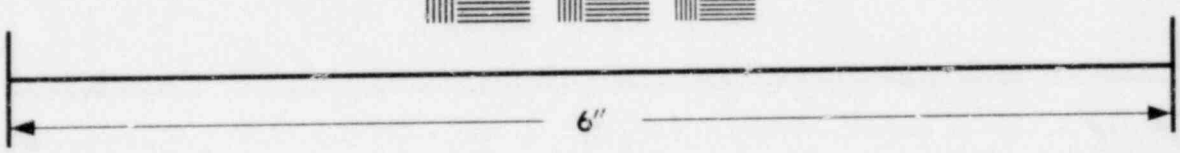
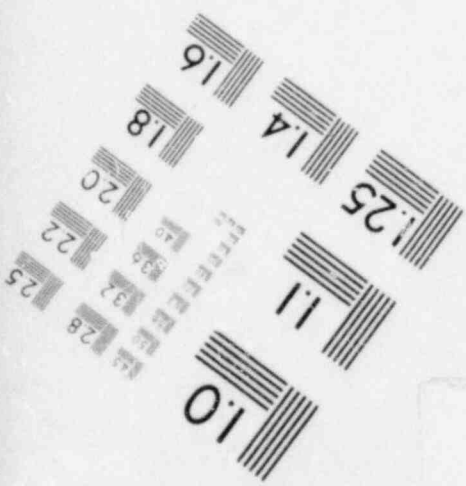
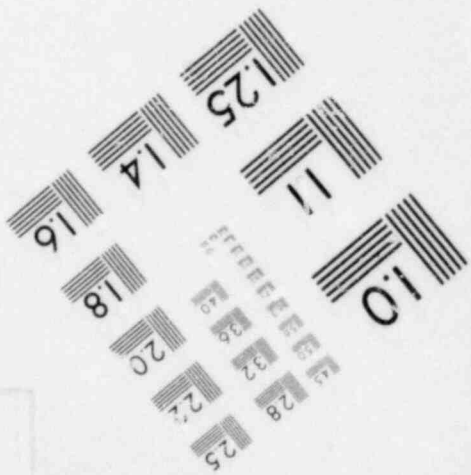


IMAGE EVALUATION TEST TARGET (MT-3)









Model Training Program for

Nuclear Power Plant Emergency Personnel

MODULE 1

1.	Introduction	1 Hour
	a. Principals of Rescue	
	b. Victim injury assessment	
	c. Decision making	
2.	Rescue Equipment - Selection, Care, and Use	2 Hours
	a. Basic tools	
	b. Ropes	
	c. Ladders	
3.	Search and Rescue Techniques from Hazardous Environments	2 Hours
4.	Mass Casualty Operations	1 Hour
	a. Triage of casualties	
	b. Preplanning operations	
	c. Mutual aid; emergency plans	
5.	Field Training and Exercises	8 Hours
6.	Review and Examination	2 Hours

MODULE 2

1.	*American Red Cross - Multi-Media Training	8 - 10 Hours
	OR	
	*American Red Cross - Advanced First Aid Training	5[illegible] Hours
	OR	
	Emergency Medical Technician U.S. Department of Transportation or equivalent	90 - 100 Hours
2.	Cardiopulmonary Resuscitation Training - Basic Life Support American Heart Association	9 Hours

*These programs may be expanded to meet site specific requirements or hazards - chemicals, high voltage, radiation

MODULE 3

1.	Fire Brigade Team Leader Training	4 Hours
	a. Command Training - tactics, assessment	
	b. Coordination with Offsite Fire Company - responsibilities, communications, liaison	
2.	Fire Hazards Analysis	4 Hours
3.	OSHA Hazards Recognition	16 Hours

APPENDIX 4-A

EPIP#3C - ACTIVATION OF EMERGENCY OPERATIONS FACILITY (BOYNE CITY)

ACTIVATION OF THE EMERGENCY OPERATIONS FACILITY (BOYNE CITY)

(Procedure 3C)

1.0 PURPOSE

1.1 To describe the actions to be taken to activate the Emergency Operations Facility (Boyne City) and to list the emergency equipment available for use at the Emergency Operations Facility (EOF).

