



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

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Report Nos.: 50-369/90-22 and 50-370/90-22

Licensee: Duke Power Company
422 South Church Street
Charlotte, NC 28201-1007

Docket Nos.: 50-369 and 50-370

License Nos.: DRP-9 and NPF-17

Facility Name: McGuire Nuclear Station

Inspection Conducted: October 15-19, 1990

Inspector:

G. B. Kuzo

16 November 1990
Date Signed

Approved by:

J. E. Potter, Chief
Facilities Radiation Protection Section
Radiological Protection and Emergency
Preparedness Branch
Division of Radiation Safety and Safeguards

11/20/90
Date Signed

SUMMARY

Scope:

This routine, unannounced inspection involved review of licensee radiation protection programs including staffing and organization, training, radiological controls, external and internal exposure evaluations, quality assurance program implementation, "As Low as Reasonably Achievable" (ALARA) initiatives, and review of actions regarding NRC Information Notices (INs) and review of corrective actions regarding previously identified violations.

Results:

Radiation protection (RP) program training was implemented appropriately and health physics (HP) staffing was adequate to provide proper coverage for outage activities in progress. External and internal exposures were within 10 CFR Part 20 regulatory limits. Licensee radioactive source-term reduction activities for the outage initiated by the technical staff and supported by management were considered program strengths. RP program weaknesses were noted for housekeeping associated with radiation control zones, exposure record documentation, and an identified repeat violation for failure to follow radiation work permit (RWP) guidance.

The following cited violation was identified:

- ° Failure to follow RWP guidance for handling items with surface contamination exceeding 50,000 disintegrations per minute per 100 square

centimeters (dpm/100 cm²). Violation of Technical Specification 6.11
(Paragraph 10).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *W. Byrum, Supervising Scientist, Radiation Protection
- *J. Foster, Manager, Radiation Protection
- *L. Kunka, Compliance, Engineer
- *C. Martinec, Scientist, Radiation Protection
- *T. McConnell, Station Manager
- S. Mooneyhan, General Supervisor, Radiation Protection
- *R. Sharpe, Manager, Compliance
- *B. Sipe, Chairman, McGuire Nuclear Station (MNS) Safety Review Group

Other licensee employees contacted included engineers, technicians, operators, and office personnel.

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- T. Cooper, Resident Inspector
- *M. Shymlock, Section Chief, Division of Reactor Projects, Region II
- P. Van Doorn, Senior Resident Inspector
- *S. Vias, Resident Inspector

* Attended Exit Interview on October 19, 1990

2. Organization and Staffing (83750)

The current status of the onsite Radiation Protection (RP) organization, including staffing and responsibilities in effect during the Unit 2 outage were reviewed.

a. Organization

During the inspection, the RP organization was reviewed and discussed with cognizant licensee representatives. No changes were noted in the organizational structure since the previous NRC inspection of radiation protection activities conducted February 26 through March 16, 1990, and documented in Inspection Report (IR) 50-369, 370/90-01. Three general supervisors and one supervising scientist report directly to the radiation protection manager (RPM). Six shift supervisors report to a general supervisor responsible for routine shift work activities. Supervisors responsible for ALARA program activities, dosimetry, and Unit 1 activities report to the Unit 1 general supervisor. Supervisors responsible for the respiratory protection/instrument calibration, decon activities, projects and relief, and Unit 2 outage activities report to the Unit 2, general supervisor. Approximately eight individuals assigned tasks regarding

selected technical issues report to the supervising scientist. No concerns were noted by the inspector regarding the current organizational structure.

The integration of the site ALARA program with the vendor organization responsible for Unit 2, steam generator (S/G) maintenance activities was reviewed. The vendor RP program included ALARA planning, training, and evaluation regarding S/G issues utilizing lessons learned from previous outages and from evaluations of day-to-day activities during the current outage. The vendor maintained onsite ALARA coordinators responsible for reviewing and evaluating site ALARA program activities which were implemented through the vendor's S/G outage manager. Vendor job sponsors who report to the S/G manager were responsible for coordinating and implementing the day-to-day ALARA activities. The job sponsors interacted directly with the licensee's RP ALARA program specialist. The established coordination between the licensee and vendor ALARA organizations continued to be considered a RP program strength.

