MAINE YANKEE ATOMIC POWER COMPANY
ENGINEERING OFFICE
TURNPIKE ROAD (RT. 9)
WESTBORO, MASSACHUSETTS 01581
617-366-9011

WMY-80-128
B 4.1.1

August 29, 1980

United States Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region I
631 Park Avenue
King of Prussia, PA 19406

Attention: Boyce H. Grier, Director

Reference: License No. DPR-36 (Docket No. 50-309)

Subject: Semiannual Effluent Release Report

Dear Sir:

Enclosed herewith please find three (3) copies of the Maine Yankee Semiannual Effluent Release Report for the period January 1 through June 30, 1980 which is submitted in accordance with Technical Specification 5.9.1.7(2).

We trust this report will be acceptable to you; however, should you have any questions, please contact us.

Very truly yours,

MAINE YANKEE ATOMIC POWER COMPANY

Robert H. Groce

Robert H. Groce
Senior Engineer - Licensing

RHG/ncj

Enclosure

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MAINE YANKEE ATOMIC POWER COMPANY

EFFLUENT AND WASTE DISPOSAL
SEMI-ANNUAL REPORT

JANUARY-JUNE 1980

EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT

JANUARY - JUNE 1980

FACILITY: MAINE YANKEE ATOMIC POWER COMPANY

LICENSEE: MAINE YANKEE ATOMIC POWER COMPANY

1. Regulatory Limits

a.	Fission and activation gases:	10 CFR 20; Paragraph 20.106
b.	Iodines:	" " "
c.	Particulates, half lives 8 days	" " "
d.	Liquid effluents:	" " "

2. Maximum Permissible Concentrations

a.	Fission and actuation gases:	10 CFR 20; App. B. Table 2 Col. 1
b.	Iodines:	" " "
c.	Particulates, half lives 8 days	" " "
d.	Liquid effluents:	" " "

3. Average Energy - Not Applicable

4. Measurements and Approximations of Radioactivity

a. Fission and activation gases:

Continuous discharge - vent stack samples are analyzed monthly and the levels of activities determined are assumed to hold for the period between samples. The continuous vent stack monitor reading is used as a basis for increasing periodic sample frequency. Air ejector is sampled monthly and on any increase in continuous air ejector monitor reading.

Batch discharges - direct measurement of waste gas hold up drums are made before discharge. Containment vents and purges are analyzed by direct measurement of the containment atmosphere at periodic intervals during the discharge.

b. Continuous monitoring of primary vent stack iodines are made by weekly measurements of an in-line charcoal filter.

Batch discharges - direct measurement of waste gas hold up drums before discharge.

c. Particulates - continuous monitoring of primary vent stack is made by weekly measurement of [illegible] particulate filter.

Batch discharges - direct measurement of waste gas hold up drums before discharge.

d. Liquid Effluents

Weekly sample of secondary systems liquid effluents for gross Beta-gamma, alpha, tritium, dissolved gases and gamma emitting isotopes each batch release.

Composite samples are made of secondary and primary systems liquid effluents for a quarterly analysis of strontium 90 and 89.

5. Batch Release

a. Liquid

1.	Number of releases:	102	
2.	Total time for batch releases:	601 hrs.	33 min.
3.	Maximum time for batch releases:	74 hrs.	5 min.
4.	Average time for batch releases:	5	54 min.
5.	Minimum time for batch releases:		5 min.
6.	Average stream flow during periods of release of effluent into a flowing stream:	—	
7.	Maximum gross release rate (uci/ml)	4.01E-8	

b. Gaseous

1.	Number of batch releases:	71	
2.	Total time period for batch releases:	1995 hrs.	6 min.
3.	Maximum time period for a batch release:	314 hrs.	38 min.
4.	Average time period for a batch release:	28 hrs.	6 min.
5.	Minimum time for a batch release:	0 hr.	5 min.
6.	Maximum gross release rate (uci/sec):	6.49E3	

6. Abnormal Releases

a. Liquid

At 0900 hours on January 20, 1980, a leak of approximately 5 gallons/hr. was discovered on the RWST line to the syphon heater. By 1730 hours, the leak was redirected to the containment system, thereby terminating the release. Total gross activity released was 2.44E-2 Ci. This activity as well as the activity of the individual nuclides are reported in Tables 2A and 2B of this semiannual report.

b. Gaseous

At 1530 hours on January 3, 1980, the air ejector radiation monitor alarmed high. Analysis confirmed that the activity present was above normal. The activity was subsequently cleared from the ejector monitor. The total gross activity released was 3.52E-3 Ci. This activity as well as that of the individual nuclides are reported in Tables 1A and 1B of this semiannual report.

