

SUMMARY (1977-1978)
OCCUPATIONAL RADIATION EXPOSURES

EXXON NUCLEAR COMPANY, INC.

APRIL 1979

657240

79081502631

13216

1977 EXTERNAL RADIATION EXPOSURES* (WHOLE BODY, PENETRATING)

Group	Calendar Quarter								Annual	
	1st		2nd		3rd		4th		Ave.	Max.
	Ave.	Max.	Ave.	Max.	Ave.	Max.	Ave.	Max.		
UF ₆ -UO ₂ Conversion & Scrap Recovery Areas	0.05	0.11	0.13 ⁽²⁾	0.37 ⁽¹⁾	--	--	--	--	0.18 ⁽²⁾	0.40
UO ₂ Pelle. Area	0.07	0.16	0.11	0.20	--	--	--	--	0.23	0.50
UO ₂ Fuel Rod Handling Areas	0.03	0.10	0.08	0.19	--	--	--	--	0.11	0.18
Mixed Oxide & Specialty Fuels Plant	--	--	--	--	--	--	--	--	0.13	0.28
ELO Facility	--	--	--	--	--	--	--	--	0.07	0.11
Quality Control (Including Analytical Laboratories)	0.03	0.09	0.06	0.22	0.04	0.16	0.02	0.04	0.07	0.34
Maintenance	--	--	--	--	--	--	--	--	0.04	0.25

(*) Expressed in rems.

(1) Dosimeter (or holder) contaminated.

(2) Includes data recorded from contaminated dosimeter (or holder).

657211

1978 EXTERNAL RADIATION EXPOSURES* (WHOLE BODY, PENETRATING)

Group	Calendar Quarter								Annual	
	1st		2nd		3rd		4th		Ave.	Max.
	Ave.	Max.	Ave.	Max.	Ave.	Max.	Ave.	Max.		
UF ₆ -UO ₂ Conversion & Scrap Recovery Areas	0.04	0.06	0.09	0.14	0.06	0.13	0.06	0.07	0.22 ⁽²⁾	1.01 ⁽¹⁾
UO ₂ Pellet Area	0.06	0.07	0.11	0.16	--	--	--	--	0.25	1.30 ⁽¹⁾
UO ₂ Fuel Rod Handling Areas	0.03	0.07	0.04	0.06	--	--	--	--	0.11	0.32
Mixed Oxide & Specialty Fuels Plant	--	--	--	--	--	--	--	--	0.14	0.28
ELO Facility	--	--	--	--	--	--	--	--	0.09	0.17
Quality Control (Including Analytical Laboratories)	0.05	0.22	0.05	0.15	0.04	0.06	0.05	0.15	0.15	0.35
Maintenance	--	--	--	--	--	--	--	--	0.08	0.23

(*) Expressed in rems.

(1) Dosimeter (or holder) contaminated.

(2) Includes data recorded from contaminated dosimeter (or holder).

65772/12

1977 ROOM AIR CONCENTRATIONS OF RADIOACTIVE MATERIALS^(*)

Facilities	Calendar Quarter							
	1st		2nd		3rd		4th	
	Ave.	Max.	Ave.	Max.	Ave.	Max.	Ave.	Max.
UF ₆ -UO ₂ Conversion & Scrap Recovery Areas (U)	0.2	5	0.3	55	0.2	19	<0.1	4
UO ₂ Pellet Area (U)	<0.1	1	<0.1	5	<0.1	2	<0.1	1
UO ₂ Fuel Rod Handling Areas (U)	<0.1	0.2	<0.1	0.5	<0.1	<0.1	<0.1	<0.1
Specialty UO ₂ Fuels Fabrication ² (U)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
ELO Facility (U)	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1
Analytical Laboratories (U)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PuO ₂ Process Equipment & Storage Areas (Pu)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

(*) Expressed as multiples of 10^{-10} $\mu\text{Ci}/\text{m}^3$, and do not account for respiratory protection equipment used by personnel.

657213

1978 ROOM AIR CONCENTRATIONS OF RADIOACTIVE MATERIALS (*)

Facilities	Calendar Quarter							
	1st		2nd		3rd		4th	
	Ave.	Max.	Ave.	Max.	Ave.	Max.	Ave.	Max.
UF ₆ -UO ₂ Conversion & Scrap Recovery Areas (U)	<0.1	7	0.1	38	0.2	38	0.4	56
UO ₂ Pellet Area (U)	<0.1	28	<0.1	2	<0.1	3	0.1	1
UO ₂ Fuel Rod Handling Areas (U)	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1
Specialty UO ₂ Fuels Fabrication (U)	<0.1	0.3	<0.1	0.1	<0.1	0.2	<0.1	1
ELO Facility (U)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Analytical Laboratories (U)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PuO ₂ Process Equipment & Storage Areas (Pu)	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

(*) Expressed as multiples of 10^{-10} $\mu\text{Ci/ml}$, and do not account for respiratory protection equipment used by personnel.

