

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-275/86-19 and 50-323/86-19
Docket Nos. 50-275 and 50-323
License Nos. DPR-80 and DPR-82
Licensee: Pacific Gas and Electric Company
77 Beale Street, Room 1451
San Francisco, California 94106
Facility Name: Diablo Canyon Units 1 and 2
Inspection at: San Luis Obispo County, California
Inspection Conducted: July 7, 8 and July 28-August 1, 1986

Inspectors:

GP Yuhas for
C. A. Hooker, Radiation Specialist

8/26/86
Date Signed

G.A. Brown
G. A. Brown, Emergency Preparedness Analyst

8/21/86
Date Signed

Approved By:

GP Yuhas
G. P. Yuhas, Chief
Facilities Radiological Protection Section

8/26/86
Date Signed

Summary:

Inspection on July 7, 8 and July 28-August 1, 1986 (Report Nos. 50-275/86-19 and 50-323/86-19)

Areas Inspected: Routine unannounced inspection of actions on previous inspection findings, primary and secondary chemistry controls, organization and management, training and qualifications, refueling outage preparations, facilities and equipment, followup on licensee identified violation, allegation followup, followup on IE Information Notices and facility tours. Inspection Procedures 30703, 83722, 83723, 83727, 83729, 84724, 79701, 92701, and 92702 were utilized.

Results: No violations or deviations were identified in the areas inspected.

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WASHINGTON, D.C.

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ATTENTION: ASSISTANT SECRETARY FOR

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DETAILS

1. Persons Contacted

A. PG&E Personnel

- *R. C. Thornberry, Plant Manager
- *J. A. Sexton, Plant Superintendent
- *J. V. Boots, Manager, Chemistry and Radiation Protection (C&RP)
- *W. T. Rapp, Onsite Safety Review Group Chairman, Nuclear Operations Support
- *R. P. Powers, Senior C&RP Engineer
- *J. E. Gardner, Senior C&RP Engineer
- *R. W. Taylor, Supervisor, Quality Support
- W. A. Ginter, Power Production Engineer
- J. A. Hays, General Foreman, Radiation Protection
- R. L. Johnson, General Foreman, Chemistry
- K. W. Cortese, Foreman, C&RP (Secondary Chemistry)
- A. I. Dame, Senior Training Instructor (STI)
- D. D. Malone, Senior I&C Supervisor

B. NRC Inspectors

- M. L. Padovan, Acting Senior Resident Inspector
- T. J. Polich, Resident Inspector

*Denotes those present at the exit briefing on August 1, 1986.

In addition to the individuals identified above, the inspectors met and held discussions with other members of the licensee's and contractor's staffs.

2. Licensee Actions on Previous Inspection Findings

(Closed) Violation (50-275/86-11-01): Violation concerning the failure to perform a full channel calibration on a reactor coolant leakage detection system (RE-11). The inspectors verified that the licensee's response to the subject violation, as identified in PG&E letter DCL-86-162, dated June 9, 1986, was timely and corrective actions were being implemented as determined through discussions with licensee representatives. The inspectors had no further questions regarding this matter.

(Closed) Unresolved Item (50-275/86-03-01 and 50-323/86-03-01): Inspection Report Nos. 50-275/86-03 and 50-323/86-03 described a need to resolve an inspector's concern regarding the inclusion of the licensee's new radioactive laundry/respirator cleaning effluent release point to Technical Specifications (TS) Figure 5.1-3. By review of PG&E License Amendment Request 86-04, dated June 10, 1986, this matter is considered resolved. Figure 5.1-3 of the TS will indicate this effluent release point. The inspectors had no further questions regarding this matter.

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(Closed) Followup - Air Cleaning Systems (50-275/86-11-01 and 50-323/86-12-01): Item regarding the need to review this area. Records of testing for the following TS surveillance requirements were examined for Units 1 and 2:

Containment Cooling System TS 4.6.2.3.a - Procedure STP M-51

Control Room Ventilation System TS 4.7.5.1.b.c.d and e. - Procedures STP 6-A, and STP 6-B, and STP M-53

Auxiliary Building Safeguards Air Filtration System TS 4.7.6.1.a.b.c.d. and e. - Procedures STP 3-A and STP M-4

Surveillance tests required every 31 days were examined for the past 6 months and tests required at 18 month intervals were examined for the past 24 months. It was noted that a surveillance test for a Unit 1 heater was required by provisions of TS 4.7.5.1.e.4 to be performed by October 10, 1985, but was not performed until February 25, 1986. This event was reported in Licensee Event Report (LER) 1-85-039 as required. Based on this examination and discussions with the responsible engineer, this area of inspection is considered complete.

