U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-305/92011(DRSS) Docket No. 50-305

Licensee: Wisconsin Public Service Corporation P. O. Box 19002 Green Bay, WI 54307-9002

Facility Name: Kewaunee Nuclear Power Plant Inspection At: Kewaunee Site; Kewaunee, WI Inspection Conducted: April 6 to 10, 1992

P. L. Louden

Inspectors:

Radiation Specialist

R. A. Paul

Senior Radiation Specialist

Approved By:

William Snell, Chief Radiological Controls Section

Inspection Summary

<u>Inspection on April 6 through 10, 1992 (Report No. 50-305/92011(DRSS))</u> <u>Areas Inspected:</u> Routine unannounced inspection of the Radiation Protection (RP) program (Inspection Procedures (IP) 83750, 84750, and 86750), which included respiratory protection, internal and external exposure control, training and qualifications, contamination control, ALARA, radiation monitoring system, shipping and transportation, a review of previous inspector findings, and general containment and station tours.

<u>Results:</u> The station's RP program remains stable and is staffed with experienced and knowledgeable personnel. Good primary and secondary chemistry controls continue to facilitate a low overall station source term. The licensee has made progress in establishing a formal station ALARA program, which has included the appointment of a station nuclear engineer to the previously vacant portion of station health physicist whose partial duties will be to implement and coordinate the station's ALARA program. No violations or deviations were identified. One Open Item was issued with respect to the respiratory protection program.

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DETAILS

Persons Contacted

Licensee Staff

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- * W. Flint, Supervisor, Station Chemistry
- C. Long, Supervisor, Radiation Protection
- * M. Marchi, Station Manager
- * M. Reinhart, Superintendent, Station Radiation Protection

The inspectors also interviewed other licensee and contractor personnel during the inspection.

NRC Staff

* P. Castleman, Senior Resident Inspector

*Present at the Exit Meeting on April 10, 1992.

Licensee Action on Previous Inspection Findings (IP 92701)

<u>Closed (Open Item) 305/91016-01</u>: Procedural discrepancies in SP 32-115 "Doses from Liquid Effluents" used for offsite dose calculations from liquid discharges. The inspectors verified procedural changes made to correct the noted discrepancies.

<u>Closed (Open Item) 305/91016-02</u>: Discrepancies with conversion factors used to determine skin dose. The inspectors verified that procedure RC-HP-104 "Contamination Event Skin Dose Estimate" was revised to incorporate more appropriate conversion factors for use in evaluating skin dose from skin contamination.

Open (Open Item) 305/91010-04: Training on the intent and use of the radiological occurrence report (ROR) system. Training was given to all radiation protection technicians and other health physics personnel. There were eight RORs written in 1991 and six written to date in 1992. A review of these RORs indicates most of those written up to about September 1991 were incomplete, not properly addressed, and without final disposition because of the RPMs workload. Those written after that were assigned to the newly appointed station health physicist and appear to have been adequately addressed and appropriately handled. During a previous inspection (Report No. 50-305/91010) it was stated that because of personnel resistance to initiate RORs the system is not fully used as intended. Based on discussions with several of the radiation protection technicians during this inspection, and a review of several incidents in the radiation protection hand log that were not assessed under the ROR system but appeared that they should have been, the inspectors informed

the licensee at the exit meeting there still appeared to be a reluctance to initiate RORs for their intended purpose. Licensee management disagreed with this observation and stated that significant improvement had been made in this matter. The inspectors stated this item will stay open for further review during future inspections to determine if the system is being used as intended and in accordance with licensee procedures.

Open (Open Item) 305/91010-01: Training and qualification of the station health physicist (HP). The licensee transferred a degreed nuclear engineer with six years station experience in its design change group to station HP in September 1991. Most of the six years of station experience was spent in non-health physics related activities. The HPs primary responsibilities will be ALARA, ROR reviews, radiation environmental monitoring program, procedure reviews, and dosimetry. Since his appointment the HP has attended a vendor 10 CFR 49 transportation course and is scheduled to attend courses in radiation biology, internal dosimetry and nuclear emergencies in 1992. A review of his training matrix indicates he will also have OJT in the radiation protection technician qualification program and attend courses in HP certification, ALARA, radiation shielding, the new 10 CFR 20, and other course work by the end of 1993. The HPs college course work included sufficient hours in physics, mathematics, chemistry and other related technical subjects. This matter remains open pending completion of planned training.

Open (Violation) 305/91021-02: Failure to perform an adequate evaluation of radiation hazards that may be present. To prevent recurrence the licensee committed to perform four actions by June 1992. At the time of this inspection three of the four were completed and the fourth has been delayed until the 1993 refuel outage. This item remains open pending completion of all corrective actions.

