U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-255/92020(DRSS)

Docket No. 50-255 License No. DPR-20

Licensee: Consumers Power Company
212 West Michigan Avenue
Jackson, MI 49201

Facility Name: Palisades Nuclear Generating Plant

Inspection At: Palisades Site, Covert, Michigan

Inspection Conducted: July 6-10, 1990

Inspector: William Snell for
D. W. Nelson
Radiation Specialist
7/29/92
Date

Approved By: William Snell
William Snell, Chief
Radiological Controls Section 2
7/29/92
Date

Inspection Summary

Inspection on July 6-10, 1990 (Report No. 50-255/92020(DRSS))
Areas Inspected: Routine unannounced inspection of the radiation protection, radwaste and transportation programs, including: organization, management controls and training; audits and appraisals; external exposure control; control of radioactive materials, contamination, and surveys; and maintaining occupational exposures ALARA (IP 83750). The inspection also included solid waste and transportation (86750). Open items from past identified concerns (92701) were also reviewed.
Results: No violations or deviations were identified. The licensee's radiation protection program appears to be generally effective in controlling radiological work and in protecting the public health and safety. Strengths included the operational ALARA program, advanced radiation worker training, the reorganization of the radiological services department (RSD), the job scheduling program, RSD staff stability, and the radiation transportation program. Areas where improvement appeared to be merited included the licensee's procedural review process and identification and documentation of corrective actions.

DETAILS

1. Persons Contacted

* D. Anderson, Nuclear Performance Assessment
* A. Clark, ALARA Program Coordinator
* P. Donnelly, Safety and Licensing Director
* M. Grogan, Radioactive Materials Shipping Supervisor
* K. Haas, Radiological Services Department Manager
* J. Kuemin, Licensing Administrator
* D. Malone, Radiological Services Superintendent
* M. Mennucci, Health Physics (HP) Technical Supervisor
* T. Neal, HP Support Superintendent
* K. Schneider, Radiation Work Permit (RWP) & Planning Supervisor
* J. Stuedeman, Duty HP Supervisor

* J. Heller, Senior Resident Inspector

The inspectors also interviewed other Licensee and contractor personnel during the course of the inspection.

* Denotes those present at the exit meeting on July 10, 1992.

2. General

This inspection was conducted to review aspects of the licensee's radiation protection radwaste/radioactive material shipping and transportation programs. Included in this inspection was a follow-up of outstanding items in the areas of radiation protection and radioactive waste management. The inspection included tours of radiation controlled areas, auxiliary building, radwaste facilities, observations of licensee activities, review of representative records and discussions with licensee personnel.

3. Licensee Action on Previous Inspection Findings (IP 92701)

(Open) Open Item 255/91011-02. Untimely input of survey results into radiation work permits (RWPs).

This item will remain open. The licensee wrote a memo on January 21, 1992, addressing the issue of untimely input of surveys into RWPs. That memo detailed three enhancements to the program including: requiring that all RWPs that need initial and/or confirmatory surveys due to changes in radiological conditions be put on hold until the surveys are received, reviewed and addressed in the RWP; the Radiological Services Department (RSD) Scheduler will incorporate into the 72-hour schedule sufficient time to obtain the surveys needed for upcoming work; and RWPs will include the requirement for additional surveys to begin work or if conditions change. The memo did not set a time limit for redoing surveys if conditions change or for incorporating new surveys into RWPs. In addition, none of these enhancements were incorporated into administrative or HP procedures.

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(Closed) Unresolved Item 255/91022-02. The application of 10 CFR 50 Appendix B design criteria in the 10 CFR 50.59 analysis for the interim radioactive waste storage facilities.

Based on further NRC review, it was determined that the concerns addressed by this unresolved item were additional examples of the violation for inadequate 50.59 reviews issued in Inspection Report No. 50-255/91022(DRSS) (255/91022-01). This item is closed.

(Closed) Violation 255/91022-01. Inadequate 10 CFR 50.59 analysis of the south interim radioactive waste storage facility and the east radioactive waste processing facility.

The licensee provided two responses to this violation, dated January 10, 1992 and April 15, 1992. The licensee performed an analysis of the release pathways for both buildings, installed area monitors and continuous air monitors in both buildings, installed fire alarms in both buildings, wrote procedures for surveying the buildings and had a monitor alarms wired into the control room via the telephone lines. In addition, the licensee installed a high efficiency particulate air (HEPA) filter system in the east processing building and trained the radioactive waste supervisors in the requirements of performing a 10 CFR 50.59 analysis. These actions were considered to be adequate. This item is closed.

