

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Docket No.: 50-397

Report: 50-397/93-43

License: NPF-21

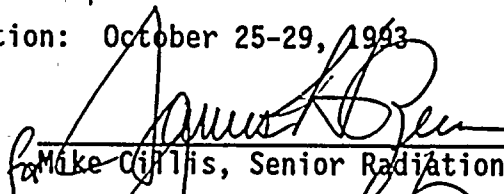
Licensee: Washington Public Power Supply System (WPPSS)
P.O. Box 968
3000 George Washington Way
Richland, WA 99352

Facility: Washington Nuclear Project 2 (WNP-2)

Inspection location: WNP-2 Site, Benton County, Washington

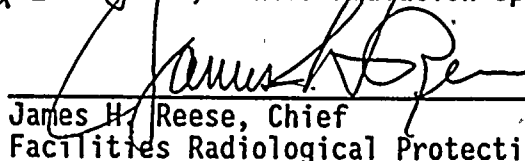
Inspection duration: October 25-29, 1993

Inspected by:


for Mike Cirilis, Senior Radiation Specialist

12/2/93
Date Signed

Approved by:


James H. Reese, Chief
Facilities Radiological Protection Branch

12/2/93
Date Signed

Summary:

Areas Inspected: This was a routine announced inspection of the licensee's programs associated with solid radioactive waste management and transportation of radioactive materials, occupational radiation exposure, and followup on previous inspection findings. Inspection procedures 83750 and 86750 were addressed.

Results: Improvements in the licensee's occupational exposure control program and solid radioactive waste management programs were identified and a strength was noted in licensee activities associated with the performance of quality control activities. The occupational exposure control and radioactive waste management and transportation programs were fully capable of meeting their safety objectives. One open item involving training of personnel involved in the transfer, packaging, and transportation of radioactive materials is discussed in Section 3.b. No violations or deviations were identified.



DETAILS

1. Persons Contacted

Licensee

- J. Swailes, Plant Manager
- *W. Shaeffer, Operations Manager
- *J. Albers, Radiation Protection Manager & Corporate Radiological Health Officer
- *W. Barley, Radiation Protection Consultant
- J. Benjamin, Manager, Quality Assessment
- *J. Gearhart, Director, Quality Assurance (QA)
- *M. Monopoli, Maintenance Manager
- *S. Davidson, QA Manager, Plant Support Assessments
- *S. Kim, ALARA Engineer
- *K. Lewis, Licensing Engineer
- *R. Patch, Health Physics Operation Supervisor
- *C. Madden, QA Engineer
- *K. Pisarcik, General Aide, Licensing
- *W. Rigby, Health Physics Planning/ALARA Supervisor
- *R. Webring, Technical Manager
- *J. Wiles, QA Engineer
- *M. Nolan, Radwaste Supervisor
- M. Keller, R-9 Outage Manager
- D. Merher, Work Control Manager

*Denotes those individuals who attended the exit meeting on October 29, 1993. The inspector met and held discussions with additional members of the licensee's staff during the inspection.

3. Occupational Radiation Exposure (83750)

The inspector evaluated the licensee's occupational exposure control program during normal plant operations by interviewing cognizant personnel, reviewing applicable procedures, logs, and records, and from observations of work in progress. Tours and independent surveys of the Turbine Building, Radwaste Building, and Reactor Building were conducted by the inspector. The WNP-2 Plant Manager accompanied the inspector during a tour of the Radwaste and Reactor Buildings conducted on October 27, 1993.

a. Radiological Posting and Labeling

The inspector verified the licensee's radiological posting and labeling. For those areas observed, radioactive material labels, as well as posting of radiation, high radiation, and radioactive materials areas, were visible, accurate, and consistent with 10 CFR 20.203 requirements. Posting pursuant to 10 CFR 19.11 were also noted to be visible and current.

b. Plant Cleanliness

Cleanliness and hose control improvements were noted in the areas that were toured.

c. Audits and Appraisals

(1) Implementation of QA/Oversight Program

The inspector reviewed licensee audit and surveillance reports issued since the last inspection.

The licensee's Quality Assurance (QA) audit and surveillance program covered a broad scope of licensee activities including radiation protection and management of the licensee's radwaste, shipping, and transportation of radioactive materials. Improvement in documentation and communication of the audit/surveillance findings were noted. Improvements were also noted in the timely responses and corrective actions to the audit findings.

