

J. Noggle (R1)

From: "Sandike, Steven Richard" <SSandik@entergy.com>
To: <jdn@nrc.gov>
Date: 4/25/06 4:08PM

These are the 3 age groups for the ground water pathway.
Each describe the latest model from our hydrologist.

<<LiqDoseCalc-child-Ap06.xls>> <<LiqDoseCalc-teen-Ap06.xls>>
<<LiqDoseCalc-adult-Ap06.xls>>

To keep it simple, I just used 3 separate files, same model, same flows,
but of course, different Ait values for the 3 different age groups.

The pdf is a compilation of Unit 1 and 2 routine effluents, by age
group, organ, and isotope, for 2005.

<<RG121-U2-liq.pdf>>

Together, you can see where the "critical" organ and age groups are
derived for the RG 1.21 report's listing for routine effluents, and the
special addendum for ground water.

Steve Sandike
Effluents / RMS
ENN Indian Point Energy Center
Buchanan, NY 10511-0308
phone: 914-736-8455
fax: 914-734-6010
email: ssandik@entergy.com

B-32

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

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	GI-LLI	uCi
H-3	0.00E+00	5.78E-06	5.78E-06	5.78E-06	5.78E-06	5.78E-06	5.78E-06	8.05E+05
Ni-63	1.83E-03	9.79E-05	6.22E-05	0.00E+00	0.00E+00	0.00E+00	6.59E-06	6.73E+02
Sr-90	7.25E-03	0.00E+00	1.84E-03	0.00E+00	0.00E+00	0.00E+00	9.76E-05	3.91E+02
totals	9.08E-03	1.04E-04	1.91E-03	5.78E-06	5.78E-06	5.78E-06	1.10E-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	GI-LLI	uCi
H-3	0.00E+00	1.05E-07	1.05E-07	1.05E-07	1.05E-07	1.05E-07	1.05E-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	GI-LLI	uCi
H-3	0.00E+00	1.81E-08	1.81E-08	1.81E-08	1.81E-08	1.81E-08	1.81E-08	1.58E+05

Totals:

Doses, in mrem								
H-3 only	0.00E+00	5.90E-06	5.90E-06	5.90E-06	5.90E-06	5.90E-06	5.90E-06	9.77E+05
	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GI-LLI	uCi H-3
H-3, Ni-63, Sr-90	9.08E-03	1.04E-04	1.91E-03	5.90E-06	5.90E-06	5.90E-06	1.10E-04	
% Annual Limit	0.091	0.001	0.064	0.0001	0.0001	0.0001	0.001	

IP1 Releases to Hudson River via Bedrock Pathway

(from the area near IP1 waterfront, as determined by samples from Monitoring Wells - Area 3a)

Release Rate 3.26E+07 ml/day or 8.62E+03 gpd or 5.98 gpm

Duration of Release, in days 365 Waste vol released = 3.14E+06 gal

Dilution flow 1.11E+05 gpm Dilution vol released = 5.83E+10 gal

Dil 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	3.23E-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 =

1.00E+00

Child Total Body mrem

ISOTOPE	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	2.91E-06	2.91E-06	2.91E-06	2.91E-06	2.91E-06	2.91E-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	1.83E-03	9.79E-05	6.22E-05	0.00E+00	0.00E+00	0.00E+00	6.59E-06
SR-90	6.63E-03	0.00E+00	1.69E-03	0.00E+00	0.00E+00	0.00E+00	8.92E-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	8.46E-03	1.01E-04	1.75E-03	2.91E-06	2.91E-06	2.91E-06	9.88E-05

IP2 Activity Releases to Hudson River via Bedrock Pathway

(from the area near IP2 transformer yard, as determined by samples from Monitoring Wells - Area 2)

Release Rate 1.84E+07 ml/day or 4.85E+03 gpd or 3.37 gpm

Duration of Release, in days 365 Waste vol released = 1.77E+06 gal

Dilution flow 1.11E+05 gpm Dilution vol released = 5.83E+10 gal

Dil Factor 3.03E-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	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

