U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION V

Report No. 50-275/81-16

Docket No. 50-275 License No. CPPR-39 Safeguards Group

Licensee: Pacific Gas and Electric Company

P. O. Box 7442

San Francisco, California 94106

Facility Name: Diablo Canyon Unit 1

Inspection at: San Luis Obispo County, California

Inspection conducted: July 20-24, 1981

Inspectors: H S North 8/7/81

H. S. North, Radiation Specialist Date Signed

Date Signed

Approved by: F. A. Wenslawski 8/12/81

F. A. Wenslawski, Chief, Reactor Radiation Protection Section Date Signed

Approved By: H. E. Book 8/12/81

H. E. Book, Chief, Radiological Safety Branch Date Signed

Summary:

Inspection on July 20-24, 1981 (Report No. 50-275/81-16)

Areas Inspected: Radiation protection, organization, staffing and training, general employee training in radiation protection and emergency response, waste management procedures, instrument calibration, IE Circular followup, preoperational testing, and fuel loading prerequisites. This inspection involved 37 inspector-hours on site by one inspector.

Results: Of the ten areas inspected no items of noncompliance or deviations were identified.

RV Form 219 (2)

DETAILS

1. Persons Contacted

Station Staff

*R. Thornberry, Plant Manager
*W. Kaefer, Technical Assistant to the Plant Manager
*J. Boots, Supervisor, Chemistry and Radiation Protection (C&RP)
*W. O'Hara, Senior C&RP Engineer (E)
H. Fong, C&RPE
M. Peterson, C&RPE
*A. Taylor, C&RPE
M. Mak, C&RP Systems Analyst
R. Johnstone, C&RP Technician (T)

W. Scott, Power Production Engineer (PPE) - Bulletins and Circulars
R. Bliss, PPE-Training
W. Keyworth, Senior, PPE-Emergency Planning and Licensing

*R. Twiddy, QA Supervisor

General Construction

W. Coley, Construction-Startup Engineer
D. Shelley, Startup Engineer

Corporate Office

*R. Howe - Nuclear Generation Engineer

Contractor Personnel

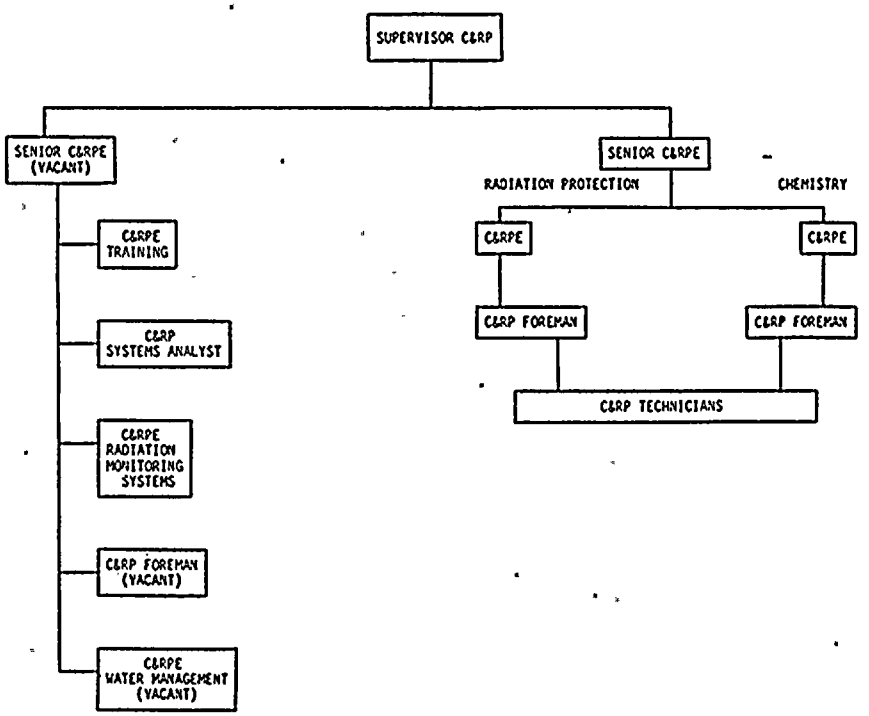
J. Williford, Chem Rad

(*Denotes those present at the exit interview.)