The inspector noted that there had been a significant decrease in the amount of overview of the site's radiation programs by the licensee's Corporate Radiological Programs and Instrument Support (RP&IC) group. Licensee procedure PPM 1.11.3, "Health Physics Programs" states that the RP&IC Manager has responsibility for providing technical support to the Health Physics staff and to review programs, practices, and performance. The inspection disclosed that the RP&IC oversight had not been conducted due to decreases in resources and because of other priorities. This observation was brought to the licensee's attention during the exit interview.

(2) Audit/Surveillance Findings

The following audit/surveillance reports were reviewed:

(i) R-8 Health Physics Program Compliance: 293-0020, dated 06/21/93

The report identified the following weaknesses: (1) Lack of awareness of specific procedural requirements, (2) failure to perform timely radiation surveys, and a failure to document survey results, (3) four deficiencies were identified in the implementation of the air sampling program, (4) problems in the administration of high-high radiation area controls and (5) no procedural guidance existed for labeling of radioactive materials.

- (ii) Plant Downpower ALARA Observation: 293-0035, dated 08/06/93

Weaknesses identified were as follows: An individual ALARA goal was not developed, and the Plant Managers approval was not documented as required PPM 1.11.2, "ALARA Program Description."

- (iii) ALARA Program Overview: 293-0042, dated 10/26/93

Weaknesses were identified in several areas. Several Problem Evaluation Requests were issued as a result of the surveillance. They included: (1) Failure to comply with ALARA program requirements contained in PPM 1.11.8 and the Quality Records requirement of PPM 1.6.5 (The surveillance disclosed numerous examples of ALARA documentation not completed in accordance with procedure requirements), (2) failure to store terminated records in accordance with the Quality Records requirements of PPM 1.11.8, OQAPD 17, and ANSI N45.2.9, and (3) weaknesses in the administration of the Senior Site ALARA Committee and Plant ALARA Committee as specified in PPM 1.1.6.

- (iv) Drywell Entry ALARA Observations: 293-0044, dated 09/07/93

Weaknesses identified were as follows: (1) Poor communications between Operations Management and the drywell entry team resulted in a misclassification of the drywell entry. As a result, the entry was made wearing self-contained breathing apparatus when they were not required. This caused a delay in the completion of work, increased safety risk due heat stress, and caused personnel to receive unnecessary radiation exposure.

- (v) Reactor Downpower ALARA Observation: 293-0047, dated 10/9/93

No weaknesses or deficiencies were identified.

The audit/surveillance records reviewed covered a broad scope of the radiation protection activities. Each area appeared to have been examined in great detail. The inspector concluded that the licensee's audit/surveillance program provided the licensee with a viable tool for measuring and improving their performance.



d. Changes

Changes that have occurred since the previous inspection included the assignment of a new Health Physics Planning Supervisor, a new Health Physics Operations Supervisor, and a new Radwaste Supervisor.

