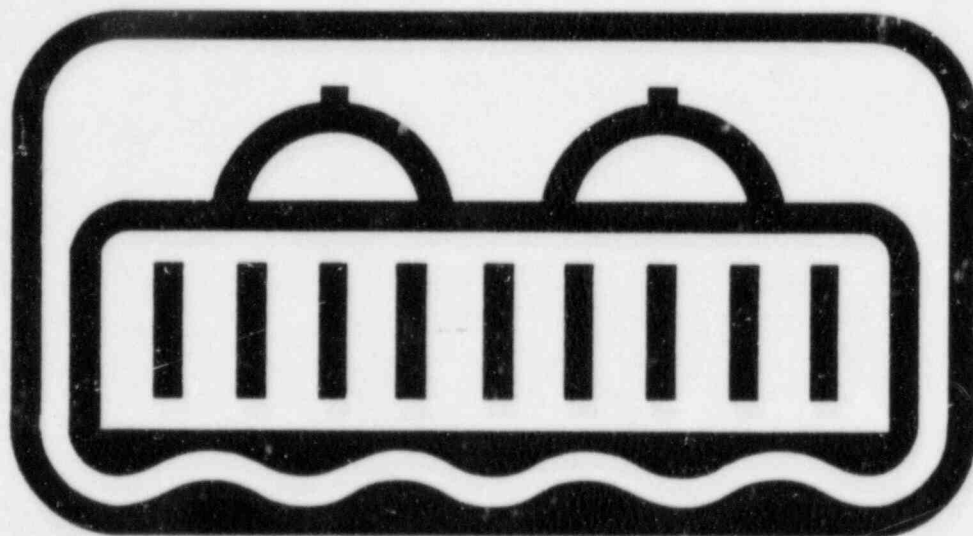

DIABLO CANYON POWER PLANT

SEMIANNUAL RADIOACTIVE
EFFLUENT RELEASE REPORT
SUPPLEMENTAL INFORMATION

JANUARY 1 - JUNE 30, 1985



PG and E

PART THREE
RADIATION DOSE DUE TO GASEOUS AND LIQUID EFFLUENTS

RADIATION DOSES

I. Radiation doses due to radioactive liquid effluents

The radiation dose contributions due to releases of radioactive liquid effluents to the total body and each individual organ for the maximum exposed adult have been calculated in accordance with the methodology in the Offsite Dose Calculation Procedure. Dose contributions, listed in Table 7, show conformance with technical specification 4.11.1.2.

II. Radiation doses due to radioactive gaseous effluents

The radiation dose contributions due to radioactive gaseous effluents at the site boundary for the land sectors have been calculated in accordance with the methodology in the Offsite Dose Calculation Procedure. The meteorology concurrent with the time of discharge were used in these calculations. In addition to the site boundary doses, the dose to all age groups at the nearest residence within the low population zone for each of the land sectors and a five mile infant milk dose in each of the land sectors is included. Dose contributions, listed in Table 8, for the first and second quarters show conformance with technical specifications 4.11.2.2 and 4.11.2.3.

III. 40 CFR 190 Considerations

The releases of radioactivity in liquid and gaseous effluents during 1985 resulted in doses that are small percentages of the technical specification limits as shown in Tables 9 and 10. This coupled with the fact that there are no other uranium fuel cycle sources within eight kilometers of the Diablo Canyon Nuclear Power Plant shows conformance with 40 CFR 190.

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TABLE 7
RADIATION DOSE DUE TO THE RELEASE OF RADIOACTIVE LIQUID EFFLUENTS

ORGAN	millirem	
	1st Quarter	2nd Quarter
Total Body	6.97 E-3	1.46 E-2
Bone	1.21 E-1	1.14 E-1
Liver	1.26 E-2	1.31 E-2
Thyroid	1.99 E-5	1.06 E-3
Kidney	5.82 E-5	1.10 E-4
Lung	1.34 E-3	4.84 E-4
G. I. LLI	3.45 E-2	1.03 E-1

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TABLE 8
RADIATION DOSE DUE TO THE RELEASE OF RADIOACTIVE GASEOUS EFFLUENTS¹

		FIRST QUARTER		SECOND QUARTER	
		SECTOR ²	DOSE	SECTOR	DOSE
Site Boundary					
Noble Gas					
Gamma air dose	mrads	ESE ⁵	1.23 E-4	ESE	3.00 E-3
Beta air dose	mrads	ESE	4.90 E-5	ESE	5.77 E-3
I, P, T ³					
Teen ⁴ (Thyroid)	mrem	NW	5.71 E-5	ESE	4.82 E-5
Residence					
Noble Gas					
Gamma air dose	mrads	ESE	2.21 E-5	ESE	9.51 E-4
Beta air dose	mrads	ESE	9.01 E-6	ESE	2.43 E-3
I, P, T					
Child ⁶ (Thyroid)	mrem	ESE	2.57 E-6	ESE	1.62 E-4
Five Mile Dairy					
I, P, T					
Infant (Thyroid)	mrem	ESE	2.00 E-5	ESE	1.31 E-4

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TABLE 8 (CONTINUED)

NOTES:

1. This represents the maximum dose of age groups, organs, and geographic locations.
2. The ocean sectors SSE, S, SSW, SW, WSW, W, and WNW, are not included.
3. Radioiodines, Radioactive Material in Particulate Form and Radionuclides Other Than Noble Gases With Half-lives Greater Than Eight Days.
4. The inhalation, ground plane and animal-meat pathways are included in this dose calculation.
5. This location is a vegetable farm located throughout the ESE sector starting at 2 miles.
6. The inhalation, ground plane, animal-meat and vegetable pathways are included for this location. An occupancy factor of 0.5 was used for the inhalation and ground plane pathways. The child age group had the highest calculated dose for this location.