2. Chemistry and Radiation Protection - Organization, Staffing and Training

IE Inspection Report No. 50-275/81-05, described the Chemistry and Radiation Protection (C&RP) organization. A revised organization was authorized effective July 20, 1981. The new organization with authorized and existing staffing level is compared with that previously described.

Position	Authorized Staffing Old	Authorized Staffing New	Positions presently not filled
Supervisor C&RP	1	1	0
Senior C&RP Engineer (E)	2	2	1
C&RPE	3	5	1
C&RP Foreman	2	3	1
C&RP Systems Analyst	0	1	0
C&RP Technicians (T)	21	25	9
TOTAL	29	37	12



The licensee has concluded a union agreement with the C&RPTs which provides for shift staffing consisting of two C&RPT's per shift, one of which is ANSI 18.1 qualified. The C&RPT staff presently includes nine ANSI/ANS 18.1 qualified (experience) individuals and seven which do not meet the experience requirements of ANSI/ANS 18.1.

Since the last inspection, previously referenced, a total of six C&RPTs and two C&RP Foreman have had four weeks on the job experience at Trojan during refueling operations. One of the C&RPEs attended a one week reactor simulator training course. The C&RP Systems Analyst received 3-4 weeks of training at Hewlett-Packard (HP) on the HP1000 computer. A HP1000 computer is located in the C&RP office area.

With the exception of one recently hired C&RPT all (15) of the C&RPTs have essentially completed (98-100% complete) the training required by the licensees Administrative Procedure B-250, Radiation and Process Monitor Training. The use of the title, Chemistry and Radiation Protection Technician, is recent at this facility. C&RPTs were formerly called Radiation and Process Monitors. The training requirements contained in Procedure B-250 were detailed in IE Inspection Report No. 50-275/81-05, paragraph 3. Training records of four randomly selected C&RPTs were examined.

No further questions or unresolved items remain in this area.

No items of noncompliance were identified.

3. General Employee Training

IE Inspection Report No. 50-275/81-05, paragraph 3, discussed the requirements of Administrative Procedure No. B-2 General Requirements for Training of On-Site Personnel and described the training required for individuals other than operators and C&RP personnel. The status of general employee training in the areas of radiation protection and emergency planning was examined. The radiation protection training is provided in several courses of varying level and duration as outlined below.

COURSE NO.	TITLE (COMMENTS)	LENGTH (HOURS)	REQUIRED FOR ACCESS			
			ESCORTED	UNESCORTED	PROTECTED AREA	CONTROLLED AREA
RPA100	Radiation Protection for Engineers (Exam-70% passing) (Higher Technical Level)	22		X		X
RPA200/ RPD100 RPD650	Radiation Control Standards and Procedures (Exam-70% passing) (Includes Respiratory Protection) (Included in RPD300 and RPA420)	5		X		X
RPA300	Radiation Protection for Radiation Worker Supervisors and Engineers (Exam-70% passing) (Higher Technical Level-No practical factors)	20		X		X
RPD300	Introduction to Radiation Protection (No Exam)	1-2		X	X	
RPA400	Radiation Protection for Unescorted Radiation Workers (Exam-70% passing) (May be combined with respiratory protection and RPC700)	18		X		X
RPA420	Radiation Protection for Escorted Radiation Workers (not applicable to plant staff personnel)	12	X			X
RPC700	Dressing Procedure (No Exam) (Practical Factors)	1½				X

At the time of the inspection a total of 129 individuals had not completed all the required initial training and 17 had not completed required retraining. Of the training remaining in this area approximately 65% can be accomplished with two or less hours of class time.