c. Planning and Preparations

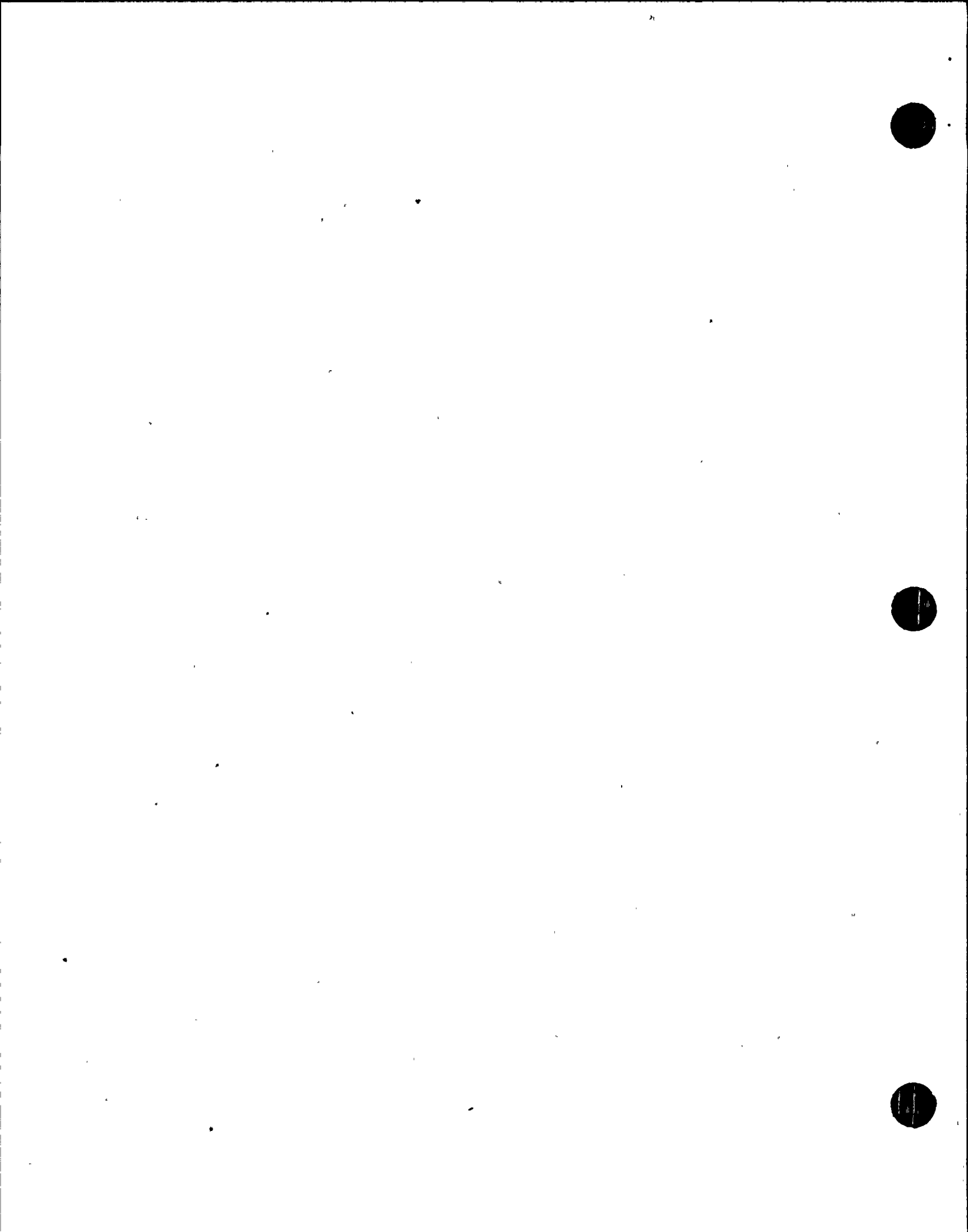
Concerns with the licensee's ALARA program during the R-8 outage were brought to the licensee's attention in Inspection Reports 50-397/93-14 and 50-397/93-22. As a result, the licensee has made some organizational changes that are discussed in this report. Other changes to correct past weaknesses were still in the planning stages at the time of this inspection.

The licensee's planning and preparations for refueling outage R-9 were in the initial phases at the time of this inspection. The new Outage Manager arrived two weeks prior to the start of the inspection and still had not had the opportunity to review the lessons learned reports resulting from refueling outage R-8. A complete outage work package was not available for review at the time of this inspection.

An aggressive ALARA awareness program for plant personnel had just been initiated at the completion of refueling outage R-8. The program had the full support of WNP-2 management. ALARA posting and exposure graphs were placed in various locations throughout the plant. The graphs reflected the person-rem exposure goals for each group and the status of the exposures received to date (see Section 2.g, below).

The new Health Physics Planning Supervisor (HPPS) and Outage Manager(OM) were concerned about the late start with the planning and preparations for R-9 refueling outage. Each felt confident that quality planning and preparations could be accomplished in time to support the start of R-9 work activities. Both the HPPS and OM along with the new Work Control Manager were planning to start an aggressive ALARA awareness program for the R-9 outage for involved plant and craft workers. The three individuals were concerned with the effect the elimination of the chemical decontamination would have on the person-rem received during the outage. Because of the elimination of the decontamination, the licensee was considering alternate ALARA activities to reduce person-rem as much as possible. Each appeared dedicated to implementing a successful ALARA program during the R-9 outage.

The inspector attended a Senior Site ALARA Committee meeting during the inspection. The agenda for the meeting was to discuss: repetitive high dose corrective maintenance in high radiation



areas, Review R-9 planning team status, and evaluate plant and Senior Site ALARA Committees' status. The meeting appeared to be very productive.

The inspector noted that improvements in worker moral, attitudes, and communications had been achieved since the previous inspection of this program area. The team work concept was evident during the inspection.

d. Training and Qualifications of Personnel

The inspector attended an overview of the new 10 CFR Part 20 regulations that was presented to craft workers who are hired to support refueling outages. The overview was presented during a four-hour training session held on October 28, 1993. Workers attending the class were encouraged to ask questions and to make any recommendations for improving work practices and training. The presentation was jointly conducted by the plant and contract RPMs. The inspector noted that the attending workers took a very active part in the class.

