U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-275/84-37, 50-323/84-24

Docket Nos. 50-275, 50-323

License Nos. DPR-76, DPR-80, and CPPR-69

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: October 29 through November 2, 1984

Inspectors: E. M. Garcia — 11/21/84
E. M. Garcia, Radiation Specialist — Date Signed

Approved by: G. P. Yuhas — 11/21/84
G. P. Yuhas, Chief, Facilities Radiological Protection Section — Date Signed

Summary:

Inspection on October 29 - November 2, 1984 (Report Nos. 50-275/84-37 and 50-323/84-24)

Areas Inspected: Routine unannounced inspection by a regionally based inspector including organization and staffing of the Chemistry and Radiation Protection Department; Unit 1 startup tests; Unit 2 preoperational tests, radiation monitor calibrations, and implementation of NUREG 0737, Items II.B.3 and II.F.1; and followup on allegation RV-84-A-0107. This inspection involved 39 hours on site by one inspector.

Results: Of the four areas inspected no violations or deviations were identified.

DETAILS

1. Persons Contacted

a. Pacific Gas and Electric, Co. Staff

*R. Patterson, Plant Superintendent
*J. V. Boots, Chemistry and Radiation Protection (C&RP) Manager
M. N. Norem, Startup Engineer
*E. T. Murphy, Regulatory Compliance Supervisor
*M. J. Peterson, Senior C&RP Engineer
*W. A. O'Hara, Senior C&RP Engineer
B. D. Guilbeault, C&RP Engineer
J. M. Taylor, C&RP Engineer
W. Kelly, Power Production Engineer
B. Peterson, I&C General Foreman
R. S. Snyder, C&RP Foreman
P. W. Baxter, C&RP Foreman
R. L. Johnson, C&RP Foreman

b. Contractors Staff

D. Harris, Unit 2 Startup Supervisor (Bechtel)
C. G. Rao, Unit 1 Startup Supervisor (Bechtel)
N. Singh, Senior Startup Engineer (Bechtel)

c. NRC Resident Inspectors

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

*Indicates those individuals attending the exit interview.

In addition to the individuals noted above, the inspector interviewed other members of the licensee's and contractors' staff.

2. Chemistry and Radiation Protection Department Organization and Staffing

The inspector examined the organization, staffing level, and rotational schedule of the chemistry and radiation protection department. Figure 1 describes the department's organizational structure and staffing level.

The licensee has approved a departmental staff consisting of sixteen professionals, nine foreman, fifty-two technicians, five helpers and five clericals. At the time of the inspection the department had met its human resources objectives for professional and clerical staffs. Two foreman positions were vacant, one in secondary chemistry the other in radiation dosimetry, thirteen technician positions were not filled, none of the helper positions had been filled.

Of the thirty-nine technicians working nineteen have been declared to meet the qualification criteria for both chemistry and radiation protection technicians of the American National Standards Institute

(ANSI) standard N18.1-1971, and have also completed the licensee's training program for these specialties. Eleven individuals have completed the licensee's training program but do not fully meet the ANSI qualifications. The remaining nine individuals are currently receiving training, of these, five meet the ANSI qualifications for both specialties, and an additional three meet the qualifications for radiation protection.

Eleven technicians that are fully qualified, that is, ANSI qualified in both specialties and completed training, are assigned to shift rotation. In shift rotation individuals are assigned for three months to each shift. Each shift has three technicians, and each technician works staggered schedules of 10 days on and four days off. Two individuals are designated as shift relief technicians. These individuals provide coverage for absent shift technicians. Shift technicians may have to perform tasks in both chemistry and radiation protection.

The day staff rotates through a number of assignments. Two technicians are assigned to the counting room for six months at a time, one rotating out every three months. Two are assigned to special projects for three months rotation. Two have been assigned to the work planning center, one permanently assigned and the other rotating every three months.

The remaining staff is on a three week rotation with three individuals in each of the assignments noted below:

a. First 3 weeks of primary and secondary chemistry.
b. First 3 weeks of radiation protection.
c. Second 3 weeks of primary and secondary chemistry.
d. Second 3 weeks of radiation protection.
e. Effluents and radiochemistry.