(Closed) Violation 255/92008-02. The licensee failed to provide a 24 hour emergency response/contact telephone number on their shipping papers.

The licensee has modified their protocol so that all incoming emergency calls will be immediately routed to the control room. Control room personnel have been provided with a set of instructions and a list of personnel to contact if an emergency call is received. All effected personnel have received training in dealing with a transportation emergency and the training was documented. This item is closed.

4. Organization, Management Controls and Training (IP 83750)

The inspectors reviewed the licensee's organization and management controls for the radwaste and shipping and transportation programs, including: organizational structure, staffing, delineation of authority and management techniques used to implement the program and experience concerning self-identification and correction of program implementation weaknesses.

On June 1, 1992, the Radiological Services Department underwent an extensive reorganization. Under the Manager of the Radiological Services Department (RSD) the department was organized into four separate groups: radiological services, health physics (HP) support, HP technical and the Radiation Protection Manager. The radiological services will be the operational arm of the RSD and be responsible for

the duty HPs, radioactive material and waste shipping, radioactive waste processing, radiation decontamination, operational ALARA and scheduling. HP support will be responsible for dosimetry, instrument calibration, the RSD hot lab, the Management Information System (MIS), respiratory protection, effluent monitoring and radioactive materials control. HP technical will be responsible for emergency preparedness, projects (the new 10 CFR 20 implementation, 10 CFR 50.59 issues, long term technical issues), source term reduction, ALARA planning and training. The Radiation Protection Manager (RPM) will no longer have direct line supervisory responsibilities; the Manager will, however, serve as an in-house assessor and report to corporate headquarters as well as plant management.

The inspector noted that the licensee will benefit in several ways from the reorganization of the RSD. Unlike the old organization all operational phases of the RSD will fall within one group, radiological services. Crafts will no longer be required to contact several different groups within the RSD to get a job scheduled, an ALARA review, a RWP generated or radiological services technical support. All of these tasks can be accomplished within radiological services. Communication between groups in radiological services should also improve. In addition, as a result of the reorganization many individuals within the RSD were given new job assignments which should enhance the expertise of individuals involved and aide in their career development. Another indirect benefit to the licensee will be the technical review of many of the licensee's administrative and health physics procedures. During interviews, several new supervisors indicated that they were rewriting many of their procedures because they were outdated, poorly written and not routinely updated. The inspector noted that procedures are not required to be reviewed technically as a part of the licensee's biannual review process, quality assurance (QA) does not technically review procedures, and only when a procedure is revised is it required to be reviewed for technical competency. The HP self-assessment project in 1990 concluded that although the contents of procedures were improving they did not provide the level of quality needed to efficiently control radiological activities. Again, the reorganization should help alleviate this problem. Several new supervisors indicated that they did not have a detailed written job description and were unclear about their specific responsibilities. The licensee recognizes this weakness and is currently updating the job descriptions.

A concern was raised about the role of the RPM within the new organization. Administrative Procedure No. 7.00 stipulates that the Radiological Services Manager (RSM) or Radiation Protection Manager (RPM as defined in Regulatory Guide (RG) 1.8) shall be the Health Physics Superintendent (HPS) and have numerous responsibilities within the HP program including the administration of the respiratory protection program, oversight of the HP instrument calibration program, approving work permits and evaluating HP activities. Under the new organization, the HPS title was changed to the Superintendent of Radiological Services (SRS); a new position, RPM, was created; many of the responsibilities of

the HPS were given to the SRS; and the RPM would no longer have supervisory responsibilities within RS but would instead assess the RS program and report directly to both RS management and corporate headquarters. Although the new administrative procedures detailing the specific responsibilities of the SRS and the RPM were in revision and unavailable for review, the inspector did discuss with the licensee the need for ensuring that whoever assumed the responsibilities of the RPM, not just the title, would conform to the requirements of RG 1.8. The licensee agreed to review the regulatory requirements.

The RSD staff has remained stable since the last inspection. The licensee did not plan to add additional staff until the next refuel outage scheduled for May 1993.

No violations or deviations were identified.

