

TABLE 1C  
EFFLUENT AND WASTE DISPOSAL REPORT  
GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES

SEMIANNUAL FOR JULY THRU DEC 89

ISOTOPES IN CURIES	3 QUARTER			4 QUARTER		
	CONT	DECAY	RM060	CONT	DECAY	RM060
FISSION GASES						
XENON-133	4.69E+01	1.25E-04	0.00E+00	4.69E+01	6.07E+01	0.00E+00
KRYPTON-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.87E-03	0.00E+00
XENON-131M	3.64E-01	0.00E+00	0.00E+00	3.64E-01	3.47E-01	0.00E+00
KRYPTON-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XENON-133M	3.82E-01	0.00E+00	0.00E+00	3.82E-01	5.00E-01	0.00E+00
XENON-135	8.76E-01	0.00E+00	0.00E+00	8.76E-01	1.52E+00	0.00E+00
KRYPTON-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E-03	0.00E+00
XENON-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KRYPTON-85	0.00E+00	7.39E-03	0.00E+00	7.39E-03	8.04E-02	0.00E+00
XENON-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ARGON-41	5.08E-01	0.00E+00	0.00E+00	5.08E-01	0.00E+00	0.00E+00
TOTAL FOR PERIOD	4.90E+01	7.51E-03	0.00E+00	4.90E+01	6.38E+01	0.00E+00
IODINES						
IODINE-131 CTD.	0.00E+00	0.00E+00	3.97E-05	3.97E-05	0.00E+00	3.40E-05
IODINE-133 CTD.	0.00E+00	0.00E+00	2.29E-04	2.29E-04	0.00E+00	2.64E-04
IODINE-135 CTD.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	0.00E+00	0.00E+00	2.68E-04	2.68E-04	0.00E+00	2.98E-04
PARTICULATES						
* STRONTIUM-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
* STRONTIUM-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
IODINE-131 PRF.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
IODINE-133 PRF.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BARIUM-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CESIUM-137	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CESIUM-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
COBALT-58	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MANGANESE-54	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
COBALT-60	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
IODINE-135 PRF.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LANTHANUM-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CERIUM-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CERIUM-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NIOBYDENUM-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
IRON-59	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ZINC-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TRITIUM & GROSS ALPHA						
TRITIUM	1.15E-01	0.00E+00	0.00E+00	1.15E-01	5.69E-02	0.00E+00
GROSS ALPHA	0.00E+00	0.00E+00	1.55E-06	1.55E-06	0.00E+00	1.59E-06

\* Fourth Quarter Results - Lower Limit of Detection (LLD) and is Reported as "0."

900/230204 900312  
PDX ADOCK 05000295  
PNU

TABLE 2B

## EFFLUENT AND WASTE DISPOSAL REPORT

## LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES

SEMIANNUAL FOR JULY THRU DEC 89

NUCLIDES IN CURIES	3 QUARTER		4 QUARTER	
	CONT	BATCH	CONT	BATCH
* STRONTIUM-89	0.00E+00	2.10E-04	0.00E+00	0.00E+00
* STRONTIUM-90	0.00E+00	3.95E-05	0.00E+00	0.00E+00
COBALT-57	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MOLYBDENUM-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TECHNETIUM-99M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CERIUM-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TIN-117M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHROMIUM-51	0.00E+00	0.00E+00	0.00E+00	0.00E+00
IODINE-131	0.00E+00	3.69E-04	0.00E+00	1.79E-03
IODINE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BARIUM-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RUTHENIUM-103	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CESIUM-137	0.00E+00	1.11E-01	0.00E+00	1.52E-01
ZIRCONIUM-95	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NIOBIUM-95	0.00E+00	0.00E+00	0.00E+00	1.07E-04
CESIUM-134	0.00E+00	3.79E-02	0.00E+00	3.16E-02
COBALT-58	0.00E+00	6.66E-03	0.00E+00	3.39E-03
MANGANESE-54	0.00E+00	2.13E-04	0.00E+00	3.35E-04
CESIUM-136	0.00E+00	0.00E+00	0.00E+00	5.65E-06
IRON-59	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ZINC-65	0.00E+00	2.76E-03	0.00E+00	4.85E-03
COBALT-60	0.00E+00	1.35E-03	0.00E+00	5.57E-03
LANTHANUM-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ANTIMONY-124	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CERIUM-144	0.00E+00	8.02E-04	0.00E+00	3.69E-03
ANTIMONY-125	0.00E+00	0.00E+00	0.00E+00	2.52E-04
SILVER-110M	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RUTHENIUM-106	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SELENIUM-75	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ANTIMONY-126	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	0.00E+00	1.61E-01	0.00E+00	2.04E-01
DISSOLVED GASES				
ENTRAINED GASES				
XENON-133	0.00E+00	1.19E-02	0.00E+00	4.71E-02
XENON-135	0.00E+00	0.00E+00	0.00E+00	3.69E-04
TOTAL FOR PERIOD	0.00E+00	1.19E-02	0.00E+00	4.74E-02
OTHER, ALPHA & TRITIUM				
ALPHA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TRITIUM	0.00E+00	6.49E+01	0.00E+00	8.43E+01
GROSS BETA/GAMMA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	0.00E+00	6.49E+01	0.00E+00	8.43E+01
AVG. CONC. IN UCI/ML				
ALPHA	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TRITIUM	0.00E+00	2.72E-05	0.00E+00	3.84E-05

\* Fourth Quarter Results - Lower Limit of Detection (LLD) and is Reported as "0."



FORT CALHOUN STATION UNIT NO. 1

QUARTERLY CUMULATIVE DOSE CONTRIBUTIONS  
FROM RADIOACTIVE EFFLUENTS

FOURTH QUARTER, 1989

A. LIQUID EFFLUENTS:

	TOTAL BODY DOSE (MREM)	CRITICAL ORGAN DOSE (LIVER, MREM)
MONITOR/HOTEL TANK	8.79E-01	1.27E+00
STEAM GENERATOR	0.00E-01	0.00E-01
TOTALS	8.79E-01	1.27E+00
TECH SPEC 2.9.1.A OBJECTIVE	3.0	10.0
PERCENT OF OBJECTIVE	29.313%	12.745%

B. GASEOUS EFFLUENTS:

	TOTAL BODY GAMMA DOSE (MRAD)	TOTAL BODY BETA DOSE (MRAD)
1. NOBLE GAS AIR DOSE	4.76E-03	1.12E-02
TECH. SPEC. 2.9.1.B OBJECTIVE	10.0	20.0
PERCENT OF OBJECTIVE	0.048%	0.056%
	TOTAL BODY DOSE (MREM)	CRITICAL ORGAN DOSE (THYROID, MREM)
2. I-131, H-3 AND PARTICULATES WITH HALF-LIVES > 8 DAYS		
INHALATION *	1.34E-06	4.44E-05
GROUND AND FOOD*	1.93E-05	9.15E-03
TOTALS	2.06E-05	9.20E-03
TECH. SPEC. 2.9.1.B OBJECTIVE	15.0	15.0
PERCENT OF OBJECTIVE	0.000%	0.061%

\* - HIGHEST OF INFANT OR CHILD DOSE FACTORS

FOURTH QUARTER RESULTS ON Sr-89, Sr-90 - LOWER LIMIT OF  
DETECTION (LLD) AND IS REPORTED AS "0."