

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos. 50-220/91-08
50-410/91-08

Docket Nos. 50-220
50-410

License Nos. DPR-63
NPF-54

Licensee: Niagara Mohawk Power Corporation
300 Erie Boulevard West
Syracuse, New York 13202

Facility Name: Nine Mile Point Units 1 and 2

Inspection At: Lycoming, New York

Inspection Conducted: March 11-15, 1991

Inspectors:

Joseph Furia
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Facilities Radiological Protection Section
(FRPS), Facilities Radiological Safety and
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Radiation safety and Safeguards (DRSS)

3/18/91
date

Approved by:

W. Pasciak
W. Pasciak, Chief, FRPS, FRSSB, DRSS

3/19/91
date

Inspection Summary: Inspection on March 11-15, 1991 (Combined
Inspection Report Nos. 50-220/91-08; 50-410/91-08)

Areas Inspected: Routine announced inspection of the
transportation and radiation protection programs including:
management organization, Quality Assurance, ALARA, radiological
controls during an outage and implementation of the above
programs.

Results: Within the areas inspected, no violations or deviations
were noted.



DETAILS

1. Personnel Contacted

1.1 Licensee Personnel

- W. Aiken, ALARA Supervisor, Unit 2
- * J. Aldrich, Quality Assurance
- * W. Allen, MATS, Radiological Control
- * D. Barcomb, General Supervisor-Radiation Protection, Unit 2
- * K. Dahlberg, Unit 1 Superintendent
- * J. Firlit, Vice President
- C. Gerber, Radwaste Supervisor, Unit 1
- * E. Gordon, Health Physics Support Supervisor
- T. Hogan, ALARA Supervisor, Unit 1
- * M. McCormick, Unit 2 Superintendent
- * J. Pavel, Licensing
- * P. Smalley, General Supervisor-Radiation Protection, Unit 1
- * P. Swafford, Radiation Protection Manager, Unit 2
- * W. Thomson, Radiation Protection Manager, Unit 1

1.2 NRC Personnel

- * W. Cook, Senior Resident Inspector
- * R. Temps, Resident Inspector

* Denotes those present at the exit interview on March 15, 1991.

2. Purpose

The purpose of this routine inspection was to review the licensee's programs for radiological controls during an outage, ALARA, transport of radwaste in a rail cask, and assurance of quality in these areas.

3. Radiation Protection

Radiation protection program management for both units remained the same as during the previous inspection in this area. Each unit had a Radiation Protection Manager, who reported directly to their respective unit Superintendent. Staffing levels for the Radiation Protection program at each unit remained adequate for normal operations, with the Unit 1 staff augmented with 27 contractor personnel in support of the mid-cycle outage.

3.1 Unit 1 Outage

Unit 1 entered its mid-cycle outage on February 12, 1991 following a turbine trip. Originally this outage was scheduled to begin around March 1, 1991 and last



for approximately six weeks. During this inspection direct observations of work in progress and general tours of the Radiologically Controlled Area (RCA) were made. Major work to be undertaken during the outage included replacement of the #14 Recirculation Pump Cooler, repair/replacement of two of the Main Steam Bellows, replacement of the #12 Cleanup System Septums, and leak rate testing.

As part of this inspection, tours of most of the licensee's accessible RCA were conducted. A need for greater housekeeping control, especially on the refueling floor (Reactor Building elevation 340') was noted. In addition several instances of contaminated areas having laundry piled on the floor were noted. Part of this problem can be traced to the licensee's failing to provide dirty laundry containers by each Step Off Pad (SOP). One instance of radioactive materials being stored outside a posted storage area was also noted. The inspector discussed these observations with the licensee on March 13, 1991, prior to the exit. On March 15, 1991, the inspector was advised that all issues identified by the inspector had been resolved. The refueling floor had been cleaned up, the identified laundry piles were removed and radioactive materials containers were properly posted.

The inspector conducted direct observation of work in progress in the Reactor Building on both the 237' and 198' elevations. All work was performed under a specific Radiation Work Permit (RWP). Personnel were observed dressing out in protective clothing in accordance with the RWP, and were briefed on radiological conditions and potential hazards by members of the Radiation Protection staff at the HP checkpoint on the 237' elevation. Postings in the Reactor Building were determined to be adequate, with all areas surveyed at the frequency determined by the RWP.

3.2 Unit 1 - ALARA

The Unit 1 ALARA group, in conjunction with the Unit 1 Outage Management staff established a goal of 100 Man-rem for all outage work, based upon similar work performed during previous outages, and on similar work performed at other facilities. At the time of this inspection, the total exposure for the outage was less than 50 Man-rem, and the total for the outage was expected to be not more than 53 Man-rem. The licensee's success in meeting its outage ALARA goal was based upon the utilization of good ALARA engineering



and maintenance practices, careful pre-outage ALARA planning and reviews, and management support to minimize emergent work during the outage.

At the start of the mid-cycle outage, the licensee undertook to place direct and shadow shielding around high dose components and piping in the drywell, which resulted in a 10-20 Man-rem savings over the course of the outage. Shielding locations were determined well in advance of the outage, with expeditious review conducted by plant engineering. Installation of the shielding was performed by plant maintenance under instructions provided by the ALARA group. In addition, the licensee undertook to flush out key systems to reduce the number of hot spots and general area dose rates so as to further reduce exposures. Dose savings here were especially important in the leak rate testing and Cleanup System Septum replacement projects. Additional dose savings accrued from the fact that the failure rate on leak rate testing was significantly lower than that previously experienced.

