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OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-305/81-13

Docket No. 50-305 License No. DPR-43

Licensee: Wisconsin Public Service Corporation
Post Office Box 1200
Green Bay, WI 54305

Facility Name: Kewaunee Nuclear Power Plant

Inspection At: Kewaunee Site, Kewaunee, WI

Inspection Conducted: June 8-19, 1981

Inspectors: J. A. Pagliaro, Team Leader — 10/26/81

for W. Grant — 10/26/81

for P. Psomas — 10/26/81

for B. Zalcman — 10/26/81

Approved By: W. L. Axelson, Acting Chief
Emergency Preparedness Section — 10/26/81

C. J. Paperiello, Chief
Emergency Preparedness and
Program Support Branch — 10/27/81

Inspection Summary

Inspection on June 8-19, 1981 (Report No. 50-305/81-13)
Areas Inspected: The appraisal of the state of onsite emergency preparedness at the Kewaunee Nuclear Power Station involved seven general areas: Administration of the Emergency Preparedness Program; Emergency Organization; Training; Emergency Facilities and Equipment; Procedures which Implement the Emergency Plan; Coordination with Offsite Agencies; and Exercises and Drills. The inspection involved 531 inspector-hours onsite by six NRC inspectors.
Results: One item of noncompliance was identified regarding quantity of supplies required by Procedure RC-HP-180, and significant deficiencies were identified with respect to the planning standards in 10 CFR 50.47(b).

1.0 ADMINISTRATION OF EMERGENCY PLAN

1.1 Responsibility Assigned

The Manager, Nuclear Power, has the overall authority and responsibility for radiological emergency response planning. The Nuclear Systems Supervisor, Corporate, is the Emergency Planning Coordinator. These positions are specified in the Plan. At this facility, the Site Emergency Coordinator is known as the Site Emergency Director, as per the emergency plan. Emergency planning is part of the technical staff's normal duties.

Communications between the corporate headquarters staff in Green Bay and the site staff for input into the emergency planning process appears to be acceptable.

Two individuals at the site have the responsibility for emergency planning and coordination. However, these responsibilities are not specifically identified in writing.

Management and the staff at corporate are aware of the personnel assigned responsibilities for emergency planning at the site.

1.2 Authority

Based on the Kewaunee Emergency Plan review and interviews with corporate management, personnel assigned an emergency function are given authority to perform assiged duties by the Kewaunee Nuclear Power Plant Emergency Plan. Management at the site and at the Corporate Office in Green Bay stated they would support the individuals exercising the authority given to them by the emergency plan. There are two individuals onsite who have this authority and report directly to the Plant Manager.

1.3 Coordination

Based on interviews with site emergency planning coordinators, they stated that they are not always included in Plant Operations Review Committee (PORC) meetings and budget input meetings involving emergency planning. There is coordination between all licensee organizations regarding emergency planning. However, the interactions between site and corporate individuals is not well defined. There has been coordination between the licensee and offsite support groups. Coordination with the general public is under development. There is little documentation supporting the delination of responsibility for coordination.

1.4 Selection and Qualification

Based on interviews with corporate management it was learned selection criteria has been established in draft form for management personnel but has not been formalized. The incumbents

meet these criteria. This draft does not specify selection and qualification criteria for individuals with emergency function responsiblities. To date, professional development training courses have not been made available to personnel responsible for emergency planning to maintain their state of the art knowledge.

Based on the above findings in Sections 1.1 to 1.4, this portion of the licensee's program appears to be acceptable, but the following matters should be considered for improvement.

- Site personnel responsible for emergency planning and coordination should have their assigned responsibilities specified in writing.

- Site personnel responsible for emergency planning should be included in all meetings, such as Plant Operations Review Committee (PORC) and budget meetings, involving emergency planning.

- A formal document, describing interaction between site and corporate individuals and decision making regarding emergency planning and preparedness, should be developed.

- A formal desciption stating the delineation of responsibility for emergency planning coordination should be written.

- Selection and qualification criteria should be developed and formalized for individuals with emergency function responsbilities.

- Personnel responsible for emergency planning and coordination should receive annual professional development training courses to ensure they maintain their state of the art knowledge.

2.0 EMERGENCY ORGANIZATION

2.1 Onsite Emergency Organization

The auditors verified that an effective emergency organization was in place by review of the emergency organization and responsibility assignments. Key emergency organization assignments are provided in ACD 12.1 "Kewaunee Emergency Organizational Structure." The responsibilities are given for the following positions: Shift supervisor, Shift Technial Advisor, Emergency Director, Event Operations Director, Technical Support Center Coordinator, Radiological Protection Director, Support Activities Director, Security Director and Emergency Response Manager.

The auditors reviewed the plan and procedures for onsite emergency organization augmentation, and discussed augmentation with plant and corporate representatives. Lines of succession and augmentation have not been formally delineated. Those personnel that are to augment the onsite staff have work experience in the general type of duties of their assigned functional areas.

Several Site Directors who are assigned responsibilities in the emergency organization were interviewed to verify that they were aware of their responsibilities and authority. The following Directors were interviewed: Emergency Director, TSC Communications Coordinator, Support Activities Director, Emergency Response Director and the Radiological Protection Director.

Each of the above staff members were aware of their emergency responsibilities and authority. Each had a working knowledge of the emergency plan and the implementation of the sections for which they are responsible. However, lines of succession for each of the directors of emergency functions are not specified in the procedures.

Base on the above findings, this portion of the licensee's program appears to be acceptable, but the following matter should be considered for improvement.

- The lines of succession of each of the directors of emergency functions should be specified in a procedure.

2.2 Augmentation of Emergency Organization

2.2.1 Offsite Emergency Organization

The augmentation of the licensee's offsite emergency organization is begun by the Site Emergency Director or his designated alternate who activates plant personnel for the less serious emergencies such as an Unusual Event or an Alert. When a Site Area or General Emergency is declared, the full offsite recovery organization responds to the Emergency Operations Facility (EOF) to support the onsite emergency organization. The corporate organization provides experienced personnel the first 24 hour period, however, protracted augmentation has not been addressed. Supporting contractors are specified in the plan and written agreements are in effect as reviewed in the licensee's files by the auditor.

2.2.2 Onsite Emergency Organization

The Shift Supervisor initially augments the onsite emergency organization by contacting appropriate personnel on a tone/voice radio pager system. During other than normal working hours he notifies off duty personnel by activating the tone/

voice radio pager system. Procedure ACD 12.7 Emergency Communication System, specifies how call lists and pager systems should be activated depending on the classification of the emergency. The licensee stated that they can not meet the minimum staffing or augmentation specified in NUREG-0654, Table B-1. The date for full implementation of Table B-1 is July 1, 1982; therefore, this remains as an open item. The provision for using a pager system for staff augmentation is currently unacceptable since at present there is not a duty roster provision nor a plan of what will be done on holiday weekends to ensure personnel are available. Details of this matter are provided in Appendix D, Planning Standard (b)(2) transmitted concurrently with this report.

The licensee has letters of agreement with local services groups, that augment the organizational capabilities. The licensee has not formally documented the authority, responsibilities and limits on actions of corporate, contractor, and local services support group personnel. Onsite of emergency response groups, e.g., health physics technicians did not understand their areas of responsibility during emergency situations.

Based on the above findings in Sections 2.2.1 and 2.2.2, improvements in the following areas are required to achieve an acceptable program.

- Minimum shift staffing and augmentation as specified in NUREG-0654, Table B-1 or an acceptable alternative has not been provided.

- An augmentation and staffing procedure for the first 30 and 60 minutes of an emergency has not been provided.

3.0 EMERGENCY PLAN TRAINING/RETRAINING

3.1 Program Established and Implementation

3.2

The licensee's supervisor of the Training Department has stated that Wisconsin Public Service Company does not have a formally documented and company approved Emergency Plan Training Program. The licensee does not have a training program for offsite organizations and agencies on the KNPP Emergency Plan and Procedures. Lesson plan outlines that were provided by the Training Department are for Emergency Department Directors, (e.g., Radiation Protection Director, Emergency Center Director, etc.). The lesson plan outlines do not have student performance objectives.

Plant personnel stated they have received no formal Emergency Plan training other than a discussion session during a safety

meeting. Based on interviews with personnel responsible for training, there is no indication of training of licensee augmentation personnel being performed at this site. Offsite local support groups stated they have not received emergency preparedness training from KNPP personnel in the past year but the Kewaunee Fire Department and Sheriff Department received an orientation course approximately two years ago. Point Beach Nuclear Power Plant personnel provided training on generic issues in emergency preparedness to Manitowoc Sheriff's Department and Two Rivers Hospital personnel and it appeared to be adequate. A representative of the Training Department has indicated that there is no training of offsite emergency protective action decision makers dealing with the relationship between plant conditions and protective measures. Based on an interview with a Shift Technical Advisor (STA), there were no provisions for briefing nonlicensee augmentation personnel upon arrival onsite in response to a request for assistance.

Training records indicate there has been formal Emergency Plan and Procedure training only for Emergency Directors. The training program given was described by the Training Department and it is considered to be incomplete (e.g., no performance objectives and no hands-on experience). Based on numerous interviews with plant personnel, it appears that the SROs, ROs, and STAs (control room personnel) understood their emergency procedures and responsibilities, however, the onsite support personnel, e.g., health physics technicians, do not have a sufficient understanding of the Emergency Plan and Procedures (where available) to operate effectively in an emergency.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program.

- Establish and conduct a formal training program which provides for the maintenance of training records and is consistent with NUREG-0654 for all onsite and corporate emergency response personnel in the area of Emergency Plans and Procedures.

- Establish and conduct a formal training program consistent with NUREG-0654 for offsite organizations and agencies in the area of Emergency Plans and Procedures.

4.0 EMERGENCY FACILITIES AND EQUIPMENT

4.1 Emergency Facilities

4.1.1 Assessment Facilities

4.1.1.1 Control Room

The Control Room was examined by the auditors several times during the appraisal. It was noted that current copies of

Emergency Plan and its implementing procedures (ACDs 12.1 through 12.11) were available.

Control Room instrumentation related to emergency detection and accident assessment which was identified in implementing procedures was in place and operable.

Based on the above findings, this portion of the licensee's program appears to be acceptable.

4.1.1.2 Technical Support Center (TSC)

The present TSC is an interim facility, since a new TSC is under construction adjacent to the north side wall of the Auxiliary Building.

The interim TSC is located in a conference room (approximately 28 x 25 feet) and two adjoining offices (approximately 12 x 16 and 12 x 12 feet) located on the first floor of the Administration Building. Three other small offices in the immediate area can also be used to support the interim TSC.

Reference material available in the interim TSC includes a controlled set of plant drawings (on Microfiche) and copies of the FSAR, Technical Specifications, Plant Operating Procedures, and related documents. The latter documents are available in the plant library located adjacent to the conference room.

Telephone lines available in the interim TSC include NRC, ENS and HPN extensions; four direct inplant lines (to the HP Office, interim OSC, Site Access Facility, and Control Room); NAWAS; and extensions from the plant telephone system. These telephones are grouped in two areas in each of two offices. In the auditors judgement, the grouping of these telephones would make them extremely awkward for several people to use them simultaneously.