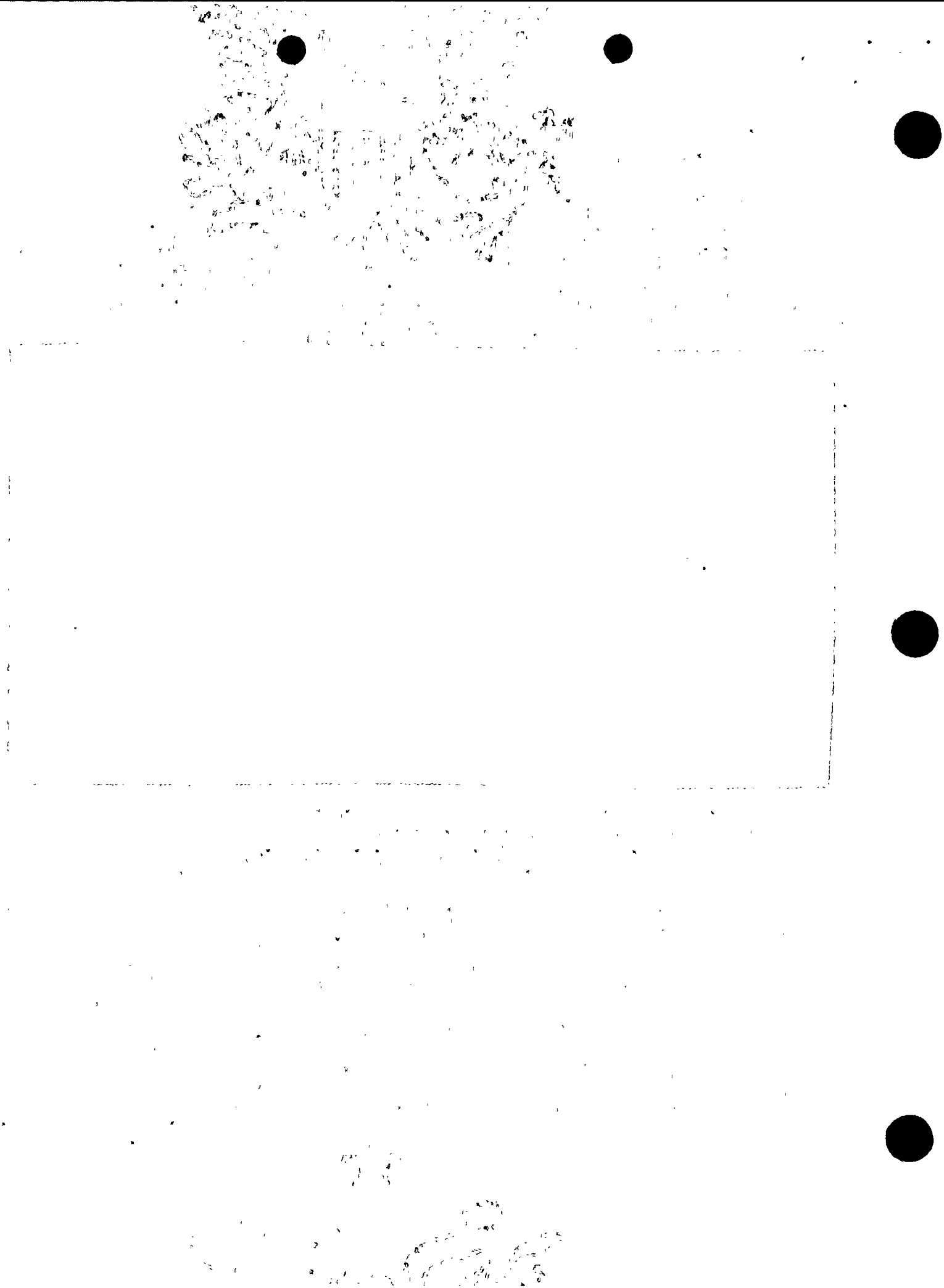
In the area of emergency planning the licensee provides three classroom training courses for the plant staff.

EPD350 - Maintenance and Repair Under Radiological Emergency Condition - (3 hours)

Training of maintenance personnel is complete.