(Closed) Open Item (50-323/86-08-01): Item regarding the examination of the licensee's final review of the Unit 2 Final Bioshield Survey Report. Licensee's Report dated April 1986, determined that the "as built" shielding for Unit 2 was adequate for normal operation at 100% power; the radiation dose equivalent rates were found to be lower than at similar power plants; no radiation measurements were found to exceed FSAR radiation zone limits for any radiation base point.

Based on the shielding design review, six areas of possible inadequate radiation shielding were identified by the licensee. Corrections have been initiated at those areas in the form of a routine radiation monitoring program or additional shielding. These areas are identified in the licensee's report.

Neutron dose equivalent rates inside Unit 2 were relatively low compared to other PWR plants as well as Unit 1. The only locations outside the biological shield with significant neutron fluxes were measurements of 6-9 mrem/hr on the 140-foot level near the fuel cavity. Based on survey results and the fact that neutron dose equivalent rates in Unit 2 were so low, the licensee found it best to use Unit 1 neutron spectrum calibration factors for TLDs.

Based on this review, the inspectors considered this area complete.

No violations or deviations were identified.

3. Primary and Secondary Chemistry Control

The inspectors reviewed licensee audits, selected procedures, results of laboratory analysis, held discussions with licensee representatives and conducted facility tours to determine licensee's compliance with TS

requirements, licensee's procedures and recommendations outlined in various industry standards.

A. Audits

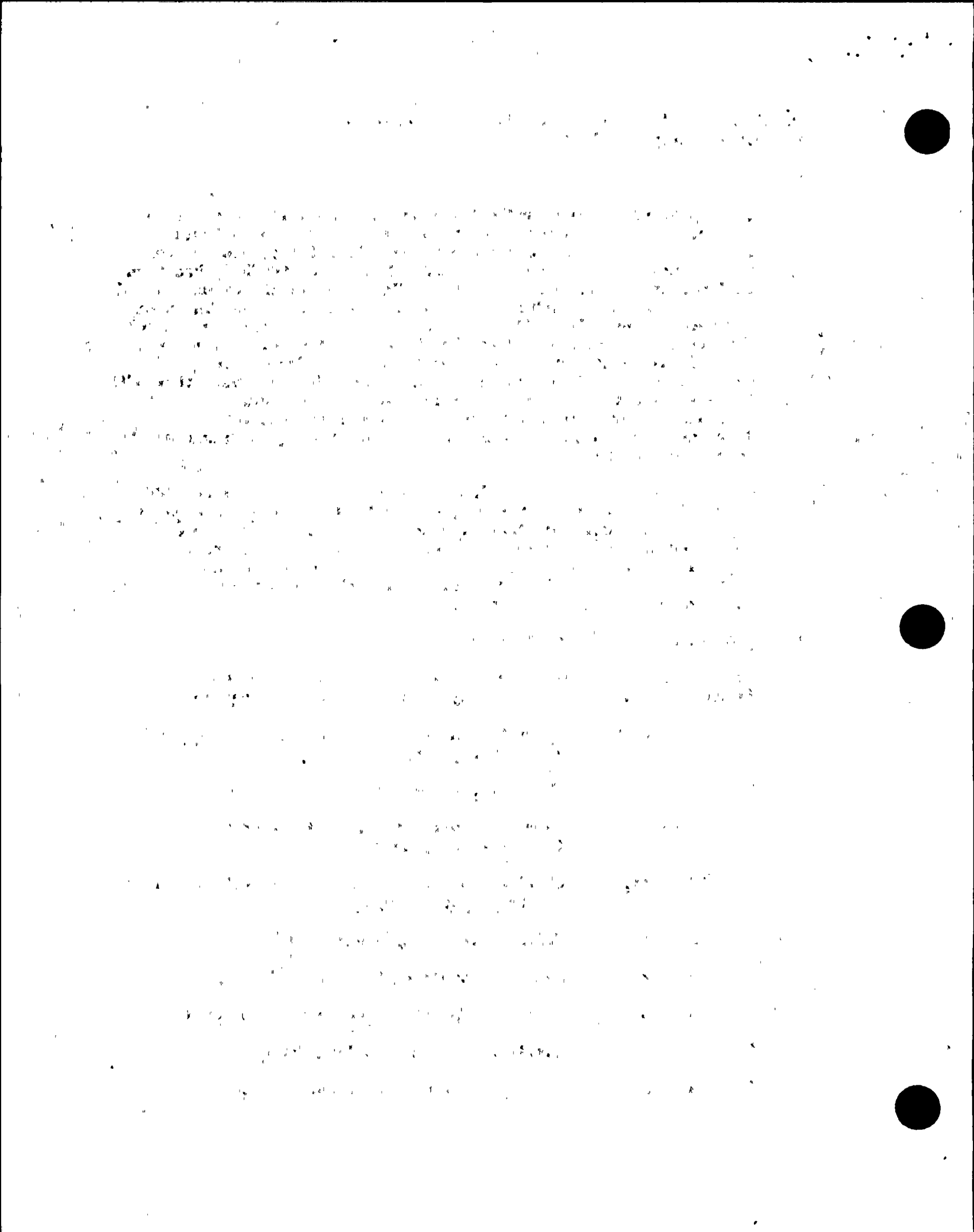
Quality Assurance (QA) Audit (QA Report No. 85017T) was examined. This audit was conducted January 23, 24, and 29 through February 1, 1985, to verify that Nuclear Plant Operations (NPOs) and the General Office Nuclear Plant Review and Audit Committee (GONPRAC) had been implementing the Diablo Canyon Power Plant (DCPP) TS for Unit 1 and the departmental procedures for administrative controls. The audit included, among other NPOs, a review to determine that the control, analytical and test procedures had been established, implemented, and maintained for Secondary Water Chemistry. There were no deficiencies identified in this area. The audit concluded that DCPP had effectively implemented a program for the monitoring of secondary water chemistry to inhibit steam generator tube degradation based on procedure review. No other QA audits could be identified in this area.

