

APPENDIX A
REPORT OF RADIOACTIVE EFFLUENTS

Facility M No 110 Docket 50-263 Year 1971

A. LIQUID
Backlog w/ L.C. 2-29-72
File C.V.

Regulatory

	Units	Jan.	Feb.	Mar.	Apr.	May	June
1. Radioactivity (B, Y)							
a) Total release	Curies	3×10^{-7}	6.10^{-7}	4×10^{-6}	1.08×10^{-5}	4.11×10^{-4}	5.82×10^{-4}
b) Average concentration released	uci/ml	7×10^{-14}	3.3×10^{-14}	5.5×10^{-13}	1.3×10^{-12}	1.6×10^{-11}	3.4×10^{-11}
c) Maximum concentration released	uci/ml	3.1×10^{-12}	9.2×10^{-13}	2×10^{-11}	2.6×10^{-10}	2.5×10^{-9}	1.4×10^{-9}
2. Tritium							
a) Total release	Curies	1×10^{-3}	1.37×10^{-3}	3.8×10^{-4}	3.8×10^{-3}	8.4×10^{-4}	5.67×10^{-3}
b) Average concentration released	uci/ml	2.4×10^{-10}	7.6×10^{-11}	5.2×10^{-11}	4.6×10^{-10}	3.4×10^{-11}	3.3×10^{-10}
3. Dissolved noble gases							
a) Total release	Curies	x	x	x	x	x	x
b) Average concentration released	uci/ml	x	x	x	x	x	x
4. Gross Alpha Radioactivity							
a) Total release	Curies	2.1×10^{-8}	3.5×10^{-8}	2.5×10^{-8}	3.1×10^{-8}	3.7×10^{-8}	2.5×10^{-8}
b) Average concentration released	uci/ml	5×10^{-15}	1.9×10^{-15}	3.5×10^{-15}	3.7×10^{-15}	1.5×10^{-15}	1.5×10^{-15}
5. Vol. of liq. waste to disch. canal	liters	2×10^5	9.2×10^5	7.8×10^4	4.9×10^4	8.6×10^4	1.4×10^5
6. Volume of dilution water	liters	4.2×10^9	1.8×10^{10}	7.2×10^9	8.3×10^9	2.5×10^{10}	1.7×10^{10}
7. Isotopes released	Curies						
Ba-La-140		x	x	x	x	x	x
I-133		x	x	x	x	x	x
I-131		x	x	x	x	1×10^{-4}	2.7×10^{-5}
Xe-133		x	x	x	x	x	x
Xe-135		x	x	x	x	x	x
Cs-137		x	x	x	x	x	x
Cs-134		x	x	x	x	x	x
Co-60		x	x	x	x	x	1.1×10^{-6}
Co-58		x	x	x	x	4.6×10^{-5}	1.6×10^{-4}
Cr-51		x	x	x	x	x	1.3×10^{-4}
Mn-54		x	x	x	x	x	x
Zn-65		x	x	x	x	x	x
Sr-90		x	x	x	x	x	x
Others (specify) $Mo^{99} - To^{99m}$		x	x	x	x	8.3×10^{-6}	x
8. Percent of technical specification limit for total activity released	%	7.1×10^{-5}	3.3×10^{-5}	5.5×10^{-4}	1.3×10^{-3}	1.6×10^{-2}	3.4×10^{-2}

(x Unidentified and/or non-detectable)