EPD500 - Preview of Diablo Canyon Emergency Plan and Procedures - (8 hours)

EPD600 - Basic Actions in the Event of an Emergency On-Site - (1 hour)



In addition a one hour, non classroom, presentation identified as, EPD 650- Emergency Reporting and Signal Response, is provided to all plant staff personnel. A total of 78 members of the plant staff have not completed the required classroom training. Of this number 24 require only one hours training. The remaining 54 are principally auxiliary operators who are scheduled to attend the EPD-500 course.

The licensee plans to establish a restricted area which is larger than the protected area. As a result PG&E General Construction (GC) and contractor personnel will be required to enter the restricted area to gain access to the protected area in which Unit 2 is located. Units 1 and 2 are physically separated by barriers inplant and fences outside the plant. Training to satisfy the requirements of 10 CFR 19.12 and response to emergencies will be provided to such individuals by GC or contractor supervisory personnel in accordance with guidance provided by the plant staff. GC or contractor personnel requiring access to Unit 1 will be required to satisfy the Unit 1 training requirements appropriate for the category of access prior to entry into Unit 1.

At the time of the inspection the licensee was preparing and the inspector reviewed a draft copy of a procedure, General Procedure for Diablo Canyon Power Plant Site Access. This procedure specifies that access to any area will be denied if the prerequisite training has not been satisfactorily completed. The draft procedure addresses security, owner controlled, protected and vital areas, radiological restricted, controlled and airborne radioactivity areas. At the exit interview the inspector expressed concern regarding the status of general employee training. The inspector commented that after license issuance and the establishment of the restricted area, the failure to complete required training prior to permitting access could result in noncompliance. The Plant Manager stated that on license issuance and the establishment of the restricted area, access to the restricted and protected areas will be denied to any individual who has not completed the prerequiste training.

Based on the Plant Manager's commitment no further questions or unresolved items remain in this area.

No items of noncompliance were identified.

4. Procedures-Waste Management

IE Inspection Reports Nos. 50-275/80-04, paragraph 6 and 50-275/81-05, paragraph 7, identified various procedures which were incomplete.

The following procedures which have been completed and approved by the Plant Staff Review Committee (PSRC) were examined by the inspector.

A-5, Liquid Radwaste Discharge Management
A-8, Offsite Dose Calculations
E-4, Outfall Sampling

PSRC approval of Procedure, A-6, Gaseous Radwaste Discharge Management, which was reviewed by the inspector, is required for low power testing.

Procedures, A-4, Chemistry Laboratory Calibration Schedule and G-11, Packaging, Storage and Inventory of Solid Radioactive Waste, which have not been completed and approved are not required for fuel loading or low power testing. No remaining procedures selected for review prior to fuel loading remain outstanding.

No items of noncompliance were identified.

5. Area, Process and Effluent Monitor Calibration

IE Inspection Report No. 50-275/81-05, paragraph 8, identified previous IE Inspection Reports in which instrument calibration had been discussed and described the licensees planned methods of calibration. The calibration of the FSAR identified area, process and effluent monitoring instruments is substantially complete. During the calibration process the licensee found it necessary to modify some instrument systems to achieve the design response, stability and reliability, e.g. all Westinghouse gamma scintillation detectors required the addition of a licensee fabricated preamplifier to permit operation of the detectors at the moderate voltage necessary to provide reasonable photomultiplier life. The licensee performed rigorous calibrations of the various systems using the techniques described in IE Inspection Report No. 50-275/81-05, paragraph 8. The initial calibration included establishing the statistical variance of the detectors in the installed systems and available spares where sufficient detectors were available. The licensee confirmed independently that the variance in the detectors tested was essentially identical with the variance stated by the manufacturer which had been established on a significantly larger sample. Acceptance criteria for detector response during subsequent calibrations is based on the performance of the detector during the initial calibration and further requires that the detector response fall within the statictical range established for the specific detector type. The licensee was preparing individual surveillance test procedures for each specific monitor. Copies of draft procedures were examined by the inspector at the time of the inspection.