One of the individuals assigned to radiation protection, in fact will work in dosimetry. Reassignments occurred in the middle of rotations due to absences and training. The department manager stated that he was considering a proposal to extend the rotation of the day staff to three months per assignment. The licensee stated that they were seeking to fill the remaining approved positions as quickly as possible. However, finding individuals that are ANSI qualified in both specialties makes this task more difficult.

In order to provide additional operational experience to their staff, the licensee had arranged for two engineers and four technicians to work for five weeks at another nuclear power plant during a refueling outage. With the impending issuance of Unit 1 full power license these individuals were called back to the site during the week of the inspection.

No violations or deviations were identified in this area.

3. Unit 1 Startup Tests

Inspection report 50-275/84-27 documents the review of selected startup test procedures, and contains the inspector's comments on these

procedures. The licensee considered the inspector comments and revised the test procedures. Startup test procedures, 1.16 "Effluents and Effluent Monitoring", and 1.17 "Chemical and Radiochemical Analysis", have been written, reviewed and approved. The inspector does not have any further questions regarding the text of the procedures. (50-275/84-05-01, Closed; 50-275/84-15-01, Closed). The performance, results, and evaluation of the selected startup tests will be examined when these test are completed by the licensee. (50-275/84-37-01, Open)

No violations or deviations were identified in this area.

4. Unit 2 Preoperational Tests, Radiation Monitor Calibrations, and NUREG-0737 Items

a. Preoperational Tests

Inspection Report 50-323/82-12 listed those preoperational tests selected for review that remain open. The startup organization has developed an accounting procedure to determine the percent of completion of the preoperational test program. Figure 2 describes the status of the selected tests using this methodology. Besides the originally identified test procedures the inspector has added addendums and revisions to the original test procedures, and tests 11.4 and 11.5 which relate to the post accident sampling system. (PASS, NUREG-0737 Item II.B.3)

The licensee has deleted startup test procedure 37.22, "Radiation Monitoring System Noise Test." According to the startup engineer this test was deleted because when it was performed in Unit 1 it did not provide any useful information. Since this test is not listed in the Final Safety Analysis Report (FSAR), and other tests will verify the operability of the radiation monitoring system, the deletion of this test is acceptable.

Test procedure 38.4A2, "Radiation Monitor RE-24 Heat Trace," has been completed, reviewed and accepted by the licensee. Review of the test documentation indicates that the test was conducted by the procedure, that the acceptance criteria was met, and that the required reviews and approvals had been obtained. This test is considered closed by the inspector. The licensee's progress with the remaining preoperational tests will be examined in future inspections. (50-323/82-12-01, Open)

No violations or deviations were identified in this area.

b. Radiation Monitors Calibrations

Previous inspection reports have examined the status of installation and calibration of radiation monitors. The applicable preoperational test procedure is 38.4 "Radiation Monitoring System." This procedure is 66% completed. The procedure includes area, process, effluent, NUREG-0737 Item II.F.1 accident monitors, and miscellaneous monitors. At the time of the inspection, the

following monitors had been accepted and calibrated by the operating staff (NPO):

TYPE	NUMBER	DESCRIPTION
Area	RE-5	Spent Fuel Pool
Area	RE-9	New Fuel Storage
Gas	RE-14A	Plant Vent Radioactive Gas
Gas	RE-14B	Plant Vent Radioactive Gas Backup
Iodine	RE-24	Plant Vent Iodine
Area	RE-25	Control Room Ventilation Intake
Area	RE-26	Control Room Ventilation Intake
Air Particulate	RE-28A	Plant Vent Air Particulate
Air Particulate	RE-28B	Plant Vent Air Particulate Backup
Gas	RE-53	Control Room Pressurization System
Gas	RE-54	Control Room Pressurization System

The working copy of preoperational test procedure 38.4 indicates that the portion of this test associated with the following monitors has been completed:

TYPE	NUMBER	DESCRIPTION
Area	RE-4	Charging Pump Room
Area	RE-6	Nuclear Steam Supply Sampling Room
Area	RE-7	Incore Seal Table Room
Air Particulate	RE-13	RHR Exhaust Duct Air Particulate
Gas	RE-15	Condenser Air Ejector
Liquid	RE-17A	Component Cooling Water Header A
Liquid	RE-17B	Component Cooling Water Header B
Gas	RE-29	Plant Vent High Radiation Gross Gamma
Area	RE-30	Containment High Range
Area	RE-31	Containment High Range
Iodine	RE-32	Plant Vent Iodine Mid Range
Gas	RE-33	Plant Vent Noble Gas Mid Range
Area	RE-34	Plant Vent ALARA
Area	RE-35	Iodine Grab Sampler ALARA
Area	RE-48	Sentry PASS ALARA
Gas	RE-41	Gas Decay Tank 2-1
Gas	RE-42	Gas Decay Tank 2-2
Gas	RE-43	Gas Decay Tank 2-3
Gas	RE-71	Main Steam Line lead 1
Gas	RE-72	Main Steam Line lead 2
Gas	RE-73	Main Steam Line lead 3
Gas	RE-74	Main Steam Line lead 4

The licensee's progress with the radiation monitors of Unit 2 will continue to be examined in future inspections (50-323/81-05-02, Open).

No violations or deviations were identified in this area.

c. NUREG-0737 Items II.B.3 and II.F.1

Work on the Unit 2 PASS is progressing. The Sentry room is to be closed off from through traffic to protect the installed equipment and permit the installation of delicate components. The containment atmosphere sample line has been straightened to minimize sample losses and it is heat traced. Preoperational test procedure 11.5, "Post LOCA Sampling System," is being developed. The C&RP engineer responsible for the PASS is involved in the review process to assure that this test procedure will incorporate the lessons learned from the Unit 1 PASS and will demonstrate the operability of the Unit 2 PASS. A representative from the system vendor was schedule to arrive on site on the week of November 5, 1984 to perform system calibrations. The Design Change Notices (DCNs) issued for this system remain open.

The licensee has six monitors to meet their commitment to Item II.F.1 attachment 1, High Range Noble Gas Effluent Monitors. These monitors are RE-29, Plant Vent High Radiation Gross Gamma Monitor, RE-33, Plant Vent Noble Gas Mid Range Monitor, and RE-71 through 74, Main Steam Lines Noble Gas Radiation Monitors. The inspector observed that these monitors have been installed, and that for monitors RE-71 and RE-72 a cover has been built to protect the detectors from the weather. These six monitors have been "signed off" in preoperational test procedure 38.4. These monitors have not yet been accepted by the NPO organization.

In response to Item II.F.1 attachment 2, Sampling and Analysis of Plant Effluents, the licensee committed to install samplers/monitors RE-32, Plant Vent Iodine Mid Range Monitor, and RX-40, Plant Vent Iodine Sampler. Both instruments can sample iodine and particulate activity. These instruments are installed. Deficiencies identified with these monitors in Inspection Report 83-26 have been corrected. These monitors have been "signed off" in preoperational test procedure 38.4; however, they have not yet been accepted by NPO.

The inspector noted that there is an isolation valve on the sample line for RX-40, just where it exits the plant vent, at the 220 foot level. This valve if left in the closed position would prevent the collection of a sample, and during some postulated accidents the location of this valve would be inaccessible to personnel. The licensee stated that precautionary tags will be placed on the valve. There are four right angle bends inside the RX-40 sampler. These bends reduce the collection efficiency of this sampler. The C&RP Manager stated that their calculations indicate the decrease in efficiency due to the bends is negligible, but that measurements will be made when the facility is operational to better quantify the extent of sample loss. It appears that this same condition is also present in the Unit 1 RX-40.

During the tour of Unit 2 the inspector observed that the containment high range area monitors, RE-30 and RE-31, were installed and that they were located such as to view a large segment of the containment atmosphere. These monitors were installed to

meet the commitment to Item II.F.1 attachment 3, Containment High Range Radiation Monitor. As with the other monitors discussed in this section these monitors have been "signed off" by the preoperational test staff, but not yet accepted by NPO. (50-323/83-26-01, Open)

No violations or deviations were identified in this area.

5. Allegation RV-84-A-0107

An individual, previously employed by a licensee contractor, contacted the NRC to express concern regarding the disposal of hazardous materials. For purpose of clarity this individual will be refered to as Mr. A.

Mr. A informed the NRC that he had been told by another person that there were cracks at the bottom of a pond at the site, and that material, contaminated with lead and mercury, had been removed from this pond and disposed of in a landfill.

Mr. A stated that he was also aware that the licensee was putting water contaminated with boron and slight amounts of radioactive materials in another pond on site.

