

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-275/86-11 and 50-323/86-12

Docket Nos. 50-275 and 50-323

License Nos. DPR-80 and DPR-82

Licensee: Pacific Gas and Electric Company
77 Beale Street
Room 1435
San Francisco, California 94106

Facility Name: Diablo Canyon Units 1 and 2

Inspection at: San Luis Obispo County, California

Inspection Conducted: April 21-25, 1986 and subsequent telephone
conversation on May 2, 1986

Inspector:

C. A. Hooker
C. A. Hooker, Radiation Specialist

5/8/86
Date Signed

Approved by:

G. P. Yunas
G. P. Yunas, Chief
Facilities Radiological Protection Section

5/8/86
Date Signed

Summary:

Inspection on April 21-25, 1986 and telephone conversation on May 2, 1986
(Report Nos. 50-275/86-11 and 50-323/86-12)

Areas Inspected: Routine unannounced inspection of actions on previous inspection findings, liquids and liquid wastes, gaseous waste system, semiannual effluent report evaluation and facility tours. Inspection Procedures 92702, 84723, 84724 and 30703 were covered.

Results: Of the areas inspected, one violation was identified in one area: TS 4.4.6.1, failure to calibrate the containment particulate atmosphere sampling system flow rate measuring device (paragraph 5).

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1. The first part of the document discusses the

importance of maintaining accurate records

of all activities and transactions.

2. It is noted that the current system

is outdated and inefficient.

3. A proposal is made to implement a new

system that will streamline operations

and reduce the risk of errors.

4. The proposed system will also provide

enhanced security and data protection.

5. It is recommended that the necessary

resources be allocated to ensure a smooth

transition to the new system.

6. The implementation of the new system

will be a complex task requiring careful

planning and coordination.

7. It is expected that the new system

will significantly improve operational

efficiency and overall performance.

8. The success of the project will

depend on the commitment and cooperation

of all stakeholders involved.

9. The project team will continue to

monitor progress and address any

challenges that arise.

10. The document concludes by stating

that the proposed system is a viable

DETAILS

1. Persons Contacted

A. PG&E Personnel

R. C. Thornberry, Plant Manager
*R. Patterson, Plant Superintendent
*J. V. Boots, Manager, Chemistry and Radiation Protection (C&RP)
R. P. Powers, Senior C&RP Engineer
*S. R. Fridley, Senior Operations Supervisor
T. L. Grebel, Senior Regulatory Compliance Engineer
*J. J. Taylor, Acting Senior C&RP Engineer
*R. W. Taylor, Quality Assurance Engineer
*J. R. Hinds, Regulatory Compliance Engineer
A. O. Taylor, C&RP Engineer
*M. D. Brewer, Instruments and Controls (I&C) Foreman
R. L. Johnson, C&RP Foreman
#B. Lew, Director, Nuclear Regulatory Affairs

B. NRC Inspectors

M. Mendonca, Senior Resident Inspector
*M. L. Padovan, Resident Inspector
T. M. Ross, Resident Inspector

C. Office of Nuclear Reactor Regulation (NRR)

#H. E. Schierling, Licensing Branch No. 3
#J. J. Hayes, Plant Systems Branch

*Denotes those present at the exit interview on April 25, 1986.

#Indicates telephone conversation on May 2, 1986.

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

2. Licensee Actions on Previous Inspection Findings

(Closed) Violation (50-275/85-41-01 and 50-323/85-39-01):

Violation concerning the failure to follow radioactive liquid waste discharge procedure. The inspector verified that the licensee's response to the subject violation, as identified in PG&E letters DCL-86-046 and DCL-86-082, dated February 24 and March 25, 1986, respectively, were timely. The inspector observed two radioactive waste discharge operations to confirm that corrective actions outlined in the response were as described. The inspector had no further questions regarding this matter.

(Closed) Violation (50-275/85-41-02 and 50-323/85-41-02):

Violation concerning the failure to follow administrative procedure involving time striking of recording charts. Actions stated in PG&E letters DCL-86-046 and DCL-86-082, dated February 24 and March 25, 1986, respectively, were verified by direct observation and discussion with licensee representatives. The inspector had no further questions regarding this matter.

