

*Good job*



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

July 11, 1980

MEMORANDUM FOR: Frank Pagano, Chief, Emergency Planning Licensing Branch  
FROM: W.L. Axelson, Team Leader, Emergency Planning Licensing Branch  
SUBJECT: OBSERVATION OF AN EMERGENCY EXERCISE AT THE BIG ROCK POINT NUCLEAR PLANT

On June 24, 1980, an NRR/NRC Review Team observed an emergency exercise at the Big Rock Point (BRP) Nuclear Plant. The team consisted of myself, two staff members from NRC, Region III, and two staff members from the Los Alamos Scientific Laboratory. Team members were stationed in the following areas: Control Room; Technical Support Center; Operations Support Group Center; offsite Emergency Operations Facility; local hospital; and the BRP offsite environmental monitoring station. During this exercise, the State of Michigan, Charlevoix County, and Emmet County Emergency Plans were also tested. FEMA observed the state and local actions. The scenario is enclosed.

On June 25, 1980, a formal critique of the exercise was conducted with FEMA and representatives from the State of Michigan and Charlevoix and Emmet Counties. In general, FEMA felt that the exercise was successful and "passed" the State. I held a similar, but much less formal, critique with Consumers Power Company. In general, I felt the Big Rock Point exercise was a training exercise. The plant and corporate staff learned more from this exercise than from any previous exercises conducted. Several areas of concern were identified by the NRR Review Team. These were discussed with the licensee during the critique. As a result of the exercise, Consumers Power Company agreed to critique the exercise in a letter which will be submitted to the Office of Nuclear Reactor Regulation. As part of this submittal, they agreed to provide an "action plan" which will identify the deficiencies and indicate the corrective actions to be taken.

As you are aware, intervenors from the Concerned Citizens of Charlevoix were allowed to observe the licensee's actions during this exercise. Ms. Christa-Maria was stationed in the licensee's Technical Support Center and Mr. Jim Mills was stationed in the licensee's offsite Emergency Operations Facility (EOF). After the exercise, both members provided me with their specific comments. These comments are enclosed. In general, their observations were similar to that of the NRR team. Mr. Mills' comments indicated that P&ID's were not

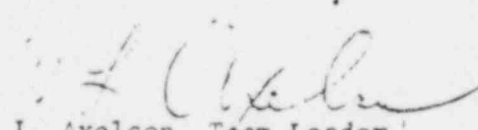
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July 11, 1980

available at the EOF. This was noted by the NRR team also. His other comment related to the location of the EOF (approximately 10 miles from the plant). This item is unresolved at this time. Ms. Christa-Maria's comments indicated that a status board was not available to the TSC. Her other comment indicated that licensee personnel were not familiar with the state and local plans. The team also identified both of these items and recommended additional training. Ms. Christa-Maria's further comments were unrelated to this exercise. I asked Ms. Christa-Maria if she wanted a formal response from NRC addressing her concerns as stated in her letter. She said, "no." I reiterated that our common concerns were addressed to the licensee during the critique.



W. L. Axelson, Team Leader  
Emergency Planning Licensing  
Branch

Enclosures: as stated  
cc w/encl:  
W. Paulson, NRR



# Group asks NRC to keep Big Rock shutdown

by Sara Gay Dammann

Another attempt to keep Big Rock Nuclear Power Plant closed was made by the Concerned Citizens of Charlevoix as a telegraphed intervention to the Nuclear Regulatory Commission (NRC) Saturday.

Also on Saturday, the Concerned Citizens met with a coalition of northern Michigan anti-nuclear groups, NOVA, to hear plans for peaceful civil disobedience at Big Rock, May 4.

The Concerned Citizens announced at while they "do not endorse civil disobedience, because they are committed to following every legal means to close the plant, individuals may participate in the May 4th action if the NRC does not respond to the intervention," according to JoAnne Er, a spokesperson for the Concerned Citizens.

The group used the present shutdown of the plant, to complete NRC required adjustments to containment relief valves and electrical equipment stemming from lessons learned at Three Mile Island, to ask the NRC to keep the plant closed until other containment problems are solved.