The interim TSC has neither a filtered, isolatable ventilation system nor any special shielding. It, therefore, may not be habitable following a major accident. As part of the activation procedure for the TSC (ACD 12.8), a radiation survey is performed. The interim TSC is located about 1.5 minutes from the Control Room (it is necessary to climb one flight of stairs in the Administration Building, traverse the remainder of this building, and then traverse the width of the Turbine Building).

Other supporting facilities available in the interim TSC includes a satellite terminal which accessed the plant process computer and a satellite terminal and printer which

accessed a computer in the licensee's corporate office in Green Bay. A programmable calculator is located in the same office as the computer terminals.

The auditors toured the permanent TSC (under construction with the project engineer responsible for overseeing the facility design and construction. This individual indicated that the approximate completion date for this facility is September 1, 1981. The permanent TSC was described in a licensee letter to NRC dated January 5, 1981. The TSC consisted of two floors elevation 606' and 586", the latter elevation being below grade). The upper floor contained a large room designed for approximately ten partitioned office spaces and an adjacent records and files storage room. The lower floor contained a large room with an instrument readout panel. Reactor parameters and area and process monitor data to be available at this panel were described in Section 6.1.2 of the Emergency Plan. A satellite terminal for the plant process computer will be located in an adjacent room. An upgrade of the data base to be available at the TSC, e.g., Regulatory Guide 1.97 parameters and the SPDS, was contained in a licensee letter to NRC dated June 1, 1981. Office space for NRC personnel was provided adjacent to the main work area. ENS and HPN telephones were to be relocated from the interim TSC.

The permanent TSC was readily accessible from the Control Room (one minute walking time down two flights of stairs) and, according to licensee estimates, it will meet the same habitability requirements as the Control Room. A shielded counting room with direct access to the Auxiliary Building (and the post accident sample panel) was also being constructed on the lower level of the TSC.

In the above discussion, it was pointed out that the interim TSC (the presently operable TSC) may not be habitable immediately following a major accident. Because the permanent TSC was in late stages of construction and due to be operable by September 1, 1981, the Appraisal Team concludes that the potential lack of habitability, as well as the crowded telephone access for the interim TSC does not significantly detract from the facility's acceptability on a short-term basis. If the operational date for the permanent TSC would be significantly delayed beyond September 1, 1981, the conclusion relative to acceptability of the interim TSC will require re-examination; therefore, this is an open item. The due date for implementation is October 1, 1982.

Based on the above findings, the Interim Technical Support Center appears to be acceptable.

4.1.1.3 Operational Support Center (OSC)

The OSC (termed Operational Support Facility by the licensee) was defined in Sections 6.1.5 and 6.1.6 of the Emergency Plan. An interim OSC was located on the 606' elevation of the turbine Building. The facility consisted of a 24' x 24' room containing chairs, tables and telephones. The telephones provided were direct lines to the TSC and Control Room, two plant extensions, and a plant paging system station. The facility would be activated by the Support Activities Director in accordance with ACD 12.8 and was designated as an assembly point for Maintenance and I&C personnel. This facility will only be used as an OSC (or OSF) until the permanent TSC is operable, at which time the interim TSC (Section 4.1.1.2 of this report) will become the permanent OSC. The permanent TSC has been designated as an alternate OSC, should the latter become uninhabitable. During facility tours, the auditors noted that the permanent TSC appeared large enough to function as a backup OSC. Until the permanent OSC becomes operable, this is an open item. The due date for implementation is October 1, 1982.

Based on the above findings, the Interim Operational Support Center appears to be acceptable.

4.1.1.4 Emergency Operations Facility (EOF)

The EOF, designated as the permanent facility, was located approximately 100 yards northwest of the plant, as specified in Section 6.1.7 of the Emergency Plan. Because of the close proximity to the site and because no shielding had been provided for the EOF, it would not be habitable during the first eight hours following a major accident. The building ventilation system had been modified to enable it to be put into a recirculation mode and HEPA filtration was provided for. A filter bypass duct (for normal building operation) had not been installed to permit the filter to be left in place, therefore, it would have to be installed at the time it was needed. The EOF would be activated using Procedure ECD 16.1, Corporate Emergency Response Procedure. This procedure contained no instructions relative to either the installation of the HEPA filter or placing the ventilation system in a bypass mode.

NUREG-0696, "Functional Criteria for Emergency Response Facilities," February 1981 specifies the following habitability criteria for Emergency Operations Facilities (EOF) located within ten miles of Technical Support Centers (TSC): shielding protection factors must be equal to or greater than a factor of five; ventilation protection must provide isolation with HEPA filtration; and a backup EOF must be

provided within 10 to 20 miles of the TSC. The appraisal team found that the EOF is unacceptable because there is no shielding protection factor, the backup EOF was not functional at the time of the appraisal and there are no procedures to activate the bypass ventilation system with HEPA filtration.

In addition to habitability, the auditors reviewed the EOF for size, communications equipment, availability of plant data, and availability of plant records (e.g., drawings and systems information).

One principal EOF function, direction of offsite monitoring teams and related data assessment, will be performed in the Site Access Facility (SAF), which is located 0.75 miles west of the Containment Building. This facility would be activated only in the event of a General Emergency in accordance with ACD 12.8, Activation and Staffing of Emergency Centers. Procedure ACD 12.8 contained little, if any, specific details regarding activation of the SAF, e.g., obtaining of a key to the facility and performing a radiation survey to determine habitability. A site map covering a distance of 2.5-3 miles from the site was available for plotting data. Additional maps (covering the ten mile EPZ) were available. None of the maps used the sector/zone designators recommended in Table J-1 of NUREG-0654. Telephones in the SAF included an NRC-HPN line, a direct line to the TSC, two outside extensions, and a plant switchboard extension. A discussion of radiation survey and protection equipment at the SAF is in Section 4.2.1.1. of this report.

The EOF consisted of seven rooms, the largest of which was approximately 1000 square feet. This room would be used as a press briefing area and similar uses. Office space for the NRC (40 square feet), state government (200 square feet), and local government (180 square feet) was provided. No telephones were installed in the state and local government offices because it was not clear to the licensee that government officials were going to send a representative to the EOF. The NRC room contained a plant switchboard extension. Office space was also provided for licensee corporate management. Four inplant direct lines (SAF, Control Room, OSC, and HP office) on each of two telephones were provided in the licensee's office area. The equipment available in the EOF consisted of a set of plant drawings on microfilm, a microfilm reader, one emergency kit, and the FSAR, Technical Specifications, and plant procedures. The procedures were present because the EOF was located in the Training Building. Radio communication in the form of a base FM station were in the planning stages (i.e., has been budgeted for).

The survey kit mentioned above did not contain radiation monitoring instruments. Because of this, the licensee would be unable to perform habitability surveys of EOF, i.e., determine airborne radioiodine and particulate concentrations and have a continuous indication of dose rates to EOF inhabitants. At present, these surveys could only be accomplished by relocating plant instruments following an accident.

Because the EOF was not likely to be habitable for at least eight hours following a major emergency, the licensee was in the process of establishing an alternate EOF. This facility was only in the preliminary planning stages at the time of the appraisal. The licensee's Lakeshore Division Office on the south side of Two Rivers (approximately a 15 mile straight line distance from the plant) had been tentatively selected as the location of this facility.

Based on the above findings, the following deficiencies must be corrected to achieve an acceptable interim program.

- Establish adequate telephone communications for use by NRC and state and local governments consistent with NUREG-0696.

In addition to the above, the following matters should be considered for improvement:

- The procedure for activation of the SAF (ACD 12.8) should address the obtaining of keys and performing a radiation survey of the facility.

- Maps consistent with Table J-1 of NUREG-0654 (or format mutually agreed upon with state and local governments) should be prepared and made available in the SAF.

Completion of a final EOF is an open item.

4.1.1.5 Post-accident Coolant Sampling and Analysis

The auditors reviewed the licensee's implementation of NUREG-0578, Paragraph 2.1.8.a, post-accident coolant sampling and analysis capabilities, to verify that the licensee had the ability to sample and analyze high activity reactor coolant samples during accident situations. The auditors compared the licensee's interim reactor coolant sampling provisions with the licensee's response letters

dated December 31, 1979 and March 12, 1980. The auditors inspected the sampling location, reviewed the sampling procedures (see Section 5.4.2.4) and discussed the shielding design parameters with the Plant Services Superintendent and other licensee representatives.

The interim post-accident primary coolant sample collection point was located in the 642 foot level in the Auxiliary Building. The collection point was located in a lead cave in a fume hood in the hot chemistry laboratory. A shielded sample line had been run from the normal sample sink (located in an adjacent room) to the post-accident sample point.

An analysis performed by the licensee indicated that the hot chemistry laboratory would be habitable under accident conditions. An area radiation monitor (R-3) was located in the laboratory. The counting room, however, may not be useable if a buildup of radioactivity occurs on filter banks (Zone SV Filters) located on the 657-foot level directly above the counting room.

The interim sample collection method used by the licensee entailed the withdrawal of a 1-ul aliquot from a 10-ml collection cup located in the lead cave in the fume hood in the Hot Chemistry Laboratory. A 1E+8:1 dilution was performed in two steps in the adjacent hood. The sample would then be analyzed in the counting room (adjacent) using the same counting geometry employed for normal reactor coolant samples.

The auditors noted that many of the valves required for sample collection were located in the room containing the normal sample sink. According to studies conducted by the licensee, this room would not be habitable (because of radiation levels on the order of 10,000 R/hr) following collection of the initial primary coolant sample. According to a licensee representative, there are no provisions for flushing the interim sampling system with clean water. Therefore, only a single sample of primary coolant could be collected following an accident.

Based on the above findings, this portion of the licensee's program appears to be acceptable, but the following matters should be considered for improvement:

- Provisions for post-accident coolant sample system flushing should be made so that multiple samples of primary coolant can be collected.

Installation of the permanent post-accident coolant sampling system must be implemented by January 1, 1982. Therefore, this is an open item.

4.1.1.6 Post-accident Containment Sampling and Analysis

The auditor reviewed the licensee's implementation of NUREG-0578, paragraph 2.1.8.a, improved post-accident sampling capability to verify that the licensee had the ability to collect and analyze high activity radioactive gases and particulate samples during accident situations.

The interior sampling arrangement consisted of approximately 15 to 20 feet of 3/8 inch unshielded stainless steel line, most of which was running vertically down a concrete wall, connected to an air sample pump via a short length of plastic tubing. The sample point was located on the 606-ft. level of the Auxiliary Building. The other end of the stainless steel line was connected to the post-LOCA hydrogen sampling system. The output from the air sample pump was fed to a 300 cc gas bomb. During their initial plant tour, the auditors noted that no shielding had been provided for the 300 cc gas bomb, however, subsequent discussions with licensee representatives indicated that the gas bomb was supposed to be shielded with lead bricks.

Provisions were made for collecting two 5-ul samples and one 1-ml sample via syringes through the rubber septum on the gas bomb. The two small samples were for noble gas and radioiodine determinations, while the 1-ml sample was for hydrogen analysis. No provision had been made for the collection of particulate samples nor the collection of iodine samples on silver zeolite for cases in which the containment iodine levels are well below noble gas level. The collection of these samples is also discussed in Section 5.4.2.6 of this report.