(Closed) Violation (50-275/85-41-03 and 50-323/85-39-03):

Violation involving the failure to determine or evaluate the dose rate of radioactive iodines and particulates prior to releases of gaseous effluents from planned purges of the Units 1 and 2 containments. Actions in PG&E letters DCL-86-046 and DCL-86-082, dated February 24 and March 25, 1986, respectively, were verified by review of containment atmosphere discharge permits, changes to procedure CAP-A-6, "Gaseous Radwaste Discharge Management," and through discussion with licensee representatives. The inspector had no further questions regarding this matter.

(Open) Open Item (50-275/86-03-02 and 50-323/86-03-02):

Inspection Report Nos. 50-275/86-03, 50-323/86-03, 50-275/86-08 and 50-323/86-08 described previous inspector concerns regarding the licensee's hot chemistry laboratory hood being a separate effluent release pathway that was only being grab sampled once per quarter. Licensee's evaluation "Worst Case, Instantaneous Dose Rates and Annual Doses from Laboratory Hood Operation," letter dated March 7, 1986, from Powers to Boots was reviewed. The evaluation using FSAR design-basis condition indicated no regulatory radioactive effluent release limits would be exceeded. The inspector also reviewed the results of a 24 hour special grab sample of the hood's exhaust conducted March 4-5, 1986. This special sample indicated no detectable radioactive noble gases, particulate or iodines. The hood's exhaust is routinely grab sampled for 15 minutes each quarter. The inspector contends that a once per quarter grab sample is not sufficiently representative to assure proper evaluation of this release pathway under all circumstances. This matter was discussed with representatives of NRR, Region V and the licensee during a telephone conversation on May 2, 1986. Resolution of this matter will be documented in a subsequent inspection report.

3. Audits and ReportsA. Audits

Quality Assurance (QA) Audit Report No. 86031T, conducted March 3-7, 1986, to verify that Diablo Canyon Power Plant (DCPP) had effectively implemented the NRC Regulatory Guides (RGs), Technical Specifications (TS), and departmental procedures established for offsite dose calculation and radiological effluent monitoring was reviewed. The audit identified two deficiencies resulting in audit finding reports (AFRs) Nos. 86-060 and 86-061 requiring corrective action. The audit concluded with the exception of the two

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In the second section, the author outlines the various methods used to collect and analyze data. These methods include direct observation, interviews, and the use of specialized software tools. Each method has its own strengths and weaknesses, and the choice of which to use depends on the specific requirements of the study.

The third part of the document focuses on the results of the research. It presents a series of tables and graphs that illustrate the trends and patterns observed in the data. The findings suggest that there is a significant correlation between the variables being studied, and that the proposed model provides a good fit for the observed data.

Finally, the document concludes with a summary of the key findings and a discussion of the implications for future research. It suggests that further studies should be conducted to explore the underlying mechanisms of the observed relationships and to test the model in different contexts.

deficiencies, DCPD had been effectively implementing the offsite dose calculation procedure and the radiological effluent monitoring program. The audit findings and conclusion were based on interviews with management personnel; and review of sample collection records, effluent release permits, equipment calibration records, monthly dose projections, intralaboratory analysis and interlaboratory cross-check records, and the Semiannual Radiological Effluent Release Reports for 1985. No nonconformance reports were issued. The inspector noted that the AFRS were administrative in nature regarding documentation that did not involve significant safety matters. The inspector discussed the licensee actions with respect to the AFRs and had no further questions.

No violations or deviations were identified.

B. Semiannual Radioactive Effluent Release Report

The inspector reviewed, in office, the licensee's Semiannual Radioactive Effluent Release Report for Units 1 and 2 for July 1 to December 31, 1985, issued under PG&E cover letter No. DCL-86-051, dated February 28, 1986. The report was issued on time in accordance to TS 6.9.1.6 and included a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from both Units as outlined in RG 1.21. No errors or anomalous data were identified. Further discussions concerning liquid and gaseous releases are contained in report paragraphs 4 and 5 of this report.