2.2 ATTACHMENTS

2.1 Attachment 1, Floor Plan of the Emergency Operations Center (Boyne City).

2.2 Attachment 2, Priority of Communication Systems.

3.0 INITIAL CONDITIONS AND/OR REQUIREMENTS

3.1 The Emergency Operations Facility is located in the Consumers Power Service Center-Boyne City. Alternate locations include the State Police Post in Petoskey and the Charlevoix County Sheriff's Department in Charlevoix.

3.2 The EOF will be used as a gathering point and coordination center for off-site support personnel and agencies.

3.3 The EOF will provide management and logistical support to the plant.

3.4 The Licensed Training Instructor or Training Instructor will be notified by the Site Emergency Director to activate the Emergency Operations Center.

4.0 PROCEDURE

4.1 PERSONNEL

4.1.1 The following personnel and agencies will be utilizing the EOF:

a. Big Rock Point Plant personnel such as the Training Instructors.

b. General Office emergency teams and personnel.

c. Other Company emergency teams and personnel.

d. Federal agencies (including the NRC).

e. State and county liaison personnel.

f. Vendors.

4.1.2 The EOF can also be used as the assembly area for personnel assigned to the Control Room and Technical Support Center in the event evacuation of the Control Room or Technical Support Center is required.

4.2 COMMUNICATIONS

4.2.1 The following communications systems are available for use at the EOF (priority of use is shown on Attachment 2):

a. Intraplant Telephone

b. Bell Telephone Company Telephones

c. Dedicated line to the NRC Health Physics Group

d. Radio to the Control Room

4.2.2 The EOF will also use face-to-face communication between EOF personnel.

4.3 EMERGENCY EQUIPMENT

4.3.1 Due to the fact that the EOF is a personnel support center, outside of the communication systems available, only small quantities of emergency equipment are stored at the EOF.

a. Emergency planning zone maps

b. Isopleths

c. Controlled copy of the Site Emergency Plan and the Emergency Plan Implementing Procedures.

4.4 ACTIVATION OF THE EMERGENCY OPERATIONS FACILITY

4.4.1 The Licensed Training Instructor or Training Instructor (EPIP 4Z) shall activate the EOF by performing the following:

a. Open the door(s) to the EOF. (Extra keys to the EOF are available in the Shift Supervisor's office.)

b. Turn on all overhead lighting.

c. Commence arranging the furniture to agree with the floor plan of the EOF (Attachment 1).

d. Plug in additional telephones as shown on the floor plan, Attachment 1, telephones are stored in the closet near the Receptionist area. Telephone jacks are stored above the suspended ceiling near the respective telephone location.

e. Energize the radio and establish communication with the Control Room.

f. Verify communication capability with the NRC Health Physics Group.

g. Verify communications with the General Office Emergency Center.

4.4.2 After activating the EOF, the person(s) designated will stand by and await further direction from the Site Emergency Director (or designated representative) or a representative from the General Office.

4.4.3 The Licensed Training Instructor or Training Instructor or a person in charge shall assure that someone is available to record and maintain a log of all activities and important data. This support will come from the other offices of Consumers Power Company.

4.5 Operations of Emergency Operations Facilities

4.5.1 Initial staffing will be by local personnel from the Big Rock Point Plant and other Consumers Power Company personnel.

4.5.2 Subsequent staffing may include:

a. Vice President, Nuclear Operations

b. Director of Nuclear Activities-Director of Facility

c. Health Physics Support

d. Engineer Support

e. Nuclear Emergency Planning Coordinator

f. Public Information Support

g. Designated alternates for above individuals

4.5.3 Management/Support Responsibilities

a. Provide management, technical and logistical support to the plant to relieve the plant staff from activities which diminish their efforts to control the emergency.

b. To relieve the plant of its subsequent communications and informational update responsibilities. Once the EOF is activated and manned, it will coordinate all communications with off-site agencies such as: State/County emergency operations centers, General Office Control Center, vendors, Nuclear Regulatory Commission, and the Media Center. (EPIPs #1 and #2).

c. To coordinate relief efforts between off-site agencies and the plant by serving as a mustering and control center for responding agencies and personnel.