An analysis of post-accident radiation levels performed by the licensee indicated that the route taken to collect the sample, as well as the sample location itself, would be habitable. The radiation level from the sample was based on a noble gas concentration of 5 mCi/cc, however, rather than the 100 mCi/cc recommended by NUREG-0737. A licensee representative indicated that the 5 mCi/cc concentration was the maximum value achieveable in containment based on the Regulatory Guide 1.4 source term.

No area radiation monitors were located in the area, however, surveys of the area would be performed prior to the sample collection.

The three syringes containing samples were to be transported to the hot chemistry laboratory for analysis. Several items mentioned in the procedure, e.g., syringe shields, shielded sample transport container, and temporary shielding for the 300 cc gas bomb, were not appear to be readily available for use. This is an item of noncompliance in that these procedures are to be adequately maintained.

As was stated in Section 4.1.1.5 of this report, the radiochemistry counting room (642-ft level of the Auxiliary Building) would not be useable following a major accident. Alternate counting facilities were available at the neighboring Point Beach Plant via a letter of agreement, however, it was not clear that the agreement was applicable to high level samples. Counting facilities will also be available upon completion of the new Technical Support Center (to be completed during the Fall of 1981, according to a licensee representative).

Based on the above findings, improvements in the following areas are required to achieve an acceptable interim program:

- Establish the capability to collect post-accident containment atmosphere iodine samples on silver zeolite.

- Equipment referenced in the procedure related to shielding (syringes, gas bomb, transport container) should be provided in addition to the above. This is an item of noncompliance.

In addition to the above finding, the following matter should be considered for improvement:

- A portable area radiation monitor should be located near the post-accident containment sampling system collection point.

- Clarify the letter of agreement with Point Beach Nuclear Power Plant (WEPCO) to provide alternate counting facilities for high level samples.

Installation of the permanent post-accident containment sampling system implementation due date is January 1, 1982. Therefore, this is an open item.

4.1.1.7 Post-accident Gaseous and Particulate Effluent Sampling and Analysis

The auditors reviewed the licensee's implementation of NUREG-0578, paragraphs 2.1.8 and 2.1.8.6, post-accident sampling and analysis capabilities and high range monitoring instrumentation, to verify that the licensee had the ability to sample and analyze high activity gas and particulate effluents during accident situations. The auditors compared the licensee's interim, in-place high range effluent monitoring instrumentation with the system described in licensee letters dated December 31, 1979 and November 14, 1980.

The interim post-accident vent monitoring system consisted of high range (0.1 R/hr-10,000 R/hr) and low range (0.1 mR/hr-10 R/hr) detectors mounted adjacent to the three vents which could be major release paths during an accident. These vents were the Auxiliary Building Vent, the Containment Vent, and the main steam lines near both steam dump headers. The low range monitors were energy-compensated GM detectors and the high range monitors were ion chambers. Each detector was shielded by approximately six inches of lead shot in the direction of the major source of activity (the SV zone filters). Calibrations for each detector had been determined by a licensee consultant and the licensee's architect-engineer. A computation of exposure rates had been performed for various Xe-133 concentrations assumed to exist in the pipe. Only one of these monitors, however, (the Auxiliary Building Vent Monitor) was referenced in emergency procedures for use in accident assessment. The calibration function used for this detector was 0.22 uCi/cc per R/hr. A licensee representative stated the Auxiliary Building Vent would be the major, if not only, release path following an accident. All eight monitors (four high range and four low range) read out in the Control Room.

A fourth potential post-accident release path was the Shield Building Vent. The Shield Building completely surrounded the containment structure and would contain any gaseous activity vented from containment following an accident. This vent was not monitored with an external detector.

The existing vent particulate and iodine sampling locations were determined by the licensee not to be habitable following an accident. No post-accident vent particulate and iodine sampling and analysis capability will exist, therefore, until the units discussed below are installed. This is an open item.

Permanent off-line monitoring units were being installed in the Auxiliary Building Vent, the Shield Building Vent and the combined Containment/Shield Building Vent (downstream of the junction of these vents). The monitoring units contained particulate, iodine, and noble gas channels. The noble gas channel consisted of three detection systems having a combined range from 1E-7 to 1E+5 uCi/cc. The particulate and iodine channels will saturate at an activity on the order of 5-10 uCi per sample cartridge/filter.

All off-line monitoring units would be accessible following an accident, however, the licensee was not prepared to handle or analyze the high level particulate and radioiodine activity levels resulting from the NUREG-0737 source term (100 uCi/cc, 30 min sampling time). The licensee was anticipating (and was therefore prepared to analyze) only relatively small particulate and radioiodine concentrations

in a given vent following a major accident--on the order of 1E-4 uCi/cc or less.

Concerning analytical capability, instrumentation and procedures, see Section 4.1.1.6 of the reports details.

Based on the above findings, this portion of the licensee's program appears to be adequate; however, the following item should be considered for improvement:

- High range vent monitors for the containment vent and steam lines should be integrated into emergency procedures for accident assessment.

Installation of the permanent post-accident gaseous and particulate effluent sampling system implementation due date is January 1, 1982. Therefore, this is an open item.

4.1.1.8 Post-accident Liquid Effluent Sampling and Analysis

The auditors reviewed the licensee's post-accident liquid sampling and analysis facilities to determine if the licensee could effectively sample and analyze high activity liquid waste streams during an accident situation.

A major provision being made for handling of post-accident liquids (began during the 1981 refueling and maintenance outage) was to provide for the routing of high-level liquids from the Deaerated Drain Tank to the Containment Sump. According to licensee representatives, this modification will permit approximately 600,000 gallons of high activity liquids to be routed to containment. As of the time of this appraisal, the modification just described was about 50% complete. According to a licensee representative, all portions of this modification inside containment had been completed, permitting the remainder of the work to be completed during plant operation.

Based on discussions with licensee representatives, it was determined that no provisions had been made to take post-accident samples from the containment sump.

Based on the above finding, improvement in the following area is required to achieve an acceptable program:

- Provide a means for sampling and analysis of post-accident samples from the Containment Sump.

4.1.1.9 Offsite Laboratory Facilities

The licensee has identified the Site Access Facility and Point Beach Nuclear Power Plant as backup fixed laboratory facilities. Point Beach Nuclear Power Plant has agreed to supply assistance for sample analysis, instrumentation, and supply personnel and technical assistance. However, as stated in Section 4.1.1.6 of this report, it is not clear that the letter of agreement with Point Beach Nuclear Power Plant covers high level samples. The Site Access Facility is designated as the point for offsite support assembly, backup offsite sample analysis, offsite equipment supply, forward reporting area for offsite monitoring teams, and as the access control point for a General Emergency (may be activated for a Site Area Emergency). Both facilities are equipped with some permanent monitoring equipment (i.e., survey instruments and filter counting equipment), and equipment calibration is current.

See Section 4.1.1.6 of this report for conclusions regarding the letter of agreement for alternate facilities for counting high level samples.

4.1.2 Protective Facilities

4.1.2.1 Assembly/Reassembly Areas

The auditors toured the assembly areas during the plant tour and found them to be located as described in Administrative Control Directive (ACD) 12.9, Figure 12.9-1. Assembly areas are the personnel air lock for containment, the health physics office for the auxiliary building, the interim operational support facility on the mezzanine level of the turbine building and the assembly room on the ground floor of the administration building.

The area in containment, the personnel air lock, is an assembly area with GAI-Tronics in-place communication equipment, respiratory protection and some additional protective clothing. Some personnel monitoring portable survey meters are located in this area.

The health physics office is adjacent to the first aid room, the decontamination room, and the health physics instrument supply room. Communications to the control room and the NRC-HPN are installed.

The interim operation support facility has room for approximately 50 people, a set of emergency ACDs and RET procedures plus phones to the TSC and control room. The area does not have emergency lighting.

The assembly room in the administration building contains fire team response equipment, flashlights, three Bio packs, one MSA self contained breathing apparatus and radiological instruments (1) Eberline E530 GM detector and (1) Rad Alert personnel monitor. Communications include phones connected to NAWAS, NRC-HPN, commercial telephone lines, direct to HP office, Operations Support Facility (OSF) direct line, Site Access Facility trailer direct line and the control room direct line. In addition, connections can be made to the KARL and computer program to perform offsite dose projections.

The present offsite relocation area is the Site Access Facility which is located approximately one mile west of the plant.

Based on the above findings, this portion of the licensee's program appears to be acceptable.

4.1.2.2 and
4.1.2.3 Medical Treatment and Decontamination Facilities

The appraisal team has reviewed the onsite medical treatment facilities. These facilities are consistent with the description in the Site Emergency plan and procedures. The medical and decontamination facilities are a mutual use area. Access to the medical facility and the decontamination area is through a common door. The medical facility has a stretcher available. Operable, calibrated survey instruments and communications equipment are available. First aid personnel receive the Red Cross multimedia training course.

Based on the above findings, this portion of the licensee's program appears to be acceptable.

4.1.2.4 Ambulance

The Kewaunee Nuclear Power Plant (KNPP) owns and maintains its own ambulance. The keys to this vehicle are maintained by the security guards. There are procedures written that address the use of the ambulance. These procedures specify that a guard will drive the ambulance and communicate with KNPP using a portable radio, and that a member of the Radiation Emergency Team (RET) will accompany the injured individual to the hospital. The ambulance has various pieces of equipment stored in it, however, many pieces of equipment are not secured, i.e., the resuscitators. The auditors accompanied a member of the guard force during a routine radio check. During the radio check, radio contact with KNPP was lost at a point between one half and three quarters of a mile distance from KNPP. Section F.2 of NUREG-0654 specifies that communications with the mobile medical unit shall be maintained.

Based on the above findings, this portion of the licensee's program appears to be acceptable, but the following matters should be considered for improvement:

- All equipment in the vehicle should be secured.

- A radio with capability to receive and transmit between Two Rivers Hospital and KNPP should be installed in the ambulance.

4.1.3 Expanded Support Facilities

The auditors examined the Expanded Support Facilities. The licensee will augment emergency resource personnel from the Corporate office. Space has been allocated for these additional personnel in the EOF. Adequate communications are available to support these personnel.

Based on the above findings, this portion of the licensee's program appears to be acceptable.

4.1.4 News Center

The licensee has arranged to use the Two Rivers Community Center for a Joint Public Information Center (JPIC). Point Beach Nuclear Power Plant will also use the facility a their JPIC. The center has ample provision for the news media, including food services and several separate meeting rooms. The center has a large gym which could be used to accommodate the overflow of an unexpectedly large number of media representatives. The licensee is installing capacity for approximately 40 phones. Copying machines, a PA system and audiovisual equipment are stored in nearby company offices. Procedures for operation and staffing of the JPIC are written, approved and in place. Provisions for media badging, security and crowd control have been made.

Based on the above finding, this portion of the licensee's program appears to be acceptable.