Three areas of potential safety significance related to this allegation are:

a. Is the licensee improperly disposing of nonradioactive hazardous materials?

b. If the cracks in question are located in a pond that serves a safety function, has the structural integrity of this pond been effected such that the pond may not fulfill is intended function?

c. Is the licensee releasing radioactive materials to the environment by an unmonitored uncontrolled pathway?

Mr. A was informed that the first area was outside the purview of the NRC. Mr. A was also informed that the concern was brought to the attention of the State of California, Water Resources Control Board by the NRC.

The second area was examined by the senior resident inspector. It was determined that the only "ponds" that serve a safety function are the raw water reservoirs. Technical Specification 3.7.9.1b requires that the raw water reservoirs contain a minimum usable volume of 270,000 gallons of water for fire suppression. These reservoirs are cut from bed rock and are lined with a plastic liner 80 mils thick. The surveillance requirement associated with this Technical Specification requires that the water supply volume be verified at least once every seven days. The resident inspectors have periodically noted that the required volume was being maintained. Since license DPR-76 was originally issued, there have not been any reports of instances where the available volume was below that required. There has not been any reports of cracks in the structure of the reservoirs. The liners have required repairs due to shrinking

with age, but this shrinkage has not effected the ability of the resorvoirs to fulfill their function.

The fact that these reservoirs are build on bedrock, that they are lined, that they have not been reported as suffering cracks, and that they have maintained the required water level indicate that this possible concern is unfounded.

The third area was examined during the inspection. Through conversations with the resident inspector and the licensee staff, review of site maps, and tours of the site, those structures that could be described as "ponds" were identified. Five "ponds" were identified and these are: the east and west raw water reservoirs, the clarifier blowdown pond, the waste holding pond, and the cement batch plant mud pond. Water samples from the first four "ponds" were collected, and are being analysed for radioactive materials by the NRC. The batch plant mud pond contains only waste concrete. Results do not identify any radioactive materials above the lower limit of detection of the NRC's gamma spectrometer. For Cesium-137 this value is calculated at 1.5E-8 microcuries per milliliter. Analysis for tritium and beta emitters are being performed. The results of these analysis will be noted in a latter report. (50-275/84-37-02, Open)

The inspector also examined the licensee's program for monitoring normally uncontaminated release paths. Figure 3 denotes the paths for unmonitored or uncontrolled releases that were identified by the licensee as part of their response to IE Bulletin 80-10, "Contamination of Nonradioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to Environment". This figure also notes the scheduled frequency and type of analysis that are performed on these systems. Records of analysis of the east and west raw water reservoirs, and the waste holding pond were examined. The period reviewed is from initial criticality, April 29, 1984 to the week of the inspection. No radioactive materials above natural background were identified. The licensee also performs gamma spectrum analysis of the content of the waste holding pond before these nonradiological hazardous wastes are shipped to an approved disposal site. The inspector examined the analysis performed on May 31, 1984, and noted that no radionuclides were detected. Based on this review it does not appear that the licensee is releasing radioactive materials to the environment by an unmonitored uncontrolled pathway.

The inspector did note that the licensee's internal response to the IE Bulletin had not included a formal analysis of potential releases from the storm drains system. At the exit interview the licensee committed to evaluate and document the potential for radioactive releases through this pathway and that this evaluation would include a preliminary plan of actions to be taken when plant conditions, such as the contamination of the auxiliary boiler, make the storm drains a credible release pathway. (50-275/84-37-02)

No violations or deviations were identified in this area.

6. Exit Interview

At the conclusion of the inspection the inspector met with the individuals denoted in Paragraph 1. The scope and findings of the inspection were presented. Specific areas discussed are described in Paragraphs 4 and 5. The licensee was informed that no violations were identified.