The draft procedures included the following information:

Responsibility:
C&RPE (Test Director)
Shift Foreman
Instrument and Control Supervisor

Frequency:
Tech. Spec. - 18 months or on detector, preamplifier or major component replacement - Functional test performed concurrently.

Scope:

Acceptance Criteria:

Prerequsites:

Procedure:
Precautions and Limitations
Pretest alignment
Operation - step by step

References:
Manuals

Attachments:
Circuit diagrams

The following FSAR identified monitoring systems have been calibrated and procedures prepared:

a.

Type	FSAR Designation	Location/System
Area	0-R-1	Control Room
	1-R-2	Containment
	1-R-4	Charging Pump Room
	1-R-5	Spent Fuel Building
	1-R-6	Sampling Room
	1-R-7	Incore Instrumentation
	0-R-8	Drumming Station
	1-R-9	New Fuel Storage
	0-R-10	Auxiliary Building Control Board
Gas	1-R-12	Containment Radioactive Gas
	1-R-14 A&B	Plant Vent Gas and Backup
	1-R-15	Condenser Air Ejector
	1-R-22	Gas Decay Tank Discharge
	1-R-27	Steam Gen. Blowdown Vent
Air Particulate	1-R-11	Containment Air Particulate
	1-R-13	RHR Exhaust Duct Air Particulate
	0-R-21	Control Room Air Particulate
	1-R-28 A&B	Plant Vent Air Particulate and Backup

Liquid	1-R-17 A&B	Component Cooling Liquid and Backup
	0-R-18	Waste System Discharge Liquid
	1-R-19	Steam Generator Liquid Sample
	0-R-20	Eqpt. Drain Receivers Recirculation
	1-R-23	Steam Gen. Blowdown to Discharge Tunnel

The following FSAR identified monitoring systems had not been calibrated at the time of the inspection.

b.

Type	FSAR Designation	Location/System
Iodine	1-R-24	Plant Vent Iodine
Area	1-R-25	Control Room Ventilation Intake
	1-R-26	Control Room Ventilation Intake

The following monitoring systems not identified in the FSAR have been calibrated and procedures prepared.

c.

Type	Description	Location/System
Liquid	RE-3	Oily Water Separator Discharge

The following monitoring systems not identified in the FSAR have not been calibrated or procedures prepared. The majority of these monitors are associated with post accident monitoring.

d.

Type	Designation	Location/System (Status-foot note)
Area	RE-30,31	Containment Area Monitor (High Range ion chamber (1)
	RE-34	Plant Vent Monitor ALARA Area Monitor (1)
	RE-35	Plant Vent Iodine Sampler ALARA Area Monitor (1)
	RE-36	Iodine Grab Sample (FHB) Area Monitor (1)
	RE-41	Gas Decay Tank Area Monitor (1, 2-1) (2)
	RE-42	Gas Decay Tank Area Monitor (1, 2-2) (2)
	RE-43	Gas Decay Tank Area Monitor (1, 2-3) (2)
	RE-48	Post Accident Sampling Room (Sentry System) (3)
	RE-60	TSC Office Area Monitor (4)
	RE-61	TSC Ops Center/RMS Area Monitor (4)
	RE-62	TSC Computation Center Area Monitor (4)
	RE-63	TSC NRC Office Area Monitor (4)
	RE-64	TSC HVAC Equipment Room Area Monitor (4)
	RE-65	TSC Laboratory Area Monitor (4)
	RE-71-74	Main Steam Line Monitors (3)

Gas	RE-29	Plant Vent Gross Gamma Monitor (1)
	RE-33	Plant Vent Noble Gas Monitor (1)
	RE-51-54	Control Room Ventilation Intake Air Monitors (1) (Control Room Pressurization System)
	RE-67	TSC Noble Gas Monitor (1)
	RE-69	TSC Laboratory Noble Gas Monitor (1)
Air Particulate		
	RE-66	TSC Air Particulate Monitor (1)
	RE-68	TSC Laboratory Air Particulate Monitor (1)
Iodine	RE-32	Plant Vent Iodine Monitor (1)
Liquid	RE-16	Condensate Demineralizer Regenerant Solution Effluent Monitor (3)

