

INSTALLATION:VERMONT YANKEE

LOCATION:5 MI S BRATTLEBORO, VT

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1983
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: BWR
DOCKET NO.:50-271
COOLING WATER SOURCE:CONNECTICUT RIVER

LICENSEE:VERMONT YANKEE NUCLEAR POWER
LICENSED POWER (MWT):1593.00
INITIAL CRITICALITY:03/24/72

AIRBORNE EFFLUENTS

NUCLIDES RELEASED

ACTIVITY (CI)

MN-54	1.66E-04
CO-58	<8.37E-05
CO-60	3.00E-03
ZN-65	2.20E-04
KR-85M	<5.15E+00
KR-87	<4.29E+01
KR-88	<2.78E+01
SR-89	5.16E-05 5.20E-5
SR-90	9.92E-07 4.73E-6
I-131	1.36E-04
I-133	<1.05E-03
XE-133	<9.66E+02
CS-134	<2.80E-04
I-135	<1.31E-02
XE-135	<5.51E+01
XE-135M	<3.99E+02
CS-137	4.69E-04
XE-138	<1.63E+03
BA-LA-140	<9.75E-04

TRITIUM

(CI)

TOTAL AIRBORNE RELEASE

1.47E+01

8508280438 850822
PDR ADOCK 05000271
R PDR

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:VERMONT YANKEE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1983
SOLID EFFLUENTS

SOLID WASTE DISPOSITION	MODE OF TRANSPORTATION	DESTINATION
NUMBER OF SHIPMENTS	TRUCK	BARNWELL SC
25	TRUCK	BEATTY NV
16	TRUCK	RICHLAND WA
14		

IRRADIATED FUEL SHIPMENTS(DISPOSITION)	MODE OF TRANSPORTATION	DESTINATION
NUMBER OF SHIPMENTS	N/A	N/A
0		

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
A			
Cl-38	%	5.00E-03	
Co-58	%	3.50E+00	1.38E+00
Co-60	%	4.05E+01	5.53E+01
CR-51	%		1.00E-01
CS-134	%	8.00E-01	1.86E+00
CS-137	%	7.50E+00	1.90E+01
FE-59	%	1.30E+00	
I-131	%		1.00E-02
LA-140	%		3.00E-02
MN-54	%	8.30E+00	4.25E+00
MN-56	%	7.00E-01	1.00E-02
NB-95	%	9.30E+00	8.80E-01
SB-125	%	9.40E-02	
ZN-65	%	1.98E+01	1.64E+01
ZR-95	%	8.20E+00	8.00E-01
B			
CO-58	%	9.80E-01	9.80E-01
CO-60	%	2.43E+01	2.43E+01
CS-134	%	2.31E+01	2.30E+01
CS-137	%	4.08E+01	4.08E+01
MN-54	%	2.40E+00	
MN-54	%		2.45E+00
ZN-65	%	8.30E+00	8.38E+00
C			
CO-60	%		7.10E+01
H-3	%		1.79E+01
NB-94	%		<1.00E-03
NI-59	%		6.00E-02
NI-63	%		1.08E+01

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INSTALLATION:VERMONT YANKEE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1983
SOLID EFFLUENTS

TYPE OF WASTE
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
D. OTHER

UNIT	YEAR	TOTAL
M3		1.68E+02
CI		4.94E+02
M3		2.39E+02
CI		7.31E+00
M3		8.20E+00
CI		5.70E+00
M3		0.00E+00
CI		0.00E+00

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INSTALLATION=VERMONT YANKEE

LOCATION 5 MI S BRATTLEBORO, VT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT FOR 1983
SUPPLEMENTAL INFORMATION

UNIT NUMBER 1
TYPE BWR
DOCKET NO. 58-271
COOLING WATER SOURCE CONNECTICUT RIVER

LICENSEE VERMONT YANKEE NUCLEAR POWER
LICENSED POWER (MWT) 1593.
INITIAL CRITICALITY 03/24/72

MAXIMUM PERMISSIBLE CONCENTRATIONS(MICROCURIES/ML)