No violations or deviations were identified.

b. Staff

RP section staffing levels were reviewed and discussed with cognizant licensee representatives. At the time of the inspection approximately 94 of 98 Duke Power Company (DPC) McGuire Nuclear Station (MNS) permanent RP positions allocated were staffed. The staff included 27 supervisor and scientist positions, and 67 health physics (HP) technicians. Senior HP technicians met the criteria for senior level HP technician status outlined in ANSI 18.1, that is, a minimum of 4,000 hours of experience.

Approximately 105 onsite contractor HP technicians supplemented the licensee's RP staff. The contractor staff included approximately 68 senior and 28 junior level HP technicians, and approximately 8 dosimetry specialists. Licensee representatives stated that the number of contract HP staff was reduced from approximately 160 utilized during the previous outage as a result of less demanding HP coverage needs for the current outage. Compared to previous outages, the current Unit 2 S/G maintenance did not involve shot peening and, in addition, tube sleeving and plugging activities were reduced.

During the inspection, the ability of the HP staff to support job coverage was evaluated by the inspector through direct observation of ongoing activities and through discussions with licensee management, general employees and contract workers. HP coverage for all potential high exposure tasks appeared adequate. Licensee representatives stated that during the outage, the average contractor HP hours worked were less than 60 hours per week. Staffing/coverage for all tasks reviewed appeared adequate for work in progress.

No violations or deviations were identified.

3. Notices to Workers (83750)

10 CFR 19.11(a) and (b) require in part, that the licensee post current copies of Part 19, Part 20, the license conditions, documents incorporated into the license, license amendments and operating procedures, or that a licensee post a notice describing these documents and where they may be examined.

10 CFR 19.11(d) requires that a licensee post Form NRC-3, Notice to Employees. Sufficient copies of the required forms are to be posted to permit licensee workers to observe them on the way to or from licensed activity locations.

During the onsite audit, the inspector verified that Form NRC-3 and notices referencing availability of documents required by 10 CFR Part 19.11 were posted in accordance with the applicable regulations. Forms and notices were posted at both the north and south entrances to the controlled area.

No violations or deviations were identified.

4. Training (83750)

10 CFR 19.12 requires the licensee to instruct all individuals working or frequenting any portions of the restricted areas in the health protection aspects associated with exposure to radioactive material or radiation, in precautions or procedures to minimize exposure, and in the purpose and function of protection devices employed, applicable provisions of Commission Regulations, individual's responsibilities and the availability of radiation exposure data.

Training provided to general employees assigned to high dose expenditure tasks associated with the Unit 2 outage activities was reviewed and discussed with licensee representatives. In addition, the licensee's use of mockup training for potential high dose expenditure tasks was reviewed.

The inspector reviewed selected records regarding annual General Employee Training (GET) for employees involved in on-going and/or completed Unit 2 outage activities from September 1, through October 15, 1990. For individuals selected for review, including RP staff, Construction Maintenance Department (CMD) and vendor personnel, licensee records indicated all training was conducted in accordance with applicable procedures. In addition the inspector verified through discussion and direct observation that mockup training was conducted for potential high exposure tasks.

No violations or deviations were identified.

5. Respiratory Protection Program (83750)

10 CFR 20.103(c)(2) permits the licensee to maintain and to implement a respiratory protective program that includes, at a minimum: air sampling to identify the hazard; surveys and bioassays to evaluate the actual exposures; written procedures to select, fit and maintain respirators; written procedures regarding supervision and training of personnel and issuance of records; and determination by a physician prior to use of respirators, that the individual user is physically able to use respiratory protective equipment.

The inspector reviewed and discussed respiratory protection program training, fit testing and medical qualification status for selected personnel using particulate respiratory protection equipment during activities associated with the current Unit 2 outage.