"It is irresponsible for the NRC to allow Big Rock to go back on line knowing that the containment shield is insufficient to contain gamma rays and protect the workers," Ms. Bier told the Courier.

Consumers Power Company in a recent press release stated the Big Rock plant, because it is one of the best in the country (opened in 1962), did not require a concrete shield inside of its containment building.

The present containment that its

present containment structure, made of three-quarter inch steel plate, is "adequate to prevent off-site release of radioactivity in the event of a serious accident," according to the release. But they added, "some radiation might be emitted directly through the steel sphere and hinder activities of workers at the plant site."

Consumers Power spokesmen told the press they are studying options "to minimize radiation exposure to plant employees in the event of an accident."

"Conceptual studies, already completed, show that design, engineering, procurement and construction could take up to 24 months."

The Concerned Citizens argued that "if the workers are not protected they cannot protect the plant in the case of an accident, and, therefore, the community is not protected," according to Ms. Bier.

She said "workers would be expected to perform the critical function of bringing the reactor under control while receiving massive doses of radiation."

The Concerned Citizens maintain that if the issue of the containment shield is serious enough for the NRC to have ordered changes be made and workers are in jeopardy of receiving excessive radiation in the case of an accident, the plant should not be allowed to function until the problem is solved.

Ms. Bier added that Big Rock received a \$15 million grant from the Energy Research and Development Agency (ERDA) in 1977 for experimentation with different radioactive fuels.

ERDA (now part of the Department of Energy) was formerly part of the

Atomic Energy Commission, as was the NRC.

"We feel the NRC is working with ERDA. They are knowingly allowing a dangerous situation to continue at Big Rock because of these experiments. They are doing this because Big Rock is in an area of low population."

"They are using local residents as guinea pigs for the nuclear industry," Ms. Bier charged, referring to documented failures of certain experiments in 1966 which result in the release of radioactivity into the atmosphere at Big Rock.

"This experimenting with fuels would never happen in a large population area," she stated.

According to Consumers Power Company, Big Rock spokesman Phil Loomis and Big Rock Reactor Engineer David Blanchard, the \$15 million grant involves a contract between the Department of Energy, Exon Nuclear Company Inc., (a major fuel supplier) and Consumers Power.

It is a fuel research and development project aimed at studying the interaction between fuel pellets and fuel cladding in a long run effort to reduce the stress on cladding.

"The program is in its first cycle and will probably go on for eight years," Loomis stated in a telephone interview Monday.

"Exon will come on-site and remove rods from the fuel bundles and ship them to the Haden Test Reactor in Sweden where they will be tested to see how successfully stress has been reduced."

Loomis asserted that Big Rock is not experimenting.

"All we do is produce power but with different kinds of pellets in different

kinds of cladding and various kinds of combinations," he said. "General Electric, which is also a fuel supplier, is doing the same thing with Commonwealth Edison Company in Chicago."

Blanchard also revealed that General Electric is conducting tests at Big Rock on certain metals, including stainless steel and zirconium used in reactor fuel assemblies.

Speaking personally, Ms. Bier said she had not decided whether she would become involved in the acts of civil disobedience planned for May 4th at Big Rock.

She reported that NOVA had not announced its plans in detail except that they would be peaceful.

"It will probably involve blocking access to Big Rock," Ms. Bier said.

"Concerned Citizens are saying to the NRC, "she said, "Please listen to us. Please allow us to use legal channels to protect ourselves."

She charged Consumers Power Company with "blatant negligence" for operating the plant without complete containment shielding.

The plant is expected to go back on line this weekend, according to Loomis.

**thomas**  
Real Estate

**Congratulations!**  
Our new Chamber of Commerce Board of Directors: Nellie Hiolo, John Yaroch, Jim McGarry and Dennis Wojan.

Reactor Scram and Loss of Coolant accident at 9:10 opened EOP at Boyne City.

Non-essential people leave Big Rock site.

From Class B accident in progress.

State police informed then Class C accident situation.

Confirmation call to Bechtel Corp. for bad valve plans to be found and checked.