4.2 Emergency Equipment

4.2.1 Assessment

4.2.1.1 Emergency Kits and Emergency Survey Instrumentation

The licensee has an inventory of emergency supplies and survey instruments prepositioned at various locations throughout the facility. However, there are no predesignated radiological survey and sampling kits available to assure the survey and sampling teams will have all the necessary equipment (e.g., air sampling filters, radiation detectors, dosimeters). A SAM-2 is available at the Site

Access Facility (SAF), but it appears to be set up for stationary use. NUREG-0654 requires the capability to detect and measure 1E-07 uCi/cc iodine in tne field, and this would require the SAM-2 or a similar capability to be readily available as part of a survey and sampling kit. The kits do not contain any of the survey and sampling procedures or equipment that may be necessary to provide a quick operations reference for team members. The emergency kits, once assembled, should be readily accessible at pre-designated locations, and there must be contingency plans to relocate these kits in the event that the present location becomes uninhabitable.

Based on the above findings, improvement in the following areas are required to achieve an acceptable program:

- Provide radiological emergency survey and sampling kits that contain instrumentation, procedures, and support equipment (e.g., flashlights, keys, batteries, filters).

- Provide for the capability to detect and measure 1E-07 uCi/cc iodine under field conditions for each team.

4.2.1.2 Area and Process Monitors

The licensee's presently installed area radiation monitoring (ARM) system consisted on ten detectors, most of which were located in the Auxiliary Building. Eight detectors had a range from 0.1 mR/hr to 10 R/hr; two detectors had a range from 0.1 mR/hr to 100 R/hr. Monitor R-9 which was located near the letdown line, was the only ARM whose response was keyed to an EAL. The licensee was in the process of upgrading the ARM system, installing 23 detectors (including two containment monitors having a range from 1 to 1E+8 R/hr) at various locations in the plant. Six of the detectors have a range up to 10 R/hr, eight have a range up to 100 R/hr, and the remaining seven have a range up to 10,000 R/hr. The installation of these additional detectors should provide the licensee with significantly more information in post-accident radiation levels prior to making required entries to various areas of the plant.

The licensee's presently installed process radiation monitoring (PRM) system consisted of units designated R-11 through R-24. These units served either as off-line or on-line monitors of gaseous and particulate releases from various vents, of liquid releases from various sources, or of radioactivity levels in liquids in various cooling systems. Additional high range particulate, radioiodine, and high range noble gas monitors were being installed in the Auxiliary Building, the Shield Building, and combined Containment/Shield Building Vents (see Section 4.1.1.7 of this report).

Calibrations of the ARMs and PRMs were routinely performed by the Instrument and Control Department. Operational checks were performed on a monthly basis and calibrations were performed annually. The annual calibrations were performed in accordance with Procedures SP-45-050.1 through 050.24 in approximately the same geometry as the detector was used. Calibration factors for all PRMs were posted in the Control Room adjacent to the instrument readout location.

Based on the above findings, this portion of the licensee's program appears to be acceptable.

4.2.1.3 Non-radiation Process Monitors

The non-radiation process monitors described in the Emergency Plan as being relied upon for emergency detection, classification, and assessment were in-place and operable. All monitor readouts were in the control room. Readouts were readily observable.

Based on the above findings, this portion of the licensee's program appears to be acceptable.

4.2.1.4 Meteorological Instrumentation

The bases for the auditor's review of the licensee's meteorological measurements program included Regulatory Guides 1.23 and 1.97 and the criteria set forth in NUREG-0654, 0696, and 0737.

The licensee provided a detailed description of the meteorological instrumentation program in place at the site. The integration of meteorological data into the licensee's dose assessment scheme is described in Procedures HP-RET-2 and HP-RET-2B. The auditor reviewed the preventative maintenance program, calibration procedures and records, and dose assessment capability with the licensee's staff.

The meteorological instrumentation can provide the basic parameters (i.e., wind direction and speed, and an estimator of atmospheric stability) necessary to perform the dose assessments system are recorded on strip charts located in the control room. The NAWAS communications mechanism provides information for followup messages from the plant to offsite authorities. The licensee has a mechanism in place to inform plant personnel what severe weather conditions (high winds or tornadoes) have occurred or may occur at or near the site, the service provided to the load dispatcher indirectly informs the site personnel. The meteorological instrumentation is calibrated on schedule following the ICP 63.1-63.8 procedures.

The licensee's preventative maintenance program does not provide reasonable assurance that meteorological data is available for use nor that data available is provided from operable equipment. The calibration frequency is inadequate, (once per year). The operability checks are nonexistant (other than recorder performance) and no assurance exists that indicates that the acceptable unavailability goal specified in NUREG-0696 for Emergency Response Facility instrumentation can be attained. Equipment outages, when detected, may not be restored for extended periods of time (of the order of months). Kewaunee Nuclear Power Plant's meteorological measurement system was not operable during this appraisal period and was intermittently operable since October 1980.

The licensee has made provisions for obtaining meteorological data if the onsite primary system becomes inoperable. This data is obtainable from a meteorological measurement system that is consistent with Regulatory Guide 1.23 guidance from the Point Beach Nuclear Plant (approximately four miles to the SSW). Reliance on this data system as an alternate data source improves the likelihood that qualified information would be available in an emergency condition.

The licensee's mechanism for incorporating meteorological information into the dose projection scheme does not consider plume distribution. The current scheme limits the projection to a limited number of locations (e.g., site boundary, ten mile plume Exposure EPZ). There is no mechanism for identifying the location and magnitude of peak dose rates. This is discussed further in Section 5.4.2 of this report. The proximity of the site to the lake shore should be considered in characterizing a "lake breeze" effect of modifying plume projection. The auditor found no evidence that these effects were acknowledged or considered in the projection technique. The technique did incorporate source characteristics as well as building configuration.

Meteorological data and dose projection information to the NRC can be provided by the Health Physics Network which is strategically located in the emergency response facilities and the control room areas.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program.

- The meteorological measurement system shall be made fully operational.

- The preventative maintenance program shall be restructured to provide reasonable assurance that meteorological data will be available to meet availability goals.

- The licensee shall identify the mechanism for meeting the compensating actions outlined in NUREG-0737, III A.2 for the interim period.

- The "lake breeze" effect shall be incorporated into a normal dose calculation method (DCM) and the peak dose rate shall be identifiable from DCM as well as plume distribution.

4.2.2 Protective Equipment

4.2.2.1 Respiratory Protection

The auditors reviewed the availability of respiratory equipment for emergency use. There are available onsite Self Contained Breathing Apparatus (SCBA), and both full and half mask respirators. The station does not have a SCBA air supply refilling station. Air bottles are refilled commercially in Green Bay. Turn around time for refilling is approximately four hours. Plans are being made to purchase and install a Cascade refilling system at the plant. The SCBA equipment could be used under condition where internal areas of the plant have high airborne/direct levels of radiation. This equipment was found adequate.

4.2.2.2 Protective Clothing

The auditors inspected the availability of protective clothing There was an ample supply of protective clothing, ranging in sizes from small to extra large. Additional clothing is available in the radiation protection office, the site access trailer and in the stores warehouse. This protective clothing would be accessible during emergency conditions. The quantity and availability was deemed adequate.

Based on the above findings this area of the licensee's program appears to be adequate.

4.2.3 Emergency Communication Equipment

The auditors reviewed the available onsite and offsite communications systems. All systems identified in the plan were in place. There were provisions for routinely checking the operability of these emergency communication devices and equipment. There is a 24 hour per day capability to notify NRC, state and local authorities.

The licensee has a Plant emergency alarm and a containment evacuation alarm that were operable.

Each of the following key communication networks have a backup:

Emergency response initiation equipment.

Equipment to communicate between the facility and the near site EOF.

Equipment to communicate between the facility, and state and local ECCs.

Equipment to communicate between the facility and the radiological monitoring teams.

Equipment to communicate with local contiguous governments within the Emergency Planning Zone.

Equipment to communicate with NRC Headquarters and the Regional NRC office.

The radio channel link that will be used between the Control Room, EOF, TSC and the Field teams is tested on a monthly basis. It has been found adequate up to five miles.

Based on the above finding, this portion of the licensee's program appears adequate.

4.2.4 Damage Control/Corrective Action and Maintenance Equipment and Supplies

Needs for onsite damage control include temporary shielding, lifting equipment, welding equipment, high level radiation waste handling storage capability, and decontamination supplies and equipment. These needs have been met from onsite maintenance equipment and supplies as determined by the auditors from an interview with the Maintenance Superintendent.

Based on the above findings, this protion of the licensee's program appears to be acceptable.

4.2.5 Reserve Emergency Supplies and Equipment

Kewaunee Plant has an inventory of supplies, including protective clothing, radiation detection instruments, respiratory equipment, first aid supplies, decontamination supplies and equipment, dosimetry for radiological environmental monitoring, for support to an emergency response.

The additional radiation detection instruments are stored in the Radiation Protection Office (RPO) store room. Supplies of additional protective clothing are found in

the RPO storeroom, the stores warehouse and in the Site Access Facility.

Additional first aid supplies are stored in the first aid room. Also, Kewaunee has an agreement with the Point Beach Station to borrow supplies and equipment as needed.

The quantity of emergency reserve supplies is checked against an inventory list on a monthly basis.

Supplies of emergency equipment are located in the following areas:

Radiation Protection Area	
Site Access Facility	
Gate House	
Assembly Room Administration Building	
EOF	
Control Room	
Waste Handling Area	
Containment Access Area	
Decontamination Room	633 level
Hot Chemistry Lab	
Waste Disposal Panel	
Ventilation Filter Area	651 level

Based on the above findings, this portion of the licensee's program appears to be acceptable.

4.2.6 Transportation

There can be up to four vehicles, three vans and one pickup truck onsite for use in supporting an emergency response. An ambulance is always on site for use in transporting injured to the hospital. The vehicles, except the ambulance, are normally parked in front of the gate house and the vehicles an keys are registered with the security force. Portable walkie-talkies are normally carried in the vehicles and communications between the vehicles and the plant are checked a monthly basis. The ambulance is parked within the security area and the keys are kept in the gate house.

Based on the above findings, this portion of the licensee's program appears to be acceptable.

5.0 PROCEDURES

5.1 General Content and Format

The auditors reviewed the emergency plan implementing procedures. All procedures were arranged in generally the same format with

the following general heading: (1) purpose, (2) applicability, (3) definitions, (4) responsibilities, (5) procedure, (6) Administrative Control Directive (ACD) and technical specification references, and (7) data sheets and/or flow paths.

Proc res were written to cover all functions covered by the Emergency Plan. The procedures specify the individual or organization having authority and responsibility for emergency actions.

The review found the procedure format to be adequate. However, the content of some procedures appears to be weak. For example, Procedure RET-4 gives instruction for sample collection, but does not indicate what to do with the sample once it is collected (analysis). Instructions are overly general in many cases (e.g., RET-6, 2.2). Some procedures do not implement the current Emergency Plan (e.g., RET-16 and 18).

Based on the above findings, improvements in the content of some emergency procedures are required to achieve an acceptable program. The recommended improvements are contained in appropriate sections of the report.

