

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-219/90-14

Docket No. 50-219

License No. DPR-16

Licensee: GPU Nuclear Corporation
P. O. Box 388
Forked River, New Jersey 08731

Facility Name: Oyster Creek Nuclear Generating Station

Inspection At: Forked River, New Jersey

Inspection Conducted: August 27 - 31, 1990

Inspector: *S. S. S. S.* 9/7/90
S. S. S. S., Senior Radiation Specialist
Facilities Radiation Protection Section
date

Approved by: *W. Pasciak* 9/7/90
W. Pasciak, Chief, Facilities Radiation
Protection Section, DRSS
date

Inspection Summary: Inspection on August 27-31, 1990 (Report No. 50-219/90-14)

Areas Inspected: A routine, unannounced inspection of the radiological controls program on site. Areas inspected included access control, dosimetry, staffing, training, qualifications, and review of applicable procedures.

Results: Within the scope of this inspection, no violations were identified.

DETAILS

1.0 Personnel Contacted

1.1 Licensee Personnel

- * J. Barton, Deputy Director, Oyster Creek
- R. Beck, Rad Con/Chemistry Training Manager
- G. Gildei, Training Instructor
- M. Glashan, Coordinator, Station Services
- D. Miller, Radiological Engineer
- R. Parry, Radiological Engineer
- C. Pollard, Manager, Rad Con Field Operations
- * J. Rogers, Licensing Engineer
- * D. Tuttle, Deputy Director, Radiological Controls
- * K. Wolfe, Manager, Radiological Engineering
- K. Zadroga, Deputy Manager, Rad Con Field Operations

1.2 NRC Personnel

- * E. Collins, Senior Resident Inspector
- M. Banerjee, Resident Inspector
- * W. Pasciak, Chief, Facilities Radiation Protection Section

* Denotes attendance at the exit meeting.

2.0 Status of Previously Identified Items

2.1 (Closed) Noncompliance Item 90-06-03

The noncompliance item was issued in connection with a failure to provide an ALARA review for a job involving replacing a bearing on a reactor recirculation pump. The ALARA review is required by Procedure 9300-ADM-4000.11, "Rules for Conduct of Radiological Work" and Procedure 9300-ADM-4010.02, "ALARA Review Procedure". The work took place between February 6-15, 1990.

The licensee's response to the violation stated that the following changes have been implemented to preclude recurrence:

- Require ALARA reviewers to document any changes in the original ALARA reviews and not rely on oral communications.
- The NRC Inspection Report documenting the incident was made

required reading for Radiological Controls personnel

- More comprehensive instructions were issued regarding preparation and modification of ALARA reviews.

This item is therefore considered closed.

2.2 (Open) Unresolved Item 89-15-01

The item was opened in connection with qualifications requirements for certain positions in the Radiological Controls Department. According to Technical Specifications 6.3.2,

"The management position responsible for radiological controls shall meet or exceed the qualifications of Regulatory Guide 1.8 (Rev 1-R, 1975), each member of the radiation protection organization for which there is a comparable position described in ANSI N18.1-1971 shall meet or exceed the minimum qualifications specified therein..."

The item addressed the question of correlation between the positions described in the ANSI standard and those in the Radiological Controls department.

The licensee in response to this item stated that,

"..the Radiation Protection Plan commits to Regulatory Guide 1.8 Rev. 2. The incumbents in the positions indicated in Reg. Guide 1.8, Rev. 2 meet or exceed qualifications and training requirement"

However, the response does not address the question of whether the licensee is in compliance with Technical Specifications requirements, specifically, the qualifications requirements specified in ANSI N.18.1, in addition to meeting the requirements of the Radiation Protection Plan. The licensee stated that they will review the issue further. This item will be reviewed during a future inspection.

