ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket Nos.:	50-275 50-323
License Nos.:	DPR-80 DPR-82
Report No.:	50-275/96-08 50-323/96-08
Licensee:	Pacific Gas and Electric Company
Facility:	Diablo Canyon Nuclear Power Plant, Units 1 and 2
Location:	7 1/2 miles NW of Avila Beach San Luis Obsipo, California
Dates:	June 3-7, 1996
Inspectors:	Larry T. Ricketson, P.E., Senior Radiation Specialist Plant Support Branch
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ATTACHMENT: Partial List of Persons Contacted
List of Inspection Procedures Used
List of Items Opened, Closed, and Discussed
List of Acronyms

EXECUTIVE SUMMARY

Diablo Canyon Nuclear Power Plant, Units 1 and 2
NRC Inspection Report 50-275/96-08; 50-323/96-08

These routine, announced inspections focused upon the licensee's programs for solid radioactive waste management and transportation of radioactive materials and the programs for secondary and primary chemistry.

Plant Support

- A good solid radioactive waste management program was implemented. Aggressive measures were taken to reduce the generation of radioactive waste. Waste was properly classified and characterized for burial. Improvement was needed in how radioactive waste was stored to prevent potential personnel safety hazards (Section R1.1).

- A good radioactive materials and radioactive waste transportation program was implemented. The licensee was properly implementing the latest revisions of transportation regulations (Section R1.2).

- The water chemistry and radiochemistry programs were effectively implemented. Target levels, action levels, and corrective actions for out-of-specification chemistry conditions were properly established and implemented (Section R1.3).

- The reactor shutdown chemistry control for Refueling Outage 1R7 was not successful in reducing the source term to less than that experienced in Refueling Outage 1R6. The reactor shutdown chemistry control program implemented for Refueling Outage 2R7 was successful in reducing the source term and radiation exposure to personnel. The implementation of the reactor shutdown chemistry control program to reduce the source term during refueling outages improved from Refueling Outage 1R7 to Refueling Outage 2R7 (Section R1.4).

- The analytical instruments in the secondary and primary chemistry laboratories and the radiochemistry counting facility were properly calibrated, and a good quality control program was implemented (Section R2.1).

- Solid radioactive waste management and radioactive waste/material transportation procedures provided adequate guidance (Section R3.1).

- Good water chemistry and radiochemistry programmatic procedures were established and implemented (Section R3.2).

- Radiation protection foremen, radwaste engineers, and radiation protection technicians demonstrated a good knowledge of radioactive material and radioactive waste transportation requirements (Section R4.1).

- The analytical performance quality control program was properly implemented (Section R4.2).

- Generally, workers were qualified for the tasks performed. Appropriate training was provided to all individuals taking part in transportation activities, except utility workers (laborers). The training adequately addressed the revisions in the transportation regulations (Section R5.1).

- An excellent continuing training program was implemented for the chemistry technical staff. The licensee maintained a well trained and qualified staff to effectively implement the water chemistry and radiochemistry programs. The training chemistry laboratory was considered a strength (Section R5.2).

- The stability of the chemistry section's staffing provided a high reliability of chemistry program performance and was considered a strength (Section R6.1).

- Oversight of solid waste management and transportation activities was minimal. Programmatic oversight of transportation activities was lacking, but reviews by quality control personnel sufficed to ensure regulatory compliance. Audits in this area would benefit from auditors with more specialized experience (Section R7.1).

- An excellent, comprehensive audit and excellent assessments of the chemistry/radiochemistry program were performed by the quality assurance organization. Excellent oversight of the water chemistry and radiochemistry programs was achieved (Section R7.2).

Report Details

Summary of Plant Status

The plant operated at full power during the entire inspection period. There were no operational occurrences that impacted the two inspections.

IV. Plant Support

R1 Radiological Protection and Chemistry (RP&C) Controls

R1.1 Solid Radioactive Waste Management Program

a. Inspection Scope (86750)

Waste processing areas were toured, selected waste classification and characterization documentation was reviewed, and cognizant licensee personnel were interviewed.

b. Observations and Findings

Through record reviews, the inspector verified that radioactive waste streams were sampled and analyzed as required. Analyses to determine scaling factors for nongamma-emitting nuclides were performed by a vendor laboratory. Scaling factors were updated regularly, incorporating the latest waste stream analysis results.

The inspector reviewed documentation for selected examples of radioactive waste packaged for burial and determined that the waste was properly classified and characterized.