5.2 Emergency Alarm and Abnormal Occurrence Procedures

The licensee has two sets of off normal operating procedures: Emergency Operating Procedures and Abnormal Operating Procedures. The auditors reviewed all of these procedures. Only two Emergency Operating Procedures direct the user (RO) to inform the SRO or the Emergency Director of a possible Emergency Action Level (EAL). This failure of the Emergency Operating procedures to interface with the Emergency Plan Implementing Procedures is a significant finding could lead to a failure to classify and report the event in a timely manner. The following Emergency Operation Procedures, which deal with events listed in the Emergency Action Levels should require, as a subsequent operation action, that the Shift Supervisor (SRO) be notified to classify the event and initiate the Emergency Plan if required.

a. E-0-01 Station Blackout
b. E-0-04 Turbine nd Reactor Trips
c. E-0-06 Control Room Inaccessibility
d. E-0-07 Safety Injection Actuation
e. E-0-08 Loss of Secondary Coolant
f. E-0-09 Steam Generator Tube Rupture
g. E-0-10 Loss of Reactor Coolant
1. E-0-11 Loss of Coolant from Pressurizer Steam Space

In addition to the above procedures, all procedures that involve operation when a Limiting Condition for Operation (LCO) has been exceeded should cue the operator to notify the SRO to classify

the event in accordance with the Emergency Plan Implementing Procedure (ACD 12.2) when a unit shutdown is required by the Action Statement of the LCO.

Based on the above findings, the following area should be improved:

- The appropriate Emergency Operating Procedures should provide the requirement that the user shall notify the SRO (acting plant manager) of a possible Emergency Action Level requiring implementation of the Emergency Plan.

5.3 Implementing Instructions

The responsibilities assigned to the Emergency Director which cannot be delegated are not specified in the procedures, as the Emergency Plan indicates. The Emergency Action Levels are not sufficiently addressed in the plan or procedures (see Appendix D), and there is no apparent link between EALs and initiation of assessment and protective actions. Not all EALs are based on observable information that is readily available to emergency personnel responsible for emergency detection, classification, and assessment. The implementing instructions and procedures are not appropriately cross-referenced to other instructions and procedures designed to implement or support implementation of the emergency plan.

Evaluation of Emergency Action Levels (EALs)in ACD 12.2

The evaluation of the EALs which follows is in the format and numbering system of NUREG-0654. The comments are brief and provide only the minimum acceptable modification.

Unusual Event (NUREG-0654 Number)	Modification or Comment
3.c	R-9 should be backed up with a coolant sample analysis.
4	Include a time limit for which the plant can operate without a subcooling meter.
5	Indicate which audible alarms will be indicators for primary/ secondary system leak rate.
6	Not addressed.
13b	Indicate how this is determined.

14c	Not addressed.
14d	Not addressed.

Alert Event	Modification or Comment
2	Indicate audible alarms and at which levels R-15 and R-19 will be partial indicators.
5	Specify what indicators indicate RC system leakage under 50 gpm.
7	Not addressed.
8	Not addressed.
17a	Indicate how this is to be done or determined.
17b	Indicate how these are determined.
18d	How is this determined?
19	Not addressed.

Site Area	Modification or Comment
2	Not addressed.
6	Indicate loss must be under 15 min.
7	Indicate loss must be under 15 min.
9	Not addressed.
13a	Insufficient information to determine whether EALs correspond to classification criteria.
13c	Not addressed.
15a	Too general, give readings.
15b	Not addressed.
16c	How is this determined?

17	Not addressed.
18	Indicate in classification criteria that this is for under 15 mins.

General	Modification or Comment
1a	Include EAI for high range effluent monitor.
2	Include: Containment Pressure, Containment Temperature, H_2 reading, radiation level, Containment Cooling System status, Containment Isolation Signal status.
5	For small and large LOCA's with failure of ECCS to perform leading to coremelt include time frame for coremelt.
5b	Include: Feedwater Flow, Auxiliary Feedwater Flows, Containment status (e.g., temperature and pressure), Primary Coolant sample.
5c	Not addressed.
5d	add e.g., for total loss of emergency feedwater makeup capability; add, Feedwater Flow less than_____for_____hours.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program.

- The procedure defining the Emergency Director's responsibilities, ACD 12.1, shall define those responsibilities which cannot be delegated.

- The initiating conditions for emergency action levels listed is the emergency plan and procedures shall be upgraded to be based on observable and reliable indicators for appropriate plant operating parameters and be described in sufficient detail to categorize an incident at the appropriate Emergency Action Level.

The following improvement should be considered:

- The implementing instruction and procedures shall be appropriately cross-referenced to other instructions and procedures designed to implement or support implementation of the emergency plan.

5.4 Implementing Procedures

5.4.1 Notifications

Based on review of the KNPP Emergency Plan and interviews with KNPP representatives, the auditors determined that for each class of emergency the sequence of notification to alert, mobilize and augment the onsite emergency organization and supporting agencies has been established and specified. The KNPP procedures specify the immediate notifications that are to be made for each class of emergency. However, the procedures do not specify how the notifications are to be made, but identify the three systems that may be used; the telephone, NAWAS or radio. Action levels for notification and activiation of each support group of the emergency plan have been specified. Planned messages, announcements and alarms are used for initial notifications. These messages are included in ECD 16.1. ECD 16.1 also includes a listing of all persons and agencies included in the response scheme. The means of contacting these agencies are not always specified. There is no formalized, agreed upon, verification scheme with offsite authorities.

Based on the above findings, this portion of the licensee's program appears to be acceptable, but the following matter should be considered for improvement.

- Establish a formalized message verification scheme for Kewaunee Nuclear Power Plant Personnel and offsite authorities.

5.4.2 Assessment Actions

There is no procedure to implement the radiological accident assessment scheme for gathering information and data. There is no procedure that identifies a priority system or information source that would be used to predict the release duration. There are provisions and/or procedures containing action levels and protective action guides to be used by assessment personnel, but acceptable methods do not exist to make limited predictions of offsite doses based on control room instrumentation or based on other instrumentation should the control room instrumentation be inoperable. The KARL computer model does not take into account the meteorological requirements of the Class A model in NUREG-0654, Appendix 2. The dose projection program, which was the KARL output, calculates only the submersion dose. The dose

projections can only be made at 10 miles and near or at the site boundary. There are no provisions for determining dose projections between approximately 1200 meters and 10 miles, hence offsite protective actions to any particular radial distance less than 10 miles around to plant are unavailable. Provisions and/or procedures are in place for the licensee to contact (directly or indirectly) the state and local government agencies in the event of actual or potential exposure to the whole body or thyroid of persons in the plume. The licensee has no specific provisions and procedures to do specific radiological assessment trend analysis, (e.g., noble gas vs. iodine ratios in the environment). There is no procedure that specifies what data will be require, for assessment purposes, from any environmental sampling/monitoring effort.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program.

- Develop a procedure which will provide guidance in implementing the radiological accident assessment scheme for gathering information and data.

- Develop specific provisions and procedures to do specific radiological assessment trend analyses.

- Develop provisions and procedures for using and/or incorporating offsite environmental survey sampling data into the accident assessment scheme and protective action recommendation scheme.

- Develop the capability to make dose predictions and estimates at any location within the 10 mile EPZ for guidance in the areas of assessment and protective action recommendations.

5.4.2.1, 5.4.2.2 and 5.4.2.3 <u>Offsite and Onsite (Out-of-Plant) and In Plant Radiological Surveys</u>

The equipment inventory for offsite radiological surveys is provided in the Site Access Facility; however, a review of the offsite emergency survey and sampling procedures indicated that they are either inadequate or do not exist for locating an effluent plume, emergency air sample collection, or dose limit guidance. Radiological monitoring instruments and equipment are located at the Radiation Protection Office, Counting Room, Gate House, Site Access Facility, Administration Building, and Control Room. The instruments and equipment are not dedicated for emergency use nor in kit form; therefore, there is no assurance that

appropriate equipment and instruments would be available when needed in an emergency. The procedures that exist for offsite survey and sampling are those for normal operating conditions, and they only cover instrument use but not sample analysis techniques. There are no procedures or written guidance for radiological protection in emergencies. The survey teams have access to survey maps and forms to provide necessary information for locating survey and sampling points and recording data, but, the information link with the individual responsible for radiological assessment is not provided. The means for labelling filter samples is provided. The Radiation Protection Office is designated as the location which is to receive environmental samples. The Site Access Facility and Point Beach Nuclear Power Plant are the alternate locations. The primary communications method for survey teams operating offsite, onsite (out-of-plant), and in plant are portable transceivers; however, there are no provisions for additional power packs. Transportation of the survey team offsite and in the exclusion area is provided by company automobiles. Radiological protection is provided by the Radiation Technician assigned as a member of the two man team.

The licensee has no field instrumentation or procedure to detect and measure 10^{-7} uCi/cc iodine under field conditions. (See Section 4.2.1.1)

Based on the above findings, improvements in the following areas are required to achieve an acceptable program.

- Provide emergency survey and sampling and sample analysis equipment and procedures as appropriate for:

  a. locating the effluent plume,

  b. emergency air sample collection,

  c. exceeding normal plant exposure limits under emergency conditions,

  d. use of protective equipment under emergency conditions (i.e., what areas may or will require protective clothing other than what is normally required for an area),

  e. use of other equipment or assessment actions that are not frequently or regularly used.

5.4.2.4 Primary Coolant Sampling

Section 2.1.8.a of NUREG-0578 specifies that licensees should be able to sample the reactor coolant system (RCS) within one hour under accident conditions.

The auditors reviewed available procedures and held discussions with the Technical Services Superintendent and other licensee personnel to evaluate the licensee's conformance with NUREG-0578.

RCS sampling would be performed using Procedure RC-C-84, "Post Accident Reactor Coolant Interim Sampling Procedure." The sampling and dilution procedures are described in Section 4.1.1.5 of this report.

According to the Technical Services Superintendent, two of the four chemistry technicians had been trained in this procedure.

Although Procedure RC-C-84 contained numerous precautions in terms of anticipated radiation levels associated with various stages of the sampling process, the procedure did not contain radiation protection clothing and equipment and special dosimetry requirements appropriate to the collection of the sample. Alternatively, Procedure RC-C-84 did not refer to a health physics procedure where such requirements would be defined (see Section 5.4.2.3 of this report). The sampling procedure did not specify that samples should be appropriately labelled for later identification and reanalysis.

The auditors did not review the permanent post-accident sampling system in great detail, but noted during plant tours that it was under construction. A shielded, vendor-supplied sample panel (the same model selected by several licensees) had been purchased and was in the early stages of installation.

Based on the above findings, this portion of the licensee's program appears to be acceptable, but the following matters should be considered for improvement:

- Requirements for protective clothing and equipment, as well as special dosimetry, should be either included in Procedure RC-C-84 or in an appropriate health physics procedure.

- Requirements for sample labelling for later identification and reanalysis should be included in Procedure RC-C-84.

5.4.2.5 Primary Coolant Sample Analysis

Section 2.1.8.a of NUREG-0578, as modified by NUREG-0737 (II. B. 3), specifies that radioactivity and boron analysis should be completed within three hours of an accident. In addition, for plants not located on seawater or brackish water, a chloride analysis is to be performed within four days of an accident.