MEASUREMENTS AND APPROXIMATIONS OF TOTAL RADIOACTIVITY

FISSION AND ACTIVATION GASES

DAILY SAMPLES ARE DRAWN AT THE DISCHARGE OF THE AIR EJECTOR. ISOTOPIC BREAKDOWN OF THE RELEASES ARE DETERMINED FROM THESE SAMPLES. A LOGARITHMIC CHART OF THE STACK GAS MONITOR IS READ DAILY TO DETERMINE THE GROSS RELEASE RATE. AT THE VERY LOW RELEASE RATES NORMALLY ENCOUNTERED DURING OPERATION WITH THE AUGMENTED OFF GAS SYSTEM THE ERROR OF RELEASE RATES MAY BE APPROXIMATELY 100 PERCENT.

IODINES

CONTINUOUS ISOKINETIC SAMPLES ARE DRAWN FROM THE PLANT STACK THROUGH A PARTICULATE FILTER AND CHARCOAL CARTRIDGE. THE FILTERS AND CARTRIDGE ARE REMOVED WEEKLY (IF RELEASES ARE LESS THAN 4 PERCENT OF THE TECH SPEC LIMIT), OR DAILY (IF THEY ARE GREATER THAN 4 PERCENT OF THE LIMIT), AND ARE ANALYZED FOR RADIO-IODINE 131, 132, 133, 134, AND 135. THE IODINES FOUND ON THE FILTER ARE ADDED TO THOSE ON THE CHARCOAL CARTRIDGE. THE ERROR INVOLVED IN THESE STEPS MAY BE APPROXIMATELY FIFTY PERCENT.

PARTICULATES

THE PARTICULATE FILTERS DESCRIBED ABOVE ARE ALSO COUNTED FOR PARTICULATE RADIOACTIVITY. THE ERROR INVOLVED IN THIS SAMPLE IS ALSO APPROXIMATELY 50 PERCENT.

LIQUID EFFLUENTS

RADIOACTIVE LIQUID EFFLUENTS RELEASED FROM THE FACILITY ARE CONTINUOUSLY MONITORED. MEASUREMENTS ARE ALSO MADE ON A REPRESENTATIVE SAMPLE OF EACH BATCH OF RADIOACTIVE LIQUID EFFLUENTS RELEASED. FOR EACH BATCH, STATION RECORDS ARE RETAINED OF THE TOTAL ACTIVITY (MCI) RELEASED, CONCENTRATION (UCI/ML) OF GROSS RADIOACTIVITY, VOLUME (LITERS), AND APPROXIMATE TOTAL QUANTITY OF WATER (LITERS) USED TO DILUTE THE LIQUID EFFLUENT PRIOR TO RELEASE TO THE CONNECTICUT RIVER. EACH BATCH OF RADIOACTIVE LIQUID EFFLUENT RELEASED IS ANALYZED FOR GROSS GAMMA AND GAMMA ISOTOPIC RADIOACTIVITY. A MONTHLY PROPORTIONAL COMPOSITE SAMPLE, COMPRISING AN ALIQUOT OF EACH BATCH RELEASED DURING A MONTH, IS ALSO ANALYZED FOR TRITIUM, SR-89, SR-90, GROSS BETA AND GROSS ALPHA RADIOACTIVITY, IN ADDITION TO GAMMA SPECTROSCOPY.

INSTALLATION=VERMONT YANKEE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR 1983
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	UNIT	QUARTER 1	QUARTER 2	EST TOTAL ERROR %
A. FISSION AND ACTIVATION GASES				
1. TOTAL RELEASE	CI	<u>8.12E</u> 2	<7.78E 2	1.00E 2
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	<1.03E 2	<9.89E 1	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	<9.80E- 2	<1.55E- 2	
B. IODINES				
1. TOTAL IODINE-131	CI	5.18E- 5	2.46E- 5	5.00E 1
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	6.59E- 6	3.13E- 6	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	1.37E- 3	6.53E- 4	
C. PARTICULATES				
1. PARTICULATES WITH HALF-LIVES >8 DAYS	CI	8.38E- 4	1.46E- 3	5.00E 1
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	1.07E- 4	1.85E- 4	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	1.86E- 2	3.23E- 2	
4. GROSS ALPHA RADIOACTIVITY	CI	1.14E- 7	4.50E- 7	
D. TRITIUM				
1. TOTAL RELEASE	CI	5.43E 0	1.43E 0	5.00E 1
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	6.91E- 1	1.81E- 1	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	N/A	N/A	