Quality Control (QC) Surveillance conducted January 1, 1986, (QC Surveillance Report No. 86-0021, Unit 1 Feed and Condensate Sampling Collection and Chloride Analysis) to verify that samples were collected and analyzed in accordance with the requirements of applicable procedures. No deficiencies were identified and it was determined that sampling and analysis for chlorides were in accordance with licensee's procedures.

B. Procedures and Program Control

The following procedures were reviewed for implementation of the licensee's primary and secondary chemistry control program:

- AP C-201 S1 Chemistry and Radiochemistry Data Review and Record Management
- OP F-5 Chemical Control Limits
- OP F-5:I Chemical Control Limits and Action Guideline for the Primary System
- OP F-5:II Chemical Control Limits and Action Guideline for the Secondary Systems
- CAP A-1 Primary Cycle Sampling Schedule
- CAP A-2 Secondary Sampling Schedule
- CAP A-3 Technical Specification Sampling Schedule
- CAP A-9 Auxiliary Systems Sampling Schedule
- CAP B-39 In-Line Instrumentation Correlations



Based on review of the above procedures, the inspectors determined that policies and responsibilities were effectively outlined. The sampling frequencies, analysis, and outlined actions were consistent with TS requirements for the reactor coolant system (TS 3.4.7), accumulators (3.5.1), boron injection system (TS 3.5.4.1) and refueling water storage tank (TS 3.5.5). The secondary sampling frequencies, analysis and outlined action levels were consistent with EPRI-NP 2704-SR, "PWR Secondary Chemistry Guidelines," October 1982.

The inspector reviewed computer database and selected daily laboratory analysis data sheets from May 1986 through July 11, 1986 for primary and secondary variables. Sampling frequencies for primary and secondary systems met or exceeded TS and procedural requirements, respectively.

The licensee has experienced main condenser tube leaks that have created periodic problems with both Units in maintaining secondary water quality cation conductivity, chlorides and sulfates. Inspection Report No. 50-275/85-38 documents previous inspection efforts associated with Unit 1 having to shut down for main condenser tube leakage problems. Currently Unit 1 is experiencing fewer problems than Unit 2.

The licensee was using steam generator blowdown (about 400 gpd) to aid in maintaining cation conductivity below 0.8 umho/cm (Action Level I) for Unit 2. Based on sample results, the licensee suspects that there is some leakage (approximately 20%) through the condensate demineralizer by-pass valve. Repairs can only be made during shutdown conditions since there are no other stop valves in the by pass line. In each case, when action levels were exceeded, it was noted that appropriate corrective actions were taken.