The auditors reviewed available procedures and held discussions with the Technical Services Superintendent and other licensee personnel to evaluate the licensee's conformance with the above documents.

RCS sample analysis would be performed in accordance with Procedures RC-C-84 (the same procedure used for sample collection), RC-C-69, "Liquid Discharge Gross Gamma" and RC-C-82, "Boron Analysis Curcumin Method." As was stated in Section 5.4.2.4 of this report, dilutions were performed to permit the post-accident RCS sample to be handled as a routine RCS sample in terms of radiochemistry considerations (the sample for boron analysis would only receive a 10,000:1 dilution). According to the Technical Services Superintendent, no special provisions have been made for a post-accident chloride analysis.

Procedure RC-C-84 did not specify to whom (and with what priority) sample results should be reported. It also did not specify the background or sample radiation levels which would require alternative analysis methods.

Based on the above findings, this portion of the licensee's program appears adequate; however, improvements in the following areas should be considered:

- Develop a new procedure or modify an existing procedure to perform chloride analysis of RCS samples within four days of an accident.

- Specify the reporting requirements for sample results to enable the Emergency Director to key the results to EALs.

- Procedures should specify the background or sample radiation level which would require alternative analysis methods, as well as referencing the alternative methods to be used.

5.4.2.6 Post-accident Containment Air Sampling

Section 2.1.8.a of NUREG-0578 specifies that licensees should be able to sample the containment air within one hour under accident conditions.

The auditors reviewed available procedures and held discussions with the Technical Services Superintendent and other licensee personnel to evaluate the licensee's conformance with NUREG-0578.

Containment air sampling would be performed using Procedure RC-HP-180, "Post-accident Sampling of Containment Atmosphere." The procedure called for the collection of two, 5-ul and one, 1-ml samples of the containment atmosphere via syringes inserted into a rubber septum on a 300 cc gas bomb. The small samples were to be used for noble gas and radioiodine determinations and the 1-ml sample was for hydrogen determination. The procedure specified radiation dosimetry requirements and valve lineups to be made prior to filling the 300 cc gas bomb (located on the 606-ft. level of the Auxiliary Building - see Section 4.1.1.6). The procedure also called for certain sampling equipment to be used, e.g., two 5-ul syringes (with shields), one 1-cc syringe (with shield), lead bricks to shield the gas bomb, and a shielded sample transport container. As mentioned in Section 4.1.1.6, certain pieces of the equipment were noted as missing by the auditors during a plant tour.

Discussions with plant health physics management indicated that two of seven health physics technicians had been trained in Procedure RC-HP-180. The auditors learned; however, during a plant tour with one of the two individuals trained in the procedure that the "training" was limited to a normal sample collection (i.e., using a gas Marinelli container rather than a syringe) at the new sample point to verify that it was as representative of the Containment Building as the normal sample point (R11/R12 monitor). The individuals had not, in their opinion, received training in the use of the special equipment to be used in conjunction with Procedure RC-HP-180.

After transport of the syringes to the Hot Chemistry Laboratory, hydrogen and radioactivity analyses were to be performed according to Section 9.0 of the procedure. One of the 5-ul syringes was to be counted for noble gas activity directly on the Geli detector. The other 5-ul syringe was to be injected on the upstream side of a silver zeolite cartridge which was connected to one of the instrument air outlets in the laboratory. The procedure apparently called for the downstream side of the cartridge to discharge to the laboratory, permitting the noble gases in the syringe to unnecessarily expose the individual collecting the sample. A particulate filter was not specified to be included with the zeolite cartridge. During a plant tour, the auditors learned that the silver zeolite cartridges were not stored in plant, but were kept at the Site Access Facility (0.75 mi west of the plant).

Based on the above findings, improvements in the following areas are required to achieve an acceptable program:

- All health physics technicians need to be trained in the performance of activities contained in Procedure RC-HP-180.

In addition to the above findings, the following matters should be considered for improvement:

- For Procedure RC-HP-180, provide a means of exhausting the downstream end of the silver zeolite cartridge such that the individual collecting the sample would not be unneccessarily exposed.

- Include, in Procedure RC-HP-180, guidance relative to the approximate instrument air flow rate to be used (e.g., the number of turns of the air control valve) so that the radioiodine is not blown through the cartridge without depositing.

- Provide silver zeolite cartridges at an inplant location (as well as at the SAF) for use in post-accident containment and vent sampling.

5.4.2.7 Post-accident Containment Air Sample Analysis

Section 2.1.8.a of NUREG-0578 specifies that licensees should be able to analyze the containment air samples for iodines, particulates and noble gases within two hours under accident conditions without incurring a radiation exposure to any individual in excess of 3 rems to the whole body or 18 3/4 rems to the extremities. The auditors reviewed available procedures and held discussions with the Plant Services Superintendent and other licensee personnel to evaluate the licensee's conformance with NUREG-0578.

Containment air sample analyses would be performed using the same procedure used for sample collection (RC-HP-180). Hydrogen, noble gas, and radioiodine analyses were called for.

As indicated previously (Section 5.4.2.6), the noble gas syringe and the silver zeolite cartridge would be counted directly on the GeLi detector. If the activity in these samples was too high to be counted on the Geli detector (more that 50% dead time), the procedure required that the sample either be shielded or moved further away from the detector. According to licensee representatives, either of these techniques would negate the ability to quantify the activity in the sample, since the detector was only

calibrated for one geometry (at contact with no shielding). The individual to whom the results were to be reported (and priority for reporting) was not specified in the procedures, nor was the sample disposition following analysis discussed. The procedure also did not specify the background radiation levels which would require alternative analysis methods or equipment.

Based on the above findings, this portion of the licensee's program appears adequate; however, improvements in the following areas should be considered:

- The Geli detector has not been calibrated to permit sample counting at various distances from the detector, facilitating quantification of the higher activity levels associated with post-accident samples.

- Specify, in Procedure RC-HP-180: To whom the results should be reported (and priority for reporting); the sample disposition following analysis; and the background radiation levels which would require alternative analysis methods or equipment.

5.4.2.8 and 5.4.2.9 Post-accident Gaseous and Particulate Effluent Sampling and Analysis

The auditors reviewed the licensee's implementation of NUREG-0578, Paragraph 2.1.8.a, improved post-accident sampling capability, to determine whether the licensee could sample high activity effluent during accident situations.

Based on discussion with licensee representatives, the auditors learned that no special post-accident provisions existed at the time of the appraisal for the collection and analysis of samples from the plant vent (auxiliary Building). The permanent sampling arrangement for this vent, as well as for the combined containment and shield building vent and the shield building vent, will consist of an off-line high range continuous air monitor (discussed in Section 4.1.1.7 of this report) which is scheduled to be in place to meet the January 1, 1982 requirements contained in NUREG-0737. Because this system was being installed no sample collection and analysis procedures have been developed at this time. This remains as an open item.

Although procedures exist for routine analysis of gaseous and particulate effluents, the routine sample location would not be habitable following a major accident (see also Section 4.1.1.7 of this report).

5.4.2.10
and
5.4.2.11 Liquid Effluent Sampling and Analysis

As indicated in Section 4.1.1.8 of this report, a modification was underway to store, in the Containment Building, high level liquid radioactivity generated during an accident. Provisions have not been made to collect post-accident samples from the Containment Sump; therefore, procedures for sampling and analysis have not been prepared. Procedures did exist; however, for sampling and analysis of various categories of radioactive fluids. These procedures, e.g., RC-C-73, Gross Degassed Beta/Gamma-30 Minutes, appeared to be designed for the range of concentrations which would be associated with normal operation (up to 1 uCi/ml), and were therefore not likely to be suitable for the sampling and analysis of post-accident liquids.

Findings relevant to this section are indicated in Section 4.1.1.8.

5.4.2.12 Radiological and Environmental Monitoring Program

There are no procedures or provisions for a Radiological Emergency Monitoring Program and no sample analysis procedures.

Based on the above findings, improvement in the following area is required to achieve as acceptable program.

- The licensee shall develop procedures for establishing and implementing an emergency radiological and environmental monitoring program and analysis of the collected samples.

5.4.3 Protective Action

5.4.3.1 Radiation Protection During Emergencies

The routine radiation protection procedures used during an emergency do not reflect the variations from normal plant status. There are no indications of any briefings of emergency workers augmenting the onsite emergency organization that deal with radiological considerations of the accident. There are no procedures for expanding the respiratory protection program in the event of an emergency. There are no procedures indicating a priority ranking as to health

physics services to be provided, hence, the professional judgement of the Radiological Protection Director and the Radiation Technicians are the only guides.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program.

- Adjust routine radiation protection procedures to reflect the accident conditions.

- Make provisions for expanding the respiratory protection requirements that would be imposed under accident conditions (i.e., decontamination, testing, and acquisition of additional respiratory units and supplies).

The following items should be considered for improvement.

- Develop a priority ranking for determination of the most immediate health physics coverage requirements.

- Develop provisions for briefing offsite support groups on plant radiological conditions.

5.4.3.2 Evacuation of Owner Controlled Areas

The emergency plan implementing procedures that specify action levels for evacuating specified areas and buildings are Administrative Control Directives (ACD) 12.3 to 12.6. Figure 12.9-1 of ACD 12.9 presents assembly area locations: the personnel airlock for the containment, the health physics office for the auxiliary building, the interim operational support facility on the mezzanine level of the turbine building, and the assembly room on the ground floor of the administration building. Relocation of personnel from the assembly areas to an offsite location of reassembly, such as the Site Access Facility, is initiated by the Radiation Protection Director and the Emergency Director; but neither the activation criteria nor the procedure has been developed and formalized.

During the plant tour, the auditors examined the assembly areas and found them to be located as described in ACD 12.9. Provisions for concise oral announcements over the facility public address system (Gai-Tronics) to describe the immediate actions of non essential personnel are described in ACD 12.3, ACD 12.4, ACD 12.5 and ACD 12.6. After the announcement is made over the plant Gai-Tronics public address system to notify personnel to report to their assembly areas, the plant emergency alarm is sounded and the oral announcement is repeated.

Primary and secondary evacuation routes are not designated inplant or onsite, routing personnel to assembly areas nor to the offsite relocation facility. There is no alternate offsite relocation facility designated in the event of an adverse wind direction.

The owner controlled area within the fenced area and in the public accessibility area outside the fence is not covered by the public address system.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program.

- A procedure shall be developed for relocation of personnel to assembly areas or the existing Procedure ACD 12.9, "Personnel Accountability" shall be upgraded to include:

  a. Criteria for relocation of personnel from the assembly areas to an offsite relocation area.

  b. The designation of an alternate offsite relocation facility, in addition to the Site Access Facility, shall be designated to cope with adverse wind direction.

  c. A means of alerting and directing personnel within the owner controlled fenced area and the public accessibility area outside the fence to leave the area and the route to be taken for relocation.

The following area should be considered for improvement:

- Arrows, signs, or floor markings should be placed in critical hallways, corridors and paths designating routes for relocating personnel to the assembly areas.