10:00 call for General Emergency and core sprays not working.

Reactor Water Level declining and containment valve problems.

No plans and diagrams avail. from Bechtel.

People advised to seek shelter.

11:40 "Random call" to Pontiac regional office.

They do not know of Big Rock problem.

Question arises of vent valves closing.

At 12:55 the call came to evacuate all people within 5 miles of Big Rock.

Accidents then, of very serious nature can happen at Big Rock.

Why are area residents and summer population so complacent as to put up with danger potentials of Big Rock just for a probable

12% general power grid feed-in?

This area is too important to embrace nuclear pollution and problems.

11:40 "Print. workers" radiated to lung - sent to Charlevoix Hospital.

This info. came approx. 40 min. late to EOP. "Rotation" of EOP stenographer needed for mass of info.

Jackson boys congratulate each other on a "tough" job well done and plenty of P.R. was had by all.

NRC plans recommended the Emergency Operation Facility (E.O.F. Site) be approx. one mile from Big Rock but for reasons of convenience and publicity it was ill-located 13 miles away in Boyne City.

Visitors were able to ask some questions and noted the pre-built game plan to go well.

High reliance on telephones was both a strength and weakness.

Center was manned mostly by imported Jackson office people.

No Med. people were present at E.O.F.

EMERGENCY PREPAREDNESS EXERCISE

BIG ROCK POINT NUCLEAR PLANT

JULY 24, 1980

PARTICIPANTS

CONSUMERS POWER COMPANY

STATE OF MICHIGAN

CHARLEVOIX COUNTY

EMMET COUNTY

CHARLEVOIX HOSPITAL

REGIONAL ADVISORY COMMITTEE (NRC/FEMA)

GENERAL PHYSICS CORPORATION



Exercise  
Time

## EXERCISE SCENARIO

0700	T=@1:00 a.m.	<p>The primary system leak rate calculation tests (T1-02) indicate a leak of approximately 12 gpm.</p> <p>The Site Emergency Director declares an <u>Unusual Event</u>; notifications are made to the NRC; Charlevoix County; Petosky State Police; and Power Controller.</p>
0830	T=-1/2 hr	<p>Plant instrumentation now reveals a leak of greater than 50 gpm from the primary coolant system.</p> <p>The plant has initiated shutdown procedures.</p> <p>The Site Emergency Director has declared an <u>Alert</u>; sounded the emergency siren; initiated personnel accountability and evacuation; performs notifications; and initiated the Site Emergency Plan.</p> <p><i>The county and state Emergency Plans will be placed in effect with EOC's activated and personnel notified.</i></p>
0900	T = 0	<p><u>LOSS OF COOLANT ACCIDENT (LOCA)</u> from primary coolant system downstream of the recirculation system isolation valves; complete reactor shutdown (SCRAM) has occurred.</p> <p>REACTOR INDICATIONS:</p> <ol style="list-style-type: none"><li>1. Off gas monitor alarm was at 50,000 <math>\mu\text{C}/\text{sec}</math> or <math>2.5(E10^3)</math> counts per second.</li><li>2. Off gas system isolation valve has closed</li><li>3. Sphere cam Radiation indication</li><li>4. Core Spray system initiation</li><li>5. Meteorological instrumentation-wind from the west at 10 mph; partly cloudy (0.7 at 8,000 feet)</li></ol>

0900	T= 0 min	<p>Based on the LOCA and instrumentation the Site Emergency Director will declare a <u>SITE EMERGENCY</u></p> <ol style="list-style-type: none"> <li>1. Initiate personnel assembly and accountability</li> <li>2. Complete activation of Tech. Support Center</li> <li>3. Notify Plant Emergency Personnel</li> <li>4. Continue to implement the Site Emergency Plan</li> </ol>
0905	T= 5 min	<p>Technical Support Center provides updates to Charlevoix and Emmett Counties; Petoskey State Police; NRC; General Office; Boyne City</p>
0900 - 0925	T= 0 - 25 min	<p><i>Initial public notification and warning by Charlevoix and Emmett Counties; all county and state EOCs are fully activated and staffed.</i></p>
0900 - 0930 <i>Initial Public Warning Teams</i>	T= 0 - 30 min	<p>Consumers Power Company monitoring teams dispatched to carry out on site monitoring and report results to TSC. Health Physics personnel dispatched to be on alert at Charlevoix County EOC.</p> <p>Site evacuation of non essential personnel initiated and completed.</p> <p>Operations Support Center activated.</p>
0930	T= 1/2 hr	<p>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 .</p> <p><u>NOTE:</u> 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</p>