(1) Installed - Not released by construction
(2) Installed - released by construction
(3) Not Installed
(4) Installed - status not determined

The inspector examined and discussed with licensee personnel calibration records and procedures for selected calibrated monitors which were typical of the monitoring systems installed, see sections a. and c. above. The specific records examined were for the following monitors:

Type	FSAR Designation	Location/System
Area Monitor	1-R-6	Sampling Room
Radiogas Monitor	1-R-14 A&B	Plant Vent Gas and Backup
Radiogas in Liquid Monitor	1-R-27	Steam Gen. Blowdown Vent
Air Particulate Monitor	0-R-21	Control Room Air Particulate
Liquid Monitor	0-R-18	Waste System Discharge Liquid
Liquid Monitor	1-R-19	Steam Generator Liquid Sample
Radiogas Monitor	1-R-22	Gas Decay Tank Gas Discharge

Sources used in the calibrations included in each case a calibrated source supplied by the instrument manufacturer which was used to verify that the monitoring system performed as described in the vendors initial calibration. Additional licensee fabricated and calibrated sources were used to confirm energy and range response of the instrument. In addition area monitors were calibrated on the licensees instrument calibration range at dose rates which were verified using an NBS certified Victoreen R-meter.

The inspector, established that the initial area monitor alarm set points were as specified in the FSAR, confirmed that the calibration procedures were as described in the FSAR and that sensitivities of process and effluent monitoring systems were specified in the FSAR. In addition the inspector verified that the acceptance criteria contained in the individual instrument calbiration procedures requires the verification of proper operation of any specified action, e.g. alarm, annunciator or valve actuation. With repect to calibrated systems identified in sections a. and c. above no questions remain outstanding. The calibrations and calibration procedures for uncalibrated monitoring systems both FSAR identified and those not so identified, sections b. and d. above, will be examined during a subsequent inspection. (81-05-02)

No items of noncompliance were identified.

6. IE Bulletin/Circular Followup

The licensee has received, distributed, and has taken or is taking appropriate action in response to:

IE Circular No. 81-07, "Control of Radioactively Contaminated Material". Responsibility assigned, action not complete. (IC8107)

IE Circular No. 81-09, "Containment Effluent Water that Bypasses Radioactivity Monitor". Review complete awaiting PSRC review. (IC8109)

No response was required to either circular.

No items of noncompliance were identified.

7. Preoperational Testing

The inspector was informed that the following preoperational tests were complete but had not been reviewed by PSRC or accepted for operations;

Test No.	Title
19.4	Spent Filter Transfer System
23.3	Preop Test of Logic Controls for Auxiliary and Fuel Handling Building Ventilation System
38.4	Radiation Monitoring System

No items of noncompliance were identified.

8. Fuel Loading (FL) and Full Power (FP) Prerequisites

The inspector reviewed several Task Action Plan (TAP) items in accordance with Inspection and Enforcement Temporary Instruction (TI) 2514/01 Revision 2. The results of this inspection are as follows:

a. TAP II.F.1, Additional Accident Monitoring Instrumentation, (Item 1) (FL)

Summary: TI2514/01 Revision 2 and NUREG 0737 enclosure 2, page 2-7, specify that procedures for accident monitoring instrumentation are required for fuel loading.

Findings and Conclusions: A contractor to the licensee was preparing the procedure at the time of the inspection. The proposed content of the procedure was discussed with the licensee's representative at the time of the inspection. In an August 7, 1981 telephone conversation a licensee representative stated that the procedure will probably be submitted to the PSRC during the week of August 10-14, 1981. The licensee stated that a copy of the approved procedure would be mailed to the inspector for review after approval by the PSRC. This item remains open.

b. III.A.1.1. Emergency Preparedness, Short Term (FL)

Summary: NUREG 0737, page III.A.2-1, specified that, "Each nuclear facility shall upgrade its emergency plans to provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency." Supplement No. 12 to Safety Evaluation Report - (SER) Diablo Canyon Nuclear Power Plant, Units 1 and 2, notes on page III-2 and III-3 that the licensee requested and was granted relief from items III.A.1.1 and III.A.2. Further, "The FEMA/NRC Steering Committee had previously specifically approved emergency preparedness at Diablo Canyon for low power testing on an interim basis." The SER statement concludes. "The staff technical position thus remains that adequate emergency preparedness is in place for fuel load and low-power operation."