5. Audits, Surveillances and Self-Assessments (IP 83750)

Since the last inspection, the Quality Assurance (QA) program had undergone a reorganization. QA was renamed the Nuclear Performance Assessment Department (NPAD) and has a Director, a six member steering committee, seven performance specialists and two functional groups; administrative and technical. Reporting to the committee will be seven performance specialists; each responsible for one of the seven functional areas of Systematic Assessment of Licensee Performance (SALP), and the two functional group supervisors. The assessors, including those for Big Rock Point, were pooled into the technical group and will be shared by both plants. The assessors will continue to perform the mandatory QA audits and surveillances. In addition, NPAD will perform assessments on departments at both facilities, report their findings to plant management, and work closely with management to ensure that corrective actions are taken for reported deficiencies. These additional responsibilities raise concerns about whether or not assessors can work that closely, on a day to day basis, with any department or group and still maintain their objectivity while performing audits and surveillances. This concern was raised with the Assessment Program Supervisor and discussed at the exit meeting.

The inspector reviewed Quality Assurance surveillances conducted since the last inspection: nine Deviation Reports (DR), 21 Radiological Deficiency Reports (RDR) and four Radiological Incident Reports (RIR). Surveillance Report S-AP-92-029 was conducted to assess the effectiveness of the radiological work practices and adequacy of radiation safety job coverage during the 1992 Refueling Outage. The surveillance reported that some workers not actively involved in all of the job steps were found to be present at job sites, workers in full protective clothing and respirators had to climb numerous long ladders to get to a job site, one High Radiation Area sign did not accurately reflect the actual conditions present, vacuum cleaners with high radiation dose rates were found in corridors and some postings needed updating. The surveillance reported that, in all cases, the identified problems were immediately corrected. The inspector noted, however, that

none of the observations resulted in the issuance of a DR, RDR or RIR nor were long term corrective actions to preclude recurrence addressed.

The inspector reviewed the nine DRs written since June 1, 1992, and found that only one identified a deficiency in the way radiation safety was conducting its program. Four DRs were written on one hot particle incident; two were written to describe difficulties in assessing the airborne properties in the south tilt pit; and two requested that RSD evaluate the mixed waste program and the need for including chemical hazards on radiation work permits. The only DR written to address a deficiency, was written for failing to perform an adequate 10CFR50.59 evaluation of the interim radioactive waste facilities. DRs appear to be used more for requesting evaluations or describing activities than for reporting deficiencies. This concern was raised at the exit meeting.

The inspector reviewed the 21 RDRs and four RIRs written since January 1, 1992, and noted the following: RIRs will no longer be used to report deficiencies; the licensee needs to clearly define what "dedicated" and "zone" RS coverage means and when it is needed; the licensee needs to clearly define what "control" of high radiation areas mean; RDRs written for personal contamination events should include the activity of the contamination; corrective actions were ineffective, in some cases, in precluding recurrence of similar events; and recommended corrective actions were not being incorporated into procedures, practices, guides or instructions. For example, several RDRs reported deficiencies in the RS technician coverage of high risk jobs where ambient dose rates were close to but did not exceed 1 R/hr. The recommended corrective action in the RDRs called for "dedicated" RS technician coverage for those and similar jobs. By procedure, the duty HP is given the discretion to decide when "dedicated" or some other coverage (zone, intermittent) is needed for jobs where dose rates are less than 1 R/hr. To implement the recommended corrective action the Duty HPs were instructed to provide "dedicated" coverage for jobs similar to ones reported in the RDRs. The corrective action, however, was not documented or incorporated into a procedure, practice or instruction. By not documenting corrective actions the licensee cannot ensure that similar events will not occur in the future. This concern was discussed at the exit meeting.

No violations or deviations were identified.

6. External Exposure Control (IP 83750)

During a review of the RDRs the inspector noted two incidents where RS technicians had lost control of high radiation areas. By procedure, RS technicians are required to unlock doors to high radiation areas for workers needing access and maintain control of the door until the workers exit the area. In one incident, the RS technician unlocked the door to the reactor cavity, let two auxiliary operators enter the area, relocked the door and left. The operators discovered that they had been locked into the area when they attempted to leave. In another example,

a RS technician abandoned the 602' pipeway area even though the technician was responsible for controlling the high radiation door to the area. In both cases the technicians were unclear about what "maintain control" meant. Corrective action for both incidents involved counseling the technicians on their responsibilities for controlling high radiation doors and discussing the incidents at shift turnover technician briefings. Again, corrective action to preclude recurrence was not documented. If the technicians were unclear about what "maintain control" meant this should have been clarified in the procedure.

