U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-275/88-20

Docket No. 50-275

License No. DPR-80

Licensee: Pacific Gas and Electric Company
70 Beale Street, Suite 1451
San Francisco, California 94106

Facility Name: Diablo Canyon Unit 1

Inspection at: USNRC Region V, Walnut Creek, California

Inspection Conducted: July 5-7, 1988

Inspected by: W K TenBrook — 7/11/88
W. K. TenBrook, Radiation Specialist — Date Signed

Approved by: G P Yuhas — 7/12/88
G. P. Yuhas, Chief — Date Signed
Facilities Radiological Protection Section

Summary:

Areas Inspected: Routine inspection of radiochemical analysis data supplied by the licensee for measurement intercomparison. Inspection procedure 92701 was used.

Results: The licensee's analysis of an NRC radiochemical test sample indicates an acceptable measurement capability for most nuclides in the sample. The followup item will remain open pending an acceptable intercomparison for tritium and Fe-55. No items of noncompliance were identified.

DETAILS

1. Persons Contacted

Licensee

J. Gardner, Senior Chemistry & Radiation Protection (C&RP) Engineer
D. Unger, C&RP Engineer

2. Followup (92701)

Open Item 50-275/87-17-01 (OPEN) This item concerned a liquid capability test sample prepared by the U. S. Department of Energy Radiological and Environmental Sciences Laboratory (RESL) which was sent to the licensee for radiochemical analysis. The sample contained nuclides which the NRC cannot readily intercompare during onsite inspection. The certified amounts of radioactivity in the test sample and the licensee's analytical results are given below.

Nuclide	NRC uCi/ml	NRC Uncert.	DCPP uCi/ml	DCPP/NRC	Range
H-3	4.38E-5	9E-7	3.2E-5	0.73	0.75-1.33
Sr-89	5.99E-5	1.8E-6	4.9E-5	0.82	0.75-1.33
Sr-90	5.42E-6	2.2E-7	5.6E-6	1.03	0.60-1.66
Fe-55	2.67E-5	5E-7	4.1E-5	1.54	0.80-1.25

Results for strontium were satisfactory. The ratio for tritium was marginally outside the agreement range established by the NRC uncertainty (See Enclosure). The Fe-55 result was significantly outside the agreement range. No outstanding reasons for the disagreements were identified. This item will remain open pending a satisfactory intercomparison of tritium and Fe-55 activity in an additional capability test sample.

No violations or deviations were identified in this part of the inspection.

3. Exit Interview

On July 6, 1988, the inspector discussed the results of the test sample intercomparison with members of the licensee's Chemistry and Radiation Protection staff noted above. The licensee representatives were informed of the marginal disagreement for tritium and the significant disagreement for Fe-55. The licensee was also informed that the followup item would remain open pending satisfactory intercomparisons for these nuclides.

Enclosure

Criteria for Accepting the Licensee's Measurements

Resolution	Ratio
<4	0.4 - 2.5
4 - 7	0.5 - 2.0
8 - 15	0.6 - 1.66
16 - 50	0.75 - 1.33
51 - 200	0.80 - 1.25
200	0.85 - 1.18

Comparison

1. Divide each NRC result by its associated uncertainty to obtain the resolution. (Note: For purposes of this procedure, the uncertainty is defined as the relative standard deviation, one sigma, of the NRC result as calculated from counting statistics.)

2. Divide each licensee result by the corresponding NRC result to obtain the ratio (licensee result/NRC).

3. The licensee's measurement is in agreement if the value of the ratio falls within the limits shown in the preceding table for the corresponding resolution.