The inspector confirmed, through document reviews and personnel interviews, that the licensee implemented an aggressive waste reduction program. Since 1992, the licensee reduced waste generation approximately 50 percent.

The inspector toured the radioactive waste processing and storage areas. No problems were identified, except in Vault 26 of the radioactive waste storage area. Barrels of radioactive waste were placed on wooden pallets and stacked three tiers high. The inspector noted one barrel (96-D-031) on the top level protruding approximately 30 percent over the edge of its pallet. Licensee personnel later stated that the barrel contained compacted dry activated waste and weighed 453 pounds.

The inspector expressed a concern that the barrel posed a personnel safety hazard, if it fell because of seismic activity or any other reason with people in the area. Licensee representatives acknowledged the inspector's concern and restacked the barrel. Licensee representatives stated that barrels were sometimes compressed slightly during the compaction operations. When this occurred, all barrels were

not the same height; therefore, the surface, on which the next layer of pallets and barrels were stacked, was not level making the configuration unstable. To correct this situation, licensee representatives stated that they would evaluate the use of metal shelving in the barrel storage area to provide a more stable base on which to set loaded barrels.

c. Conclusions

A good solid radioactive waste management program was implemented. Aggressive measures were taken to reduce the generation of waste. Waste was properly classified and characterized for burial. Improvement was needed in the manner in which some waste was stored to prevent potential personnel safety hazards.

R1.2 Transportation of Radioactive Waste and Radioactive Materials

a. Inspection Scope (86750; TI 2515/133)

Documentation for selected radioactive materials and radioactive waste shipments, certificates of compliance for NRC certified containers, consignee radioactive materials licenses, and licensee reference material were reviewed.

b. Observations and Findings

A random review by the inspector confirmed that the licensee maintained copies of applicable certificates, licenses, and regulations.

Shipping papers for radioactive materials shipments contained the information required by 49 CFR 172, Subpart C. In addition to this information, radioactive waste shipment documentation included manifests that conformed to the requirements of 10 CFR Part 20, Appendix F and 49 CFR 173.433. Shipping documents included radioactive source activity measurements recorded in international system (SI) units as well as customary units. Emergency telephone numbers and backup emergency contact telephone numbers included with the shipping papers were current.

Photographs of radioactive waste shipments confirmed that shipments were properly labeled, marked, and placarded, when applicable. Radiation survey records indicated that radiation and contamination levels of shipments were within regulatory limits.

No problems were identified at the waste burial site, involving the licensee's shipments, during the previous two years.

c. Conclusions

A good radioactive materials and radioactive waste transportation program was implemented. The licensee was properly implementing the latest regulatory revisions.

R1.3 Light Water Reactor Chemistry Control

a. Inspection Scope (84750)

The water chemistry and radiochemistry analytical data were reviewed.

b. Observations and Findings

The inspector reviewed secondary water chemistry data and reactor coolant chemistry data for 1995 and the first quarter of 1996 to determine compliance with Technical Specification requirements. It was verified that required water chemistry and radiochemistry sampling and analyses were performed in both units. The review included an inspection of secondary water quality data, steam generator water chemistry and radiochemistry data, and reactor coolant water chemistry and radiochemistry data plotted from the data recorded in the computerized chemistry data management system. The inspector reviewed the records of out-of-specification chemical parameters and the licensee's corrective actions taken when chemistry parameters did not meet established chemistry control limits.

Very few out-of-specification chemistry conditions were noted during normal plant operation. Most of the out-of-specification chemistry conditions resulted during plant evolutions (e.g. reactor shutdown or startup) and were promptly corrected and brought to within the applicable chemistry control limits.

The licensee's chemistry control limits for secondary and primary water systems were established according to the Electric Power Research Institute (EPRI) guidelines for pressurized water reactor secondary and primary water chemistry. The licensee had established target levels, action levels, and corrective actions for out-of-specification chemistry conditions. The action levels and corrective actions to out-of-specification chemistry conditions were strictly enforced.

The review of the secondary chemistry data for Units 1 and 2 during the first quarter of 1996 indicated only minor out-of-specification conditions involving sulfate in the steam generators, hydrazine and iron in the feedwater, and dissolved oxygen in the condensate.

Primary chemistry and radiochemistry data for Units 1 and 2 for the period of 1995 through the first quarter of 1996 were reviewed. The data indicated that all reactor coolant system chemistry parameters required by Technical Specifications were maintained within

specification. The only non-technical specification reactor coolant system chemistry parameter which was not maintained at all times within the target operational concentration limits was the lithium concentration.

c. Conclusions

The water chemistry and radiochemistry programs were effectively implemented. Target levels, action levels, and corrective actions for out-of-specification chemistry conditions were properly established and implemented.