Review of selected records indicated that DPC CMD, RP employees, and vendor workers issued particulate respirators from September 5, through October 10, 1990, were trained, fit tested and medically qualified in accordance with procedural and applicable 10 CFR Part 20 requirements.

No violations or deviations were identified.

6. Internal Exposure (83750)

10 CFR 20.103(a)(1) states that no licensee shall possess, use, or transfer licensed material in such a manner as to permit any individual in a restricted area to inhale a quantity of radioactive material in any period of one calendar quarter greater than the quantity which would result from inhalation for 40 hours per week at uniform concentrations of radioactive material in air specified in Appendix B, Table 1, Column 1.

10 CFR 20.103(a)(3) requires for purposes of determining compliance with the requirements of this section, the licensee shall use measurements of radioactivity in the body, measurements of radioactivity excreted from the body, or any combination of such measurements as may be necessary for the timely detection and assessment of individual intakes of radioactivity by exposed individuals.

a. Program Implementation

Radiation Protection Manual Sections 11.2, Bioassay Selection and Action Criteria, Revision (Rev.) 13, dated July 25, 1989, and 17.14, Internal Exposure Control Program, Rev. 2, dated August 10, 1990, detail radiological controls, monitoring requirements, calculational techniques, and documentation requirements for the licensee's internal exposure control program. The procedures detail limits and approvals needed for entry into selected facility areas having airborne radionuclide material concentrations which exceed the maximum permissible concentration in air (MPCa) specified in 10 CFR Part 20, Appendix B, Table 1, Column 1. The procedures

require that air sampling be representative of the air breathe by the monitored workers. The procedure defines the use and limits for respiratory protective equipment. In addition, the procedures require that the airborne maximum permissible concentration-hours (MPCa-hrs) from inhalation are to be calculated whenever the total body burden analysis exceeds 10 percent of the maximum permissible body burden (MPBB) activity. Followup investigations of internal exposures exceeding 35 MPCa-hrs are required. The inspector noted that the procedures were adequate to meet the intent of the applicable sections of 10 Part 20 regarding internal exposure monitoring and evaluation.

No violations or deviations were identified.

b. Body Burden Analysis Results

The inspector reviewed the January 1, through October 19, 1990 body burden analysis logs. For the current calendar year a total of 13 individuals with positive body burdens, levels exceeding one percent MPBB, resulting from facility activities were identified. No individuals exceeded the 10 percent MPBB requiring determination of MPCa-hrs.

No violations or deviation were identified.

7. External Exposure (83750)

10 CFR 20.101 requires that no licensee shall possess, use or transfer licensed material in such a manner as to cause any individual in a restricted area to receive in any period of one calendar quarter a total occupational dose in excess of 1.25 rems to the whole body, head and trunk, active blood forming organs, lens of the eyes, or gonads; 18.75 rems to the hands, forearms, feet and ankles; and 7.5 rems to the skin of the whole body.

Radiation Protection Manual Section 11.8, Rev. 16, dated January 16, 1990, outline requirements associated with multiple handling, extremity monitoring and placement of dosimetry for special situations.

The inspector reviewed and discussed with cognizant licensee representatives, January 1, through October 1, 1990 whole body, skin, and extremity exposure results. The review emphasized selected individuals routinely exposed to elevated concentrations of noble gases during non-outage conditions and workers involved in selected high dose expenditure tasks during the current Unit 2 outage. In addition, the inspector reviewed and discussed with cognizant licensee representatives the current beta monitoring and exposure control program.

a. Thermoluminescent Dosimetry Program

10 CFR 20.401(a) requires, in part, that each licensee maintain records in accordance with the instructions contained in NRC Form 5, Current Occupational External Radiation Exposures, dated October 1981. NRC Form 5 requires dose to the whole body to include any dose to the whole body, gonads, active blood forming organs, head and trunk, or lens of eye. When the lens of the eye is not protected by shields with a tissue equivalent absorber thickness of 700 milligram per square centimeter (mg/cm^2) the whole body dose is to include the dose delivered through a tissue equivalent absorber thickness of 300 mg/cm^2 . In addition, doses to the skin of the whole body or extremities is to include the dose delivered through a tissue equivalent absorber of 7 mg/cm^2 .