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 -  
1100T=1 1/4 to  
1 3/4 hrPLANT:

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  $7.38 \times 10^{-2}$  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 -  
1100T= 1 1/4 to  
2 hrSTATE 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.

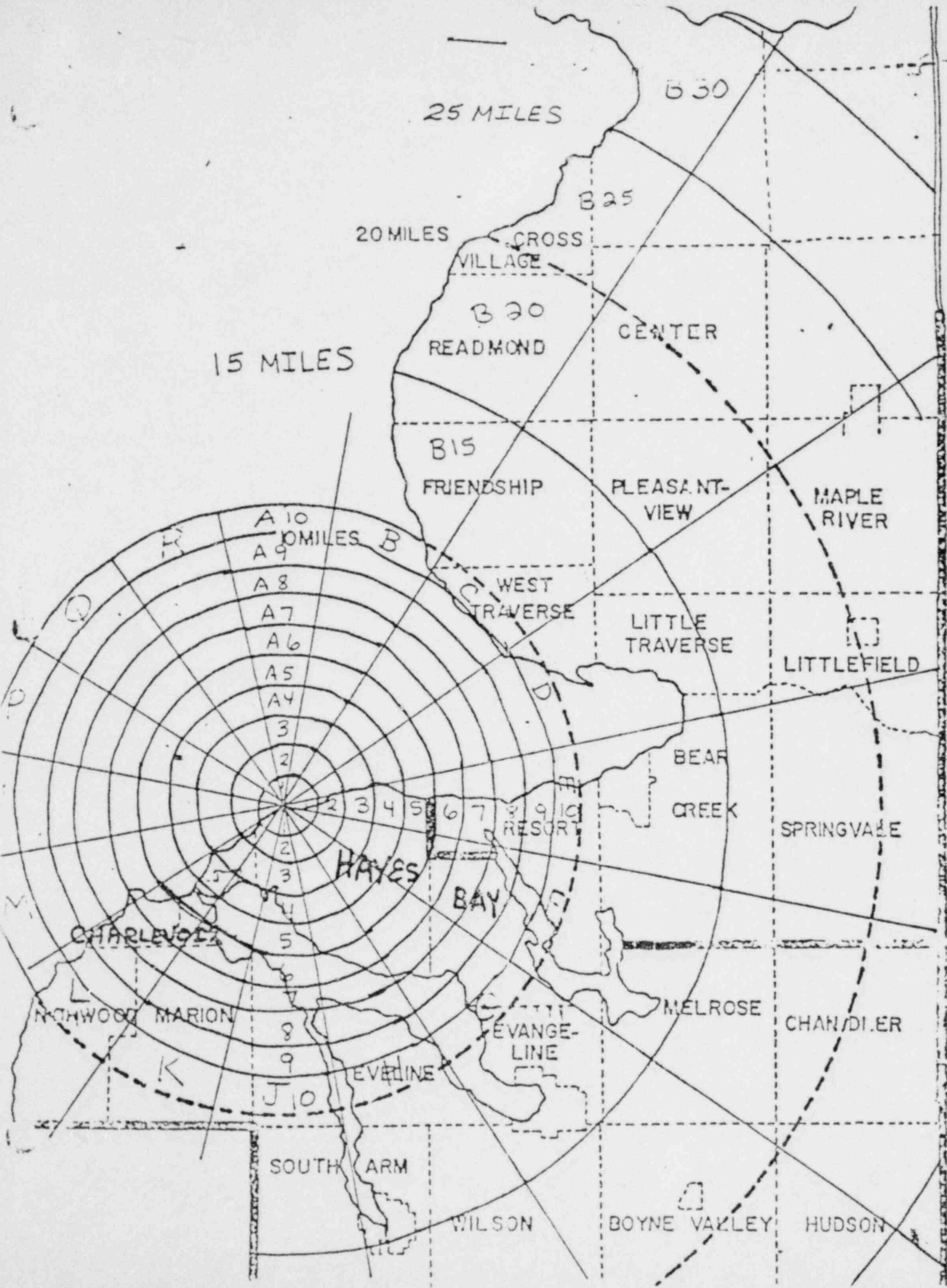
BOYNE CITY EOC:

Carry out support functions for the plant. Continue liaison activities with other off site EOCs and the plant.

<p>1200</p>	<p>T = 24 - 30 hrs of elapsed time</p>	<p>The condition is downgraded to an <u>ALERT</u> status by the Site Emergency Director based on;</p> <ol style="list-style-type: none"> <li>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.</li> <li>2. All off-site dose projections are now within allowable limits.</li> </ol>
<p>1215</p>		<p>Off-site agencies are notified of the downgraded status: State EOC - Petoskey; NRC; Boyne City; General Office Control Center; counties thru State EOC</p>
<p>1215 - 0100</p>		<p>Based on the downgraded situation the plant and off-site agencies will begin planning the re-entry and recovery procedures.</p> <p><u>PLANT:</u></p> <p>Health Physics and damage control and repair teams are insuring that:</p> <ol style="list-style-type: none"> <li>1. The reactor is shut down</li> <li>2. The reactor is being cooled sufficiently</li> <li>3. The containment integrity is intact.</li> </ol> <p><u>STATE AND COUNTY:</u></p> <p><i>Initiate public notifications concerning re-entry procedures; deactivate relocation centers; determine long term actions for protection and monitoring of the food and water supply</i></p>

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.



25 MILES

B 30

20 MILES

CROSS VILLAGE

B 25

15 MILES

B 30  
READMOND

CENTER

B 15  
FRIENDSHIP

PLEASANT-VIEW

MAPLE RIVER

A 10  
A 9  
10 MILES B

WEST TRAVERSE

LITTLE TRAVERSE

LITTLEFIELD

BEAR CREEK

SPRINGVALE

HAYES BAY

CHARLEVOIX

NOTHWOOD MARION

EVANGELINE

MELROSE

CHANDLER

EVELINE

SOUTH ARM

WILSON

BOYNE VALLEY

HUDSON



## 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.

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 evaluatees 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.

- 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

## 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 evaluatees 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. This 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.

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

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

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.

EMERGENCY OPERATIONS CENTER

BOYNE CITY

LOCATION: Consumers Power Company Service Center  
Boyne City, Michigan

- MISSION:
- (1) Support function to the plant
  - (2) Serve as a contact/location point for the NRC field team
  - (3) Serve as a mustering point for vendors, contractors, and plant relief personnel. Such personnel will be briefed and trained as necessary to minimize radiological exposure when they go to the plant site.
  - (4) Serve as the location for Consumers Power media relations personnel who are not assigned to the media center at the Holiday Inn, Petoskey.
  - (5) Serve as a liaison point for state and local government.

PERSONNEL AND DUTIES:

- (1) Licensed Training Instructor/Training Instructor (EPIP 3c & 4z)
  - (a) Proceed to facility as directed by SED
  - (b) Arrange furniture, plug in additional telephones, energize the radio equipment, and verify the communications links with the NRC and General Office Control Center.
  - (c) Assist responding General Office Personnel.
  - (d) Appoint/arrange for an emergency recorder
- (2) Other Facility Support Personnel
  - \* (a) Vice President of Nuclear Operations
  - \* (b) Engineering and Health Physics Personnel
  - (c) Vendors, contractors, consultants
  - (d) NRC Emergency Response Team
  - (e) DOE - Interagency Radiological Assistance Team
  - \* (f) Other General Office Support Personnel