The following table is not attached since there was no applicable release during the reporting period.

Table 1C Gaseous Effluents, Ground Level Releases

RELEASE OF WASTE GAS STORAGE DRUMS BEFORE 60-DAY HOLDUP PERIOD

Technical Specification 3.17B3 requires a special effluent report should the average holdup time of waste gas be less than 60 days.

The following drums had a holdup time of less than 60 days during normal operations in the 1st half of 1980.

Release No.	Decay Drum	Date Isolated	Date Released	(In days) Holdup Time	Cu. Ft.
497	B	5/3/80	5/4/80	1	59
498	A	5/3/80	5/5/80	2	1095
499	B	5/3/80	5/21/80	18	988
500	C	5/4/80	5/21/80	17	988
501	D	5/14/80	5/21/80	7	976
502	E	5/27/80	5/30/80	3	952
503	A	5/31/80	5/31/80	0	1154
504	D	6/1/80	6/1/80	0	1095
505	E	6/1/80	6/1/80	0	1095

The average holdup time for the first half of 1980, of all decay drums during normal operations, was 11.5 days.

Release Permit #'s 497 and 498 were discharges of gas generated during chemical core cleaning operations during the period 5/2/80 to 5/4/80. Early release was dictated by the need for additional storage volume.

Release Permit #'s 499 through 503 were processed to provide storage volume calculated to be required for radical Hydrazine chemical core cleaning, originally scheduled for 5/24/80, but later rescheduled for 5/30/80. Release Permit #'s 504 and 505 were releases of gases generated during this operation.

TABLE 1A
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1980
GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES

	UNIT	1ST QUARTER	2ND QUARTER	EST. TOTAL ERROR %
A. FISSION & ACTIVATION GASES				
1. TOTAL RELEASE	CI	3.70E+00	1.22E+02	1.50E+00
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	4.71E+02	1.55E+01	
3. % OF TECH. SPECIFICATION LIMIT	%	3.06E+00	1.67E-01	
B. IODINES				
1. TOTAL IODINE-131	CI	1.52E-03	3.09E-05	3.92E+00
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	1.94E-04	4.01E-06	
3. % OF TECH. SPECIFICATION LIMIT	%	5.03E-03	1.12E-04	
C. PARTICULATES				
1. PARTICULATES WITH T 1/2 > 8 DAYS	CI	2.41E-04	5.44E-05	3.92E+00
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	3.07E-05	6.92E-06	
3. % OF TECH. SPECIFICATION LIMIT	%	5.17E-05	2.69E-05	
4. GROSS ALPHA RADIOACTIVITY	CI	1.22E-07	1.41E-07	
D. TRITIUM				
1. TOTAL RELEASE	CI	7.49E-01	5.20E-01	1.01E+00
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	9.53E-02	6.61E-02	
3. % OF TECH. SPECIFICATION LIMIT	%	1.23E-03	8.56E-04	