R1.4 Refueling Outage Chemistry Control

a. Inspection Scope (84750)

The chemistry control program during reactor operation and during shutdown prior to an outage was reviewed to determine the effectiveness in reducing the radiation source term during plant operation and especially during plant outages.

b. Observations and Findings

The licensee implemented a three step chemistry control program to reduce the radiation source term during plant operation and especially during plant outages.

- The first step was to control and maintain the pH of the reactor coolant during normal plant operation in a band from 6.9 to 7.6 to minimize corrosion formation and buildup in the reactor primary system.

- The second step was to establish an acidic reducing environment in the reactor coolant system to maintain the corrosion products in a soluble state so that they would be removed by filters and demineralizers; and therefore, minimize crud deposition and crud bursts during outage conditions. Additionally, hydrogen peroxide was injected into the reactor coolant system to shock the system from a chemically reducing environment during cool-down to a chemically oxidizing environment. This made corrosion products soluble so that they would be removed from the reactor coolant system by filters and demineralizers.

- The third step was to control the reactor coolant system startup chemistry and reduce nickel buildup in the reactor primary system.

During the Unit 1 Refueling Outage 1R7 conducted in September 1995, the licensee initiated the chemistry control program described above in an attempt to reduce the radiation source term. A total of 3083 curies of

cobalt-58, 38 curies of cobalt-60, and 4010 grams of nickel were removed from the reactor coolant system during the shutdown.

Immediately following the hydrogen peroxide addition, the cobalt-58 activity peaked at 6.79 microcuries (μCi) per milliliter (ml), and the cobalt-60 activity peaked at 6.33E-02 μCi/ml. One reactor coolant pump was run for approximately 3.5 hours after the hydrogen peroxide addition. The cobalt-58 activity was reduced from 6.79 μCi/ml to 4.57 μCi/ml. This did not allow for sufficient cleanup of the reactor coolant system, and the dose rates measured in the steam generator bowls and reactor coolant piping were significantly higher than the dose rates experienced during the Unit 1 Refueling Outage 1R6. The dose rates had increased 50 percent in 3 of the steam generator bowls and 100 percent in the fourth steam generator bowl. Additionally, dose rates throughout the reactor primary system as well as above the flooded reactor cavity were approximately 25 to 35 percent greater than during Refueling Outage 1R6. The effective average dose rate for refueling work in containment increased to 7.45 millirems (mrems) per man-hour during Refueling Outage 1R7 compared to 4.43 mrems/man-hour during Refueling Outage 1R6. The inspector concluded that the reactor shutdown chemistry control program for Refueling Outage 1R7 was not successful in reducing the source term and contributed to the higher doses in the steam generators and the reactor primary system than previously experienced in Refueling Outage 1R6.

The licensee identified the following contributory causes for the high dose rates in the steam generators and the reactor primary system during Refueling Outage 1R7:

- The reactor coolant system was not sufficiently cleaned up prior to the floodup of the reactor cavity. The demineralizer used during the shutdown for the reactor coolant cleanup exhausted earlier than expected, and it took approximately 2 days to get a new demineralizer back in service. Also, after the reactor cavity floodup, it took much longer to cleanup the reactor coolant system because of the increased volume from 100,000 gallons to 400,000 gallons in the reactor coolant system.

- During a unit trip approximately 3 weeks prior to the refueling outage, crud was deposited in the reactor core region. The end of operating cycle reactor coolant pH (7.5-7.6) facilitated the transport of the activated corrosion products from the reactor core region to the steam generator bowls.

From the lessons learned during Refueling Outage 1R7, the licensee proposed the following corrective actions to be incorporated into the Unit 2 Refueling Outage 2R7 schedule to increase the success of the reactor coolant system cleanup during the reactor shutdown and the reduction of source term and personnel dose.

- Operate at a lower pH (7.4 versus 7.6) during the end of the operating cycle to minimize the transport of activated corrosion products from the core into the steam generators prior to shutdown.

- Strictly adhere to EPRI recommended activity cleanup limits in the reactor coolant system prior to floodup of the reactor cavity.

- Maintain acid reducing conditions in the reactor coolant system during cooldown for a minimum of 24 hours to ensure complete decomposition of the nickel ferrites.