No violations or deviations were identified.

4. Liquid and Liquid Wastes

The inspector reviewed licensee audits, selected procedures, records of radioactive waste discharges and calibration of process monitors, Semiannual Radioactive Effluent Release Reports, held discussions with licensee representatives and conducted facility tours to determine the licensee's compliance with TS requirements, procedures and recommendations as outlined in various industry standards.

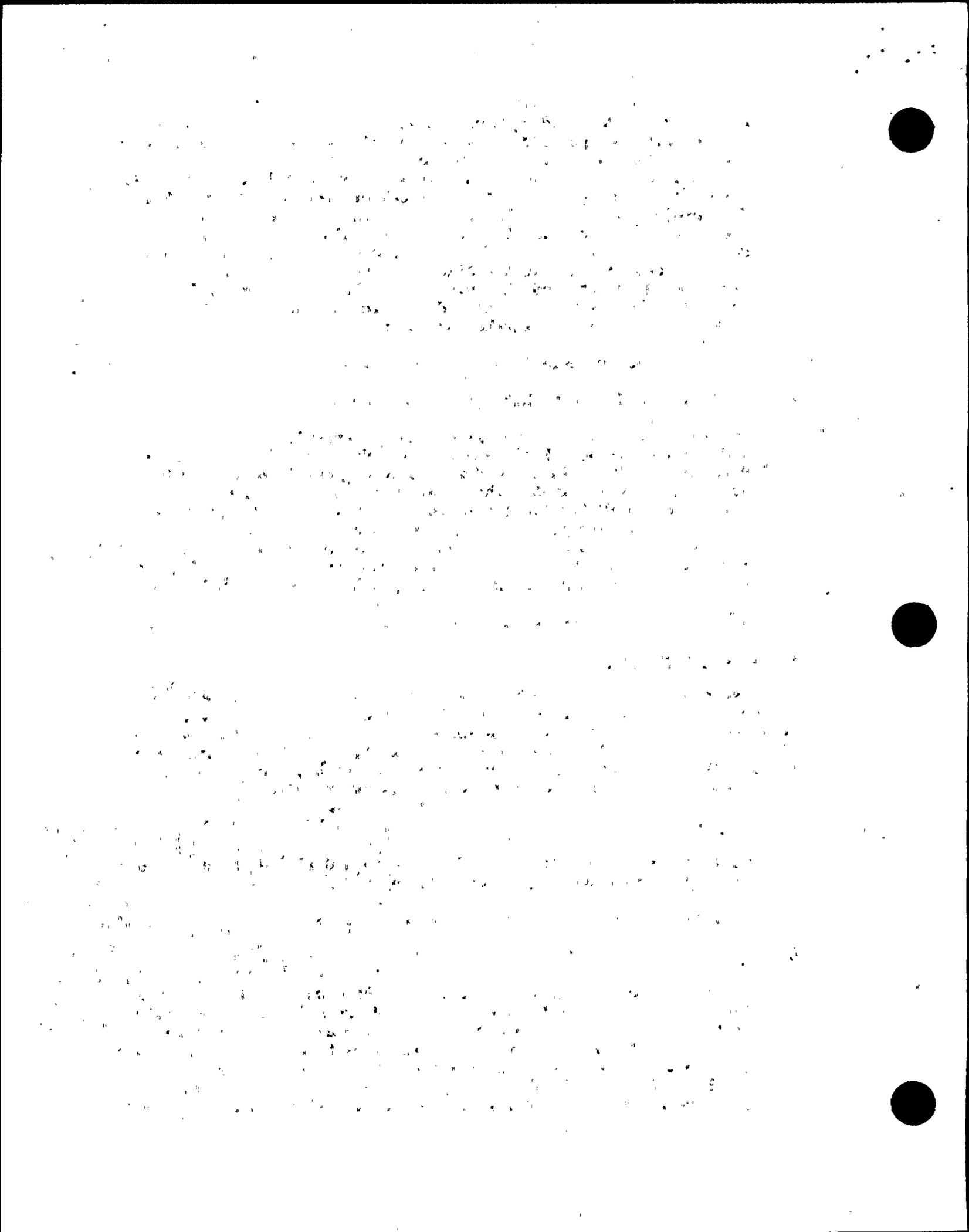
A. Audits

Quality Assurance audit related to liquid and liquid waste is discussed in paragraph 3.A. of this report.