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APPENDIX A

REPORT OF RADIOACTIVE EFFLUENTS

Facility MonticelloDocket 50-263Year 1971

A. LIQUID RELEASES

	Units	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1. Gross Radioactivity (B, Y)								
a) Total release	Curies	7.4×10^{-3}	1.39×10^{-4}	5.5×10^{-3}	1.09×10^{-5}	2.4×10^{-4}	7.9×10^{-5}	1.43×10^{-2}
b) Average concentration released	uci/ml	2.6×10^{-10}	3.9×10^{-12}	1.4×10^{-10}	2.6×10^{-13}	1.3×10^{-11}	5.2×10^{-12}	
c) Maximum concentration released	uci/ml	1.4×10^{-8}	3.4×10^{-9}	2×10^{-9}	1.2×10^{-10}	1×10^{-9}	9×10^{-11}	
2. Tritium								
a) Total release	Curies	9.2×10^{-3}	3.9×10^{-4}	2.5×10^{-1}	3.2×10^{-4}	3.2×10^{-1}	1×10^{-3}	5.9×10^{-2}
b) Average concentration released	uci/ml	3.2×10^{-10}	1.1×10^{-11}	6.1×10^{-9}	7.7×10^{-12}	1.8×10^{-8}	6.7×10^{-11}	
3. Dissolved noble gases								
a) Total release	Curies	x	x	x	x	x	x	
b) Average concentration released	uci/ml	x	x	x	x	x	x	
4. Gross Alpha Radioactivity								
a) Total release	Curies	3×10^{-8}	1.5×10^{-8}	1.3×10^{-8}	1.1×10^{-8}	4.3×10^{-8}	3×10^{-8}	3.16×10^{-7}
b) Average concentration released	uci/ml	1×10^{-15}	4×10^{-16}	3.1×10^{-16}	2.7×10^{-16}	2.4×10^{-15}	2×10^{-15}	
5. Vol. of liq. waste to disch. canal	Liters	7.9×10^4	1.9×10^4	1.4×10^5	1.6×10^4	2×10^5	8.8×10^4	1.2×10^6
6. Volume of dilution water	Liters	2.9×10^{10}	3.5×10^{10}	4.1×10^{10}	4.1×10^{10}	1.8×10^{10}	1.5×10^{10}	2.6×10^{11}
7. Isotopes released	Curies							
Ba-140		x	x	x	x	x	x	
I-133		x	x	x	x	x	x	
I-131		7.1×10^{-3}	3.1×10^{-6}	4.9×10^{-3}	1.3×10^{-6}	2×10^{-4}	2.2×10^{-5}	1.2×10^{-2}
Xe-133		x	x	x	x	x	x	
Xe-135		x	x	x	x	x	x	
Cs-137		x	x	x	x	x	1×10^{-5}	1×10^{-5}
Cs-134		x	x	x	x	x	x	
Co-60		2.5×10^{-5}	3.3×10^{-6}	2×10^{-5}	x	1.62×10^{-6}	9.7×10^{-6}	6.07×10^{-5}
Co-58		1×10^{-4}	4.2×10^{-5}	2.6×10^{-4}	8.7×10^{-6}	3.6×10^{-5}	3×10^{-5}	6.8×10^{-4}
Cr-51		1.4×10^{-4}	7.8×10^{-5}	4×10^{-5}	x	x	6.2×10^{-6}	3.9×10^{-4}
Mn-54		x	x	x	x	x	x	
Zn-65		x	x	x	x	x	x	
Sr-90		x	x	x	x	x	x	
Others (specify) $\text{Mo}^{99} - \text{Tc}^{99m}$		x	x	x	x	x	x	8.3×10^{-6}
8. Percent of technical specification limit for total activity released	%	2.6×10^{-1}	3.9×10^{-3}	1.4×10^{-1}	2.5×10^{-4}	1.3×10^{-2}	5.2×10^{-3}	

(x Unidentified and/or non-detectable)

B. AIRBORNE RELEASES

	Units	Jan	Feb.	Mar.	Apr.	May	June
1. Total noble gases	curies	x	x	12	58	710	550
2. Total halogens	curies	x	x	5.5x10 ⁻⁶	2.6x10 ⁻⁵	3.2x10 ⁻⁴	2.5x10 ⁻⁴
3. Total particulate gross radioactivity (B, X)	curies	x	x	2.7x10 ⁻⁶	4.5x10 ⁻⁵	5.8x10 ⁻⁴	4.5x10 ⁻⁴
4. Total tritium	curies	x	4.3x10 ⁻⁴	3.8x10 ⁻³	6.5x10 ⁻³	1.7x10 ⁻²	1.5x10 ⁻²
5. Total particulate gross alpha radioactivity	curies	x	x	x	x	x	x
6. Maximum noble gas release rate	uci/sec	x	x	150	900	1875	900
7. Percent of applicable limit for:							
a) noble gases	%	x	x	1.7x10 ⁻³	8.3x10 ⁻³	0.099	0.078
b) halogens	%	x	x	2.3x10 ⁻⁴	1.2x10 ⁻³	0.015	0.012
c) particulates	%						
8. Isotope released:							
Particulates	curies						
Cs-137		x	x	≤1x10 ⁻⁸	≤1x10 ⁻⁸	≤1x10 ⁻⁸	≤1x10 ⁻⁸
Ba-La-140		x	x	≤1x10 ⁻⁸	≤1x10 ⁻⁸	≤1x10 ⁻⁸	≤1x10 ⁻⁸
Sr-90		x	x	≤1x10 ⁻⁸	≤1x10 ⁻⁸	≤1x10 ⁻⁸	≤1x10 ⁻⁸
Cs-134		x	x	x	x	x	x
Sr-89		x	x	x	x	x	x
Halogens	curies						
I-131		(Same as Total Halogens above)					
I-133		x	x	x	x	x	x
I-135		x	x	x	x	x	x
Gases	curies						
Kr-85		x	x	x	x	x	x
Xe-133		x	x	0.3	2	65	140
Kr-88		x	x	1	17	85	80
Kr-87		x	x	0.67	14	54	30
Kr-85m		x	x	0.3	5	65	60
Xe-138		x	x	0.086	4	9	6
Xe-135m		x	x	x	x	x	x
Xe-135		x	x	0.5	8	63	119
Ar-41		x	x	≤15	≤14	≤15	≤15
Others as appropriate (specify)							