The licensee has recently transferred all laboratory analysis data to a database system. It was noted that there were a few instances where data, dates and times were inadvertently omitted. The licensee indicates that prompt corrective action would be taken.

Based on this examination, the inspectors determined that the licensee was effectively implementing the primary and secondary water quality control program.

No violations or deviations were identified.

4. Chemistry and Radiation Protection Organization and Management Controls

The inspectors reviewed the current on-site organizations, staff position assignments, and position descriptions to determine compliance with TS 6.2.2, FSAR Section 13.1.2.1 commitments, and licensee's Procedure NPAP A-17, "Site Management."

The C&RP Department has recently reorganized. They hired a new Senior C&RP Engineer (Chemistry Supervisor) and added additional staff positions. The C&RP has made the addition of and filled permanent

positions of General Foreman--Chemistry and General Foreman--Radiation Protection. The General Foremen report to the Senior C&RP Engineers (Supervisors) for each respective section who report to the C&RP Manager. The General Foremen are augmented by four foremen in the Chemistry Section and Line Foreman in the RP Section. The responsibility of transportation of radioactive materials and radwaste management have been transferred from the Chemistry Section to the RP Section. The licensee rotates the C&RP Technicians within the two sections on a quarterly basis. However, the licensee is thoroughly pursuing the split of the two sections and will be discussing the matter with plant management in mid-August 1986.

Based on the review of the C&RP organizational changes including the new positions filled, the inspector determined that the C&RP Department should be effective in increasing quality performance in radiological and chemistry controls at the facility.

It was also noted that the plant organizational structure was as specified in Section 13.1.2.1 of the FSAR for a two-unit operation.

No violations or deviations were identified.

5. Radiation Protection Training and C&RP Staff Qualifications

A. Chemistry and Radiation Protection Staff

The licensee's C&RP Department has recently been reorganized. New staff positions have been added and a new Senior C&RP Engineer (Chemistry Supervisor) was hired as discussed in paragraph 4 above. The inspector primarily focused on the qualifications of individuals who have recently been hired and/or appointed in responsible positions (Senior C&RP Engineer, General Foreman, and Foreman).

Technical Specification, Section 6.3, Facility Staff Qualifications, requires that each member of the facility staff meet or exceed the minimum qualifications of ANSI N18.1-1971, Selection and Training of Personnel for Nuclear Power Plants. Licensee Procedure NPAP B-1, Qualifications of Personnel on the Plant Staff, Section II, states in part that PG&E at the DCPD is committed to meeting the more stringent requirements of the 1978 revision of ANSI N18.1-1971 (ANSI 3.1-1978) within three years after commercial operations. Procedure AP B-250, Chemical and Radiation Protection Technician Training, outlines the licensee's training program to ensure that C&RP Technicians are trained and qualified to meet the ANSI 3-1-1978 standards within three years after commercial operations.

Based on examination of records of resumes, training and qualifications, and through discussions during the inspection, the inspectors determined that the new Senior C&RP Engineer, General Foremen and Foremen met or exceeded the TS and/or procedural qualification requirements. Qualifications of contract C&RP Technicians being hired for the Unit 1 refueling outage is discussed in Paragraph 6 of this report.



The following information was obtained from a review of the records of the
 Department of Social Services, State of New York, for the period from
 1/1/68 to 12/31/68. The information is being furnished to you for your
 information and use. It is to be understood that this information is not
 to be used for any purpose other than that for which it was furnished.
 The information is being furnished to you in confidence and it is to be
 understood that it is not to be disclosed to any other person or
 organization without the written consent of the Department of Social
 Services, State of New York.



The inspectors also toured the licensee's new chemistry training laboratory and were admirably impressed with the facility layout and equipment available for training. The licensee has equipped the new facility with one-on-one comparable equipment to that being used in the inplant laboratory and new equipment (in storage) that is expected to be used in the future.

No violations or deviations were identified.

B. General Employee Training (GET)

The licensee maintains and implements an INPO accredited GET training program. The inspectors held discussions with the STI, toured the training facilities, briefly observed training on the use of protective clothing, and observed workers in the radiologically controlled areas. The inspector did not observe any instances during this inspection of poor performance that would indicate the licensee's training program was not being effective in meeting regulatory requirements and industry recommendations.

No violations or deviations were identified.