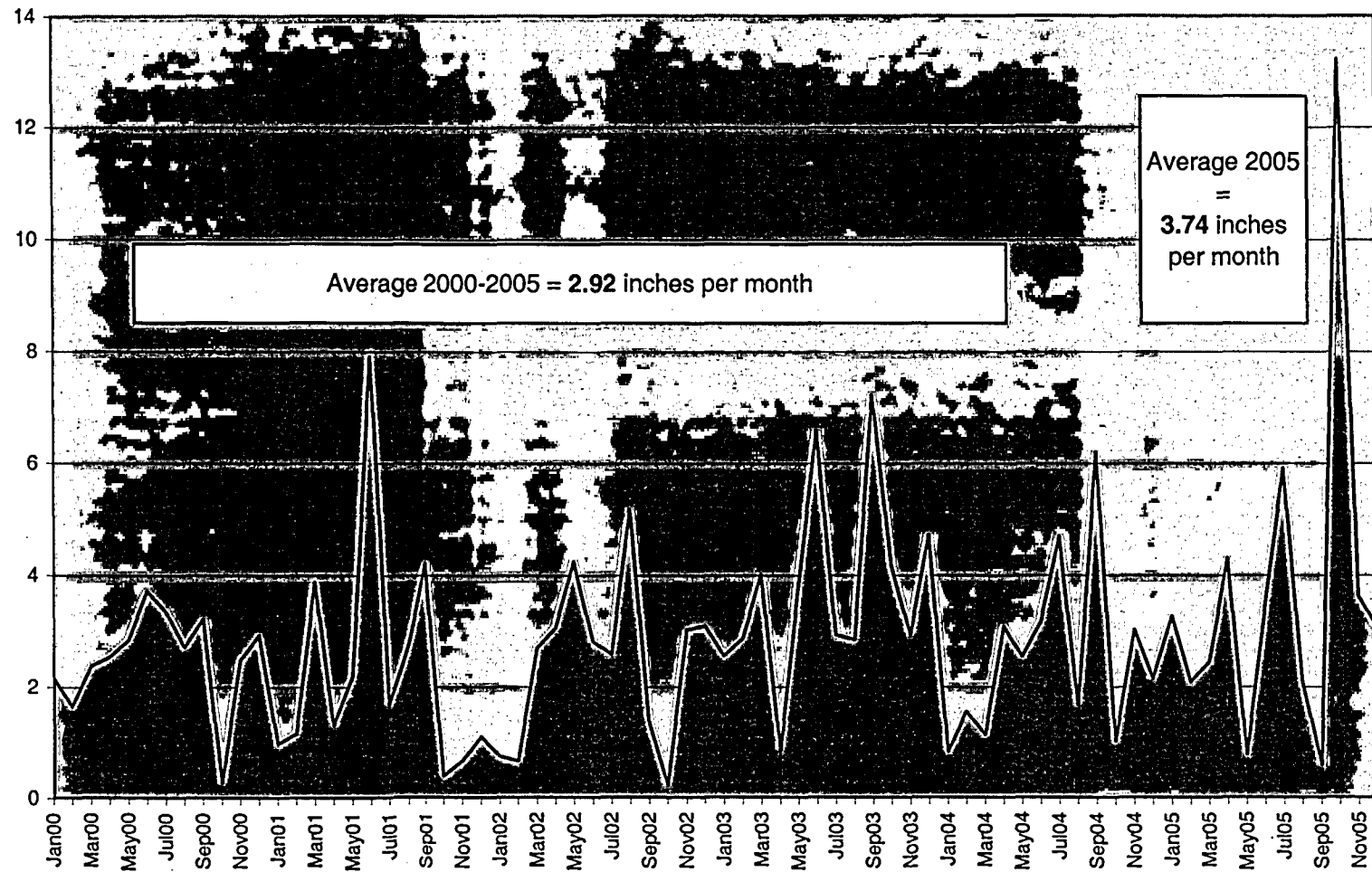
NUREG 0133 "Applicable Factor" for Near Field Dilution =

1.00E+00

Child Total Body mrem

ISOTOPE	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	2.80E-06	2.80E-06	2.80E-06	2.80E-06	2.80E-06	2.80E-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	6.22E-04	0.00E+00	1.58E-04	0.00E+00	0.00E+00	0.00E+00	8.37E-06
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	6.22E-04	2.80E-06	1.61E-04	2.80E-06	2.80E-06	2.80E-06	1.12E-05

Precipitation (Inches) at IPEC



Child Dose Factors

ISOTOPE	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	1.81E-01	1.81E-01	1.81E-01	1.81E-01	1.81E-01	1.81E-01
MN-54	0.00E+00	4.20E+03	1.12E+03	0.00E+00	1.18E+03	0.00E+00	3.53E+03
FE-55	4.55E+04	2.42E+04	7.48E+03	0.00E+00	0.00E+00	1.37E+04	4.47E+03
CO-58	0.00E+00	4.20E+02	1.29E+03	0.00E+00	0.00E+00	0.00E+00	2.45E+03
CO-60	0.00E+00	1.23E+03	3.64E+03	0.00E+00	0.00E+00	0.00E+00	6.84E+03
NI-63	6.85E+04	3.67E+03	2.33E+03	0.00E+00	0.00E+00	0.00E+00	2.47E+02
SR-90	4.68E+05	0.00E+00	1.19E+05	0.00E+00	0.00E+00	0.00E+00	6.30E+03
SB-125	4.22E+02	3.25E+00	8.85E+01	3.91E-01	0.00E+00	2.35E+02	1.01E+03
CS-134	5.15E+04	8.44E+04	1.78E+04	0.00E+00	2.62E+04	9.39E+03	4.55E+02
CS-137	7.19E+04	6.88E+04	1.02E+04	0.00E+00	2.24E+04	8.07E+03	4.31E+02
CO-57	0.00E+00	1.15E+02	2.33E+02	0.00E+00	0.00E+00	0.00E+00	9.43E+02