5.4.3.3 Personnel Accountability

The auditors reviewed the Personnel Accountability procedure and interviewed the Security Supervisor and Security Specialist. Administrative Control Directive (ACD 12.9) covers personnel accountability and provides for the identification of missing individuals, but does not specify that the identification shall be provided within thirty minutes from the declaration of an emergency. The Security Force utilizes dosimeter/TLD racks and sign in sheets at the Security Building guard desk to determine the total number of personnel within the security area. The security key card computer system and the missing person's supervisor aid in identifying and locating the last zone in which the missing person was logged. Licensee representatives responsible for personnel accountability have stated the thirty

minute guideline can be met. The personnel accountability information is given to the Emergency Director who designates a search team. There is no search procedure, nor does ACD 12.9 include details of how the Emergency Director, Security or Shift Supervisor, who are responsible for initiating the personnel accountability procedure, will conduct the personnel accountability check. Details for the personnel accountability check are included in Security Force General Order 12; however, the order is not referenced in ACD 12.9. The Security Director is responsible for reporting the results of the personnel accountability check to the Emergency Director, as stated in ACD 12.1. Normal operating security procedures are used for continuous accountability of all individuals onsite after the initial accountability has been conducted.

Based on the above findings, this portion of the licensee's program appears to be acceptable, but the following matters should be considered for improvement.

- ACD 12.9 should specify that identification of missing individuals shall be provided within 30 minutes.

- A search and find procedure should be developed and formalized for persons declared missing as a result of the Personnel Accountability procedure being implemented.

- ACD 12.9 should be revised to include the details of how the personnel accountability check is performed or reference Security Force General Order 12.

- ACD 12.9 should include the provision the Security Director is responsible for reporting the results of the accountability check to the Emergency Director or reference ACD 12.1 in which the provision appears.

5.4.3.4 Personnel Monitoring and Decontamination

This subject was reviewed by the auditors. RC-HP-28 is the normal operating procedure for monitoring of individuals leaving restricted areas or other areas known or suspected to be contaminated. There is a "frisker" monitoring capability at the Radiation Protection Office and the personnel airlock assembly areas. Portable beta-gamma monitoring instruments are brought to the turbine building and the administration building assembly areas from the Radiation Protection Office. There is personnel monitoring capability in the offsite relocation facility, i.e., the Site Access Facility. However, the ACD's do not address: (1) the necessity of monitoring personnel at the assembly areas for contamination; (2) documentation of data from such monitoring, that is; a form for

documenting the appropriate information; (3) action levels for decontamination of persons; and (4) providing the data record to the individual.

The personnel decontamination procedure is given in HP-RET-14 and covers decontamination of the person of a contaminated individual, it appears to be adequate.

Based on the above findings, this portion of the licensee's program appears adequate; however, improvement in the following area should be considered:

A procedure should be developed which:

- Addresses the necessity of monitoring personnel relocated to assembly areas for contamination.

- Provides for documentation of the results of monitoring of personnel relocated to assembly areas.

- Provides action levels for decontamination of personnel.

5.4.3.5 Onsite First-Aid/Rescue

This subject is addressed in HP-RET-14, "Personnel Decontamination." The procedure lacks depth in describing the methods to be used for rescue, transporting, handling, and giving first-aid to contaminated injured personnel. The interface and guidance for tansporting contaminated injured personnel to the offsite medical treatment facility, Two Rivers Municipal Hospital, have not been addressed in sufficient detail. The hospital contacts by individual name or title and their respective telephone numbers are not given in the procedure. There is radiation protection guidance provided for the rescue team.

Based on the above findings, improvement in the following area is required to achieve an acceptable program.

- Upgrade HP-RET-14 or develop a procedure to provide sufficient detail for rescue, transporting, handling and giving first-aid to contaminated injured personnel and for the interface with Two Rivers Municipal Hospital. Criteria for moving the contaminated injured person to the hospital shall be developed in sufficient detail and the contacts and telephone number at the hospital shall be listed in the procedure.

5.4.4 Security During Emergencies

During the appraisal, the auditors reviewed the procedures that when instituted would cause the security force to perform specific functions. ACD 12.5 (Site Emergency) and

ACD 12.6 (General Emergency) state that the Shift Supervisor will contact the Security Director or Security Force Supervisor and direct them to:

1. Evacuate fisherman from KNPP property.

2. Block the Hwy 42 entrance.

In addition, the security force has a set of General Orders, Enclosure 1, that elaborate on what actions the security force shall take. However, during interviews with Security Force personnel, all interviewees stated they had not had formal training from KNPP regarding Radiation Effects, Emergency Classifications or what actions they are expected to take during an emergency.

A Contingency Plan (Appendix C to 10 CFR 73) has been submitted to NRC and approved on March 13, 1981. The security procedures which are to be in effect during emergencies are supposed to implement the Contigency Plan. The adequacy of the procedure will be reviewed by NRC Region III Security Inspectors in a subsequent inspection.

Based on the above findings, improvement in the following area is required to achieve an acceptable program:

- The Security Force shall be formally trained by KNPP personnel regarding the effects of radiation on the body, Emergency Classifications categories, and what actions are expected of them during an emergency.

5.4.5 Repair and Corrective Action

Repair and corrective action is not addressed in a specific Implementing Procedure. Licensee representatives stated that repair and corrective actions will be directed by the Maintenance Superintendent. There is no procedure which specifically addresses safety considerations for repair or corrective action teams. The information should include the radiation safety and dosimetry aspects of each task and give attention to ALARA in the planning. The responsibility for this is generally assigned to the Radiological Protection Director.

Based on the above findings, this portion of the licensee's program appears adequate; however, improvement in the following area should be considered:

- Develop procedures specifying the repair and/or corrective action organization, to whom the team reports and steps to assure that individuals are properly briefed in radiological conditions prior to working.

5.4.6 Recovery

The Emergency Response Manager is responsible for declaring that the recovery phase has been entered. Engineering Control Directive (ECD) 16.1 delegates this responsibility to the Emergency Response Manager. The Emergency Director is responsible for evaluating all plant conditions as well as in-plant and out-of-plant radiological conditions and reporting this information to the Emergency Response Manager.

Fluor Power Services Inc. is currently being retained as consultant to supply services during recovery operations. Westinghouse Corporation has an agreement with Wisconsin Public Service to assist with technical backup during an accident and through the recover phase.

The recovery actions are not addressed in a specific implementing procedure. As stated previously, the Emergency Response Manager has the responsibility to deactivate the emergency organization but no other positions in the recovery group are specified. When and how the emergency will be deactivated is not defined in any procedure.

Based on the above finding, improvement in the following area is required to achieve an acceptable program.

- Develop procedures specifying all the positions and duties of the recovery organization, and how recovery will be implemented.

5.4.7 Public Information

The auditors reviewed the Public Information Emergency Response Plan for Kewaunee Nuclear Power Plant dated June 4, 1981, to verify scope and content. The Public Information Department is responsible for collecting, verifying and disseminating information on emergency situations to the public via the news media. Upon notification by the WPS Nuclear Department of any of the four classified types of emergencies, the Public Information Department will make an announcement through news releases, briefing, television and radio.

The Joint Public Information Center (JPIC) will be activated during a site or general emergency. The JPIC is located in the Two Rivers Community Center. The JPIC has space for news media briefings, copying, phone communications and food services.

Major functions of the Public Information Director are:

1. Have call lists of media and company personnel initiated.

2. Open JPIC.

3. Company supervision of JPIC.

4. Activate WPSC telephone to Two Rivers and Green Bay offices from JPIC.

5. Arrange for work space for media.

6. Set up news briefings, conferences and interviews with media at JPIC.

7. Coordinate with Public Information people of FEMA, NRC, state, county and local governments.

8. Acts as company spokesperson.

Materials and equipment for the JPIC (i.e., typewriter displays, copy machines and press packets) are currently stored in the company offices in Two Rivers and Green Bay. The procedures in this plan designate who is responsible for delivery to JPIC.

The plan specifies that Wisconsin Public Service Company will issue periodic newsletters to area residents. Annually they will distribute to the permanent and transient adult population within the 10 mile EPZ, information as to how they will be notified and what their actions should be in an emergency. Education information on radiation, contacts for additional information, protective measures to be taken, and special needs of the handicapped will also be provided. This information is currently under development with assistance from the Wisconsin Division of Emergency Government.

Based on the above finding, improvement in the following area is required to achieve an acceptable program:

- Implement the public notification and information program for the permanent and adult transient population.

5.4.8 Fire Fighting

The auditors interviewed the Fire Marshall and training personnel regarding what training onsite personnel had received. During the month of February 1981, as documented by the Training Departments records, approximately 80% of all onsite personnel received training regarding ACD 14.2 - Fire Emergency. ACD 14.2 states, in the section titled "Requirements," "the person discovering the fire will report the fire location, type and intensity to the Shift Supervisor

immediately..." ACD 12.2 - Emergency Class Determination, indexes Chart G, page 11 for Fire and Fire Protection. Chart G lists the fire classification criteria; Emergency Classification and Emergency Action Levels. Shift Supervisors are aware of how to use ACD 12.2, this was determined by the auditors during walk-thru's.

Based on the above findings, this portion of the licensee's program appears to be acceptable.

5.5 Supplementary Procedures

5.5.1 Inventory, Operational Check and Calibration of Emergency Equipment, Facilities and Supplies

A licensee representative has indicated that there are no predesignated radiological emergency kits, but there are radiological instruments and/or emergency supplies in the health physics office and at assembly areas throughout the plant. (See Section 4.2.1.1) The licensee representative also indicated there were no formal procedures for regular operational checks of emergency support supplies (e.g., emergency respiratory protective gear, power supplies, batteries, etc.).

Based on the above findings, improvements in the following areas are required to achieve an acceptable program.

- Develop procedures to assure emergency support supplies and equipment are operationally checked and inventoried.

5.5.2 Drills and Exercises

A Plant Nuclear Engineer has indicated that drills and exercises are under his direction. The communications drill and the exercise conducted with the Civil Defense were based on scenarios developed in advance. There are no apparent procedures or provisions for news media coverage of drills and exercises utilizing the news media facilities equipment, and procedures that would be in use during an actual emergency.

Based on the above findings, this portion of the licensee's program appears to be acceptable, but the following matters should be considered for improvement.

- Establish provisions for enabling the media to gain experience in using the media facilities and equipment during drills/exercises.

5.5.3 Review, Revision and Distribution

There are no procedures to assure uniformity of procedure and emergency plan reviews in areas such as content, updates, required reviewers, etc. There is an incorrect phone number in ACD 12.7 for the Department of Energy Radiological Assistance Team.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program.

- Develop procedures for emergency plans and procedure review to assure completeness and accuracy of plans procedures.

5.5.4 Audit

The audit of the emergency plan and procedures required in QAD 3.2.6.5 is biennial rather than annual as specified in NUREG-0654. Audit procedures do not contain provisions for interviewing personnel, examining equipment, or observation of drills.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program.

- The audits of the emergency plan and procedures shall be annual and the audit should include provisions for auditing equipment, personnel, and drills.