The licensee's current thermoluminescent dosimetry (TLD) monitoring program was reviewed and discussed in detail. Licensee representatives stated that the current dosimeter consists of four TLD chips covered by density thickness shields of 7, 886, 2780, and 2780 mg/cm^2 . From discussion with cognizant licensee representatives, the inspector was informed that based on the current TLD system algorithms, doses were determined through density thicknesses of 7, 300, and 1,000 mg/cm^2 in accordance with the 10 CFR Part 20 guidance.

No violations or deviations were identified.

b. Whole body Exposure

From review of selected January 1, through September 1990 exposure records, all whole body exposures as measured by thermoluminescent dosimetry (TLD) or self-reading dosimeter were within regulatory limits specified in 10 Part 20.

No violations or deviations were identified.

c. Extremity Exposure

The inspector reviewed records of the January 1, through September 30, 1990 quarterly extremity exposures. For the period reviewed, approximately 120 individual's quarterly exposure exceeded 1.000 rem. All reported extremity exposures were within 10 CFR Part 20 limits with the highest recorded exposure of 3.780 rem.

No violations or deviations were identified.

d. Beta Exposure Evaluations

Radiation Protection Manual Section 16.9, Beta Program, Rev. 21, dated October 1, 1990, details the licensee's program to monitor,

interpret, control and record beta radiation dose rates and exposures. Licensee representatives stated that the current TLD algorithm determination of dose received through a 300 mg/cm² density absorber thickness requires determination of a TLD beta response correction factor based on actual beta exposure measurements.

Licensee procedure PT/O/B/4600/68, Determination of Mean Beta Half Value Layer (HVL) and Effective Density Thickness of Protective Clothing, dated April 1990, requires the mean beta HVL and TLD beta response correction factor and the beta TLD correction factor for beta dose at 300 mg/cm² to be determined on a quarterly basis when access to the primary side of any steam generator diaphragm plate is available.

The inspector reviewed and discussed with cognizant licensee representatives determination of beta monitoring HVL calculations and TLD correction factors for previous and current outages. The inspector noted that on January 19, 1990, the beta dose rate fractional transmission value at 300 mg/cm² for a reactor coolant drain tank (RCDT) pump was 0.177 percent. However, the transmission value provided for use in the the TLD algorithm was 0.10 percent based on the maximum results from S/G diaphragm plate measurements. The inspector noted that, although the 0.177 value was determined for a single pump and not for the S/G diaphragm plate, the value would result in a potential underestimate of the reported beta dose for personnel involved with work on the RCDT. Licensee representatives stated that the beta exposure measurements conducted using the S/G plate were more representative of the overall beta conditions throughout the primary system. The inspector reviewed and discussed exposure results for all personnel working on the RCDT pump. For personnel working on the task, the maximum exposure was approximately 20 millirem (mrem). Licensee representatives stated that increases to dose results at 300 mg/cm² based on a 0.177 relative to the 0.10 beta transmission factor in the appropriate algorithm were determined to be minimal. All other HVL and beta data and correction factors were determined in accordance with the appropriate procedures.

No violations or deviations were identified.

e. Noble Gas Exposure

During the onsite audit, the inspector reviewed radiation protection survey documents concerning operator entries into containment at power during the second quarter of 1990. From selected review of air samples collected during the entries, the inspector noted noble gas concentrations, Xenon-133 (Xe-133), exceeding 1.0 E-03 microcuries per cubic centimeter (uCi/cc), approximately 100 times the MPCa, 1.0 E-05 uCi/cc, listed in 10 CFR Part 20. Review of associated stay time data indicated that during separate containment entries, several individual's exposures to selected noble gases during a calendar quarter exceeded 40 MPCa-hrs.