No violations or deviations were identified.

B. Changes

Through approved design changes the licensee was making changes in the radioactive liquid waste system to decrease recirculation time in the equipment drain receiver and floor drain receiver (FDR) tanks. The licensee is increasing recirculation pipe size from one inch to two inches, and installing eductors in these tanks to further improve recirculation capabilities. Piping will also be added to allow the spent regenerate receiver (SRR) tanks to accept



equipment and floor drains if needed during abnormal conditions. The SRRs have not been used by the licensee. Additional piping will be added to enable the licensee to simultaneously process SRRs, if needed, and FDRs.

One major change involving modifications to the licensee's radwaste storage building was discussed in Inspection Reports 50-275/86-03 and 50-323/86-03. The following procedures were examined:

- CAP A-5, "Liquid Radwaste Management"
- CAP A-8, "Offsite Dose Calculations" (ODCP)
- AP C-3S1, "Surveillance Testing and Inspection"
- OP G-1:II, "Liquid Radwaste System - Processing and Discharge of Liquid Radwaste"

Procedures have been revised as a result of developmental modifications and experience gained by the licensee during their first year of Unit 1 100% power operation, and with Unit 2 recently commencing 100% power operations. All changes noted in the procedures were for improved operations and methods used to enhance compliance to regulatory requirements.

No significant changes in the post accident sampling system were noted based on discussions with licensee representatives.

No violations or deviations were identified.

C. Effluents

Review of the licensee's Semiannual Report for the period July 1 to December 31, 1986 was discussed in paragraph 3.A. Records of selected radioactive liquid waste releases were examined from March 3 through April 23, 1986. This examination covered 46 liquid waste release permits. Radioactive liquids are batched released through a system that is common to both Units that is monitored by liquid process monitor RE-18. Concentrations of radionuclides in liquid waste discharges remain low due to good fuel integrity and short operational time of both Units. The inspector verified by manual calculations the MPC values for batch releases from FDR tank no. 02 and waste evaporator condensate tank no. 01 from release permits 86-100 and 86-109, respectively.

No unmonitored release paths were identified. Liquid effluents were within 10 CFR Appendix I design objectives and were by definition ALARA and within the 40 CFR 190 guide.

No violations or deviations were identified.

D. Instrumentation

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The inspector verified that procedures established the method for process and effluent monitor setpoint determination in accordance with the ODCP.

Monitoring instrument calibrations and surveillance were discussed with a C&RP engineer and I&C representatives. Records of selected liquid process and effluent monitors and system flow rate measuring devices were examined.

No violations or deviations were identified.

5. Gaseous Waste System

The inspector reviewed licensee audits, selected procedures, records of radioactive gaseous effluent discharges and calibration of monitoring systems, Semiannual Radioactive Effluent Release Reports, held discussions with licensee representatives, and conducted facility tours to determine the licensee's compliance to TS requirements, procedures and recommendations as outlined in various industry standards.

A. Audits

Quality Assurance audit related to gaseous waste is discussed in paragraph 3.A.

No violations or deviations were identified.

B. Changes

One major change involving modifications to the licensee's radwaste storage building was discussed in Inspection Reports 50-275/86-03 and 50-323/86-03.