6.0 COORDINATION WITH OFFSITE GROUPS

6.1.a Offsite Agencies

During the appraisal of the Kewaunee Nuclear Power Plant's Emergency Preparedness, the auditors visited those local agencies that would have direct interface with the plant. The following agencies were contacted: Kewaunee Sheriff, Manitowoc Sheriff, Two Rivers Community Hospital and Kewaunee Fire Department. During their visit, each agency representative expressed an understanding of their role, responsibility and procedures in the event of an emergency at the licensee's facility. The licensee has had drills and exercises with the support groups. However, the licensee had relied on the Point Beach facility to train Manitowoc Sheriff's personnel and Two Rivers Hospital personnel. The licensee has provided one orientation course approximately two years ago to the Kewaunee Sheriff's Department and the Kewaunee Fire Department personnel. The key offsite agencies have reviewed the Emergency Actions to be taken for each emergency class, however, the licensee has not effectively contributed to this understanding.

All support groups contacted appeared to have an understanding of their concepts of operations and have stated that they are willing to support the licensee in accordance with their letters of agreement.

See Section 3.1 and 3.2 for additional findings.

6.1.b. Federal

The Kewaunee Nuclear Power Plant (KNPP) has a letter of agreement with the Department of Energy (DOE) and the U.S. Coast Guard. The letter of agreement specifies what actions DOE will be responsible for. However, the letter of agreement with the U.S. Coast Guard does not specify concepts of operation, authorities and responsibilities mutually agreeable to both parties.

Based on the above findings, this portion of the licensee's program appears to be acceptable, but the following matter should be considered for improvement.

Letter of agreement with the U.S . Coast Guard should be rewritten specifying concepts of operation, authorities and responsibilities mutually acceptable to both parties for emergency actions.

6.1.c. State

The January 23, 1980, letter of agreement between the Kewaunee Nuclear Power Plant (KNPP) and the State of Wisconsin does not specify the concept of operations, responsibilities and authorities of each party during a nuclear emergency.

Based on the above findings, this portion of the licensee's program appears to be acceptable, but the following matter should be considered for improvement.

The letter of agreement between the State of Wisconsin and KNPP should be rewritten to reflect the concept of operation, authorities and responsibilities that are mutually acceptable to each party.

6.1.d. Local

The letters of agreement with the Two Rivers Community Hospital (January 24, 1980) and the University of Wisconsin Hospital and Clinics (January 24, 1980) do not clearly delineate the concepts of operation, authorities and responsibilities that are mutually agreeable by both parties. Letters of agreement between KNPP and the Kewaunee Sheriff, Manitowoc County Sheriff and the Kewaunee County Division of Emergency Government specify the concepts and responsibilities of the local governments. However, these

letters do not specify what services KNPP will provide, i.e., training.

The auditors interviewed Two Rivers Community Hospital personnel. The hospital personnel perceive the roles of KNPP and their facility as follows:

1. Hospital personnel perceive their role as responsible for treating the injured individuals only.

2. They perceive KNPP's role as supplying an individual to monitor resources and decontaminate the facility.

Based on the above finding, this portion of the licensee's program appears to be acceptable, but the following matter should be considered for improvement. The letters of agreement with local support groups should be rewritten to clearly delineate the concepts of operation, authority and responsibility of each party involved in the agreement.

6.2 General Public

The auditors interviewed the individual, at corporate headquarters, in charge of preparing a public information and education program. This individual informed the auditors that a public information program is being developed and is not currently in effect.

Based on the above findings, improvements in the following area are required to achieve an acceptable program.

- A method, such as brochures, bill board signs, shall be developed to inform annually the resident and transient population what to do in the event of an emergency in accordance with NUREG-0654, Section G criteria.

6.3 News Media

The licensee held a news media briefing on May 7, 1981. The media was instructed in some aspects of nuclear power, the emergency plan, basic concepts of radiation and points of contact for release of information in an emergency. The Wisconsin Public Service Corporation Public Information Emergency Response Plan for the Kewaunee Nuclear Plant, dated June 4, 1981, states that the news media briefing will be given as part of the annual drill. Also on an annual basis, the media will be invited on a tour of the nuclear power plant.

The auditors found an adequate news media information and training program exists.

7.0 DRILLS AND EXERCISES

7.1 Program Implementation

The exercise and drill records indicate that some of the drills required for complying with NUREG-0654, Planning Standard N have been completed, and there remains only a short time between now and the end of the first quarter, following the April 1 implementation date for the emergency plan, at which time the licensee must complete the quarterly requirements. There are apparently no procedures in place for conducting drills and exercises. Some of the offsite agencies and groups had taken part in the Civil Defense drill on 9/80 and there comments are on file.

7.2 Walk-Through Observation

7.2.1 Emergency Detection and

7.2.2 Emergency Classification

During the appraisal, the auditors conducted walk through appraisals of five Senior Reactor Operators (SRO) and ten Shift Technical Advisors (STA). The scenarios used included conditions leading to the classification of site and general emergencies. The majority of the SRO's and STA's used the appropriate procedures to classify each event. However, the correct classifications were not always obtained.

The above findings are discussed in Section 3.2 and 5.3

7.2.3 Notification

During our discussion with site personnel and the sheriffs of Kewaunee and Manitowoc Counties, the auditors asked how notification of the general public would occur and could notification be accomplished within 15 minutes. Site personnel stated that their prompt notification and warning system was not installed nor ordered at the time of this appraisal but was under development and that the capability to notify the public within 15 minutes does not exist at this time. Site personnel said they notify the county sheriffs and that the sheriff for each county was responsible for notifying the public. The auditors asked the sheriffs what means they had for notifying the general public. The Kewaunee County Sheriff activates one siren in Kewaunee and one siren in Mishicot, all other notifications are performed door to door by deputies using car sirens. The

Manitowoc Sheriff activates one siren and deputies use squad car sirens and car loud speakers to notify those beyond the siren's range. When asked if they could notify the public as per Appendix 3 of NUREG-0654, both sheriffs said they could not.

The auditors asked a U.S. Coast Guard Watch Commander how long it would take to notify people on the lake. The representative stated notification time varied with the traffic, and that at peak traffic they could not notify the public on the lake within the 10 mile EPZ within 15 minutes.

Based on the above findings, improvements in the following area are required to achieve an acceptable program.

- Develop and implement an acceptable system to notify the general public as specified in Appendix 3 of NUREG-0654. Further, inform the NRC Office, Region III, what area of coverage you presently have and what type of compensating measures will be in place until you meet Appendix 3.

7.2.4 Dose Calculations

The auditors observed two individuals attempting to operate the KARL computer program to calculate dispersion factors, but considerable difficulty arose in acquiring input to this program as well as operating the program. The dose calculation program, which uses some of the KARL computer program output, calculates only submersion dose. There are no backup calculational procedures for determining offsite doses if the computer is unavailable. The meteorological model employed in the offsite dose predictions does not meet NUREG-0654 requirements for the Class A model. Since the Class A Model is required to be fully operational October 1, 1982, this remains as an open item. The offsite dose predictions are only for the site boundary areas and at ten miles. Training is not sufficient for those required to perform dose assessment.

The above findings are discussed in Sections 3.0 and 5.0.

7.2.5 Post-Accident Sampling and Analysis

The auditors conducted a walk-through involving the post accident collection of a primary coolant sample. The scenarios involved a massive fuel failure, the declaration of alert, site and general emergency, and the call-in of a chemistry technician to collect a primary coolant sample. Section 4.0 of Procedure RC-C84, "Post accident Reactor Coolant Interim Sampling Procedure" was used to cue the action. Radiation protection requirements related to this effort are discussed in Section 7.2.7. The sampling

effort took place in the Hot Chemistry Laboratory. Procedure RC-C-84 was set up for the collection of an RCS hot leg sample. During the walk-through valve RC-423 (operated from the Control Room) was found not to be operable. The technician then proceeded to get a sample from the pressurizer. The sampling effort required about 45 minutes to complete (to the point where a diluted sample was ready to be counted). No significant problems were noted in this area. Other findings related to this area are discussed in Section 4.1.1.5 of this report.

7.2.6 Post-Accident Containment Air Sampling and Analysis

This walk-through appraisal was not conducted because the licensee's were not trained in the performance of activities contained in procedure RC-HP-180. See Section 5.4.2.6 of this report.

7.2.7 In Plant Sampling and Analysis

The auditors observed a post accident sampling and analysis procedure and at the same time requested and evaluated the health physics coverage. The sampling and analysis of the coolant sample is discussed in Section 7.2.5. The health physics coverage was adequate (high range dosimeters, TLDs, respiratory protection, protective clothing, survey meters, and radiological conditions) with the following exceptions:

a. health physicists should have discussed alternate pathways to get to sampling room with security to determine whether normally one way locked doors could be remotely opened to provide safer access to the sampling room(s).

b. health physics coverage of the chemistry technician should have been full time.

c. air samples should have been taken.

The exceptions mentioned above reflect the lack of emergency training and procedures as discussed in Section 3.0 and 5.0.

8.0 PERSONS CONTACTED

Wisconsin Public Service Corporation

*John Wallace	Nuclear Systems Supervisor
*Richard Pulec	Nuclear Engineer
L. C. Arno	Instrument and Control Supervisor
*John S. Richmond	Plant Services Superintendent
*Donald Hintz	Plant Manager
Craig Long	Lead Radiation Protection Man Health Physics
*David Nalepka	Nuclear Engineer

David Sauer	Nuclear Engineer
Steven Bohiman	Nuclear Fuel Engineer
John Holly	Nuclear Fuel Engineer
*Charles A. Schrock	Nuclear Licensing Supervisor
David Braun	Shift Supervisor
William Wagner	Shift Supervisor
D. A. Dow, WPS	Security Specialist
Rodger Lange	Asst. Superintendent-Maintenance
Chuck Smoker	ASSOC Engineer
Don MacSwain	Asst. Superintendent-Instrument and Control
R. Snodgrass	Radio Chemistry Laboratory Man
D. Ristau	Nuclear Technical Review Supervisor
R. Kiefer	Public Information Director
P. Gorman	Nuclear Information Coordinator
D. Seebart	Training Technician
F. Stanaszak	Shift Technical Advisor
D. Will	Shift Technical Advisor
J. Tiles	Shift Technical Advisor
R. Zube	Sr. Reactor Operator
R. Hanson	Sr. Reactor Operator
J. Krueger	Sr. Reactor Operator
*Mark Marchi	Site Emergency Planning Coordinator
*C. R. Luoma	Asst. Manager Nuclear Power
*Carl Geisler	Manager Nuclear Power
Ken Weinhauer	Nuclear Services Supervisor
*John Richmond	Plant Services Superintendent
*Mark Reinhart	HP Supervisor
P. T. Lee, Captain	RRS Inc. (Security)
*T. J. Moore, WPS	Plant Security/Administrative Supervisor

In addition to the above, several reactor operators and security officers were interviewed relevant to the their tasks during an emergency.

*Denotes those present at exit interview.

9.0 EXIT INTERVIEW

The auditors and senior management from headquarters and the region met with licensee representatives (denoted in Paragraph 8) at the conclusion of the appraisal on June 19, 1981. The auditors summarized the scope and findings of the appraisal. A detailed technical exit was also conducted at the conclusion of the appraisal with licensee representatives of those technical areas which needed improvement.