3. Changes (IP 83750)

The most significant changes to the overall administration of the radiation protection program from that described in Inspection Report No. 50-305/91010 is that the radiation protection manager and the supervisor of chemistry now report directly to the plant manager, and a station health physicist has been appointed. The staff remains stable and continues to be sufficient to effectively implement the radiation protection program. The technical radiation protection staff meets Technical Specification ANSI qualifications. During the outage the house technicians performed overview functions in the containment, acted as liaison between the contract workers and the licensee containment coordinator, and provided radiological controls. Observations and discussions with several of the RPTs and management persons indicated they were sufficiently knowledgeable and performed their job functions well.

No violations or deviations were identified.

Audits and Appraisals (IP 83750)

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The inspectors reviewed the licensee's program for self-identification of problems. Quality Assurance reports issued since the last inspection were reviewed and found to be thorough, contained substantive findings, and corrective actions were taken in a timely manner. Only one outstanding open item remained from prior Radiation Protection Program audits, which concerned updates of the Radiation Protection Manual. The revisions were underway at the time of the inspection, with the delay in the response to the item mainly due to extension requests to accommodate changes as a result of future 10 CFR 20 revisions. The audits reviewed were performed by personnel having the appropriate expertise in the functional areas assigned. Interviews with cognizant licensee staff indicated a good working relationship existed between the Radiation Protection Department and the Quality Assurance group.

No violations or deviations were identified.

Training and Qualifications (IP 83750)

Contract RPTs hired for additional coverage during outages are required to attend NGET and a plant specific course detailing site specific procedures for the Kewaunee Plant. The licensee requires a sign-off on an itemized listing of procedures specific to the tasks the individual contract technician will perform. No test is given to evaluate the technician's understanding of the procedures reviewed. The inspector reviewed the methodology used by the licensee to evaluate the qualifications of contract technicians to meet the American National Standards Institute (ANSI) 18.1 (1971) requirements. The licensee contracted 32 ANSI qualified technicians for job coverage during the 1992 outage. Approximately 75% of these technicians were returnees to the site, with the balance selected through interviews conducted by station radiation protection supervision. Work experience hours toward ANSI qualification is calculated conservatively and is similar to published practices by various vendor services. Occasionally a contract technician will be hired possessing an associates degree in radiation protection technology from a local technical institute. Licensee staff indicated that typically, one year of ANSI experience credit is given to individuals with such a degree, and the remaining year for qualification must be for direct job coverage or similar in-plant work (no deconning or frisking station duty). The licensee provides mock-up training for steam generator work in which the maintenance crews and the radiation protection technicians assigned for the job coverage attend the training together to review the job scope and eliminate as many potential problems or concerns with the jobs prior to entering containment. Licensee management indicated that only experienced returnee technicians are selected for steam generator coverage. No problems were identified through observations of contract technician job performance. The inspectors observed a good working relationship between station and contract radiation protection technicians.



In 1991 the house radiation protection technicians continued to receive on-going training performed by contractor and station personnel. Training included OJT, RETS/ODCM, dose projection, radiation monitoring systems, skin dose calculations, survey instrument operation and calibration, RETSCODE, respiratory protection, lessons learned, procedural changes, S/G jump radiological coverage and several other courses. A review of the content of this training program determined that it appeared to be of good quality.

No violations or deviations were identified.

6. External Exposure Control (IP 83750)

The inspector reviewed the licensee's external exposure control and personal dosimetry programs, including: changes in the program to meet routine and outage needs; use of dosimetry; planning and preparation for maintenance and refueling tasks including ALARA considerations; and required records, reports, and notifications.

The inspector reviewed selected RWPs for appropriateness of the radiation protection requirements based on work scope, location, and conditions. During tours of the plant, the inspector observed the adherence of plant workers to the RWP requirements and discussed the RWP requirements with plant workers at the job site.

The station dose totals at the time of the inspection were about 115 person-rem, which included approximately 112 person-rem accumulated during outage times. The station is anticipating dose totals for the year to be about 145 person-rem.

No violations or deviations were identified.

7. Internal Exposure Control (IP 83750)

A review of selected licensee documents and discussions with the licensee indicated that no individuals had been exposed in 1992 to airborne radioactivity greater than the 40 MPC-hour regulatory investigation level. In addition, a review of licensee procedures and observations of work in the plant indicated adequate assessment of airborne radioactivity.

The inspectors' review of a recently performed calibration of the licensee's whole body counter did not indicate any problems.