During the review of the Deviation Reports the inspector noted four written to address one hot particle event. Upon exiting containment, a worker was found to have a 100,000 cpm hot particulate on his neck. The particle was removed and the worker released. The particle was analyzed and found to contain approximately 6.43 uci Cr-51, 0.814 uci Mn-54, 1.65 uci Co-58, 0.303 uci Fe-59 and 1.55 uci Co-60. The licensee used several different methods (PAL and Varskin) to calculate and record a total gamma and beta skin dose equivalent dose of approximately 7 Rem for the exposure. The particle was later sent to another lab and under electron microscopy was found to contain trace amounts of zirconium not found in any of the licensee's components. The licensee suspects that the particle may have been brought into the plant from another facility and have sent the particle to another lab for further analysis. This incident demonstrates a definite improvement in the licensee's hot particle dose assessment program.

The inspector reviewed the licensee's use of electronic dosimeters after reviewing RDR 92-005. In February 1992, two workers entered containment to hang shielding in the Regenerative Heat Exchanger area of containment. The dose rates in the area were from 800 to 1000 mRem/hr. The workers were given alarming electronic dosimeters and assigned zone RS technician coverage. Due to high noise level in the area, the workers were unaware that their dosimeters were alarming until the technician signaled them to check their dose. The workers immediately evacuated the area. The licensee's procedures for responding to alarming dosimeters are precise; if one alarms the workers are instructed to leave the area immediately and contact RS. Recommended corrective actions for this incident included assigning "dedicated" RS technician coverage to this job in the future and clarifying the difference between "dedicated" and "zone" coverage. Again, these corrective actions were not documented.

No violations or deviations were identified.

7. Maintaining Occupational Exposures ALARA (IP 83750)

The inspector reviewed the licensee's program for maintaining occupational exposures ALARA, including: ALARA group staffing and qualification; changes in ALARA policy and procedures, and their implementation; ALARA considerations for planned, maintenance and refueling outages; worker awareness and involvement in the ALARA

program; establishment of goals and objectives, and effectiveness in meeting them. Also reviewed were management techniques, program experience and correction of self identified program weaknesses.

Under the reorganization ALARA was split into two separate groups. One group, operational, became a part of Radiological Services and the other, programs, became a part of Health Physics Technical. The operational group will continue to provide day to day ALARA support and the programs group will be responsible for long term projects including the source term reduction, the hot spot reduction program and engineering design changes. Bringing operational ALARA into radiological services should improve the efficiency of both groups.

The licensee has a very good operational ALARA program. The group and the planners meet regularly and have developed a good working relationship. Through training and experience, the planners have begun to incorporate ALARA principles directly into job planning. The health physics scheduler meets regularly with ALARA and the crafts and has the authority to delay or halt work that had not been reviewed or put on the schedule. Information about jobs appears to flow smoothly between groups and the RSD is usually aware of new jobs before they are placed on the daily schedule.

The new ALARA programs group will be responsible for ALARA goals, the source term reduction program, the hot spot reduction program and engineering design changes. The ALARA Program Coordinator will be responsible for each of the programs and report the progress of each through his supervisor to plant management. For example, the coordinator is responsible for coordinating the efforts of all of the groups involved in source term reduction and to make sure that each group understands their responsibilities and can meet deadlines established by management. Each source term objective and long term ALARA project is assigned an Action Number, assigned to a responsible individual and given a completion date. If the date for completion is exceeded the responsible individual's manager is notified. Due to the reorganization the RSD program was in transition during the inspection and some of the responsibilities had yet to be assigned. Progress in implementation of the program will be tracked in future inspections.

A real strength in the ALARA program is its approach to advanced training. Three courses are offered to enhance employees knowledge of ALARA principles and to increase their radiation protection skills in high radiation areas, high contamination areas and high airborne contamination areas. The courses include ALARA training for engineers, the Supervisory ALARA Expectations Course and Advanced Radiation Worker training for everyone who works in the radiological controlled area (RCA). The Supervisory ALARA Course teaches supervisors to recognize their responsibilities with regards to ALARA principles. Advanced Radiation Worker training is performance based; it puts workers through the ALARA review process and places them in simulation where conditions are similar to those found in high radiation, contamination and airborne

areas. The Supervisory ALARA Expectation and Advanced Radiation Worker courses began in the fall of 1991.

If the total dose for emergent work during refueling outage REFOUT 92 is factored into the total dose for the outage, the licensee was very close to meeting their dose goals. The licensee projected a total dose of 207 man-Rem for the outage and the actual total dose was 269 man-Rem. Emergent work accounted for approximately 60 man-Rem. In addition, the outage was extended for 15 days beyond its scheduled completion date. Personal contamination events for the year were higher than projected (goal of 99 and actual of 118 through April 1992). During the inspection, the licensee indicated that their goal for total station dose was 50 mRem per day, averaged over the year, and they fully expect to meet that goal in 1992.