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

\_\_\_\_\_  
 Evaluator

\_\_\_\_\_  
 Time Began

\_\_\_\_\_  
 Time Ended

I. Establishment of Boyne City Facility:

After the emergency was declared:

- a. When was the designated individual dispatched: \_\_\_\_\_
- b. When did the individual arrive: \_\_\_\_\_
- c. When was the facility physically ready for operations: \_\_\_\_\_
- d. When were the communications checks completed: \_\_\_\_\_

II. How did the facility carry out its:	<u>EXC</u>	<u>GOOD</u>	<u>SATIS</u>	<u>POOR</u>	<u>FAIL</u>
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



BIG ROCK POINT NUCLEAR PLANT  
TECHNICAL SUPPORT CENTER

Location: Third floor, across from Control Room

- Mission:
- (1) Used in support of Control Room for the assessment of plant status and any potential offsite impact.
  - (2) To provide control of all plant activities during the emergency including: firefighting; first aid; damage assessment and control; on and off-site communications.
  - (3) To provide direction to re-entry and recovery operations

Personnel and Duties:

- (1) Site Emergency Director - TSC Coordinator; the Plant Superintendent or alternate
  - (a) Provide overall direction
  - (b) Request General Office control center activation
  - (c) Assure primary notifications
  - (d) Direct liaison with offsite agencies
  - (e) Procure/request necessary personnel and/or equipment
  - (f) Assure complete and accurate recordkeeping
  - (g) Assure personnel accountability
  - (h) Direct evacuation/recovery actions
  - (i) Assure continued plant security
- (2) Operations and Maintenance Superintendent - (first alternate TSC director) direct plant operations and maintenance; damage control teams.
- (3) Technical Superintendent - coordinates activities of the engineering emergency team
- (4) Technical Engineer - dedicated offsite communicator
- (5) Plant Health Physicist - advise on health and safety of plant personnel; provide necessary dose predictions.
- (6) Operations Supervisor - assist in determining accident classification and control measures; control access to Control Room.

- (7) Nuclear Safety Technical Engineer - assist in planning the re-entry and recovery operations.
- (8) Reactor Engineer -
- (9) Emergency Recorder - maintain log of activities and assure that notifications are made.

BIG ROCK POINT NUCLEAR PLANT  
EXERCISE EVALUATION  
TECHNICAL SUPPORT CENTER

EVALUATOR
TIME BEGAN
TIME ENDED

I. Establishment of T.S.C.	<u>0-5</u>	<u>5-10</u>	<u>10-15</u>	<u>+15</u>	(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:	<u>EXC</u>	<u>GOOD</u>	<u>SATIS</u>	<u>POOR</u>	<u>FAIL</u>
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:	<u>EXC</u>	<u>GOOD</u>	<u>SATIS</u>	<u>POOR</u>	<u>FAIL</u>
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

	<u>EXC</u>	<u>GOOD</u>	<u>SATIS</u>	<u>POOR</u>	<u>FAIL</u>
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

VI. Summary:

<u>AREA</u>	<u>MAX SCORE</u>	<u>MIN SCORE</u>	<u>ACTUAL</u>
I	58	51	---
II	55	23	---
III	70	28	---
IV	120	70	---
Overall	313	172	---

BIG ROCK POINT NUCLEAR PLANT  
OPERATIONS SUPPORT CENTER

Location: Air Compressor Room  
(Alternate: Screenhouse)

- Mission:
- (1) Assembly Area II for personnel not assigned to Control Room or Technical Support Center.
  - (2) Assembly location also for contractors, vendors, and plant visitors.
  - (3) Monitoring
    - (a) Area radiological monitors
    - (b) Extent of core damage monitor
    - (c) Stack gas release rate monitor

Personnel and Duties

- (1) Chemical and Radiation Protection Supervisor - OSC Director (acts as alternate Plant Health Physicist)
  - (a) Dispatch on-site and off-site monitoring teams
- (2) Maintenance Director - (alternate Assembly Area II director) - Team leader for team #8 composed of maintenance/repair personnel.
- (3) Instrument and Control Supervisor - Team leader for team #7 composed of instrumentation and technical personnel.
- (4) Maintenance Supervisor
- (5) Chemical and Radiation Protection Technicians
- (6) Instrument Technicians
- (7) Other plant personnel and off duty personnel reporting back to work.
- (8) Other persons on site - visitors, contractors, vendors



BIG ROCK POINT NUCLEAR PLANT  
 OPERATIONS SUPPORT CENTER  
 EXERCISE EVALUATION

EVALUATOR
TIME BEGAN
TIME ENDED

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)
- B. 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.