6. Refueling Outage Preparations

The inspectors discussed licensee's preparedness and plans for the Unit 1 refueling outage, scheduled to commence about September 1, 1986, with C&RP Department personnel. The licensee is contracting for 39 Senior and 20 Junior Radiation Protection (RP) Technicians, 20 Decon Technicians, and 11 Dosimetry Technicians to augment the current C&RP staff.

The inspectors were informed that the contract RP Technicians would be required to meet the training requirements of ANSI 3.1-1978 requirements, pretested for technical knowledge, interviewed by the C&RP staff and complete site specific training. Additional training in appropriate procedures for work being performed at DCPD will also be provided. Individuals who fail the entrance technical knowledge tests will not be used.

The inspector examined the resumes and qualifications of 32 Senior and 6 Junior RP Technicians. It was noted that the licensee considered only Senior RP Technicians who met the ANSI 3.1-1978 standards and Junior Technicians who had experience and qualifications in those areas in which they intended to use them. In addition, this licensee was personally contacting at least two previous employers regarding performance and job capabilities. The inspectors noted that numerous applicants were eliminated from consideration because of borderline qualifications, including some applicants for the Senior RP Positions. Based on review of this area, it appeared that the licensee was making efforts to ensure that contract RP Technicians were well qualified and competent workers.

In addition to providing GET retraining in radiological controls for all crafts personnel, the licensee had acquired steam generator and reactor coolant pump (seal assembly) mockups for outage training purposes.

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1. The first part of the report deals with the general situation of the country and the progress of the work during the year. It is divided into two main sections: the first section deals with the general situation and the second section deals with the progress of the work.

2. The second part of the report deals with the results of the work during the year. It is divided into two main sections: the first section deals with the results of the work in the field of research and the second section deals with the results of the work in the field of education.

3. The third part of the report deals with the financial situation of the institution during the year. It is divided into two main sections: the first section deals with the income and the second section deals with the expenditure.

4. The fourth part of the report deals with the personnel situation of the institution during the year. It is divided into two main sections: the first section deals with the staff and the second section deals with the students.

5. The fifth part of the report deals with the general situation of the institution during the year. It is divided into two main sections: the first section deals with the general situation and the second section deals with the progress of the work.

6. The sixth part of the report deals with the results of the work during the year. It is divided into two main sections: the first section deals with the results of the work in the field of research and the second section deals with the results of the work in the field of education.

7. The seventh part of the report deals with the financial situation of the institution during the year. It is divided into two main sections: the first section deals with the income and the second section deals with the expenditure.

8. The eighth part of the report deals with the personnel situation of the institution during the year. It is divided into two main sections: the first section deals with the staff and the second section deals with the students.

9. The ninth part of the report deals with the general situation of the institution during the year. It is divided into two main sections: the first section deals with the general situation and the second section deals with the progress of the work.

No violations or deviations were identified.

7. Facilities and Equipment

The inspectors conducted a tour and held discussions with licensee representatives to determine the status of the licensee's new contaminated laundry and respirator cleaning facility. Inspection Report Nos. 50-275/86-03 and 50-323/86-03 document inspection efforts in this facility. Tests using noncontaminated protective clothing had been performed to ensure operational capabilities of the equipment. The only problem encountered was the wet washer, used water holdup capacity. The used wash water is sent to an old existing laundry drain tank in the auxiliary building that has a 250 gallon storage capacity. Tests identified that more than double the holding capacity would be needed during heavy usage of the wet washers. The licensee is currently trying to correct this problem. The ventilation system pretests indicated that system performance exceeded that expected, however, minor changes, system balancing, and HEPA filter testing had to be completed. The effluent exhaust sampling system had been installed and other radiological control monitoring systems were in the process of being installed.

The licensee expects the new facility to be operational prior to the Unit 1 refueling outage. The licensee will retain the existing vendor's mobile unit for a backup during the outage and have made contingency plans with another vendor for additional protective clothing supplies if needed.