- Maintain a spare cation demineralizer loaded and available should the first shutdown cation demineralizer exhaust early.

- Run the reactor coolant pumps for a minimum of 24 hours after the addition of hydrogen peroxide to the reactor coolant system.

During Refueling Outage 2R7 conducted in April 1996, the licensee initiated the chemistry control program described above to reduce the radiation source term. A total of 2360 curies of cobalt-58, 19.2 curies of cobalt-60, and 4420 grams of nickel were removed from the reactor coolant system during the shutdown.

Immediately following the hydrogen peroxide addition, the cobalt-58 and cobalt-60 activities peaked at 3.4 μCi/ml and 1.3E-02 μCi/ml, respectively. Two reactor coolant pumps were run for approximately 27 hours after the hydrogen peroxide addition to facilitate maximum reactor coolant system cleanup. The cobalt-58 activity was reduced from a maximum concentration of 3.4 μCi/ml to 7.6E-01 μCi/ml.

The total cumulative outage exposure through core off load was reduced from 45 man-rems during Refueling Outage 2R6 to 35 man-rems during Refueling Outage 2R7. The inspector concluded that these radiation dose reductions were a direct result of the licensee successfully implementing the reactor shutdown chemistry control program.

c. Conclusions

The reactor shutdown chemistry control program for Refueling Outage 1R7 was not successful in reducing the source term to less than previously experienced in Refueling Outage 1R6. The effective average dose rate for refueling work in containment during Refueling Outage 2R7 was reduced by approximately 40 percent from that experienced during Refueling Outage 2R6 as a result of the implementation of a more effective and controlled reactor shutdown chemistry control program. The reactor shutdown chemistry control program implemented for Refueling Outage 2R7 was successful in reducing the source term and radiation exposure to personnel. The implementation of the reactor shutdown

chemistry control program to reduce the source term during refueling outages improved from Refueling Outage 1R7 to Refueling Outage 2R7.

R2 Status of RP&C Facilities and Equipment

A recent discovery of a licensee operating their facility in a manner contrary to the Updated Final Safety Analysis Report (UFSAR) description highlighted the need for a special focused review that compares plant practices, procedures and/or parameters to the UFSAR descriptions. While performing the inspections discussed in this report, the inspectors reviewed the applicable portions of the UFSAR that related to the areas inspected. The inspectors verified that the UFSAR wording was consistent with the observed plant practices, procedures and/or parameters.

R2.1 Secondary and Primary Chemistry Laboratories

a. Inspection Scope (84750)

The secondary chemistry laboratories, secondary chemistry sample rooms and associated in-line process instrumentation, and primary chemistry laboratory for both units were inspected. The calibration and quality control programs for the analytical instrumentation in the secondary and primary chemistry laboratories and radiochemistry counting facility were reviewed.

b. Observations and Findings

The secondary chemistry laboratories were equipped with state-of-the-art analytical instrumentation to perform the required analyses. An in-line ion chromatograph was installed in each of the units for continuous online analyses of anions and cations and to monitor chemical parameters in the secondary water systems. State-of-the-art in-line process instrumentation was installed in the secondary chemistry sample rooms of both units. The in-line process instrumentation in the sample rooms of both units was calibrated, and an instrument quality control program was implemented. During the inspection, all in-line process instrumentation in both secondary chemistry sample rooms was operational.

The analytical instruments in the secondary chemistry laboratories and primary chemistry laboratory were calibrated, and an instrument quality control program was implemented. The licensee was using instrument quality control charts to trend quality control data. The inspector reviewed the quality control data charts for 1996 for selected analytical instruments in the secondary and primary chemistry laboratories and found them satisfactory. The analytical instruments in the secondary and primary chemistry laboratories were properly calibrated, and a good quality control program was implemented.

The radiochemistry counting facility instrumentation and selected detector calibration and quality control data were inspected. Sufficient state-of-the-art analytical instrumentation was maintained to perform the required radiochemistry analytical measurements. The radiochemistry counting facility's instruments were properly calibrated, and a good quality control program was implemented.

c. Conclusions

The secondary and primary chemistry laboratories and radiochemistry counting facility were equipped with state-of-the-art analytical instrumentation to perform the required analyses. The analytical instruments in the secondary and primary chemistry laboratories and the radiochemistry counting facility were properly calibrated, and a good quality control program was implemented.