	<u>EXCELLENT</u>	<u>GOOD</u>	<u>SATIS</u>	<u>POOR</u>	<u>FAIL</u>
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

	<u>EXCELLENT</u>	<u>GOOD</u>	<u>SATIS</u>	<u>POOR</u>	<u>FAIL</u>
3. Onsite communications	10	7	5	3	0
4. Personnel control and accountability	10	7	5	3	0

III. Rate the adequacy of:	<u>EXCELLENT</u>	<u>GOOD</u>	<u>SATIS</u>	<u>POOR</u>	<u>FAIL</u>
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.

SUMMARY:	<u>AREA</u>	<u>MAX</u>	<u>MIN</u>	<u>ACTUAL</u>
	I	40	25	---
	II	60	30	---
	III	<u>35</u>	<u>21</u>	<u>---</u>
	TOTAL	135	76	

RADIOLOGICAL MONITORING TEAM  
BIG ROCK POINT NUCLEAR PLANT

LOCATION: Assembly Area II/Operations Support Center

- MISSION:
- (1) On-site environmental monitoring
  - (2) Off-site environmental monitoring
  - (3) Support other emergency operations - personnel egress screening, first aid and monitoring of injured/contaminated personnel, assist in firefighting/rescue operations

PERSONNEL AND DUTIES:

- (1) Plant Health Physicist (located in TSC) - has overall responsibility for providing advice on health and safety matters
  - (a) Provides dose predictions based on instrumentation, meteorological data, and environmental monitoring results
  - (b) Assures accurate recordkeeping of Health Physics data
- (2) Chemical and Radiation Protection Supervisor (located in OSC)
  - (a) Director of Operations Support Center, Alternate Plant Health Physicist
  - (b) Direct supervision of on and off-site monitoring teams
- (3) Chemical and Radiation Protection Technicians
  - (a) Perform environmental monitoring
  - (b) Assist in decontamination procedures

RADIOLOGICAL MONITORING TEAMS  
BIG ROCK POINT NUCLEAR PLANT  
EXERCISE EVALUATION

\_\_\_\_\_  
Evaluator

\_\_\_\_\_  
Time Begun

\_\_\_\_\_  
Time Ended

I. Activation - How long after the emergency was sounded did it take for:	<u>0-5</u>	<u>5-10</u>	<u>10-15</u>	<u>+15 minutes</u>
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:	<u>EXC</u>	<u>GOOD</u>	<u>SATIS</u>	<u>POOR</u>	<u>FAIL</u>
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	<u>EXC</u>	<u>GOOD</u>	<u>SATIS</u>	<u>POOR</u>	<u>FAIL</u>
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:

BIG ROCK POINT NUCLEAR PLANT  
EXERCISE EVALUATION  
FIRST AID TEAM

I. At what time was first aid team notified?  
(T = 0 for first aid team) \_\_\_\_\_

II. At what time was first aid team dispatched: \_\_\_\_\_  
 T + 5 = 10  
 5 - 10 = 7  
 10 - 15 = 4  
 +15 = 0

III. At what time did first aid team reach victim? \_\_\_\_\_

IV. First Aid Procedures:

- |  |   |   |       |
|--|---|---|-------|
| A. Was radiological survey conducted prior to treatment?   | Y | N | _____ |
| B. Was primary body survey conducted immediately?          | Y | N | _____ |
| C. Was decontamination conducted prior to treatment?       | Y | N | _____ |
| D. Was secondary body survey conducted prior to treatment? | Y | N | _____ |
| E. Were injuries correctly diagnosed and treated?          | Y | N | _____ |