TABLE 1B
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1980
GASEOUS EFFLUENTS-ELEVATED RELEASE

		CONTINUOUS MODE		BATCH MODE	
NUCIDES RELEASED	UNIT	1ST QUARTER	2ND QUARTER	1ST QUARTER	2ND QUARTER
1. FISSION GASES					
KR-85	CI	< 8.00E-05	< 8.00E-05	1.45E+01	7.34E-01
KR-85M	CI	< 1.00E-07	< 1.00E-07	< 1.00E-07	< 1.00E-07
KR-87	CI	< 3.00E-07	< 3.00E-07	< 3.00E-07	< 3.00E-07
KR-88	CI	< 3.50E-07	< 3.50E-07	< 3.50E-07	< 3.50E-07
XE-133	CI	7.84E+01	8.22E+01	9.91E+02	2.95E+01
XE-135	CI	< 7.00E-07	< 7.00E-07	2.58E+00	2.91E+00
XE-135M	CI	< 5.00E-07	< 5.00E-07	< 5.00E-07	< 5.00E-07
XE-138	CI	< 1.70E-07	< 1.70E-07	< 1.70E-07	< 1.70E-07
XE-131M	CI	< 1.00E-06	< 1.00E-06	2.62E+01	6.60E+00
XE-133M	CI	< 5.00E-07	< 5.00E-07	5.86E-01	1.19E-01
AR-41	CI	< 1.70E-06	< 1.70E-06	< 1.70E-06	< 1.70E-06
UNIDENTIFIED	CI	0.00E-01	0.00E-01	0.00E-01	2.62E+00
TOTAL FOR PERIOD	CI	7.84E+01	8.22E+01	1.61E+02	4.00E+01
2. IODINES					
I-131	CI	1.52E-03	2.19E-05	< 9.60E-15	< 9.60E-15
I-132	CI	< 5.50E-13	< 5.50E-13	< 5.50E-13	< 5.50E-13
I-133	CI	1.02E-03	< 4.60E-14	< 4.60E-14	< 4.60E-14
I-134	CI	< 1.60E-12	< 1.60E-12	< 1.60E-12	< 1.60E-12
I-135	CI	6.11E-04	< 4.50E-13	< 4.50E-13	< 4.50E-13
TOTAL FOR PERIOD	CI	2.18E-03	2.19E-05	0.00E-01	0.00E-01
3. PARTICULATES					
SR-89	CI	4.77E-06	< 1.00E-16	< 1.00E-16	< 1.00E-16
SR-90	CI	4.82E-08	9.18E-09	< 4.70E-18	< 4.70E-18
CS-134	CI	< 9.70E-15	1.08E-06	< 9.70E-15	< 9.70E-15
CS-137	CI	1.42E-05	1.46E-05	< 1.10E-14	< 1.10E-14
BA-140	CI	< 2.60E-14	< 2.60E-14	< 2.60E-14	< 2.60E-14
OTHERS CO-60	CI	2.63E-05	1.06E-05	< 1.40E-14	< 1.40E-14
CO-58	CI	4.27E-05	2.14E-05	< 8.90E-15	< 8.90E-15
MN-54	CI	< 8.40E-15	1.27E-06	< 8.40E-15	< 8.40E-15
	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
UNIDENTIFIED	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01

TABLE 2A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1980

LIQUID EFFLUENTS--SUMMATION OF ALL RELEASES

	UNIT	1ST QUARTER	2ND QUARTER	EST. TOTAL ERROR %
A. FISSION AND ACTIVATION PRODUCTS *				
1. TOTAL RELEASE	CI	5.10E-02	2.15E-01	6.68E-01
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	UCI/ML	2.76E-09	4.12E-09	
3. % APPLICABLE LIMIT	%	2.12E-01	2.02E-02	
B. TRITIUM				
1. TOTAL RELEASE	CI	1.01E+01	7.25E+01	3.28E-01
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	UCI/ML	5.48E-07	1.09E-06	
3. % APPLICABLE LIMIT	%	1.83E-02	4.62E-02	
C. DISSOLVED AND ENTRAINED GASES				
1. TOTAL RELEASE	CI	1.98E-02	7.02E-03	1.64E+00
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	UCI/ML	1.07E-09	1.40E-10	
3. % APPLICABLE LIMIT	%	5.35E-04	7.01E-05	
D. GROSS ALPHA RADIOACTIVITY				
1. TOTAL RELEASE	CI	2.16E-05	5.14E-07	1.68E+01
E. VOLUME OF WASTE	LITERS	2.66E+07	2.22E+07	1.00E+01
F. VOLUME OF DILUTION	LITERS	1.85E+10	5.22E+10	1.00E+01

* TOTAL RELEASE EXCLUDING TRITIUM, GASES, AND AND ALPHA.

