2322/U 1116

cy: P. R. Vanstrum - 6
F. L. Culler, Jr. - 3
RFH 3/18/71

UNITED STATES
ATOMIC ENERGY COMMISSION

OAK RIDGE OPERATIONS
P.O. BOX E
OAK RIDGE, TENNESSEE 37830

J. M. Case
G. R. Jasny
R. G. Jordan
W. J. Wilcox, Jr.
R. A. Winkel

AREA CODE 615
TELEPHONE 483-8611

March 16, 1971

PRV 3/18/71

cy: R. C. Baker
W. C. Hartman
J. H. Pashley
R. W. Schaich
I. G. Speas

RGJ 3/22/71

Union Carbide Corporation
Nuclear Division
Attn: Mr. Roger F. Hibbs, President
Post Office Box P
Oak Ridge, Tennessee

RADIOACTIVE EFFLUENTS AND RELEASES

Gentlemen:

Enclosed for your information and use is an OR summary of environmental radioactivity releases and resultant concentrations which was supplied to our AEC Headquarters on March 15, 1971.

The cooperation of your staff in developing and supplying these data promptly as requested on March 4 by our Safety & Environmental Control Division is sincerely appreciated.

Sincerely,

for S. R. Sapirie
Manager
Oak Ridge Operations

OS:JAL

Enclosure:
Radioactivity Releases and Resulting
Environmental Concentrations - CY 1969-70 (4)

cc w/encl:
A. A. Schoen, DOS, HQ

cc w/o encl:
R. C. Armstrong, AMO, OR
C. A. Keller, Production, OR
Herman M. Roth, L&U, OR
B. N. Stiller, PAD,
Joseph A. Lenhard, Safety, OR

COPY

RADIOACTIVITY RELEASES AND RESULTING ENVIRONMENTAL CONCENTRATIONS

FROM MAJOR OR FACILITIES - CY 1970

Facility	Gaseous Releases		Liquid Releases	
	Isotope and Amount	% MPC[1]	Isotope and Amount	% MPC[2]
ORNL	1.43 Ci of 131-I 91,000 Ci of Rare Gases 300 Ci of Tritium[9]	3.5%[3 8] 1.4%[4] .001%	3.9 Ci of 90-Sr 9,500 Ci of Tritium 0.32 Ci of 131-I	123%[6] 29%[6] 9.8%[6]
ORGDP	40 kg of depleted to slightly enriched uranium	0.3%	552 kg[10] of depleted to slightly enriched uranium	<0.2%
GAT	3 kg of depleted to highly enriched uranium	0.18%	130 kg of slightly enriched uranium	0.63%
PAD	1,250 kg of depleted to slightly enriched uranium	1.0%	146 kg of depleted to slightly enriched uranium	1.4%
NLO	1,145 kg of depleted to slightly enriched uranium 30 kg of Thorium	2.8% <0.1%	1,620 kg of depleted to slightly enriched uranium 27 kg of Thorium 0.5 Ci of 228-Ra[11]	2.3%[6] 0.3%[6] 1,700%[6]
Y-12	3.4 kg of highly enriched uranium 36 kg of depleted to intermediate enrichment uranium	0.67%	9 kg of highly enriched uranium to Poplar Creek 20 kg of depleted uranium to Poplar Creek 594 kg[7] of depleted uranium to Bear Creek 105 kg[7] of thorium to Bear Creek	1.6% 1.8%

RADIOACTIVITY RELEASES AND RESULTING ENVIRONMENTAL CONCENTRATIONS

FROM MAJOR OR FACILITIES - CY 1969

Facility	Gaseous Releases		Liquid Releases	
	Isotope and Amount	% MPC[1]	Isotope and Amount	% MPC[2]
ORNL	17 Ci of 131-I 104,000 Ci of rare gases 4,500 Ci of tritium	34%[3] 1.3%[4] <.003%	3.1 Ci of 90-Sr 12,000 Ci of tritium 0.5 Ci of 131-I	141%[6] 45.6%[6] 13.7%[6]
ORGDP	42 kg of depleted to slightly enriched uranium	0.25%	325 kg of depleted to slightly enriched uranium	0.1%
GAT	2 kg of depleted to highly enriched uranium	0.39%	83 kg of slightly enriched uranium	0.75%
PAD	1900 kg of depleted to slightly enriched uranium	1%	117 kg of depleted to slightly enriched uranium	1.7%
NLO	1423 kg of depleted to slightly enriched uranium 282 kg of thorium	<5%[5] <0.1%	2620 kg of depleted to slightly enriched uranium 1.6 Ci of 228-Ra 63 kg of thorium	3.8%[6] 2800%[6] 0.7%[6]
Y-12	3.7 kg of highly enriched uranium 64 kg of depleted to slightly enriched uranium	1.5%	11 kg highly enriched uranium to Poplar Creek 39 kg of depleted uranium to Poplar Creek 535 kg[7] of depleted uranium to Bear Creek 95 kg[7] of thorium to Bear Creek	3.0% 1.3%

Footnotes

[1] Airborne MPCs are for the site boundaries.

[2] Liquid MPCs are at the point where effluent stream leaves the site before dilution in receiving stream.

[3] MPC for 131-I based on a factor of 700 reconcentration in milk.

[4] This MPC calculated on much more hazardous composition of Rare Gases than is likely released.

[5] Sampling and data treatment permits no greater accuracy for 1969.

[6] These concentrations receive particularly large dilution in receiving streams.

[7] These figures are very crude estimates.

[8] Reduction of iodine releases for 1970 due to improvements in charcoal filtration.

[9] Reduction of Tritium due to MSRE shutdown.

[10] This release is high in 1970 due to accidental release of 227 kg.

[11] The 228-Ra release was reduced in 1970 by better than a factor of two through improved treatment.