V. Transport Procedures

- |   |   |   |       |
|---|---|---|-------|
| A. Was ambulance requested promptly?                                      | Y | N | _____ |
| B. Was ambulance emergency kit utilized to protect crew and vehicle?      | Y | N | _____ |
| C. Was contamination control maintained on way to hospital?               | Y | N | _____ |
| D. Was portable air sampler picked up at access control (Health Physics)? | Y | N | _____ |



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	<u>EXC</u>	<u>GOOD</u>	<u>SATIS</u>	<u>POOR</u>	<u>FAIR</u>
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 - ---

FIRST AID SCENARIO

	Actual Time	Elapsed Time T+	Drill Time T+
1. Time injured person introduced			
2. Time first aid team alerted			
3. Time first aid team dispatched			
4. Time first aid team on scene			
5. Ambulance requested			
6. Hospital notified			
7. Victim moved to gate			
8. Victim loaded in ambulance			
9. Victim arrives at hospital			
10. Treatment initiated			
11. Treatment completed			
12. Decontamination initiated			
13. Decontamination completed			
14. All clear			

Note any problems encountered and recommended corrective actions:

\_\_\_\_\_  
EVALUATOR

BIG ROCK POINT NUCLEAR PLANT

SECURITY FORCE

Location: Main Guard House

- Mission:
- (1) Site access control
  - (2) Notify and evacuate any nearby fishermen or boaters onshore and offshore of plant.
  - (3) Direct personnel exiting the plant in case of a site evacuation.
  - (4) Perform personnel accountability checks as required.
  - (5) Interface with responding off-site emergency responders - screen, escort, direct, assist.

Personnel and Duties:

- (1) Property Protection Supervisor
  - (a) Receive personnel accountability information and report to Site Emergency Director.
  - (b) Direct Security Force activities
    - (i) Security Officers to Assembly Areas II and III
    - (ii) Security Officers to Main access road
    - (iii) Security Officers to check for fishermen, boaters, or trespassers in immediate area.
- (2) Security Shift Leader - as necessary in the absence of the Property Protection Supervisor.
- (3) Security Officers

BIG ROCK POINT NUCLEAR PLANT

EXERCISE EVALUATION

SECURITY FORCE

EVALUATOR

TIME BEGUN

TIME ENDED

I.		<u>0-5</u>	<u>5-10</u>	<u>10-15</u>	<u>+15</u>	
	How long after the emergency was sounded did it take for: (minutes)					
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.	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	
II.		<u>EXC</u>	<u>GOOD</u>	<u>SATIS</u>	<u>POOR</u>	<u>FAIL</u>
	Did Security Force personnel know and correctly carry out their duties					
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

III. Rate the adequacy of:	<u>EXC</u>	<u>GOOD</u>	<u>SATIS</u>	<u>POOR</u>	<u>FAIL</u>
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:	<u>AREA</u>	<u>MAX</u>	<u>MIN</u>	<u>ACTUAL</u>
	I	56	32	---
	II	80	39	---
	III	<u>25</u>	<u>15</u>	---
	TOTAL	161	86	---

MEDIA CENTER  
BIG ROCK POINT NUCLEAR PLANT

LOCATION: Holiday Inn, Petoskey, Michigan

- MISSION:
1. To serve as a joint media center
  2. To serve as a central point for public information
  3. To assist media representatives with the preparation of news releases, including technical briefings on a regular basis

PERSONNEL AND DUTIES:

1. Vice President - Public Affairs (Director)
2. General Supervisor, Public Information
3. Public Affairs Director, Big Rock Point Plant
4. Executive Vice President, Energy Supply
5. Technical briefers from Consumers Power Company
6. Public Information Officers from Charlevoix and Emmett Counties; the State of Michigan; and the Federal Government

NOTE: No formal exercise evaluation criteria has been developed due to the actual press briefing taking place before the exercise. A general evaluation will be performed on the basis of adequacy of facilities, interface of the various PIOs, and the coordination and direction of activities.