R3 RP&C Procedures and Documentation

R3.1 Radiation Protection Procedures

a. Inspection Scope (TI 2515/133)

Selected solid radioactive waste management and transportation procedures were reviewed.

b. Observations and Findings

Procedure RCP D-631, "Radioactive Materials Shipments," Revision 1, and Procedure RCP RW-4, "Solid Radioactive Waste Shipment," Revision 12, were reviewed. Procedure RCP D-631 addressed revisions in regulatory requirements, such as, the division of the low specific activity category into subcategories and the introduction of the surface contaminated object category. The procedure also included guidance in the use of international units on shipping papers.

Procedure RCP D-631 was sometimes cumbersome to use. This was, in part, because of the inconsistent manner in which it implemented regulatory requirements. In some cases, the procedure restated requirements, such as when instructing the reader on low specific activity subcategories; and in other cases, it simply referenced the regulatory requirements. In the latter cases, the reader had to refer to the specific regulation. As a specific example, Section 7.2.g. of Procedure RCP D-631 instructed the reader to record the Department of Transportation A-values, but did not include a reference to the location of the values. The reader had to review the definition of A-values in Section 3 of the procedure to find the regulatory reference, then refer to 49 CFR 173.433 or 49 CFR 173.435 to determine the values. Aside from this, the procedure provided adequate guidance.

Procedure RCP RW-4 needed minor editorial revisions. The procedure referenced a subdivided fissile class of materials and NRC Region V (in reference to filing reports). Neither reference was appropriate. The procedure revision reviewed became effective April 15, 1996.

c. Conclusions

Procedures established to implement the solid radioactive waste and transportation programs provided adequate guidance.

R3.2 Secondary and Primary Chemistry Procedures

a. Inspection Scope (84750)

Selected water chemistry and radiochemistry procedures were reviewed.

b. Observations and Findings

Chemistry department administrative procedures, chemistry control procedures, sampling and analyses procedures, and calibration and quality control procedures for in-line process instrumentation and laboratory analytical instruments were written and approved. A review of selected procedures revised since the previous NRC chemistry inspection conducted in July 1994 indicated that the chemistry and environmental operations department had revised and implemented adequate procedures which met the commitments in the UFSAR and Technical Specifications for both units.

c. Conclusion

The licensee had established and implemented good water chemistry and radiochemistry programmatic procedures.

R4 Staff Knowledge and Performance

R4.1 Radiation Protection Staff

a. Inspection Scope (TI 2515/133)

Radiation protection foremen, radwaste engineers, and radiation protection technicians were interviewed with regard regulatory requirements for transportation of radioactive waste/materials.

b. Observations and Findings

Radiation protection foremen, radwaste engineers, and radiation protection technicians were knowledgeable of regulatory requirements and recent regulatory revisions. Other than a laundry shipment, no radioactive shipments were conducted the week of the inspection.

Therefore, the inspector was unable to make any observations of actual performance of shipping preparations.

c. Conclusions

Radiation protection foremen, radwaste engineers, and radiation protection technicians were familiar with radioactive material and radioactive waste transportation requirements.

R4.2 Chemical and Radiochemical Analysis Performance Quality Control Program

a. Inspection Scope (84750)

The chemistry section's inter-laboratory chemical analysis cross check program and radiochemical analysis intra-company cross check program were reviewed to determine the quality of analytical performance in the secondary and primary chemistry laboratories and radiochemistry counting facility.

b. Observations and Findings

The licensee participated in a chemical analysis inter-laboratory cross check program administered by a contract laboratory as a means of evaluating chemistry/radiation protection technician analytical performance. The inspector reviewed the results of the licensee's performance during the period January 1995 through May 1996 in the chemical analysis inter-laboratory cross check program of blind samples in water chemistry. A high percentage of the licensee's analytical results met the contract laboratory's acceptance criteria.

The licensee also participated in a radiochemical analysis intra-company cross check program administered by the licensee's Technical and Ecological Services laboratory. The inspector reviewed the results of the licensee's performance during the period January 1994 through May 1996 of spiked samples supplied semiannually to the station's radiochemistry laboratory and counting facility. The licensee's analytical results of the spiked samples met the acceptance criteria established in the station's Inter-departmental Administrative Procedure CY1.ID1, "Radiochemical Intracompany Cross-Check Program," Revision 2.

c. Conclusions

A good analytical performance quality control program was properly implemented.