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INSTALLATION=VERMONT YANKEE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR 1983
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	UNIT	QUARTER 3	QUARTER 4	EST TOTAL ERROR %
A. FISSION AND ACTIVATION GASES				
1. TOTAL RELEASE	CI	<7.52E-2	<7.86E-2	1.00E-2
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	<9.56E-1	<1.00E-2	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	<1.28E-1	<1.37E-1	
B. IODINES				
1. TOTAL IODINE-131	CI	4.02E-5	1.90E-5	5.00E-1
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	5.12E-6	2.42E-6	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	1.07E-3	5.03E-4	
C. PARTICULATES				
1. PARTICULATES WITH HALF-LIVES >8 DAYS	CI	9.36E-4	7.69E-4	5.00E-1
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	1.19E-4	9.78E-5	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	2.20E-2	1.12E-2	
4. GROSS ALPHA RADIOACTIVITY	CI	1.46E-7	1.06E-7	
D. TRITIUM				
1. TOTAL RELEASE	CI	4.91E-0	2.91E-0	5.00E-1
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	6.24E-1	3.70E-1	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	N/A	N/A	

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INSTALLATION=VERMONT YANKEE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR 1983
GASEOUS EFFLUENTS-ELEVATED RELEASE

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE		BATCH MODE	
		QUARTER	QUARTER	QUARTER	QUARTER
		1	2	1	2
FISSION GASES					
KR-85M	CI	<1.56E 0	<2.02E- 1		
KR-87	CI	<1.11E 1	<1.86E 0		
KR-88	CI	<7.42E 0	<1.21E 0		
XE-133	CI	<2.53E 2	<6.91E 2		
XE-135	CI	<1.42E 1	<1.99E 0		
XE-135M	CI	<1.02E 2	<1.54E 1		
XE-138	CI	<4.23E 2	<6.55E 1		
IODINES					
I-131	CI	5.18E- 5	2.46E- 5		
I-133	CI	1.64E- 4	<2.70E- 4		
I-135	CI	2.92E- 3	7.07E- 4		
PARTICULATES					
MN-54	CI	4.20E- 5	6.68E- 5		
CO-58	CI	<6.59E- 5	1.78E- 5		
CO-60	CI	7.39E- 4	1.14E- 3		
ZN-65	CI	2.69E- 6	1.14E- 4		
SR-89	CI	2.38E- 5	3.90E-7		
SR-90	CI	2.75E- 7	7.42E-7		
CS-134	CI	3.29E- 5	<8.22E- 5		
CS-137	CI	2.09E- 5	1.19E- 4		
BA-LA-140	CI	<3.00E- 4	<3.00E- 4		

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INSTALLATION=VERMONT YANKEE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR 1983
GASEOUS EFFLUENTS-ELEVATED RELEASE

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE		BATCH MODE	
		QUARTER 3	QUARTER 4	QUARTER 3	QUARTER 4
FISSION GASES					
KR-85M	CI	<1.68E 0	<1.71E 0		
KR-87	CI	<1.47E 1	<1.52E 1		
KR-88	CI	<9.35E 0	<9.78E 0		
XE-133	CI	<2.01E 1	<1.99E 0		
XE-135	CI	<1.82E 1	<2.07E 1		
XE-135M	CI	<1.34E 2	<1.48E 2		
XE-138	CI	<5.53E 2	<5.89E 2		
IODINES					
I-131	CI	4.02E- 5	1.90E- 5		
I-133	CI	2.95E- 4	<3.18E- 4		
I-135	CI	2.62E- 3	<6.88E- 3		
PARTICULATES					
MN-54	CI	3.32E- 5	2.38E- 5		
CO-60	CI	7.56E- 4	3.62E- 4		
ZN-65	CI	2.78E- 5	7.58E- 5		
SR-89	CI	2.65E- 5	1.31E- 6		
SR-90	CI	2.19E- 7	<4.98E- 7		
CS-134	CI	<8.22E- 5	<8.22E- 5		
CS-137	CI	2.20E- 5	3.07E- 4		
BA-LA-140	CI	7.53E- 5	<3.00E- 4		