The inspectors reviewed the licensee's program for respiratory protection including wearer qualification records, fit testing, usage, issuance, accountability, storage, deconning, and maintenance programs. The licensee's respirator equipment inventories were adequate to supply the increased demands during the refueling outage. Individuals are given

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respirator training as a supplement to NGET. Only individuals expected to require the need for respiratory protection are provided the additional training. The training covered fundamentals of airborne radioactivity and reviewed respirator selection and proper donning of the equipment. Individuals are required to properly don a respirator and perform a negative pressure test to successfully complete the training. Fit tests are performed using the PORTACOUNT system and a minimum fit factor of 500 is used to pass the test. Worker qualification information is contained as part of shiftly crew dose list. This list includes information with respect to training, medical, and fit test dates. If an individual's qualification has expired, the computer will flag the out of date test. This computer list is used to verify qualifications for those individuals signing Radiation Work Permits (RWPs) which require respiratory protection. Radiation protection staff refer to the list when generating and updating a specific RWP to ensure the worker's qualification dates are current.

Respirators are typically located at the job site and no established area or mechanism is used to control the issuance of respirators or equipment. The inspectors discussed this item with RP management, especially with respect to the possibility of non-radiation workers (e.g. asbestos workers or painters) gaining access to the respirator storage room and using respirators without the knowledge of the RP department. Licensee staff indicated that they were aware of the problem of positively controlling respirators for general industrial uses and agreed that the crew dose list provided control of respirator use for radiation area work, but no mechanism existed to control industrial respirator uses. The inspectors indicated that some type of procedure should be established to ensure that all respirator users (radiation or non-radiation workers) have current training and qualifications. The licensee indicated that a review of current procedures and work requests would be performed to identify a method to ensure notification of non-radiation work requiring respiratory protection. This issue will be tracked as an Open Item until resolved (Open Item 50-305/92011-01).

A review of analyses and tests for breathing air quality indicated all supplies met the Compressed Gas Association Grade "D" requirements.

No violations or deviations were identified. One Open Item with respect to the issuance of respirators for non-radiological work was identified.

8. <u>Control of Radioactive Materials and Contamination, Surveys and Monitoring</u> (<u>IP 83750</u>)

The licensee continues to maintain a good contamination control program which includes a hot particle identification and dose evaluation system, a clean RCA, and good contamination surveillances. In 1991 there were 62 personal contamination events and in 1992 through the current outage about 63 events which is an increase over the number of events identified during the 1991 outage and is attributed to poor work practices by many first time refueling outage workers. The licensee intends to improve training in this area. The inspectors discussed the operation and calibration methodology of whole body friskers, tool, and laundry monitors. For the whole body friskers and tool monitor, calibrations are performed semi-annually using cesium-137 standards at 3 inches from the surface of the detectors with detector efficiencies ranging between 10 to 15 percent and about 30 percent at the surface of the detectors; these efficiencies are reduced using cobalt-60 and technetium-99m. The alarms are set at about 2.25 nanocuries (5000 dpm) and weekly operational checks are made using an equivalent check source. In addition to the use of the check sources. occasional contaminated smear samples of about 5000 dpm/100cm2 (measured with a hand held frisker) are used to verify alarm set points. The laundry monitor is also calibrated semi-annually using cesium-137 sources for the beta sensitive detectors and cobalt-60 for the sodium iodide gamma sensitive detectors. The monitor is set to alarm at about 22 nanocuries (about 100,000 dpm/100 cm2) and are checked weekly using equivalent sources. No problems were noted in the use of calibration and source check procedures.

No violations or deviations were identified.

9.

Maintaining Occupational Exposures ALARA (IP 83750)

The inspectors reviewed the licensee's program for maintaining exposures ALARA. The licensee has recently appointed a station HP whose responsibilities will partially include ALARA coordinator duties. The RP department contracted an ALARA analyst to assist in the preparation and performance of ALARA pre and post job briefings, shielding evaluations, and maintain exposure statistics during the spring 1992 outage. This was the first outage at the station in which a station employee was actively involved in the ALARA process full time. The station's ALARA program is still in the developmental stages, however, several steps taken during this outage to enhance the program included the ALARA coordinator attending the outage planning committee meetings, performance of pre/post job reviews, daily job exposure tracking, and temporary shielding analyses. The inspectors noted the progressive approach used with respect to temporary shielding evaluation. As part of the evaluation, dose estimates are compared to actual job dose estimates and compared to determine the total doses for installation, work performance, and removal versus performing the job without shielding. Efforts in lithium pH control and other chemistry initiatives resulted in continued source term reduction with containment dose rates lower than during the 1991 outage. Accumulated exposure for the outage was 112 person-rem at the time of the inspection with over 90 % of the planned work complete. Exposure estimates for the outage were about 122 person-rem and licensee staff indicated that actual accumulated doses should be less than the estimate. The inspectors acknowledged at the exit meeting the continued progress of the station in developing an in plant ALARA program and the source term reduction efforts underway.

No violations or deviations were identified.