Licensee methods for evaluating personal exposure to noble gases were reviewed and discussed during the inspection. Licensee representatives stated that exposure to noble gases was considered an external (shallow) rather than an inhalation exposure concern and procedures required noble gases exposure to be monitored and limited in accordance with the external dose limits specified in 10 CFR Part 20. Radiation Protection Manual Section 16.12, Calculation Method for Determining Beta Skin Dose and Total MPCa for Noble Gases, Rev. 5, dated October 2, 1989, describes the calculational method used to determine beta skin dose and total MPCa for personnel submerged in noble gas atmospheres. The assigned skin dose from exposure to noble gas is based on quantitative analyses of the radionuclide gases within the subject atmosphere, the dose conversion factors detailed in Offsite Dose Conversion Manual (ODCM), and stay-times of individuals in the immediate area. Furthermore, licensee representatives stated that the ODCM dose conversion factors were based on data provided by Regulatory Guide 1.109. During exposure to noble gases the TLD chip measuring shallow dose is shielded. At the end of the quarter, the calculated skin dose resulting from the noble gas exposure is added to actual TLD measured shallow dose results.

The inspector informed the licensee that their method for assessing exposure to noble gases was adequate. The inspector verified implementation of the appropriate radiological surveillances during entry into areas with potential noble gas concentrations. For personnel entering containment at power, the maximum shallow dose attributed to noble gas exposure during the second quarter of 1990 was approximately 125 mrem. In addition, the inspector noted the total skin exposure values for the operators were below regulatory limits specified in 10 CFR Part 20.

No violations or deviations were identified.

8. Radiation Controls (83750)

a. Termination Records

10 CFR 20.408(b) and 20.409(b) require that the licensee make a report to the Commission, and notify the individual involved, of the radiation exposure of each individual who has terminated employment.

Radiation Protection Manual Section 11.1, Dosimetry Issue and Records, Rev. 26, dated September 26, 1990, provides guidance for issuance of Termination Notices for personnel, both DPC and vendor employees, upon terminating employment at the MNS.

The inspector reviewed and discussed the issuance of termination reports. Upon termination of employment at the MNS, a termination notice is issued notifying the DPC General Office (GO) of terminations and/or transfer to other DPC sites. The DPC GO issues

all termination reports based on review of the monthly HP station termination reports. To verify all records regarding dosimetry were reviewed and the termination report issued the GO reviews monthly payroll, Body Burden Analyses (BBA) waivers, and monthly BBA logs.

The inspector reviewed selected termination reports issued for DPC and vendor personnel terminating employment during July and August 1990. The inspector verified the issuance of an individual occupational radiation exposure report for each of the workers reviewed who terminated work at the MNS. However, the inspector noted selected discrepancies in dates for termination from MNS and BBA analyses listed in the report. Further review and discussion of the records with cognizant licensee representatives determined that the observed discrepancies resulted from the recorded date representing a subsequent BBA conducted at another DPC nuclear facility. Licensee representatives agreed that the date should represent the termination BBA conducted at MNS. In addition, the inspector noted selected data transcription errors for a termination report issued from the GO. Licensee representatives noted the identified errors and issued an amended report, as appropriate. The inspector informed licensee representatives that the identified discrepancies and transcription errors were considered RP program weaknesses.

No violations or deviations were identified.

b. High Radiation Area Controls

Technical Specification (TS) 6.12.1 requires that in lieu of the "control device" or "alarm signal" required by paragraph 20.203(c)(2) of 10 CFR 20, each high radiation area, as defined in 10 CFR Part 20, in which the intensity of radiation is equal to or less than 1,000 millirem per hour (mrem/hr) at 45 cm (18 inches) from the radiation source or from any surface which the radiation penetrates to be barricaded and conspicuously posted as a high radiation area and entrance thereto to be controlled by requiring issuance of a Radiation Work Permit (RWP).