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EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT FOR 1983
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

FIRST SIX MONTHS

A.SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL(NOT IRRADIATED FUEL)

	UNIT	6-MONTH PERIOD	EST. TOTAL ERROR, %
1. TYPE OF WASTE			
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	7.19E 1	
	CI	3.24E 2	7.50E 1
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	1.96E 2	
	CI	3.11E 0	7.50E 1
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	0.00E 0	
	CI	0.00E 0	
D. OTHER(DESCRIBE)	M3	0.00E 0	
	CI	0.00E 0	

2. ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

A.	CL-38	%	5.00E- 3
	CO-58	%	3.50E 0
	CO-60	%	4.05E 1
	CS-134	%	8.00E- 1
	CS-137	%	7.50E 0
	FE-59	%	1.30E 0
	MN-54	%	8.30E 0
	MN-56	%	7.00E- 1
	NB-95	%	9.30E 0
	SB-125	%	9.40E- 2
	ZN-65	%	1.98E 1
	ZR-95	%	8.20E 0
B.	CO-58	%	9.80E- 1
	CO-60	%	2.43E 1
	CS-134	%	2.31E 1
	CS-137	%	4.08E 1
	MN-54 Mn-54	%	2.40E 0
	ZN-65	%	8.30E 0

3. SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
7	TRUCK	BARNWELL SC
8	TRUCK	BEATTY NV
6	TRUCK	RICHLAND WA

B. IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

N/D=NOT DETECTABLE

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INSTALLATION-VERMONT YANKEE

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT FOR 1983 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

SECOND SIX MONTHS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (NOT IRRADIATED FUEL)
UNIT 6-MONTH PERIOD EST. TOTAL ERROR, %

1. TYPE OF WASTE	M3	9.50E	1	7.50E	1
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	CI	1.70E	2	7.50E	1
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	CI	4.30E	1	7.50E	1
C. IRRADIATED COMPONENTS, CONTROL PODS, ETC.	CI	4.20E	0	7.50E	1
D. OTHER (DESCRIBE)	CI	8.20E	0	7.50E	1
	CI	5.70E	0	7.50E	1

2. ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

A.	X	1.38E	0
CO-58	X	5.53E	1
CO-60	X	1.00E	1
CR-51	X	1.86E	0
CS-134	X	1.90E	1
CS-137	X	1.00E	2
I-131	X	3.00E	2
LA-140	X	4.25E	0
MN-54	X	1.00E	2
MN-56	X	8.80E	1
NB-95	X	1.64E	1
ZN-65	X	8.00E	1
ZR-95	X	9.80E	1
CO-58	X	2.43E	1
CO-60	X	2.30E	1
CS-134	X	4.08E	1
CS-137	X	2.45E	0
MN-54	X	8.38E	0
ZN-65	X	7.10E	1
CO-60	X	1.79E	1
H-3	X	<1.00E	3
NB-94	X	6.00E	2
NI-59	X	1.08E	1
NI-63	X		

3. SOLID WASTE DISPOSITION
NUMBER OF SHIPMENTS
18
8
8

MODE OF TRANSPORTATION
TRUCK
TRUCK
TRUCK

DESTINATION
BARNWELL SC
BEATTY NV
RICHLAND WA

B. IRRADIATED FUEL SHIPMENTS (DISPOSITION)
NUMBER OF SHIPMENTS
0
N/A

DESTINATION
N/A

N/D-NOT DETECTABLE

N/A-NOT APPLICABLE