APPENDIX 4-B

EPIP#4V - ADMINISTRATIVE SUPERVISOR OR TECHNICIAN

ADMINISTRATIVE SUPERVISOR OR TECHNICIAN

(Procedure 4V)

1.0 PRINCIPAL POSITION

1.1 Dispatched Individual to state on-scene Emergency Operations Center (Petoskey State Police Post).

2.0 ALTERNATE POSITION

2.1 None.

3.0 RESPONSIBILITIES

3.1 Ensures communications between the plant and the state on-scene Emergency Operations Center have been established and coordinates future communications between the Site Emergency Director (or Boyne City Facility) and the State Police Post in Petoskey.

4.0 IMMEDIATE ACTIONS

4.1 Upon arrival at the state on-scene Emergency Operations Center, the Administrative Supervisor or Technician will verify that communication between the plant and Emergency Operations Center has been established using the dedicated telephone line, commercial telephone system, or radio.

5.0 SUBSEQUENT ACTIONS

5.1 Future communication between the plant and the state on-scene Emergency Operations Center will be coordinated by the Administrative Supervisor or Technician as designated by the Site Emergency Director.

5.2 The individual will serve in a liaison role, assisting the state EOC in determining appropriate protective actions based on plant operating conditions and recommendations.

5.3 The Site Emergency Director will designate personnel to provide relief for the dispatched individual.

APPENDIX 4-C

EPIP#4AA - CHEMICAL AND RADIATION PROTECTION TECHNICIAN

CHEMICAL AND RADIATION PROTECTION TECHNICIAN

(Procedure 4AA)

1.0 PRINCIPAL POSITION

1.1 Dispatched individual to Charlevoix County Emergency Operations Center for off-site monitoring and liaison activities.

2.0 ALTERNATE POSITION

2.1 None.

3.0 RESPONSIBILITIES

3.1 Performs off-site monitoring activities as requested by the Site Emergency Director or Health Physicist and provides data for EPIP 5A-F; coordinates all communications between the plant and the county EOC; conducts liaison activities.

4.0 IMMEDIATE ACTIONS

4.1 Upon notification by the Site Emergency Director or Health Physicist proceed to Operations Center for possible use of the off-site emergency environmental kits stored there for environmental monitoring.

4.2 Upon arrival at the Charlevoix County Sheriff's Department, the Chemical and Radiation Protection Technicial will establish communications and receive directions from the plant by using the dedicated telephone line to the Sheriff's office or the Emergency Operations Center.

4.3 The dispatched individual will coordinate all communications between the plant and/or the Boyne City Facility and the county Emergency Operations Center. The individual will assist the county in making appropriate protective decisions based on plant operating conditions and recommendations.

4.4 Other Chemical and Radiation Protection Technicians will perform duties as assigned by the Site Emergency Director or respective supervisor, including providing relief for the dispatched individual.

RELATED CORRESPONDENCE

DOCKET NUMBER
PROD. & UTIL. FAC. 50-155

Consumers Power Company

COPY

General Offices: 212 West Michigan Avenue, Jackson, MI 49201 • (517) 788-0550

March 26, 1981

Mr James G Keppler
Office of Inspection and Enforcement
Region III
US Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

DOCKET 50-155 - LICENSE DPR-6 -
BIG ROCK POINT PLANT - ANNUAL ENVIRONMENTAL MONITORING REPORT

Please find attached the Big Rock Point Plant Annual Environmental Monitoring Report for the period January through December, 1980. The attached report is submitted in accordance with Technical Specification 6.9.3.b.

David P Hoffman (Signed)

David P Hoffman
Nuclear Licensing Administrator

CC Director, Office of Nuclear Reactor Regulation
Director, Office of Inspection and Enforcement
NRC Resident Inspector - Big Rock Point

ENC: Environmental Monitoring Report

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