

IPEC Summary for Storm & Ground Water releases (H-3, Ni-63, Sr-90), compared to site limits Teen

Sum of IPEC monitoring well calculations for units 1, 2, & 3 (Areas 2, 3a, & 3b)

Doses, in mrem

ISOTOPE	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GILLI	uCi
H-3	0.00E+00	6.93E-06	6.93E-06	6.93E-06	6.93E-06	6.93E-06	6.93E-06	8.05E+05
Ni-63	1.37E-03	9.71E-05	4.67E-05	0.00E+00	0.00E+00	0.00E+00	1.55E-05	6.73E+02
Sr-90	8.17E-03	0.00E+00	2.01E-03	0.00E+00	0.00E+00	0.00E+00	2.29E-04	3.91E+02
totals	9.54E-03	1.04E-04	2.07E-03	6.93E-06	6.93E-06	6.93E-06	2.52E-04	8.06E+05

Storm Drain Water from Zone B, East/West Unit 2, near MH-2, going to river directly

Doses, in mrem

ISOTOPE	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GILLI	uCi
H-3	0.00E+00	1.26E-07	1.26E-07	1.26E-07	1.26E-07	1.26E-07	1.26E-07	1.46E+04

Storm Drain Water from Zones C and D/E (Central U2 & U1/U3) to Discharge Canal

Doses, in mrem

ISOTOPE	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GILLI	uCi
H-3	0.00E+00	2.17E-08	2.17E-08	2.17E-08	2.17E-08	2.17E-08	2.17E-08	1.58E+05

Totals:

Doses, in mrem

H-3 only	0.00E+00	7.08E-06	7.08E-06	7.08E-06	7.08E-06	7.08E-06	7.08E-06	9.77E+05
H-3, Ni-63, Sr-90	9.54E-03	1.04E-04	2.07E-03	7.08E-06	7.08E-06	7.08E-06	2.52E-04	uCi H-3
% Annual Limit	0.095	0.001	0.069	0.00007	0.00007	0.00007	0.003	

Johnson River via Bedrock Pathway

determined by samples from Monitoring Wells - Area 3a)

Release Rate ml/day or 8.62E+03 gpd or 5.98 gpmDuration of Release, in days Waste vol released = 3.15E+06 galDilution flow gpm Dilution vol released = 5.83E+10 galDil Factor 5.39E-05 (dilution data per *IP-CHM-05-042* from Dr. John Hamawi)

	Activity	10CFR20	PRE	POST	POST	MICRO-
ISOTOPE	Released	EC*10	DILUTION	DILUTION	DILUTION	CURIES
	uCi/ml	conc limit	CONC/MPC	uCi/ml	CONC/MPC	RELEASED
H-3	3.41E-05	1.00E-02	3.41E-03	1.84E-09	1.84E-07	4.06E+05
MN-54		3.00E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FE-55		1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO-58		2.00E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO-60		3.00E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NI-63	5.65E-08	1.00E-03	5.65E-05	3.05E-12	3.05E-09	6.73E+02
SR-90	3.00E-08	5.00E-06	6.00E-03	1.62E-12	3.24E-07	3.57E+02
SB-125		3.00E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CS-134		9.00E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CS-137		1.00E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO-57		6.00E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL	3.42E-05	n/a	9.47E-03	1.84E-09	5.10E-07	4.07E+05

NUREG 0133 "Applicable Factor" for Near Field Dilution =

Teen Total Body mrem

ISOTOPE	BONE	LIVER	TOTBODY	THYROID	KIDNEY	LUNG	GILLI
H-3	0.00E+00	3.49E-06	3.49E-06	3.49E-06	3.49E-06	3.49E-06	3.49E-06
MN-54	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FE-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO-58	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO-60	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NI-63	1.37E-03	9.71E-05	4.67E-05	0.00E+00	0.00E+00	0.00E+00	1.55E-05
SR-90	7.47E-03	0.00E+00	1.84E-03	0.00E+00	0.00E+00	0.00E+00	2.10E-04
SB-125	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CS-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CS-137	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO-57	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL	8.84E-03	1.01E-04	1.89E-03	3.49E-06	3.49E-06	3.49E-06	2.29E-04

o Hudson River via Bedrock Pathway

, as determined by samples from Monitoring Wells - Area 2)

Release Rate ml/day or 4.85E+03 gpd or 3.37 gpm

Duration of Release, in days Waste vol released = 1.77E+06 gal

Dilution flow gpm Dilution vol released = 5.83E+10 gal

Dil Factor 3.03E-05 (dilution data per IP-CHM-05-042 from Dr. John Hamawi)