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	GI-LLI	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	GI-LLI	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	GI-LLI	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
	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GI-LLI	uCi H-3
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	
% Annual Limit	0.095	0.001	0.069	0.0001	0.0001	0.0001	0.003	

IP1 Releases to Hudson River via Bedrock Pathway

(from the area near IP1 waterfront, as determined by samples from Monitoring Wells - Area 3a)

Release Rate 3.26E+07 ml/day or 8.62E+03 gpd or 5.98 gpm

Duration of Release, in days 365 Waste vol released = 3.15E+06 gal

Dilution flow 1.11E+05 gpm Dilution vol released = 5.83E+10 gal

Dil 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 =

1.00E+00

Teen Total Body mrem

ISOTOPE	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GI-LLI
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

IP2 Activity Releases to Hudson River via Bedrock Pathway

(from the area near IP2 transformer yard, as determined by samples from Monitoring Wells - Area 2)

Release Rate 1.84E+07 ml/day or 4.85E+03 gpd or 3.37 gpm

Duration of Release, in days 365 Waste vol released = 1.77E+06 gal

Dilution flow 1.11E+05 gpm Dilution vol released = 5.83E+10 gal

Dil Factor 3.03E-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	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

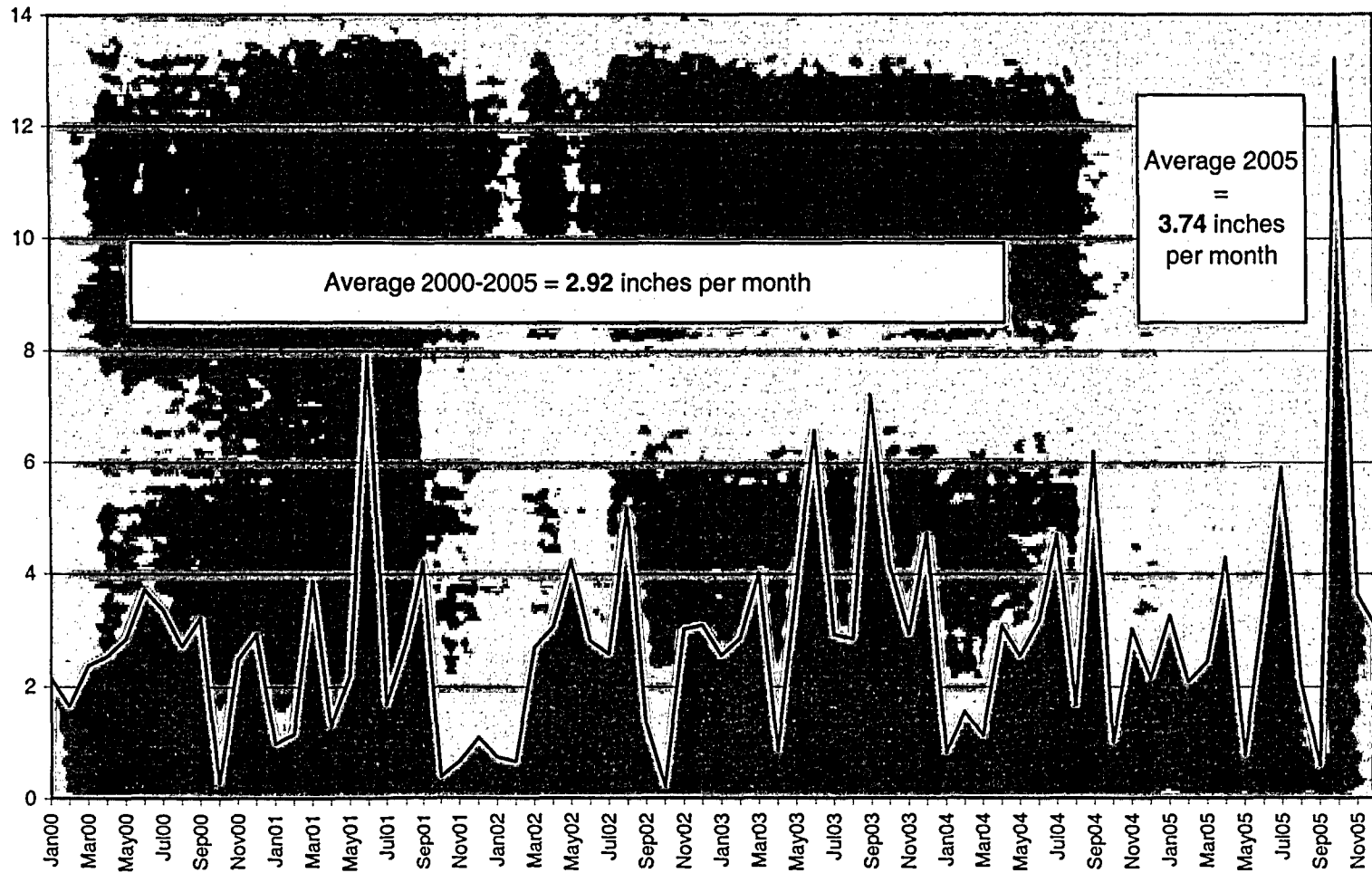
NUREG 0133 "Applicable Factor" for Near Field Dilution =