10. Radiation Monitoring System (IP 84750)

The licensee has initiated the replacement/upgrading of the station's radiation monitoring system. The current system was part of the original equipment installed during construction and suffers from maintenance and reliability problems. Replacement of the ten area monitors was accomplished during the current refueling outage; however, unanticipated delays in conduit routing will delay the initial testing and operation of the area monitors until May or June of this year. Licensee staff indicated these delays did not impede progress with the replacement of process monitors which will continue throughout the remainder of the year; full operability of the entire system is expected after the spring 1993 refueling outage.

No violations or deviations were identified.

11. <u>High Concentrations of Argon Detected in Reactor Coolant System (RCS)</u> Incident Report Number 92-014

The inspectors reviewed the circumstances surrounding an incident which involved argon being inadvertently introduced into the RCS on February 1, 1992. A similar event occurred in September 1986, which resulted in the notification of an unusual event (NOUE) by the licensee and a release of radioactive argon (Ar-41). According to the licensee's investigation, on February 1, 1992, the condenser air ejector monitor (R-15) indicated an increasing trend. Follow-up chemistry analyses determined argon activity levels ten times normal levels. An investigation was conducted to determine the source of the argon. The six on-line hydrogen bottles were immediately isolated and sampled for contents. One of the six bottles was found to contain 5% hydrogen and 95% of other gases including argon. The suspect bottle was labeled as containing hydrogen gas only. The licensee notified the bottled gas vendor and inquired about quality assurance/ control of bottle filling. The vendor acknowledged the mistake and worked with the licensee to establish a corrective action to preclude such future occurrences. Initial corrective actions included establishing a batch bank of twelve bottles for filling, providing a serial number for the batch, and pulling samples from two of the batched bottles to verify the twelve bank contents. The licensee had also planned to send chemistry staff to the vendor to review and observe quality control methods used at the vendor's site.

Based on this investigation the inspectors determined that this event was not related to the 1986 event in that, the 1986 event involved using a gas bottle labeled "argon", and the current event involved a mislabeled bottle provided by the vendor.

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No violations or deviations were identified.

12. Shipping and Transportation of Low Level Waste for Disposal (IP 86750)

The inspectors observed the packaging and loading of a low level radioactive waste shipment. The bill of lading and waste classification manifest was reviewed and appeared to be in order. The waste (mostly filter media) activity was determined to be 20.9 curies and was shipped as low specific activity via an exclusive use vehicle. The inspectors performed independent radiation surveys of the shipping cask and reviewed the labeling and placarding of the container and vehicle and noted no problems.

No violations or deviations were identified.

13. Plant Tours

The inspectors made several facility tours, including containment, throughout the inspection period to observe posting and labeling, radiological controls and to observe personnel performing various jobs. All postings and contaminated areas were observed to be posted according to regulations and station procedures. Continuous air monitors were noted throughout the plant in areas to adequately monitor air quality. All instruments and meters observed were in current calibration. The housekeeping of the auxiliary building and containment were excellent given the ongoing outage work, and station personnel were generally observed to be following good radiation protection practices.

No violations or deviations were identified.

14. Exit Interview

The scope and findings of the inspection were reviewed with licensee representatives (Section 1) at the conclusion of the inspection on April 10, 1992. The inspectors discussed the Open Item with respect to control of respiratory protection equipment for industrial uses, and the performance of the ALARA program during the outage. The licensee acknowledged the inspectors comments and did not identify any documents as proprietary. Docket No. 50-305

Wisconsin Public Service Corporation ATTN: Mr. C. A. Schrock Manager-Nuclear Engineering Post Office Box 19002 Green Bay, WI 54307-9002

Dear Mr. Schrock:

This refers to the routine safety inspection conducted by Messrs. P. L. Louden and R. A. Paul of this office on April 6-10, 1992. The inspection included a review of authorized activities for your Kewaunee facility. At the conclusion of the inspection, the findings were discussed with those members of your staff identified in the enclosed report. Subsequent to the onsite inspection, an April 16, 1992 telephone conversation between M. Marchi of your staff and P. Louden and R. Paul of my staff was held to address the Open Item identified in Section 2 of the enclosed inspection report concerning the training of the newly hired station health physicist. Based on that telephone conversation, it is our understanding that the individual's training will be completed by December 1993.

APR 2 9 1992

Areas examined during the inspection are identified in the report. With these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations of activities in progress.

No violations of NRC requirements were identified during the course of this inspection.

In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC Public Document Room.

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

L. Robert Greger, Chief Reactor Programs Branch

Enclosure: Inspection Report No. 50-305/92011(DRSS)

See Attached Distribution

		(see attached concurrence)		
RIII	RIII	RIII	RIII	RIII
Louden/da	Paul	Snell	Hague	Greger