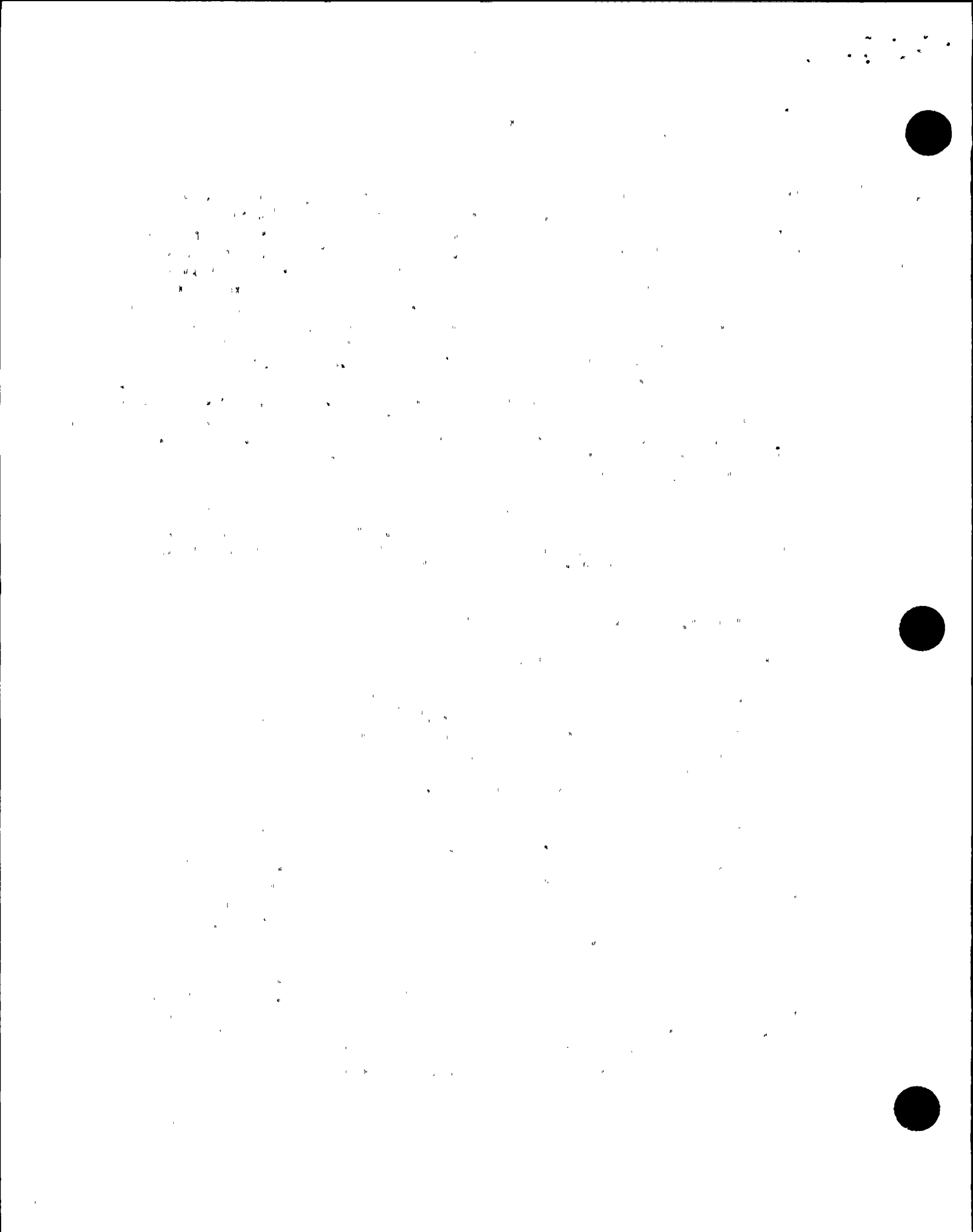
No violations or deviations were identified.

8. Followup on License Identified Violation

The inspector reviewed the circumstances surrounding an incident involving a Very High Radiation Area (VHRA) access door (Unit 1 containment personnel escape hatch labyrinth door) being unlocked for approximately two days due to a faulty locking mechanism. The licensee considers this door to be the control point for areas inside the containment that are greater than 1000 mR/hr and not individually locked.

The inspectors examined the licensee's Radiological Occurrence Report, Form 69-10357, and attached supplement dated June 17, 1986, Nonconformance Report No. DC1-86-TC-NO69, initiated June 19, 1986, Action Requests Nos. A0027317, A0027440, and A0027930, Technical Review Group Meeting Notes, held discussions with licensee representatives, and physically inspected the impaired locking mechanism to determine corrective actions taken.