R5 Staff Training and Qualification

R5.1 Radiation Protection Personnel

a. Inspection Scope (TI 2515/133)

Training materials, attendance lists, and the results of tests taken by students related to training on the changes to the Department of Transportation and NRC transportation regulations were reviewed. Qualifications of quality assurance personnel is discussed in Section R7.1.

b. Observations and Findings

In-house training on packaging, transferring, and transporting of radioactive materials was typically provided to select employees on an annual basis. Individuals involved in transportation activities were required to attend the training at two-year intervals. However, because of the changes in transportation regulations, the licensee elected to have a vendor present the most recent training.

The inspector reviewed the training material and found it to be comprehensive regarding regulatory requirements and regulatory changes.

The inspector reviewed attendance lists and determined that radwaste technicians and supervisors, quality control personnel, and quality assurance personnel attended the training.

Utility workers (laborers) did not attend the training on regulatory requirements. However, through interviews with utility workers and supervisors, the inspector determined that utility workers performed various functions, including loading shipping containers, sampling radwaste filters, weighing radioactive materials packages, and blocking and bracing packages in preparation for shipment.

Subpart H of 49 CFR requires in 172.702 that hazmat employees be trained in the functions they perform. The definition of a hazmat employee from 49 CFR 171.8 is a person who, in the course of employment, directly affects hazardous material transportation safety. 49 CFR 172.704(a) states that hazmat employees shall be provided with training to provide familiarity with the requirements of that subchapter, and 49 CFR 172.704(b) states that each hazmat employee shall be provided function specific training.

Information Notice No. 92-72 discussed employee training requirements. One of the examples of workers requiring training is that of individuals who brace and block packages in preparation for transportation. The inspector identified the failure to provide the type of training

required by 49 CFR 172.704 to utility workers who directly affected hazardous material transportation safety as a violation of 49 CFR 172.702.

The inspector determined through interviews that the licensee had experienced no problems related to the shifting of loads during radioactive shipments. Licensee representatives stated that utility workers worked under the supervision of radiation protection technicians. Radiation protection technicians were trained in bracing and blocking of packages for transport as part of their accredited training program. This failure constitutes a violation of minor significance and is being treated as a non-cited violation, consistent with Section IV of the NRC Enforcement Policy (50-275/9608-01; 50-323/9608-01).

c. Conclusions

Generally, workers were qualified for the tasks performed. Appropriate training was provided to all individuals taking part in transportation activities, except utility workers. Training provided to workers adequately addressed the revisions in the transportation regulations.

R5.2 Chemistry Training and Qualification

a. Inspection Scope (84750)

Continuing training and qualification programs for the chemistry/radiation protection technicians assigned to the chemistry organization and the qualifications of selected chemistry personnel were reviewed.

b. Observations and Findings

The inspector interviewed the chemistry/radiation protection training team leader and the two training instructors for the chemistry staff and determined that no personnel had joined the chemistry organization during the past 4 years. Training records, qualification cards, and ANSI qualification worksheets for selected members of the chemistry technical staff were reviewed. All chemistry/radiation protection technicians assigned to the chemistry organization had completed the initial training program and met the qualifications specified in ANSI N3.1-1978. The licensee had developed a training matrix for tracking the chemistry task training completed by each of the chemistry/radiation protection technicians.

A quality assurance assessment of the chemistry and radiation protection technician qualification program was performed in April 1996. The assessment suggested several enhancements to the qualification matrix.

The continuing training program for the chemistry/radiation protection technicians, as described in Training Administrative Procedure TQ2.DC5, "Chemistry and Radiation Protection Technician Training," Revision 0, was reviewed. The chemistry organization's continuing training schedules for 1995 and 1996 were reviewed.

The instructor training program and the experience and training of the two chemistry training instructors were reviewed. The chemistry training instructors were experienced and well qualified. The inspector noted that the two chemistry training instructors, as part of their instructor continuing training program, scheduled 8 hours per quarter working in the plant with the plant chemistry staff to keep current with plant chemistry activities and instrumentation.

The chemistry training laboratory maintained by the learning services department was toured and inspected. The laboratory was well equipped and was considered a strength for developing new procedures and conducting initial training on new laboratory analytical instrumentation.

c. Conclusions

An excellent continuing training program was implemented for the chemistry technical staff. A well trained and qualified staff was maintained to effectively implement the water chemistry and radiochemistry programs. The training chemistry laboratory was considered a strength.