Findings and Conclusions: The licensees emergency preparedness is adequate to load fuel and for low power testing. This item is considered closed.

c. III.A.1.2. Upgrade Emergency Support Facilities (FL)

Summary: The licensee is to a establish a Technical Support Center (TSC) in the flying buttress area of the Unit 2 turbine building, habitable to the same degree as the control room, with a capability to display plant status conditions. An Operations Support Center (OSC) located in the security building, is to be provided with telephone as well as radiocommunications and two evacuation kits. A temporary, Emergency Operations Facility (EOF) is to be located in a trailer at the San Luis Obispo County Sheriffs Office with the habitability and data display facilities specified in NUREG-0696.

Findings and Conclusions: The licensee has established the TSC, OSC and EOF as described. Communications, telephone and radio, exist and are operational. The Harris computer in the TSC, which can retain, and display up to 12 hours of data from the P-250 Plant Operations Computer in either the TSC or EOF, is installed and operating. This item is considered closed.

d. III.D.3.3 Inplant Radiation Monitoring (FL)

Summary: NUREG 0737, page III.B.3.3-1 requires that each licensee provide equipment, procedures and training for inplant, post accident, iodine sampling and analysis.

Findings and Conclusions: The licensee has available 17, RadeCo model HD-28 (1 cfm), 8, RadeCo Model HD-28B (2 cfm), line operated, 4, RadeCo model H09C (5 cfm) external battery operated and 4 RadeCo model H09B2 (5 cfm) internal battery operated portable air samplers. The licensee has on hand approximately 200 silver zeolite iodine sampling cartridges. Iodine sample analysis capability includes several calibrated, intrinsic Ge detector, multichannel analyzer systems in the counting room and an addition identical system in the TSC laboratory. A procedure In plant Iodine Sampling Program under Emergency Conditions, was being prepared at the time of the inspection. This item is considered closed.

e. II.B.3 Post Accident Sampling (FP)

Summary: NUREG-0737, page 2-5, II.B.3 items 3 and 4 require the licensee to have procedures by FP and have completed actions on post accident sampling by January 1, 1982.

Findings and Conclusions: The licensee has prepared procedures CAP G-2, Interim Post-LOCA Sampling System (IPLSS) and CAP G-1, Access to IPLSS Area, Post Accident Sample Preparation, Handling and Analysis. Between 10 and 14 C&RPT's have been given approximately three hours training in each procedure. The IPLSS system is essentially complete and was undergoing final hydro testing at the time of the inspection. The IPLSS provides for purging sampling lines and is vented to the HEPA-Charcoal filtered auxiliary building vent system. The system provides for the collection of diluted liquid and gas samples and gas chromatograph sample analysis. The licensee has evaluated the time required to complete the specified analytical procedures. It was estimated that one technician would require approximately three and one half hours to complete the series working alone, or two hours with two technicians working in concert. The construction and installation of the permanent, "Sentry", system is well advanced. This item remains open pending completion of the two systems which will be examined during a subsequent inspection. (81-16-01).

9. Exit Interview

At the conclusion of the inspection the inspection findings were summarized for those individuals denoted in paragraph 1. The licensee was advised that no items of noncompliance had been identified.

The inspector expressed concern for the level of general employee training (paragraph 3 of details). The plant manager stated that on license issuance, and the establishment of a restricted area, individuals who had not completed the training requirements would be denied access to the restricted area.

The inspector identified and requested copies of a number of procedures after their review and approval by the PSRC.