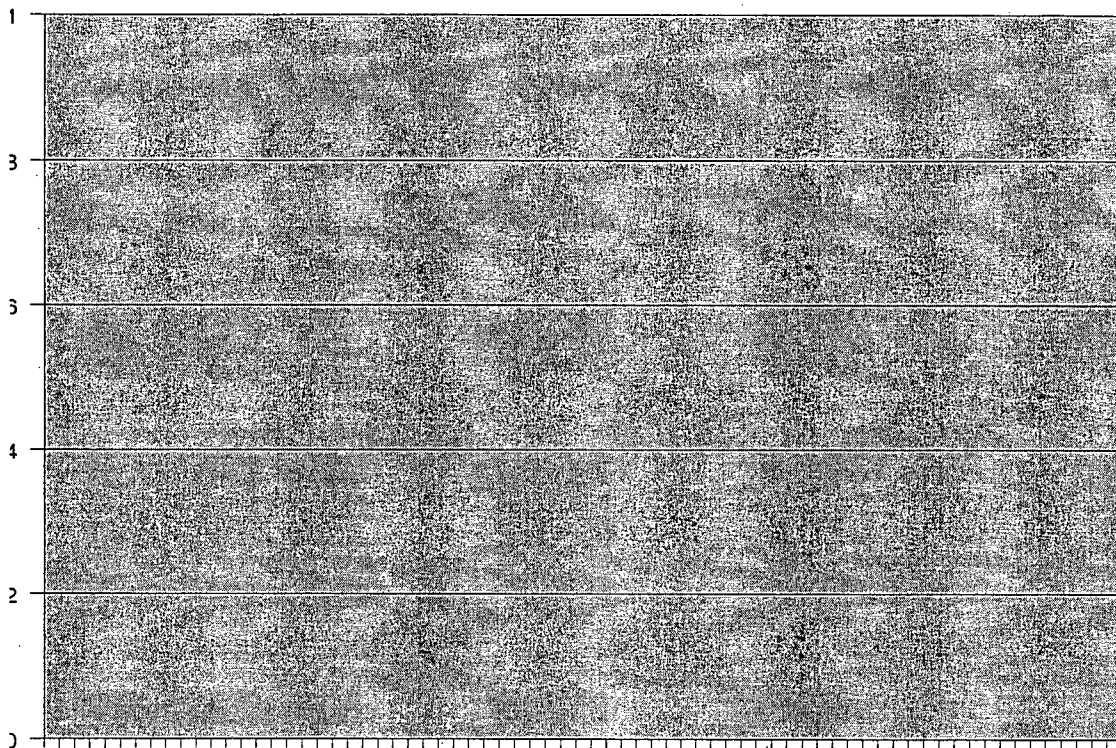
ISOTOPE	Activity Released uCi/ml	10CFR20 EC*10 conc limit	PRE DILUTION CONC/MPC	POST DILUTION uCi/ml	POST DILUTION CONC/MPC	MICRO- CURIES RELEASED
H-3	5.81E-05	1.00E-02	5.81E-03	1.76E-09	1.76E-07	3.89E+05
MN-54		3.00E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FE-55		1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO-58		2.00E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO-60		3.00E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NI-63		1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SR-90	5.00E-09	5.00E-06	1.00E-03	1.52E-13	3.03E-08	3.35E+01
SB-125		3.00E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CS-134		9.00E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CS-137		1.00E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO-57		6.00E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL	5.81E-05	n/a	6.81E-03	1.76E-09	2.07E-07	3.89E+05

NUREG 0133 "Applicable Factor" for Near Field Dilution =

Teen Total Body mrem

ISOTOPE	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GILLI
H-3	0.00E+00	3.35E-06	3.35E-06	3.35E-06	3.35E-06	3.35E-06	3.35E-06
MN-54	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FE-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO-58	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO-60	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NI-63	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SR-90	7.00E-04	0.00E+00	1.73E-04	0.00E+00	0.00E+00	0.00E+00	1.97E-05
SB-125	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CS-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CS-137	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO-57	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL	7.00E-04	3.35E-06	1.76E-04	3.35E-06	3.35E-06	3.35E-06	2.30E-05

Precipitation (inches) at IPEC



Teen Dose Factors

ISOTOPE	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	2.17E-01	2.17E-01	2.17E-01	2.17E-01	2.17E-01	2.17E-01
MN-54	0.00E+00	5.33E+03	1.06E+03	0.00E+00	1.59E+03	0.00E+00	1.09E+04
FE-55	3.35E+04	2.37E+04	5.43E+03	0.00E+00	0.00E+00	1.51E+04	1.03E+04
CO-58	0.00E+00	5.10E+02	1.18E+03	0.00E+00	0.00E+00	0.00E+00	7.04E+03
CO-60	0.00E+00	1.48E+03	3.32E+03	0.00E+00	0.00E+00	0.00E+00	1.92E+04
NI-63	5.15E+04	3.64E+03	1.75E+03	0.00E+00	0.00E+00	0.00E+00	5.79E+02
SR-90	5.27E+05	0.00E+00	1.30E+05	0.00E+00	0.00E+00	0.00E+00	1.48E+04
SB-125	3.27E+02	3.58E+00	7.64E+01	3.11E-01	0.00E+00	2.85E+02	2.53E+03
CS-134	4.24E+04	9.97E+04	4.63E+04	0.00E+00	3.17E+04	1.21E+04	1.24E+03
CS-137	5.67E+04	7.54E+04	2.63E+04	0.00E+00	2.57E+04	9.97E+03	1.07E+04
CO-57	0.00E+00	1.25E+02	2.10E+02	0.00E+00	0.00E+00	0.00E+00	2.33E+03

Precipitation (inches) at IPEC