R6 RP&C Organization and Administration

R6.1 Chemistry Organization and Staffing

a. Inspection Scope (84750)

The organization, staffing, and assignment of the chemistry program responsibilities were reviewed.

b. Observations and Findings

Technical Specification 6.2 identified the licensee's facility organizations. The licensee's organization, staffing, and lines of authority, as they related to the chemistry section within the chemistry and environmental operations department, which was responsible for the implementation of the water chemistry and radiochemistry programs, were reviewed. There were no major structural changes to the chemistry organization since the previous NRC inspection of the chemistry program conducted in July 1994. Also, there were no major changes in the chemistry program or the way in which the chemistry organization functioned. The inspector concluded that the chemistry and

environmental operations department's organizational structure was in accordance with Technical Specifications.

Procedures were reviewed for the assignment of responsibilities for the management and implementation of the chemistry program. The inspector determined that the duties and responsibilities of the chemistry organization were implemented in an excellent manner. The inspector determined, through discussions and observations, that the chemistry staff were familiar with the requirements of the water chemistry and radiochemistry programs and maintained a high level of performance.

The inspector reviewed the staffing of the chemistry section. The inspector concluded that the chemistry section's organization was very stable and adequate to meet shift staffing requirements and perform the required duties. The stability of the chemistry section's organization was considered a strength.

c. Conclusions

The chemistry and environmental operations department's organizational structure met staffing requirements. The chemistry section's staffing was stable and had experienced no turnover of personnel. The stability of the chemistry section's staffing provided a high reliability of chemistry program performance and was considered a strength.

R7 Quality Assurance in RP&C Activities

R7.1 Solid Radioactive Waste Management/Transportation of Radioactive Materials

a. Inspection Scope (86750)

Quality assurance personnel were interviewed. Quality assurance audits, quality assurance assessments/surveillances, quality control reviews, and problem reports were reviewed.

b. Observations and Findings

Technical Specification 6.5.3.8 j. requires that the process control program be audited every 24 months. The licensee's response, dated December 6, 1979, to NRC Bulletin 79-19 committed to the auditing of transportation activities.

The 1994 quality assurance audit checklist and results were reviewed. The executive summary included little concerning the assessment of transportation activities. However, the checklist for the audit demonstrated that aspects of the transportation program were reviewed.

The licensee responded to the inspector's request for the 1996 quality assurance audit of the solid radioactive waste and transportation

activities by informing the inspector that they were conducting, what they termed, a "continuous audit" of the solid radioactive waste management and transportation activities. The draft of the 1996 quality assurance audit was reviewed. The audit focused on solid radioactive waste management topics. There was no assessment of transportation activities.

Reviews to be included in the 1996 audit report began in September 1995 and were scheduled to end in July 1996. Quality assurance management committed during the exit meeting to review transportation activities before the audit period ended.

The inspector determined, through interviews with quality assurance personnel, that few quality assurance observations/surveillances were conducted to review either solid radwaste management or transportation activities. However, quality control personnel frequently reviewed transportation documentation and package preparation to ensure compliance with regulatory requirements.

The inspector interviewed the personnel who performed the 1996 audit and determined that the individual responsible for conducting the majority of the audit was an experienced auditor with operations experience. However, the auditor had little radiation protection experience. The other quality assurance auditor had radiation protection experience but, because of other duties, provided little input to the audit. The quality control specialist who performed periodic reviews of shipment preparation and documentation had extensive experience with the transportation of radioactive materials and radioactive waste.

c. Conclusions

Oversight of solid waste management and transportation activities was minimal. Oversight of transportation activities from a programmatic perspective was lacking, but reviews by quality control personnel helped to ensure regulatory compliance. Audits in this area could benefit from auditors with more experience in the area of review.

R7.2 Chemistry Quality Assurance Program

a. Inspection Scope (84750)

An audit and two assessments of the chemistry program were reviewed.

b. Observations and Findings

The quality assurance audit schedule for 1995-1996 issued May 29, 1996, was reviewed. This schedule reflected a biennial audit schedule for the chemistry/radiochemistry program. The audit schedule indicated that the chemistry/radiochemistry audit was to be performed in November of the

odd numbered years. The audit schedule was in compliance with the Technical Specification audit frequency requirement.

The qualifications of the quality assurance auditors who performed the audit of the chemistry program were reviewed. The quality assurance auditors were well qualified and knowledgeable of chemistry program activities conducted at nuclear power facilities.

Reports of a quality assurance audit and two assessments performed during 1995 and 1996 of the areas related to the performance of the water chemistry and radiochemistry programs were reviewed for scope, thoroughness of program evaluation, and timely followup of identified deficiencies. The audit and assessments were performed in accordance with quality assurance procedures by qualified auditors. The reviewed quality assurance audit and assessments of the water chemistry and radiochemistry programs were thorough and of excellent quality. The audit and assessments provided excellent oversight and evaluation of the licensee's performance in implementing the water chemistry and radiochemistry programs in accordance with the Units 1 and 2 Technical Specifications' requirements.