The licensee's General Employees Training program was examined and was determined to meet 10 CFR Part 19.11 requirements. The examination disclosed the following:

- (1) The lessons learned from R-8 refueling outage had not yet been adopted into the GET program.
- (2) The training group had not determined: (1) whether the craft workers for R-9 refueling outage would be able to challenge the GET written examination, and (2) how they planned to convey the ALARA awareness program to R-9 craft workers.

The above observations were discussed at the exit meeting. The inspector was informed that an individual from the site Health Physics organization would be asked to attend the next presentation of GET for the purpose of recommending areas of improvement.

e. External Exposure Control

The inspector evaluated the licensee's external exposure program by reviewing selected survey and personnel exposure records, observing access control practices, and conducting independent surveys. The following items were noted:

- (1) Radioactive materials surveyed were appropriately labeled.
- (2) Portable radiation instruments used in radiologically controlled areas (RCA) were in current calibration. Dosimetry devices were worn appropriately.



- (3) The review of selected personnel exposure records for compliance with 10 CFR 20.101, 20.102, 20.104, and 10 CFR 19.13 did not disclose any concerns. In all cases, forms NRC-4 and NRC-5 or equivalent had been filed as required.

f. Control of Radioactive Materials and Contamination, Surveys, and Monitoring

(1) Sealed Source Contamination

A review of licensee procedure PPM 11.2.14.7, "Leak Testing of Radioactive Sources" was conducted for the purpose of verifying compliance with Technical Specifications (TS), Section 3/4.7.5, "Sealed Source Contamination."

TS, 4.7.5.1, 4.7.5.2, and 4.7.5.3 prescribe the surveillance requirements regarding sealed source contamination. The licensee reported that during the performance of the semi-annual leak test of their sealed radioactive source inventory on October 28, 1993, a 1.4 millicurie (mCi) Strontium (Sr)-90 source, Serial Number WNP-2-79-042, was found to have 0.045 uCi of removable contamination exceeding the TS limit of 0.005 microcurie (uCi). The contamination was found on a source holder which is used to perform daily response checks of portable survey meters.

The contaminated source holder was removed from service and an isotopic evaluation of the smear was performed. The source holder was inspected for the purpose of determining the probable cause for the source failure. The probable cause was attributed to abrasion of the source by a sliding plastic piece of the source holder used to position the survey meter directly over the source. The licensee determined that the abrasion probably resulted from the contact between the source and source holder during use. The licensee's staff inspected other source holders to ensure that the similar problem did not exist.

The licensee plans to include the event in the next annual report in accordance with TS 4.7.5.3 requirements.

(2) Personnel Contamination Events

A licensee effort to reduce personnel contamination events was initiated following the completion of refueling outage R-8. The inspector noted that a significant reduction in both skin and clothing contamination events through the implementation of an awareness program, increased monitoring of laundered anti-contamination protective clothing, improved laundering of protective clothing, and improved cleaning and housekeeping techniques of the facilities. The average monthly occurrence rate for personnel clothing and



skin contamination events prior to the R-8 refueling outage ranged from 20-30, as compared to ten each for the months of July and August, six for the month of September, and one for the month of October.

(3) Other Observations

The inspector observed work practices associated with ingress and egress of workers and equipment from the licensee's radiological controlled areas (RCA) and verified that radiation and contamination surveys of work areas, material, and equipment were being performed in accordance with applicable procedures. Work practices observed within the RCA's appeared to be consistent with the applicable Radiation Work Permits (RWP) and surveys were performed at the frequencies specified in licensee procedure. All contaminated areas were adequately posted.

During facility tours, the inspector observed that adequate personnel survey instruments were located near exits from surface contamination areas. All instruments observed were functional, within their calibration period, and had been daily performance tested.

Routine and non-routine contamination surveys of radiologically controlled areas were reviewed. Based on this review the inspector verified that the licensee's contamination and radiation survey program was consistent with 10 CFR Part 20.201 and licensee procedures.

g. Maintaining Occupational Exposures ALARA

The inspection disclosed that an aggressive ALARA awareness program was initiated shortly after the completion of the R-8 refueling outage.