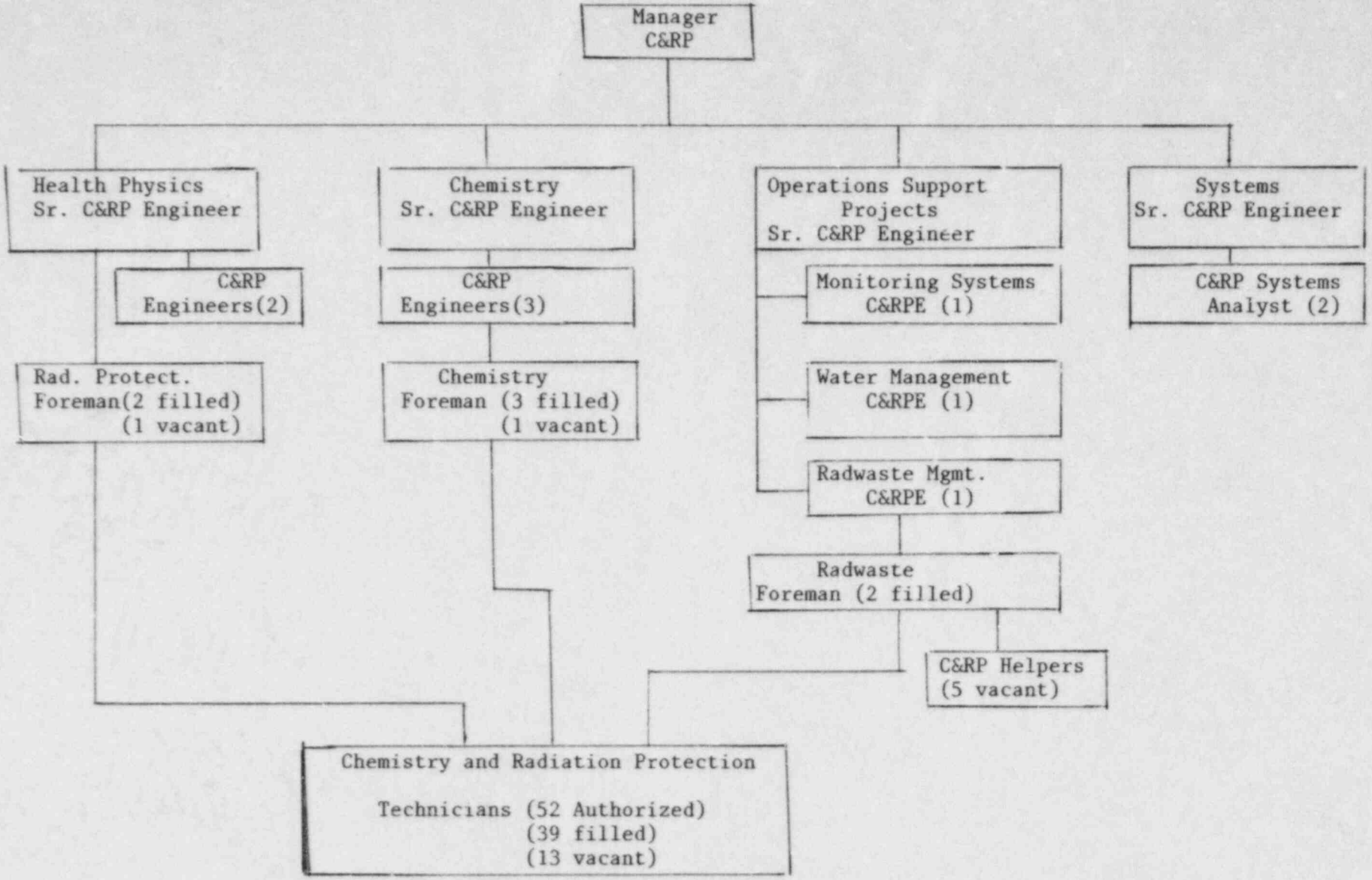
Manager
C&RP
Health Physics
Sr. C&RP Engineer
C&RP
Engineers(2)
Rad. Protect.
Foreman(2 filled)
(1 vacant)
Chemistry
Sr. C&RP Engineer
C&RP
Engineers(3)
Chemistry
Foreman (3 filled)
(1 vacant)
Operations Support
Projects
Sr. C&RP Engineer
Monitoring Systems
C&RPE (1)
Water Management
C&RPE (1)
Radwaste Mgmt.
C&RPE (1)
Radwaste
Foreman (2 filled)
C&RP Helpers
(5 vacant)
Systems
Sr. C&RP Engineer
C&RP Systems
Analyst (2)
Chemistry and Radiation Protection
Technicians (52 Authorized)
(39 filled)
(13 vacant)