The inspector concluded that the audit's and assessments' observations and findings were insightful and that they provided excellent oversight of the chemistry program implementation.

c. Conclusions

An excellent, comprehensive audit and excellent assessments of the chemistry/radiochemistry program were performed by the quality assurance organization. Excellent oversight of the water chemistry and radiochemistry programs was achieved.

R8 Miscellaneous RP&C Issues (92904)

R8.1 (Closed) Inspection Followup Item 275/9402-01; 323/9402-01: Problem Investigation and Documentation

This item involved the lack of followup to the detection of increased cobalt-58 activity in 6 samples out of 68 samples of algae analyzed during 1992. The detected concentrations of cobalt-58 in the 6 samples were much less than the reporting level. Subsequent samples collected during 1992 and 1993 had either non-detectable or significantly lower levels of activity. The inspector verified that a change to Procedure WI.A-11, "Review of Radioanalytical Data," was approved and issued to include administrative limits for isotopes of interest (including cobalt-58) in algae samples, the requirement to initiate an Action Request if any administrative limit is exceeded, and the requirement to notify plant personnel in a timely manner. The procedure change also required that a data base for trending the environmental sample analyses results be maintained by Technical and Ecological Services personnel.

R8.2 (Closed) Violation 275/9402-02; 323/9402-02: Radiological Environmental Monitoring Procedures

This violation involved several examples of failure to follow established procedures for the implementation of the Radiological Environmental Monitoring Program. The inspector verified that the corrective actions described in the licensee's response letter, dated May 2, 1994, which included specific procedural changes to identified procedures, were implemented.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the results of the two inspections to members of licensee management at the conclusion of the inspections on June 7, 1996. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspections should be considered proprietary. No proprietary information was identified.

ATTACHMENT

PARTIAL LIST OF PERSONS CONTACTED

Licensee

D. Brosnan, Director, Regulatory Services
B. Crockett, Manager, Nuclear Quality Services
R. Gagne, Radwaste Foreman, Radiation Protection
J. Gardner, Senior Engineer, Chemistry and Environmental Operations
R. Gray, Director, Radiation Protection
F. Guerra, General Foreman, Chemistry and Environmental Operations
C. Harbor, NRC Interface, Regulatory Services
J. Hays, Director, Chemistry and Environmental Operations
J. Hinds, Director-Quality Control, Nuclear Quality Services
H. Karner, Acting Director-Quality Assurance, Nuclear Quality Services
J. Knemeyer, Engineer, Chemistry and Environmental Operations
C. Miller, Engineer, Radiation Protection
H. Paperno, Quality Assurance Engineer, Nuclear Quality Services
R. Powers, Manager, Operations Services
M. Somerville, Senior Engineer, Radiation Protection
B. Synder, Training Leader, Learning Services
D. Taggart, Director-Nuclear Safety Engineering, Nuclear Quality Services
M. Wang, Engineer, Radiation Protection
E. Wessel, Engineer, Chemistry and Environmental Operations
J. Young, Director, Nuclear Quality Services

NRC

S. Boynton, Resident Inspector
M. Tschiltz, Senior Resident Inspector

INSPECTION PROCEDURES USED

IP 86750	Solid Radioactive Waste Management and Transportation of Radioactive Materials
TI 2515/133	Implementation of Revised 49 CFR Parts 100-179 and 10 CFR Part 71
IP 84750	Radioactive Waste Systems; Water Chemistry; Confirmatory Measurements and Radiological Environmental Monitoring

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened		
50-275/9608-01 50-323/9608-01	NCV	HAZMAT Training
Closed		
50-275/9402-01; 50-323/9402-01	IFI	Problem Investigation and Documentation
50-275/9402-02; 50-323/9402-02	VIO	Radiological Environmental Monitoring Program Procedures
50-275/96-08-01 50-323/96-08-01	NCV	HAZMAT Training
Discussed	None	

LIST OF ACRONYMS USED

EPRI	Electric Power Research Institute
UFSAR	Updated Final Safety Analysis Report
1R7	Unit 1 Refueling Outage Number 7
2R7	Unit 2 Refueling Outage Number 7
μCi/ml	microcuries per milliliter
ppb	parts per billion
ppm	parts per million