(x Unidentified and/or undetectable)

B. AIRBORNE RELEASES

	Units	July	Aug	Sept	Oct	Nov	Dec	Total
1. Total noble gases	curies	1283	16700	21100	26300	9140	-	7.6×10^4
2. Total halogens	curies	1.7×10^{-3}	1.7×10^{-3}	1.5×10^{-2}	8.2×10^{-3}	4.6×10^{-3}	4.4×10^{-4}	3.2×10^{-2}
3. Total particulate gross radioactivity (B, Y)	curies	2.3×10^{-4}	3.6×10^{-4}	5.37×10^{-4}	8.7×10^{-4}	3.1×10^{-4}	3.3×10^{-4}	3.7×10^{-3}
4. Total tritium	curies	6.8×10^{-2}	8.9×10^{-2}	1.3×10^{-1}	2.4×10^{-1}	8.3×10^{-2}	1.1×10^{-2}	6.6×10^{-1}
5. Total particulate gross alpha radioactivity	curies	x	x	x	x	x	x	.
6. Maximum noble gas release rate	uci/sec	11250	14250	15000	14250	11500	11	.
7. Percent of applicable limit for:								
a) noble gases	%	0.178	2.3	3.0	3.7	1.3	-	
b) halogens	%	0.25	1.38	1.9	0.58	1.64	0.29	
c) particulates	%							
8. Isotope released:	curies							
Particulates								
Cs-137		$\leq 5 \times 10^{-8}$	$\leq 5 \times 10^{-8}$	$\leq 1 \times 10^{-7}$	$\leq 1 \times 10^{-7}$	$\leq 1 \times 10^{-7}$	$\leq 1 \times 10^{-8}$	$\leq 5 \times 10^{-7}$
Ba-La-140		$\leq 1 \times 10^{-7}$	$\leq 5 \times 10^{-8}$	$\leq 1 \times 10^{-7}$	$\leq 1 \times 10^{-7}$	$\leq 5 \times 10^{-7}$	x	$\leq 2 \times 10^{-7}$
Sr-90		$\leq 1 \times 10^{-8}$	$\leq 1 \times 10^{-8}$	$\leq 1 \times 10^{-7}$	$\leq 1 \times 10^{-7}$	$\leq 1 \times 10^{-7}$	$\leq 1 \times 10^{-8}$	$\leq 4 \times 10^{-7}$
Cs-134		x	x	x	x	x	x	
Sr-89		x	x	x	x	x	x	
Halogens	curies							
I-131		(Same as total Halogens above)						
I-133		x	x	x	x	x	x	
I-135		x	x	x	x	x	x	
Gases	curies							
Kr-85		x	x	x	x	x	x	
Xe-133		495	2822	2772	4987	2411	-	1.4×10^4
Kr-88		121	2086	1991	4383	1778	-	1×10^3
Kr-87		106	2275	2507	2813	1124	-	8.9×10^3
Kr-85m		93	1562	1413	1902	762	-	5.8×10^3
Xe-138		24	349	900	781	358	-	2.4×10^3
Xe-135m		x	x	x	x	x	-	
Xe-135		145	3743	4570	5120	1988	-	1.6×10^4
Ar-41		≤ 15	≤ 15	≤ 14	≤ 15	≤ 14	≤ 15	≤ 147
Others as appropriate (specify)								

(x Unidentified and/or undetectable)