During normal plant operations, the containment personnel escape hatch is unlocked and closed, and the labyrinth entry door is the VHRA control access point. The labyrinth door is equipped with a security key card lock system, and a dead bolt locking mechanism that operates with a VHRA controlled key. During the period June 9-13, 1986, the personnel escape hatch door (temporary VHRA access control point) was secured with a chain



and a VHRA lock, and the labyrinth door was left unlocked, except for the security lock, while a leak check was being performed on the airlock. During the leak check operations, C&RP personnel became accustomed to being able to just use the security key card to gain access to the labyrinth. On June 13, 1986, the chain and VHRA lock were removed from the escape hatch door and the labyrinth entry door was locked with the VHRA key to control access under normal conditions.

On June 14, 1986, at approximately 11:00 a.m., a C&RP Technician was sent to perform a response check of the frisker inside of the labyrinth. Upon exiting, the Technician had difficulties getting the labyrinth access to close. The Technician at this point used his VHRA key to retract the locking bolt, shut the door, and released the lock with the key. It was assumed at this time that the locking bolt did not engage in a locking position due to damaged doorstrike (identified later). On June 14, 1986, at 4:30 p.m., a C&RP Decon Foreman key carded and gained access to the labyrinth without the aid of a VHRA key to check the step-off pad conditions as he had done earlier in the week, when the leak check was in progress. Upon exiting the labyrinth, the Decon Foreman had difficulties in closing the access door, however, after some movement of lock knob and button, he was able to shut the door. At this time the door was mechanically overridden. On June 17, 1986, at 4:10 a.m., while a C&RP Technician was performing a check of the labyrinth area, it was discovered that access to the labyrinth, a VHRA could be gained without the use of a VHRA key. The licensee took immediate action to chain and lock the labyrinth access door and post a warning sign until the problem could be identified and repairs made.

Technical Specification 6.12.2 requires, in part, that areas accessible to personnel with radiation levels greater than 1000 mR/hr shall be provided with locked doors to prevent unauthorized entry.

Since this security key card locking system did not prevent entry to VHRAs by any personnel who had cards and the VHRA key controlled lock was determined not to be locked, the licensee identified this as a violation of TS 6.12.2.

The licensee's investigation determined that a damaged doorstrike prevented the door from properly locking. The licensee also inspected the Unit 2 personnel escape hatch labyrinth door locking system and noted that some mechanical potential problems existed that could result in a similar incident identified on the Unit 1 door. Based on key carding entry and operations containment control system data, the licensee also determined that no unauthorized entries had been made during this period.

Based on the inspectors' examination of this licensee identified event, it was found that the licensee had taken prompt action to correct the problem and prevent recurrence.

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Dear Mr. [Name],

I am writing to you regarding the [subject matter]. I have reviewed the [document/information] and find it [relevant/important].

The [subject matter] is of great importance to our organization and we are currently [working on/awaiting] [specific details].

I am sure that your [expertise/insight] will be valuable in [addressing the issue]. We would appreciate your [input/feedback] on [the matter].

Please let me know if you have any questions or need further information. I am available for a meeting at your convenience.

Sincerely,
[Name]
[Title]



9. Allegation Followup

(Closed) Allegation No. RV-86-A-0053

On July 1, 1986, Region V received an anonymous allegation which specified, in part, that a certain individual in the licensee's C&RP Department did not meet the TS required ANSI qualifications with respect to the job position appointed. The allegor's concern was examined during this inspection through the routine inspection described in Paragraph 4 of this report. Specific additional attention was given to the qualifications of the individual named by the allegor. Based on the inspectors' examinations regarding the allegor's concerns, it was determined that the individual exceeded the qualification for the position as presented in the Technical Specifications. The inspectors had no further questions regarding this matter.

No violations or deviations were identified.

10. Followup on IE Information Notices

The inspectors verified receipt, reviewed for applicability and initiation or completion of action with respect to IE Information Notices Nos. 85-81, 85-87, 85-92, 86-20, 86-22, 86-23, 86-32, 86-42, 86-43, 86-44, and 86-46.

No violations or deviations were identified.

11. Facility Tours

The inspectors toured various areas of the auxiliary and turbine buildings, including the chemistry laboratory. The inspectors made independent radiation measurements using NRC ion chamber S/N 837 (calibration current until August 15, 1986). The inspectors' measurements were in agreement with licensee posted radiation levels.

The inspectors observed that all radiation areas and high radiation areas were posted as required by 10 CFR Part 20, and access controls were consistent with TS 6.12 and licensee's procedures.

No violations or deviations were identified.

12. Exit Interview

The inspectors met with the licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on August 1, 1986. The scope and findings of the inspection were summarized. The licensee was informed that no violations or deviations were identified.