657244

1977 URINARY URANIUM CONCENTRATIONS ($\mu\text{g}/\text{l}$)^{*}

Group	Calendar Quarter							
	1st		2nd		3rd		4th	
	Ave.	Max.	Ave.	Max.	Ave.	Max.	Ave.	Max.
UF ₆ -UO ₂ Conversion & Scrap Recovery Areas	< 40	495	< 25	97	< 33	466	< 13	28
UO ₂ Pellet Areas	< 15	30	< 15	47	< 11	13	< 11	19
UO ₂ Fuel Rod Handling Areas	< 13	20	< 11	24	< 11	23	< 10	< 10
Mixed Oxide & Specialty Fuels Plant	< 10	< 10	< 12	19	< 20	48	< 10	< 10
ELO Facility	< 10	< 10	< 11	15	< 10	< 10	< 10	< 10
Quality Control (Including Analytical Laboratories)	< 16	32	< 12	31	< 10	12	< 10	< 10
Maintenance	< 15	43	< 12	40	< 11	29	< 14	22

* 10 $\mu\text{g}/\text{l}$ is the measurement sensitivity limit used.

1978 URINARY URANIUM CONCENTRATIONS ($\mu\text{g}/\ell$)*

Group	Calendar Quarter							
	1st		2nd		3rd		4th	
	Ave.	Max.	Ave.	Max.	Ave.	Max.	Ave.	Max.
UF ₆ -UO ₂ Conversion & Scrap Recovery Areas	< 18	45	< 31	763	< 28	140	< 21	152
UO ₂ Pellet Areas	< 12	27	< 14	71	< 12	37	< 12	38
UO ₂ Fuel Rod Handling Areas	< 16	37	< 11	15	< 11	18	< 10	< 10
Mixed Oxide & Specialty Fuels Plant	< 10	< 10	< 10	< 10	< 13	24	< 10	< 10
ELO Facility	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Quality Control (Including Analytical Laboratories)	< 10	13	< 10	17	< 10	< 10	< 17	78
Maintenance	< 10	15	< 10	25	< 11	24	< 11	23

* 10 $\mu\text{g}/\ell$ is the measurement sensitivity limit used.

1977 ROUTINE IN-VIVO EXAMINATION RESULTS

<u>Group</u>	<u>No. of Employees Examined</u>	<u>Percent of Results Positive</u>	<u>Ave. of Positive^(*) Results</u>	<u>Max. Positive^(*) Result</u>
UF ₆ -UO ₂ Conversion & Scrap Recovery Areas	22	45	55	75
UO ₂ Pellet Area	18	33	50	70
UO ₂ Fuel Rod Handling Areas	37	24	50	82
Mixed Oxide & Specialty Fuels Plant	4	0	N.A.	N.A.
ELO Facility	4	0	N.A.	N.A.
Quality Control (Including Analytical Laboratories)	38	26	55	87
Maintenance	59	24	55	90
Health Physics Technicians	6	17	55	55
Engineering	5	20	50	50

(*) Expressed in μg of U-235.

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1978 ROUTINE IN-VIVO EXAMINATION RESULTS

<u>Group</u>	<u>No. of Employees Examined</u>	<u>Percent of Results Positive</u>	<u>Ave. of Positive^(*) Results</u>	<u>Max. Positive^(*) Result</u>
UF ₆ -UO ₂ Conversion & Scrap Recovery Areas	21	38	62 ⁽¹⁾	92 ⁽¹⁾
UO ₂ Pellet Area	20	35	60 ⁽¹⁾	77
UO ₂ Fuel Rod Handling Areas	15	7	37	37
Mixed Oxide & Specialty Fuels Plant	4	0	N.A.	N.A.
ELO Facility	0	N.A.	N.A.	N.A.
Quality Control (Including Analytical Laboratories)	23	13	50	65
Maintenance	66	20	47 ⁽¹⁾	97
Health Physics Technicians	3	33	70	70
Engineering	2	0	N.A.	N.A.

(*) Expressed in μg of U-235.

(1) Includes data obtained on employees with indication of possible low-level external contamination.

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