2.3 (Open) Follow-up Item 87-02-03

This item addressed the licensee's actions in response to NRC Bulletin 80-10, "Contamination of nonradicative systems and resulting potential for unmonitored, uncontrolled release of

radioactivity to the environment". The licensee had performed studies to identify systems that may become cross contaminated and the release pathways to the environment. However, the actions taken to comply with the Bulletin were in some cases incomplete or not well documented. The licensee has developed an action plan to correct the situation, and the plan includes the following actions:

- Determine the requirements of Bulletin 8^c-10.
- Identify previous studies and recommendations.
- Identify which recommendations were acted upon.
- Determine if the remaining recommendations are still valid.
- Initiate action on the remaining valid recommendations.
- Develop operational limits for potential radioactive systems and perform safety evaluations for these systems.
- Complete system modifications if necessary.

The licensee stated that this action plan is scheduled for completion by the end of October 1990. The results will be reviewed during a future inspection.

3.0 Organization and Staffing

Several changes in the Radiological Controls department organization were made recently. These include the following:

- Creation of a new position, Deputy Director, Radiological Controls Department. The person selected to occupy this newly created position is the Chairman of the Radiological Improvement Plan Committee. This committee recently completed a study of the radiological controls function at Oyster Creek and had recommended actions for improvement. The Chairman also has extensive experience in various radiological controls positions at Three Mile Island Units 1 and 2.
- Addition of two radiological engineers to the radiological engineering staff on site.
- The Radiological Engineering section is to be divided into two functional areas: an ALARA group and a Technical Support group. Each group will have a group supervisor, and both groups will report to the Manager, Radiological Engineering.
- Three radiological engineers were assigned to function as liaison persons to the Operations, Maintenance, and Site Services departments on site. The engineers will still report

to the Manager, Radiological Engineering, and their function will be to assist the respective departments in planning work in radiological areas, to ensure that the jobs include ALARA measures, and to inform the Radiological Controls personnel of details of upcoming work. The liaison engineers will not be assigned to the departments but will spend a fraction of their time in the respective departments to provide assistance and guidance.

- A new Radiological Controls Field Operations (RCFO) Manager was appointed. He was RCFO Manager at TMI Unit 2 until recently. The person he replaced was appointed the Radiological Assessor.

The size of the RCFO Radiological Controls Technician (RCT) staff was identified in some past audits as a possible program weakness. The current size of the permanent RCT staff on site is 32. The licensee recently conducted a test in which the staff was augmented during the test period, which extended from May through July, 1990. The test was considered a success based on such measures of performance as a reduction in the exposures accumulated on standing radiation work permits (RWP), a reduction in documented delays in jobs for maintenance and operations, and the elimination of postponements in the RCT training program. Based on the improvements observed during the test period, the site staff has requested that the permanent RCT staff on site be augmented from 32 to 46, or an increase of 14 RCTs (44%), and also to augment the permanent Group Radiological Controls Supervisors (GRCS) from 6 to 7. The augmented RCT staff would be used for routine operations, and any special projects would require a temporary augmentation of the RCT staff beyond that level.

4.0 Training

Several improvements in training were observed during this inspection and include the following:

- The practical factors and respirator training were combined into one session instead of two separate sessions. The licensee stated that this provided about two extra hours of classroom training. The licensee also stated that they have improved practical factors training by insisting that workers repeat steps that they do not complete properly until they are able to do these steps in the correct manner. In the past,

these errors were pointed out and training would continue.

- Advanced radiation worker training is progressing well, and good feedback is being obtained from the workers who go through that training. Advanced radiation worker training is on an as needed basis and is not cyclic. It is a more rigorous form of the basic practical factors training, and involves performing work on a simulated radioactive system while in complete protective clothing. Discussion sessions are held before the work is performed to review the requirements of the work permit and the ALARA measures. One or more RCTs participate in these discussions, in addition to the instructor, and they provide guidance during the discussions. They also observe the job and provide critique. The licensee stated that they will use video tapes of the training sessions to show the trainees how they performed and to point out to them the errors they may have made.