TABLE 2B

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1980
LIQUID EFFLUENTS

			CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED		UNIT	QUARTER-1	QUARTER-2	QUARTER-1	QUARTER-2
SR-89		CI	9.44E-04	<1.00E-09	1.44E-04	<1.00E-08
SR-90		CI	<1.00E-09	<1.00E-09	<1.00E-08	1.17E-05
CS-134		CI	<5.00E-08	<5.00E-08	3.81E-03	7.10E-04
CS-137		CI	9.00E-04	2.04E-03	2.19E-02	4.21E-03
I-131		CI	<1.00E-08	<1.00E-08	1.11E-02	2.19E-03
CO-58		CI	3.15E-03	7.08E-04	7.55E-03	1.93E-01
CO-60		CI	2.20E-03	7.97E-04	4.04E-04	5.27E-02
FE-59		CI	<1.00E-07	<1.00E-07	<1.00E-06	<1.00E-06
ZN-65		CI	<9.00E-08	<9.00E-08	<9.00E-07	<9.00E-07
MN-54		CI	<5.00E-08	<5.00E-08	<5.00E-07	1.75E-03
CR-51		CI	<2.00E-07	<2.00E-07	<2.00E-06	3.50E-03
ZR-95		CI	<8.00E-08	<8.00E-08	<8.00E-07	<8.00E-07
MO-99		CI	<4.00E-08	3.38E-05	<4.00E-07	<4.00E-07
TC-99M		CI	<4.00E-08	<4.00E-08	<4.00E-07	<4.00E-07
BA-140		CI	<2.00E-07	<2.00E-07	<2.00E-06	<2.00E-06
CE-141		CI	<4.00E-07	<4.00E-07	<4.00E-07	<4.00E-07
OTHER	XE-131M	CI	<5.00E-06	<5.00E-06	5.91E-04	<5.00E-05
	XE-133M	CI	<6.00E-06	<6.00E-06	1.56E-04	<6.00E-05
	I-133	CI	<4.00E-07	<4.00E-07	5.07E-05	4.44E-04
	F-18	CI	<1.00E-08	<1.00E-08	<1.00E-07	6.62E-06
	NB-95	CI	<4.00E-08	<4.00E-08	<4.00E-07	5.95E-04
UNIDENTIFIED		CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TOTAL FOR PERIOD		CI	7.09E-03	3.59E-03	4.07E-02	2.12E-01
XE-133		CI	<1.00E-07	<1.00E-07	1.97E-02	6.19E-03
XE-135		CI	<6.00E-06	<6.00E-06	9.17E-05	1.17E-03

NOTE. ACTIVITIES OF ZR-95 AND BA-140 INCLUDE CONTRIBUTIONS OF DAUGHTERS.
NOTE. LESS THAN (<) VALUES ARE MINIMUM DETECTABLE ACTIVITIES IN UCI/CC.

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not irradiated fuel)

1. Type of waste	Unit	6-month Period	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3 Ci	1.57E+02 4.12E+03	3.0 E+01
b. Dry compressible waste, contaminated equip, etc.	m^3 Ci	1.02 E+02 4.92 E-01	3.0 E+01
c. Irradiated components, control rods, etc.	m^3 Ci		
d. Other (describe)	m^3 Ci		

2. Estimate of major nuclide composition (by type of waste)

a.	CO-58	%	4.5 E+01
	CS-137	%	3.0 E+01
	CS-134	%	2.0 E+01
	CO-60	%	5.0 E+00
		%	
b.	CS-137	%	4.0 E+01
	CO-60	%	3.0 E+01
	CS-134, CO-58	%	3.0 E+01
		%	
		%	
c.		%	
		%	
		%	
d.		%	
		%	
		%	

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
28	Truck	Chem. Nuclear Sys. Inc. Barnwell, S. C.
1	Truck	Nuclear Eng. Co., Inc. Beatty, Nev.

B. IRRADIATED FUEL SHIPMENTS (Disposition)

Number of Shipments	Mode of Transportation	Destination