Figure 1

SELECTED UNIT 2
PREOPERATIONAL TESTS

TEST PROCEDURE NUMBER	DESCRIPTION	PROCEDURE WRITTEN & APPROVED	TEST COMPLETED	TEST REVIEWED & ACCEPTED	% OF SYSTEM COMPLETED
1.6	RCS CHEMISTRY	YES	PARTIAL	NO	80
1.9	COMMUNICATIONS SYSTEM	PARTIAL	NO	NO	20
1.9A1	CONTAINMENT EVACUATION ALARMS	YES	YES	NO	85
1.9A2	PUBLIC ADDRESS SYSTEM	NO	NO	NO	0
11.1	NUCLEAR STEAM SUPPLY SAMPLING SYSTEM (NSSSS) FLUSH	YES	YES	NO	84
11.2	NSSSS FUNCTIONAL TEST	YES	NO	NO	25
11.4	POST LOCA SAMPLING SYSTEM FLUSH	YES	NO	NO	25
11.5	POST LOCA SAMPLING SYSTEM PREOP	PARTIAL	NO	NO	10
23.3	AUXILIARY AND FUEL HANDLING BUILDING HVAC PREOP	YES	PARTIAL	NO	80
23.10	CONTAINMENT H_2	YES	YES	NO	84
24.2R2	GASEOUS RADWASTE SYSTEM PREOP	YES	PARTIAL	NO	75
24.2A1	O_2 ANALYZERS PREOP	YES	YES	NO	85
38.4	RADIATION MONITORING SYSTEM	YES	PARTIAL	NO	66
38.4A1	RADIATION MONITORS HEAT TRACE	YES	YES	NO	84
38.4A2	RADIATION MONITOR RE-24 HEAT TRACE	YES	YES	YES	
38.4A3	RADIATION MONITORS RE-58,59	NO	NO	NO	0

FIGURE 2

MONITORING SCHEDULE OF
UNCONTAMINATED SYSTEMS

	SYSTEM	PROCEDURE	FREQUENCY	ANALYSIS GROSS BETA	TRITIUM	GAMMA	SPECIAL
1.	AUXILIARY STEAM DRAIN RECIVER	CAP A-2, Rev 4	WEEKLY	X			
2.	AUXILIARY BOILER BLOWDOWN	CAP A-2, Rev 4	WEEKLY	X	X		
3.	EAST AND WEST RESERVIORS	CAP A-9, Rev 0	WEEKLY	X			
4.	CONDENSATE STORAGE TANK	CAP A-2, Rev 4	WEEKLY	X			
5.	PRIMARY WATER STORAGE TANK	CAP A-1, Rev 3	WEEKLY	X	X		
6.	TRANSFER TANK	CAP A-9, Rev 0	WEEKLY	X			
7.	DOMESTIC & DRINKING WATER SYSTEMS	CAP A-9, Rev 0	WEEKLY	X	X		
8.	STEAM GENERATOR BLOWDOWN	CAP A-2, Rev 4	3 per WK				SPECIFIC ACTIVITY
			2 per WK		X		
			WEEKLY				I-131
			QUARTERLY				Sr-89 & Sr-90
9.	CONDENSATE	CAP A-2, Rev 4	3 per WK	X			
10.	FIREWATER	CAP A-9, Rev 0	WEEKLY	X			
11.	MAIN CONDENSER TUBE SHEET LEAK DETECTION SYSTEM DUMP TANK	CAP A-5, Rev 2	WEEKLY	X	X		
12.	AIR EJECTOR AFTER CONDENSER DRAIN	CAP A-5, Rev 2	WEEKLY	X	X		
13.	AUXILIARY BOILER WATER	CAP A-5, Rev 2	WEEKLY	X	X		
14.	WASTE HOLDING POND	CAP A-5, Rev 2	WEEKLY	X	X		
			PRIOR TO RELEASE			X	
15.	MAKEUP DEMINERALIZER PRODUCT WATER AND REGENERANT SOLUTION	CAP A-5, Rev 2	WEEKLY	X	X		
16.	REVERSE OSMOSIS REJECT	CAP A-5, Rev 2	WEEKLY	X	X		
17.	SEAWATER EVAPORATOR BLOWDOWN	CAP A-5, Rev 2	WEEKLY	X	X		
18.	HAZARDOUS WASTE OIL TANKS		PRIOR TO RELEASE			X	
19.	HAZARDOUS WASTE WATER TANKS		PRIOR TO RELEASE			X	

FIGURE 3