TS 6.12.2 requires that in addition to the requirements of TS 6.12.1, areas accessible to personnel with radiation levels greater than 1,000 mrem/hr at 45 cm from the radiation source from any surface which the radiation penetrates to be provided with locked doors to prevent unauthorized entry, and the keys to be maintained under the administrative control of the Shift Foreman on duty and/or health physics supervision. Doors are to remain locked except during periods of access by personnel under an approved RWP which shall specify the dose rate levels in the immediate work area and the maximum allowable stay time for individuals in that area. In lieu of the stay time, continuous surveillance may be made by personnel qualified in radiation protection procedures to provide positive exposure control over the activities being performed in the area.

During the audit, the inspector conducted daily tours of the Unit 1 and Unit 2 Auxiliary Building areas. The inspector verified that implementation of controls for high radiation and locked high radiation areas were appropriate.

No violations or deviation were identified.

c. Labeling and Posting

10 CFR 20.203(e) requires each area in which licensed material is used or stored and which contains any radioactive material in an amount exceeding ten (10) times the quantity of such material specified in Appendix C of this part to be posted with a sign or signs bearing the radiation caution symbol and the words: "Caution, Radioactive Material(s)."

10 CFR 20.203(f) requires each container of licensed material to bear a durable, clearly visible label identifying the radioactive contents and providing sufficient information to permit individuals handling or using the containers, or working in the vicinity thereof, to take precautions to avoid or minimize exposures.

During tours of selected radiation control areas and radioactive material storage areas, all postings and container labels were verified to be in accordance with 10 CFR 20.203 requirements.

No violations or deviations were identified.

d. Surveys

10 CFR 20.201(b) requires each licensee to make or cause to be made such surveys as may be necessary for the licensee to comply with the regulations in 10 CFR Part 20 and are reasonable under the circumstances to evaluate the extent of radiation hazards that may be present.

During the onsite inspection, the inspector verified through independent monitoring that survey records of contamination and radiation levels posted at the entrance to selected Auxiliary Building rooms were adequate to evaluate the radiation hazards present.

No violations or deviations were identified.

9. ALARA (83728, 83750)

10 CFR 20.1(c) states that persons engaged in activities under licenses issued by the NRC should make every reasonable effort to maintain radiation exposures ALARA.

During the inspection, cognizant licensee representatives outlined details and initial results regarding ALARA initiatives for development of

comprehensive Unit 2 containment shielding packages and increased operation of the reactor coolant purification system subsequent to initiation of a crud burst for the Unit 2 outage.

Improvements for the containment shielding package included review of all sources and design of associated shielding to minimize both immediate and general area dose rates. The shielding documentation for the Unit 2 containment is now contained in a single package. Subsections of the package detail specific shielding associated with steam generators, reactor coolant pumps, and specific valves. From discussion with cognizant licensee representatives, the inspector verified that all shielding modifications were reviewed appropriately. Further, licensee representatives stated that appropriate design review of the shielding package would be required prior to each outage.

Licensee representatives outlined a current study of preliminary efforts to reduce the Unit 2 outage source terms by increasing the duration of operation of the reactor coolant purification system to remove cooldown and controlled crud burst generated corrosion products. The study included an increase from 24 to 72 hours for water solid reactor coolant purification operations following initiation of the controlled crud burst. Concurrently, numerous permanent monitoring locations in containment and the Auxiliary Building were established and dose rate data collected. The exposure data were utilized to establish trends for reactor coolant activity and specific system dose rates during the current outage. In addition, the licensee planned to conduct limited monitoring using limited numbers of the same monitoring locations during subsequent Unit 2 outages. The current licensee data indicated exposure rates were reduced significantly from 24 through 72 hours following crud burst initiation. Although definite comparisons to previous outages could not be made as a result of different monitoring locations, the licensee's preliminary data indicated a significant decrease in source term during the outage based on general area dose rates and person-rem expenditures for completing similar tasks. Exposure savings in lower containment and the auxiliary building were projected to be approximately 34 and 30 person-rem, respectively.