Improvements were observed in the licensee's ALARA program during normal plant operations. The improvements included the implementation of an aggressive ALARA awareness program. The total exposure for the month of September was less than 12 person-rem and for the month of October the total exposure was 9.5 person-rem. This represents the lowest monthly exposure levels in the operating history of the plant.

The inspector noted that the Radiation Protection Manager initiated a monthly publication of a Health Physics News Letter. The News Letter is used as a communication tool to provide information relevant to WNP-2 and the nuclear industry. The inspector reviewed the September issue noting that it covered a broad cross section of subjects; such as, the need for implementing a single, unified health physics organization, implementation of an aggressive ALARA program, need for radwaste

minimization, and need for supporting a continuing health physics technician training program.

h. Internal Exposure Control

The inspector examined the licensee's method for controlling internal exposures. The inspector concluded that the licensee's internal exposure program had not changed from what has been previously reported. The program appeared to be consistent with 10 CFR Part 20.103, "Exposures of Individuals to Concentrations of Radioactive Materials in Air in Restricted Areas." The inspector determined that the licensee implemented a respiratory protection program that is consistent with NUREG 0041 and Regulatory Guide 8.25.

The licensee's performance for controlling occupational exposures during normal plant operations, as compared to their performance during refueling outage R-8, had improved. The licensee's occupational exposure program was determined to be adequate in accomplishing its safety objectives. No violations or deviations were identified.

3. Solid Radioactive Waste Management and Transportation of Radioactive Materials

The inspector evaluated this program area by interviewing cognizant personnel, reviewing applicable procedures and records, and from observations of work that was in progress. Tours of the Radwaste Building, and radwaste storage/processing areas were conducted by the inspector, Plant Manager, and Radwaste Supervisor.

a. Audits and Appraisals

The status of the most recent audits and surveillance are discussed in Section 2, above.

b. Training and Qualifications of Personnel

The inspector reviewed training records and lesson plans to determine if the licensee's training program for radwaste handlers and radwaste workers responsible for performing Quality Control functions were consistent with the recommendations and requirements prescribed in Inspection and Enforcement Bulletin (IEB) 79-19, "Packaging of Low-Level Radioactive Waste for Transportation and Burial," 10 CFR Part 71, Subpart H-Quality Assurance, paragraph 71.105(d), and Department of Transportation (DOT) 49 CFR Part 173.1(b).

A problem with the licensee's capability to retrieve training records in a timely manner and ability to verify radwaste workers were qualified pursuant to IEB 79-19 was identified during the inspection. The licensee's staff determined that the difficulty in retrieving the records was because they had not developed a



were qualified pursuant to IEB 79-19 was identified during the inspection. The licensee's staff determined that the difficulty in retrieving the records was because they had not developed a matrix defining the training and qualification requirements for the different categories of radwaste workers (e.g., radwaste laborer, health physics technician, quality control inspector, radwaste supervisor, etc.).

The examination disclosed that training provided to the licensee's staff involved in the performance of Quality Control (QC) functions associated with transportation of radioactive materials was not clearly defined. Surveillance Report No. 2-91-075 which was conducted in 1991, and closed on July 15, 1993, originally concluded that training provided to QC personnel was inadequate to assure compliance with IEB 79-19. Verification of corrective actions were signed-off as being completed on July 6, 1993. The inspector was unable to determine from the information contained in the PER how the finding was resolved. The corrective actions did not establish the training requirements for the QC staff. Discussions held with the training staff disclosed that the QC staff had not attended the training course that is routinely provided to all other licensee personnel involved in the transfer, packaging, and transport of radioactive material. The licensee's staff were not able to explain how the finding was resolved. The inspector informed the licensee that this matter would be reviewed during a subsequent inspection (50-397/93-43-01).

The above observations were discussed with the licensee's staff during the inspection and at the exit interview. The licensee stated that an evaluation of the inspectors observations would be performed.

c. Implementation of the Radioactive Waste Program

The inspector toured the radioactive material (RAM) storage area and the spent resin process area located on the 437' level of the radwaste building. Improvements in housekeeping and cleanliness of these areas were observed.

Practically all of the dry active waste (DAW) which had been transferred to the storage areas following the completion of the R-8 refueling outage had been packaged for shipment. Storage areas were exceptionally clean and devoid of any excess waste. A similar effort had been initiated in the spent resin processing area. The new Radwaste Supervisor stated that he was planning to ship approximately 21 spent resin liners and 8000 cubic feet of DAW to the burial ground prior to the start of the R-9 refueling outage. The inspector witnessed a shipment of four resin liners on October 26, 1993. The Radwaste Supervisor stated that he expected to ship the remaining spent resin liners to the burial site before the end of the year. The inventory of DAW had decreased to approximately 5200 cubic feet by the end of the

inspection period. The Radwaste supervisor informed the inspector he was planning to process waste during the R-9 outage as it is generated, rather than waiting until after the outage is completed.