Outage planning was conducted by the licensee well in advance of outage commencement. In early February, 1991, the ALARA group summarized its plans in a "Niagara Mohawk Unit One 1991 Mid-cycle Surveillance Outage ALARA Pre-Outage Plan". This document included a brief outline of each job to be performed, indicated references to ALARA reviews and Radiation Work Permits (RWPs), and provided estimates for the total Man-rem expected for each job and the estimated hours to complete each task. Based upon this type of analysis, the unit's outage ALARA goal of 100 Man-rem was derived.

Planning for all work during this outage was coordinated by the licensee's outage management team, which brought the ALARA group into the outage planning process early, and which severely restricted any emergent work during the outage. Good coordination and cooperation between Radiation Protection, Maintenance and Operations aided significantly in meeting the ALARA goals for this outage.

As a follow up to this outage, the ALARA Supervisor and staff were actively tracking the successes and areas for improvement during the outage. Meetings were held with work groups immediately following completion of key jobs, and these sessions allowed for the licensee to collect lessons learned as well as suggestions for improvements in future outages. The results of these meetings and the ALARA groups overview of the entire



outage were to be published shortly after the conclusion of the outage in late March, 1991. Lessons learned to date involve time savings in the erection of scaffolding and in greater accountability for work area housekeeping by the responsible working group.

3.3 Unit 2 - Operations

As part of this inspection, direct observation of Unit 2 health physics controls and practices during normal operations was observed. The inspector conducted walkdowns of the Reactor, Turbine and Radwaste Buildings, and observed several jobs in progress within the Radiologically Controlled Area (RCA).

The inspector noted several instances of poor housekeeping practices, especially in the Reactor Building, with protective clothing and trash left on the floor behind SOPs, despite the presence of receptacles for these materials. In addition several permanent ladders were found in the RCA posted with a "CAUTION" sign and radiation trefoil symbol, but no other posting to indicate the nature of the hazard. The Radiation Protection Manager was made aware of these discrepancies by the inspector, and indicated at the time of the exit interview that they would be resolved immediately.

The inspector also noted a large quantity of contaminated outage equipment temporarily stored on the Refuel floor (358' elevation, Reactor Building). A decontamination table was set up, however on three separate visits to this area, no work in progress was observed, and the quantity of material awaiting decontamination appeared to remain the same. The inspector discussed this observation with the Radiation Protection Manager, who indicated that part of the cause for this observation was the relatively small size of the decontamination staff, which numbered only eight people. Due to the size of the RCA, in conjunction with several small jobs being performed while operating, this staff was unable to make significant inroads into this backlog of decontamination work. Following the exit interview, licensee representatives indicated that this situation would be addressed shortly, possibly by the addition of temporary staff to remove this backlogged work.

3.4 Unit 2 - ALARA

The licensee concluded its first refueling outage in late January, 1991. Originally the total exposure for



this outage was expected not to exceed 150 Man-Rem. By the conclusion of the outage, the total exposure was 449 Man-Rem. Licensee analysis of the outage indicated that the three principle causes for this increased dose were:

- o Higher than expected drywell general area dose rates. The original ALARA goals were established in April, 1990, with the expected drywell general area dose rates to be 2 millirem per hour (2 mR/hr). General area dose rates during the outage were in fact 9 mR/hr. This contributed an additional 150 Man-Rem to the outage total dose.

- o Rework during the outage. The licensee's original ALARA plan did not include any dose for possible rework jobs, especially in the area of leak rate testing failures. Jobs on the Recirculation Isolation Valves, Main Steam Isolation Valves and Air Operated Check Valves all required rework. These types of jobs were of a significant number during the outage, and resulted in an additional 100 Man-Rem.

- o Job overruns and emergent work. Due to a lack of detail in some job planning, significant additional time in performing certain jobs resulted in an additional 49 Man-Rem of dose during the outage.

The licensee planned to summarize the outage and lessons learned by the end of April, 1991. The inspector will review this document during a future inspection.

4. Transportation

As part of this inspection, direct observation of the licensee's shipment of irradiated hardware using the IF-300 rail shipping cask was conducted. The licensee originally filed an Advanced Notification of Shipment in December, 1990, with an anticipated shipping date of the week of December 17, 1990. This was subsequently postponed twice and the notice canceled the week of February 11, 1991. On March 5, 1991, the licensee issued a revised Advanced Notification, with a shipping date of the week of March 11, 1991.

The inspector observed licensee and contractor personnel perform radiation surveys and conduct decontamination efforts; remove the rail car with cask from the Unit 1 Reactor Building and the Protected Area; and ship the cask to the Richland, Washington, disposal site utilizing the services of Conrail. These



activities were conducted in a very professional manner, with only the exception of verifying prior to removal from the Reactor Building, that the rail car and fork lift used to pull the rail car would fit through the rail lock of the Reactor Building. This caused some general confusion and delays in bringing the rail car out of the Reactor Building.

5. Quality Assurance

The licensee's program for the assurance of quality in the radiation protection program involved annual audits of the program together with periodic surveillances. As part of this inspection, Audit Report 90016-RG/IN, entitled "Radiological and Chemistry Controls", dated January 16, 1991, was reviewed. This audit identified five Audit Observations, for which the resolution of three of these were verified by the NRC inspector. These observations involved out-of-date radiological survey postings and storage of material on SOPs. None of these occurrences were observed by the inspector, although other discrepancies were noted by the inspector as noted in Section 3 above.

The inspector also reviewed the results of four Surveillance Reports issued in 1991. Two of these surveillances were conducted at the request of Unit 1 management to aid in verifying that proper radiological controls and work practices were in place during the Mid-cycle Outage. The surveillance reports were found to be well written, with no discrepancies noted in the reports.

5. Exit Interview

The inspector met with the licensee representatives denoted in Section 1 at the conclusion of the inspection on March 15, 1991. The inspector summarized the purpose, scope and findings of the inspection.