Licensee representatives believed that improved shielding design and increased reactor coolant purification efforts have resulted in a reduction of approximately 30 person-rem in the Auxiliary Building and more than 84 person rem in the Reactor Building. As of day 47 of the Unit 2 outage approximately 192 person-rem was expended compared to the initial projection of approximately 340 person-rem. Based on current projections, the final outage exposure was expected to be 200 person-rem less than the 490 person-rem initially estimated for the current Unit 2 outage. Furthermore, licensee management stated their commitment to continuation of the dose reduction efforts. The inspector noted that the current dose rate reduction programs initiated by the technical staff and supported by management were considered a radiological program strength.

No violations or deviations were identified.

10. Quality Assurance Controls (83750)

10 CFR 50, Appendix B, Criterion XVI, requires that measures be established to assure that conditions adverse to quality, such as deviations and nonconformances, are promptly identified and corrected.

"Radiation Protection Manual," Section 2.6, Radiological Protection Incidents and Deficiencies, Rev. 6, dated September 4, 1990, details requirements for monitoring performance of station personnel by identifying radiological deficiencies for determining root causes and correcting human errors that cause radiological performance problems. Deficiencies are to be documented on a Radiological Deficiency Report (RDR).

TS 6.11 requires procedures for personnel radiation protection to be prepared consistent with the requirements of 10 CFR 20 and be approved, maintained and adhered to for all operations involving personnel radiation protection.

"Radiation Protection Manual," Section 2.4, Radiation Work Permits, Rev. 19, dated October 11, 1990, requires that the Radiation Work Permit (RWP) requirements set forth must be followed unless otherwise directed by RP personnel.

RWP 90-2019, Rev. 1, All Work Associated with Sleeving in "A" Steam Generator, dated October 9, 1990, requires that a particulate respirator may be substituted for a bubble hood depending upon job scope and duration and decontamination activities. Decontamination of loose surface contamination greater than 50,000 dpm/100 cm² requires the use of appropriate respiratory protective equipment.

During the onsite audit, the the inspector reviewed selected RDRs issued from January 1, 1990 through October 15, 1990. Excluding two issues regarding poor work practices associated with vendor personnel, the reviewed deficiency reports concerned isolated incidents and licensee corrective actions appeared appropriate.

The incidents referencing poor vendor radiological work practices were detailed in RDR Nos. 90-14, Unsatisfactory Radiological Work Practices, and 90-22, Poor Work Practices, dated April 6, 1990, and October 11, 1990, respectively. The inspector noted similarities for both incidents including personnel from the same vendor were involved, work on contaminated equipment (sleeving actuator) within containment was being conducted, the involved individuals failed to use proper respiratory equipment as specified on the appropriate RWP, and both events resulted in facial contamination of the personnel. The inspector verified that both individuals involved in the incidents were properly trained, fit tested and medically qualified to utilize respiratory protective equipment. Corrective actions for the initial Deficiency Report issued April 6, 1990, included appropriate radiological personnel surveys and then subsequent discussion of the issue between the worker and supervisor. The inspector

noted that no instruction or notice alerting other vendor or DPC personnel to the event were issued. Discussion with cognizant licensee representatives regarding the October, 11, 1990 report details indicated that the vendor employee was knowledgeable of the requirements of the RWP 90-2019 for working on the contaminated equipment and was briefed appropriately concerning the fact that the equipment had loose surface contamination levels exceeding 50,000 dpm/100 cm². Further, the inspector was informed that a containment RP supervisor had notified the individual prior to initiation of the task regarding the need for appropriate respiratory protective equipment. Despite the written and oral guidance, the vendor employee failed to utilize proper respiratory protective equipment. Based on the similarity to the issues outlined in the April 6, 1990 Deficiency Report and the failure of the licensee's corrective actions to prevent recurrence, the inspector informed licensee representatives that the failure to follow RWP procedures for respiratory protective requirements was considered an apparent violation of TS 6.11 (50-369, 370/90-22-01).

The inspector reviewed licensee records of radiological surveys for the personnel involved in the April 6, and October 11, 1990 Deficiency Reports. Licensee actions were conducted in accordance with appropriate procedures. The individuals were decontaminated properly and whole body analysis results were negative.