No significant changes to the post accident sampling system were noted based on discussions with licensee representatives. The following procedures were examined:

- CAP A-6, "Gaseous Radwaste Discharge Management"
- CAP A-8, "Offsite Dose Calculations"
- CAP A-19, "Correlations of Rad Monitors to Radioactivity"
- AP C-3S1, "Surveillance Testing and Inspection"
- STP 1-120B3, "Radiation Source Presentation (Isotopic) Calibration of Containment Air Monitor RM-11"

Procedures changes to the ODCP were to clarify the language of previous revision and to correct editorial typographical errors. The language was modified in several places to reflect the same language as the combined Unit 1 and 2 TS. Other noted changes were as described in the licensee's Semiannual Radioactive Effluent Report as required by TS 6.9.1.6 and 6.14.2.

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C. Effluents

Review of the licensee's Semiannual Radioactive Effluent Report for the period July 1 to December 31, 1986, is discussed in paragraph 3.A. Records of selected gaseous waste discharge permits for Units 1 and 2 for March and April 1986, that included; forty four containment atmosphere discharge permits for, each, Units 1 and 2, and gas decay tank release permits 86-1-9 and 86-2-9. No discrepancies were identified with respect to effluent release requirements or documentation.

The inspector verified by manual calculations that the projected gamma and beta air doses for noble gases and release rates for radioiodines and particulates for containment discharge permits 86-1-76 and 86-2-78 were in accordance with TS requirements and license procedures CAP A-6 and the ODCP.

No violations or deviations were identified.

D. Instrumentation

Effluent and containment atmosphere instrument calibration and surveillance was discussed with the C&RP engineer and I&C personnel. Calibration methods for establishing process and effluent monitor set points were described in procedures and for effluent monitors in the ODCP. Quarterly functional tests and calibration records for selected process, effluent and containment atmosphere monitors for Units 1 and 2 were examined. Based on this examination several anomalies were noted with respect to the calibration of the Unit 1 containment atmosphere particulate (RE-11) monitor sampling system as noted by the following observations:

- Procedure STPI-120B3, Step 7.m lists flow meter - W&T Varro (0-20 SCFM) as being test equipment available prior to start of this calibration procedure. Step 7. "Sample Air Flow," of this procedure describes the methods to set the high and low flow rate alarms for the RE-11 system. However, steps are not provided to check the RE-11 inline flow rate measuring device (rotometer) against a calibrated standard to ensure the accuracy of the inline rotameter's indicated flow rate for the high and low flow alarm set points, or that the systems normal sampling flow rate is being accurately indicated. The systems flow rate is used in calculations to determine the high radioactive release rate alarm set point for isolation of the containment ventilation system, in the event of a reactor coolant leak.
- IE Information Notice No. 82-49, "Correction for Sample Conditions for Air and Gas Monitoring," describes errors in improperly calibrated sampling flow rate measuring devices that can lead to erroneous determinations of airborne radioactivity levels.

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- Technical Specification 4.4.6.1.a. requires that for the Containment Atmosphere Particulate Monitoring System, a Channel Calibration be performed every 18 months as specified in Table 4.3-3 to demonstrate that this element of the reactor coolant leakage detection system is inoperable as required by Technical Specification 3.4.6.1. Technical Specification Definition 1.5 states that a "Channel Calibration shall be the adjustment, as necessary, of the channel such that it responds within the required range and accuracy to known values of input." "The Channel Calibration shall encompass the entire channel...."

Based on discussions with I&C personnel and review of RE-11 calibration records and procedure STP I-120BB, the inspector learned that the channel calibration of RE-11 on February 1, 1986, for Unit 1 did not include a calibration check of the systems in line rotameter. Failure to perform a calibration check of the RE-11 system rotameter was identified as an apparent violation of TS 4.4.6.1 (50-275/86-11-01).

One apparent violation was identified in this area.

E. Air Cleaning Systems

Due to time restraints the inspector did not review this area. This will be followed up on a subsequent inspection (50-275/86-11-01 and 50-323/86-12-01, Open).

6. Facility Tours

The inspector toured various areas of the auxiliary and turbine buildings of Units 1 and 2. The inspector made independent measurements using NRC ion chamber S/N 897 due for calibration July 11, 1986. The inspector 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 procedures.

No violations or deviations were identified.

7. Exit Interview

The inspector met with the licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on April 25, 1986. The scope and findings of the inspection were summarized.

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