- Although the licensee does not have a formal training program for the GRCSS, such a program is being developed. In addition, the licensee plans to send the GRCSS on training visits to power stations with known good performance in radiological controls. These visits will be about three days in duration at each site, and two sites have been selected as a start for this program, one of these being TMI Unit 1. The licensee stated that they will evaluate the effectiveness of this program after completion of the two site visits by all the GRCSS and will then decide whether the program should be continued.

- Procedure 9300-ADM-4000.11, "Rules For Conduct of Radiological Work" describes good practices to be followed when planning and doing work in the RCA. In the past, only certain sections of this procedure were discussed during radiation worker training. This practice has been changed and the whole procedure is now discussed during training. Discussion of this procedure is also included in requalification training.

There has been no change in the training program for radiological engineers, which is currently limited to periodic presentations on selected technical topics by a person who is familiar with the topic. There is no official program of professional development for the engineers. However, the licensee stated that they encourage the staff to continue their technical education by paying for their tuition if they

decide to do so.

5.0 Radiological Incident Reports

The radiological incident reports (RIR) for the 1989 - 1990 period were reviewed during this inspection. These reports are generated whenever an incident with radiological implications occurs, such as a hot particle contamination or a violation of locked high radiation area door requirements. A significant improvement in the quality of the RIRs was noted, particularly in the detailed manner in which incidents are described and also the clear and complete manner in which root causes are determined and presented.

6.0 Access Control and Plant Tours

Tours of the plant were conducted during this inspection, including the Reactor and Turbine Buildings. Access control to the radiological controls area (RCA) was also observed. All areas of the plant were found to be orderly and clean, and well marked by postings or tape. No out of place items or accumulating waste was observed. Access control was found to be good, and the technician in charge of the access facility at the time of the inspection was found to be efficient and knowledgeable in the operation of the access facility. However, two items for improvement were noted.

- During tours of the refueling floor in the Reactor Building, it was noted that many items were suspended in the fuel storage pool by long metal cables. These items are usually radioactive, and the activity may vary from slight to very high. The inspector stated that there may be a hazard in that a person may inadvertently pull out one of these items and receive a high dose of radiation. The licensee stated that the area is posted to indicate that no item is to be pulled out of the fuel storage pool without the presence of an RCT with a survey instrument. However, there is still the possibility that the person may not comply with this requirement. The licensee stated that they will review the radioactivity levels of the items suspended in the pool and will take appropriate measures to provide positive control over those items that present an exposure hazard.

- Survey instruments used by workers for entries into radiation areas are issued to them at the access control point, where they are stored, ready for use. These instruments

are routinely source checked by the RCTs at the control point to ensure proper function. However, only the two low ranges of the instruments are checked. The licensee stated that these two low ranges normally cover the range of radiation fields that the workers are exposed to and that they would not normally need to use the upper ranges. However, there are no markings on the instruments to indicate that the upper ranges had not been checked for operability and that they should not be used unless such a check is performed. The licensee stated that they will review the situation and take appropriate action.

These items will be reviewed during a future inspection.

7.0 Procedures

Procedures applicable to the areas inspected were reviewed. These procedures were found to be well written and sufficiently comprehensive for their intended purpose. The review identified two items that may require clarification.

- Procedure 9310-ADM-4241.07, "Personnel Dosimetry Requirements" states that

"When the principle source of radiation is from underfoot, whole body dosimetry placement shall be just above the knee".

The inspector stated that this placement is acceptable to the NRC, as described in Information Notice 81-26. However, it does not relieve the licensee from ensuring that the skin between the knee and the ankle, which is subject to a quarterly limit of 7.5 rem, is not limiting and is monitored if the conditions specified in 10 CFR Part 20.202 "Personnel Monitoring" apply.

- Procedure 9310-ADM-4241.07 states that

"The whole body TLDs should be worn underneath the anti-C clothing when the lens of the eye and the skin of the whole body are not directly exposed to beta radiation fields".