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TABLE 9

PERCENT OF TECHNICAL SPECIFICATION LIMITS FOR RADIOACTIVE LIQUID EFFLUENTS

ORGAN	PERCENT	
	1st Quarter	2nd Quarter
Total Body	4.65 E-1	9.73 E-1
Bone	2.42 E-0	2.28 E-0
Liver	2.52 E-1	2.62 E-1
Thyroid	3.98 E-4	2.12 E-2
Kidney	1.16 E-3	2.20 E-3
Lung	2.68 E-2	9.68 E-3
G. I. LLI	6.90 E-1	2.06 E-0

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TABLE 10
PERCENT OF TECHNICAL SPECIFICATION LIMITS FOR RADIOACTIVE GASEOUS EFFLUENTS

		FIRST QUARTER	SECOND QUARTER	
		SECTOR	% OF T.S. LIMIT	% OF T.S. LIMIT
Site Boundary				
Noble Gas				
Gamma air dose	ESE	2.46 E-3	ESE	6.00 E-2
Beta air dose	ESE	4.90 E-4	ESE	5.77 E-2
I,P,T				
Teen	NW	7.61 E-4	ESE	6.47 E-4
Residence				
Noble Gas				
Gamma air dose	ESE	4.42 E-4	ESE	1.90 E-2
Beta air dose	ESE	9.01 E-5	ESE	2.43 E-2
I,P,T				
Child	ESE	3.43 E-5	ESE	2.16 E-3
Five Mile Dairy				
I,P,T				
Infant	ESE	2.67 E-4	ESE	1.75 E-3

ENCLOSURE 2

DIABLO CANYON POWER PLANT
SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT 1985

TABLE 1
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	Units	1st Quarter	2nd Quarter	Est. Total Error, %
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A. Fission & activation gases

1. Total release	Ci	3.95 E-1	6.21 E+1	5.0 E1
2. Average release rate for period	μCi/sec	5.08 E-2	7.90 E+0	
3. Percent of technical specification limit ²	%	8.90 E-4	2.66 E-2	

B. Iodines

1. Total iodine-131	Ci	MDA ¹	1.54 E-5	2.3 E1
2. Average release rate for period	μCi/sec	MDA	1.96 E-6	
3. Percent of technical specification limit ²	%	0.0	1.75 E-2	

C. Particulates

1. Particulates with half-lives > 8 days	Ci	MDA	5.54 E-10	2.3 E1
2. Average release rate for period	μCi/sec	MDA	7.05 E-11	
3. Percent of technical specification limit ²	%	0.0	5.58 E-8	
4. Gross alpha radioactivity	Ci	MDA	MDA	

D. Tritium

1. Total release	Ci	9.43 E-1	1.61 E-1	1.2 E1
2. Average release rate for period	μCi/sec	1.21 E-1	2.05 E-2	
3. Percent of technical specification limit ²	%	3.30 E-4	5.63 E-5	

NOTE:

¹ MDA = the "a posteriori" minimum detectable activity (microcuries per unit mass or volume)

² Technical Specification 3.11.2.1 Limit

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TABLE 2
GASEOUS EFFLUENTS - GROUND-LEVEL RELEASES

Nuclides Released	Unit	1ST QUARTER		2ND QUARTER	
		CONTINUOUS MODE	BATCH MODE	CONTINUOUS MODE	BATCH MODE

1. Fission gases

krypton-85	Ci	MDA	MDA	MDA	MDA
krypton-85m	Ci	MDA	1.76 E-4	MDA	1.37 E-2
krypton-87	Ci	MDA	MDA	MDA	MDA
krypton-88	Ci	MDA	MDA	MDA	MDA
xenon-131m	Ci	MDA	MDA	MDA	2.70 E-2
xenon-133	Ci	MDA	2.76 E-1	3.08 E+1	2.93 E+1
xenon-133m	Ci	MDA	MDA	MDA	3.41 E-1
xenon-135	Ci	MDA	8.88 E-3	5.59 E-2	3.06 E-1
xenon-135m	Ci	MDA	MDA	MDA	MDA
xenon-138	Ci	MDA	MDA	MDA	MDA
argon-41	Ci	MDA	1.10 E-1	5.26 E-1	7.30 E-1
TOTAL FOR PERIOD	Ci	0	3.95 E-1	3.14 E+1	3.07 E+1

2. Iodines

iodine-131	Ci	MDA
iodine-133	Ci	MDA
iodine-135	Ci	MDA
TOTAL FOR PERIOD	Ci	0.0

1.54 E-5
MDA
MDA
1.54 E-5

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TABLE 2 (CONTINUED)
GASEOUS EFFLUENTS - GROUND-LEVEL RELEASES

Nuclides Released	Unit	CONTINUOUS MODE	
		1st Quarter	2nd Quarter

3. Particulates

cerium-141	Ci	MDA	MDA
cerium-144	Ci	MDA	MDA
cesium-134	Ci	MDA	MDA
cesium-137	Ci	MDA	MDA
cobalt-58	Ci	MDA	MDA
cobalt-60	Ci	MDA	MDA
iron-59	Ci	MDA	MDA
manganese-54	Ci	MDA	MDA
molybdenum-99 ¹	Ci	MDA	MDA
strontium-89	Ci	MDA	5.54 E-10
strontium-90 ¹	Ci	MDA	MDA
zinc-65	Ci	MDA	MDA
TOTAL FOR PERIOD	Ci	0	5.54 E-10

NOTES:

¹ Includes Daughters