The Radwaste Supervisor informed the inspector that WNP-2 had recently obtained a system for reducing the level of organic contaminants in water. The system is called GEOR. GEOR uses ozone and ultraviolet light to oxidize and fragment non-ionic organic compounds into carbon dioxide and ionic fragments. The remaining ionic species are easily removed by conventional ion exchange. The licensee's radwaste group had made significant progress since the previous inspection by processing the backlog of liquid wastes noted during previous inspections. The inspector witnessed the licensee's staff processing liquid wastes with the new system.

e. Shipping of Low-Level Wastes for Disposal, and Transportation

The licensee normally generates two major types of wastes which require off-site disposal as radioactive wastes. The waste streams are: (1) Dry Active Wastes, and (2) various Spent ion exchange filter media. Additional waste streams consist of (1) Reactor Coolant, (2) Contaminated Oil, (3) Spent Filter, and (4) Miscellaneous Sludges. The waste streams are sampled and analyzed at least annually for establishing the proper waste form and classification as required by 10 CFR Part 61 regulations.

The licensee has recently obtained a computerized program, called SCAN, to assist them in the validation of 10 CFR Part 61 laboratory results. Upon receipt of outside laboratory results, the listed Minimum Detectable Activity (MDA) are compared to the required Lower Limit of Detection (LLD) values to validate the sensitivity of the vendors evaluation. The MDA's must meet the LLD requirements. If the MDA's do not meet the LLD values, additional 10 CFR Part 61 samples may be taken. A demonstration of the SCAN program capabilities was witnessed by the inspector during the inspection.

Waste classification and characterization for low-level radioactive wastes shipped during 1993 appeared to be consistent with 10 CFR Part 61.55 and 61.56 requirements.

f. Waste Manifests

A total of twenty shipments of solid radioactive waste were made in 1993. Manifests for the shipments made contained all of the information required by the regulations in 10 CFR Part 20.311, DOT requirements, and the burial facility's license. In addition, a total of thirty-one shipments of radioactive material were made during the same period. No abnormal shipments were reported by the burial ground during 1993.



g. Receipt of Radioactive Material

A review of licensee procedure PPM 11.2.14.2, "Receipt of Radioactive Materials" was conducted for the purpose of verifying compliance with 10 CFR Part 20.205, "Procedure for Picking Up, Receiving, and Opening of Packages." Also reviewed were health physics records associated with radioactive materials received during 1993.

The inspector noted that all receipt shipment surveys had been conducted in accordance with PPM 11.2.14.2. No abnormal radiation level or contamination levels were noted.

The inspector noted that the health physics records did not indicate if the material was surveyed within three hours after notification of receipt, during normal working hours, or within eighteen hours of receipt of notification, after normal working hours or on weekends. The inspector noted that copies of the shipment documentation (e.g., Manifest, Bill of Lading) were not available in the health physics records even though Paragraph 5.4 of procedure PPM 11.2.14.2 requires that they be obtained and reviewed for any irregularities. The inspector brought this observation to the licensee attention during the exit interview. The licensee informed the inspector that the observation would be evaluated.

h. Waste Minimization Program

The inspector noted that the licensee's current radioactive waste minimization program is accomplished through an 'awareness program.' The awareness program is accomplished with the use of various posters located throughout the facility, during periodic time outs, during attendance at General Employee Training, and occasionally byway of the Health Physics "News Letter."

The Radwaste Supervisor informed the inspector that he was planning to develop a formal waste minimization program in the near future.

i. Procedures

The Radwaste Supervisor informed the inspector that plans to review and update if necessary, all of the procedures currently used for radwaste processing and transportation of radioactive materials.

The inspector concluded that the licensee's performance in this area was improving and appeared to be fully capable of accomplishing its safety objectives. No violations or deviations were identified.

4. Exit Interview

The inspector met with members of licensee management at the conclusion of the inspection on October 29, 1993. The scope and findings of the onsite

portion of the inspection were summarized. The licensee was informed that no apparent violations or deviations were identified. The observations described in the report were acknowledged by the licensee.