Although this is acceptable practice, the procedure does not provide clear guidance on the conditions under which the lens of the eye or the skin are sufficiently shielded against the

beta radiation fields. These conditions are specified on the back of NRC Form 5. The licensee stated that they periodically monitor their beta sources and have determined that the beta radiation currently encountered in the plant is predominantly that from cobalt-60, which is a low energy radiation for which it is easy to provide shielding. According to the licensee's documentation, adequate shielding is provided by two pairs of rubber gloves for the hands, and a faceshield for the face. However, this information is not provided for guidance in the dosimetry placement procedure.

The licensee stated that they will review these items and will take appropriate action. These items will be reviewed during a future inspection.

8.0 Radiological Performance Parameters

The trend in several parameters of radiological performance on site were reviewed in an attempt to evaluate the success of the licensee's recent efforts to improve radiological performance. These trends included cumulative radiation exposure, number of skin and clothing contaminations, areas of the plant that are posted as contamination areas, and number of locked high radiation area door procedure violations. Review of the trends in these parameters showed that there have been substantial improvements in all areas. The parameters and the trends are described below.

- Cumulative exposure: the goal for 1990, which is a non-outage year, was set at 450 man-rem. As of August 20, the actual exposure was 234 man-rem, and the licensee has revised the goal downward to 395 man-rem. If this goal is achieved, then 1990 would be the lowest exposure year since 1971, which was 240 man-rem. Other relatively low exposure years at Oyster Creek were 1972 (582), 1979 (467), and 1987 (522). The licensee stated that part of the reason for the good exposure record for 1990 is that jobs with a potential for high exposures were being more closely controlled. For example, entries into the drywell are now not permitted except in situations where the work must be performed and cannot be postponed until the outage. Similarly, work in such areas as the condenser bay is being conducted only when necessary and then only after appropriate reactor power reduction to reduce dose rates during the entry. These measures represent significant departures from previous practices on site.

- Number of skin contaminations:

1989	320
1990	48

- Number of clothing contaminations:

1989	834
1990	248

- Airborne radioactivity areas:

1989	1400 square feet
1990	0

- Internal contaminations:

1989	166 MPC - Hours
1990	84 MPC - Hours

- Contaminated areas:

1989	81,586 square feet
1990	72,120 square feet

It was noted in reviewing this parameter that the average monthly rate at which areas were being lost to contamination in 1990 was 8329 square feet per month, which is significantly higher than the corresponding rate in 1989 of 4600 square feet per month. This increased rate, however, was more than compensated for by the rate at which areas were being recovered in 1990. The licensee stated that they will review the data to determine the reason for the higher loss rate in 1990.

- Number of locked high radiation area door violations:

1989	6
1990	0

It should be noted that the comparison between the 1989 and 1990 data involves two dissimilar periods. 1989 included about three months of outage work whereas 1990 was not an outage year, although it did include about 49 days of nonrefueling outage work. Also, the data for 1990 extends only to the end of July, which represents only slightly more than half of a

year. The number of RWP-hrs for 1989 was about 517,000 compared with a about 224,000 for 1990. Nevertheless, there does appear to be a trend toward improved radiological performance.

9.0 Dosimetry Records

The records maintained by the dosimetry department were reviewed for completeness by randomly selecting some of the records from the files. The records were found to be well maintained and included all the required exposure history documentation, termination letters, and other access control records.

Dosimetry investigation reports (DIR) were also reviewed. These reports are generated when significant discrepancies are found between the doses indicated by the self reading dosimetry and the thermoluminescent dosimetry, which is the dosimetry of record. Review of randomly selected reports showed that the reports were complete and that the discrepancies identified were properly resolved.

10.0 Exit Meeting

The inspector met with licensee representatives on August 31, 1990. The inspector reviewed the purpose of the inspection and discussed the inspection findings.