One violation for the failure to follow RWP guidance requiring respiratory equipment by individuals working on contaminated equipment was identified.

11. Facility Tours (83750)

During the onsite inspection, radiological controls and work practices were observed during tours of the Unit 1 and Unit 2 Auxiliary Buildings. The following issues were noted by the inspector and discussed with licensee management.

a. Radiation Monitoring and Survey Equipment.

For selected radiation survey/monitoring equipment in use at MNS, the inspector noted that the equipment was calibrated and performance checked in accordance with licensee procedures.

b. Radiation Control Zones

"Radiation Protection Manual," Section 16.2, Rev. 26, dated July 31, 1990, defines the criteria for establishment of, and posting associated with Radiation Control Zones (RCZs).

During tours of the Unit 1 and Unit 2 Auxiliary Building and outside storage areas, the inspector identified several examples of materials/items extending across a RCZ boundary. For example, on October 16, 1990, the inspector identified a ladder set-up with two of its legs within and two legs outside of a contamination RCZ

established on the 773 foot elevation of the Unit 2 Auxiliary Building. Licensee investigation of the incident determined that the ladder was positioned prior to the establishment of the RCZ which delineated the minimum boundary of a subsequent leak. Licensee representatives agreed that the ladder should be surveyed and removed in a timely manner from the established RCZ to prevent the potential spread of contamination from subsequent use of the ladder. During subsequent tours all issues identified for selected RCZs were resolved.

No violations or deviations were identified.

b. Protective Clothing

Instructions for protective clothing are found on RWPs for specific jobs or posted at entry to routinely entered rooms or areas.

During the onsite audit the inspector verified appropriate use of protective clothing as specified by selected RWPs.

No violations or deviations were identified.

12. Information Notices (INs) (92701)

The inspector verified that the following NRC INs were received by the licensee, reviewed for applicability, distributed to appropriate personnel and that action, as appropriate, was taken or planned.

- ° IN 90-08: Kr-85 Hazards from Decayed Fuel.
- ° IN 90-33: Sources of Unexpected Occupational Radiation Exposures at Spent Fuel Storage Pools
- ° IN 90-44: Dose Rate Instruments Underresponding to the True Radiation Fields
- ° IN 90-48: Enforcement Policy for Hot Particle Exposures
- ° IN 90-50: Minimization of Methane Gas in Plant Systems and Radwaste Shipping Containers.

13. Licensee Action on Previous Enforcement Action (92702)

(Closed) Violation (V10) 50-369, 370/90-01-02: Failure to follow procedures for frisking personal items removed from the Radiation Control Area (RCA).

This issue involved the failure of personnel to perform a survey, (hand frisk), of items carried out of the RCA as required by procedure.

The inspector reviewed and verified implementation of corrective actions stated in DPC's response dated June 5, 1990. During the onsite audit, the inspector observed surveys of personal items and personnel monitoring conducted by individuals exiting the RCA at the 774 foot elevation of the Unit 2 Auxiliary Building. All person items were surveyed appropriately. In addition, the inspector verified that employees were aware of the procedural change allowing hard hats to be worn in the PCM-1 monitor.

The inspector informed licensee representatives that based on the actions taken, this item would be considered closed.

14. Exit Interview (30703)

The inspection scope and results were summarized on October 19, 1990, with those individuals indicated in Paragraph 1. The inspector outlined the RP program areas reviewed and detailed information regarding the violation listed below. Weaknesses including poor record documentation and maintenance of RCZ boundaries were discussed. Noted improvements in radiation controls, source term reduction and shielding upgrades implemented for the current outage also were reviewed.

Licensee representatives acknowledged the inspector's comments. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspector during this inspection.

<u>Item Number</u>	<u>Description and Reference</u>
50-369, 370/90-22-01	VIO - Failure to follow RWP requirements for S/G sleeving activities. Violation of TS 6.11 (Paragraph 10).