No violations or deviations were identified.

8. Solid Radioactive Waste (IP 86750)

The inspectors reviewed the licensee's solid radioactive waste management program, including: changes to equipment and procedures, processing and control of solid wastes, adequacy of required records, reports and notifications.

The inspector reviewed the modifications made to the south interim radioactive waste storage facility, the north radioactive materials storage building and the east radioactive waste processing facility. The licensee has installed radiation area monitors, continuous air monitors and fire detectors in the south and east buildings and had the alarms wired via the telephone lines to the control room. In addition, the buildings are monitored monthly for surface contamination and ambient dose rates. If the monitors or phone lines fail the buildings are monitored daily. In addition, a portable high efficiency particulate air (HEPA) system has been installed in the east processing building. The inspector noted that the area monitors may have been placed in the wrong locations to detect an accident (spill or crushed container) and discussed the issue with the licensee.

During a tour of the east radioactive waste processing building and the surrounding grounds the inspector found a contaminated anti-tip frame and its support plates stored adjacent to the building. Contamination levels were low, slightly above background, and the frame as well as the building were surrounded by a fence with access through a locked gate. Both had been boxed and covered in plastic both internally within the box and covering the box. The inspector noted that the plastic covering on both containers was torn and the wooden containers were water stained. The inspector was told that containers were not routinely surveyed and soil samples beneath and surrounding the containers had not been collected. The inspector expressed concern over the fact that there appeared to be no mechanism where followup surveys or soil samples would be taken in cases such as this to ensure contamination wasn't getting into the soil. The licensee indicated they have been reluctant

to move the frame unnecessarily because of safety concerns due to its large size (it's about 16 feet high). They are currently looking into disposal of these items.

No violations or deviations were identified.

9. Transportation of Radioactive Materials and Radwaste (IP 83750, 86750)

The inspectors reviewed the licensee's transportation of radioactive materials program, including: adequacy and implementation of written procedures, radioactive materials and radwaste shipments for compliance with NRC and DOT regulations and the licensee's quality assurance program, review of transportation incidents involving licensee shipments (if any), adequacy of required records, reports, shipment documents and notifications and experience concerning identification and correction of programmatic weaknesses.

The licensee made approximately 75 radioactive materials shipments, including radioactive waste sent for processing, since January of 1992. With only one exception (Inspection Report 50-255/92008(DRSS)) none of the shipments have resulted in a violation of NRC or DOT regulations. Although this is a good program there is one area of concern that must be resolved if the program is to improve and that area is the adequacy of their procedures. The procedures were not written to instruct a worker on the process for making a radioactive materials shipment. The instructions are vague and unclear about the regulatory requirements. The licensee is aware of this problem and is committed to revising the procedures.

In April 1992 the licensee made three radioactive waste shipments to SEG for compaction and incineration (approximately 25,000 cubic feet). Some of the waste was incinerated and the rest was compacted along with the incinerator ash. Some of that waste was shipped back to the licensee on April 30, 1992. The licensee is aware that there has been some discussion about whether or not they are licensed to receive the processed waste. They have decided to delay receiving any remaining processed waste from SEG until a new rule addressing this issue has been issued by the NRC. This proposed rule was published in the April 29, 1992 Federal Register, and allows reactor licensees to receive back byproduct and special nuclear material that has been sent offsite to be reduced in volume by compaction or incineration.

No violations or deviations were identified.

10. Plant Tours (IP 83750, 86750)

The inspector toured the rad waste buildings (section 9), the auxiliary building and the turbine buildings. Housekeeping in the auxiliary and turbine buildings was generally very good. Housekeeping in the turbine building needs improvement. The inspector found numerous spider weds and some debris during the tours. In the auxiliary building the inspector found: hoses draining contaminated liquids that had not been

inserted into floor drains and liquid was dripping on the drain, a clean hose extending into a contaminated area, several inadequate survey maps and a bag of overflow laundry. None of these observations were considered significant and each was corrected immediately.

No violations or deviations were identified.

11. Exit Interview (IP 30703)

The inspectors met with licensee representatives (denoted in Section 1) at the conclusion of the inspection on July 10, 1992, to discuss the scope and findings of the inspection.

During the exit meeting, the inspector discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. Licensee representatives did not identify any such documents or process as proprietary. The following items were specifically discussed with the licensee.

a. Weaknesses in the licensee's procedural review process. (Section 5)

b. The failure to document corrective actions. (Sections 5 and 6)

c. Questions about the new PM's responsibilities. (Section 4)