1.00E+00

Teen Total Body mrem

ISOTOPE	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GI-LLI
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

IPEC Summary for Storm & Ground Water releases (H-3, Ni-63, Sr-90)

Adult mrem (most limiting)

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	GI-LLI	uCi
H-3	0.00E+00	9.00E-06	9.00E-06	9.00E-06	9.00E-06	9.00E-06	9.00E-06	8.05E+05
Ni-63	1.33E-03	9.20E-05	4.45E-05	0.00E+00	0.00E+00	0.00E+00	1.92E-05	6.72E+02
Sr-90	9.79E-03	0.00E+00	2.40E-03	0.00E+00	0.00E+00	0.00E+00	2.82E-04	3.90E+02
totals	1.11E-02	1.01E-04	2.45E-03	9.00E-06	9.00E-06	9.00E-06	3.10E-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	GI-LLI	uCi
H-3	0.00E+00	1.63E-07	1.63E-07	1.63E-07	1.63E-07	1.63E-07	1.63E-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	GI-LLI	uCi
H-3	0.00E+00	2.82E-08	2.82E-08	2.82E-08	2.82E-08	2.82E-08	2.82E-08	1.58E+05

Totals:

H-3 only

Doses, in mrem								
0.00E+00	9.19E-06	9.19E-06	9.19E-06	9.19E-06	9.19E-06	9.19E-06	9.19E-06	9.77E+05
BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GI-LLI		uCi H-3
H-3, Ni-63, Sr-90	1.11E-02	1.01E-04	2.45E-03	9.19E-06	9.19E-06	9.19E-06	3.10E-04	see above

% Annual Limit	0.111	0.001	0.082	0.0001	0.0001	0.0001	0.003
----------------	-------	-------	-------	--------	--------	--------	-------

Storm Drain Zone B (MH-2 East & West Unit 2) to the Hudson River directly

Release Rate 6.15E+07 ml/day or 1.62E+04 gpd or 11.28 gpm

Duration of Release, in days 365 Waste vol released = 5.93E+06 gal

Dilution flow 1.11E+05 gpm Dilution vol released = 5.83E+10 gal

Dil Factor 1.02E-04 (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	6.51E-07	1.00E-02	6.51E-05	6.62E-11	6.62E-09	1.46E+04
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-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
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	6.51E-07	n/a	6.51E-05	6.62E-11	6.62E-09	1.46E+04

NUREG 0133 "Applicable Factor" for Near Field Dilution =

1.00E+00

Adult Total Body mrem

ISOTOPE	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	1.63E-07	1.63E-07	1.63E-07	1.63E-07	1.63E-07	1.63E-07
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
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	0.00E+00	1.63E-07	1.63E-07	1.63E-07	1.63E-07	1.63E-07	1.63E-07

**Central Unit 2 Storm Drain Releases to the Hudson River
via the Discharge Canal (Zone C)**

Release Rate 3.23E+07 ml/day or 8.54E+03 gpd or 5.93 gpm

Duration of Release, in days 365 Waste vol released = 3.12E+06 gal

Dilution flow 1.39E+06 gpm Dilution vol released = 7.31E+11 gal

Dil Factor 4.27E-06 (dilution from actual 2005 data)

	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 *	2.90E-06	1.00E-02	2.90E-04	1.24E-11	1.24E-09	3.42E+04
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-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
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	2.90E-06	n/a	2.90E-04	1.24E-11	1.24E-09	3.42E+04

* No gamma identified in storm drains, and 2.9E-6 was avg effluent H-3 in 2005 from MH-4a.

NUREG 0133 "Applicable Factor" for Near Field Dilution =

5.00E+00

Adult Total Body mrem

ISOTOPE	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	6.11E-09	6.11E-09	6.11E-09	6.11E-09	6.11E-09	6.11E-09
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
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	0.00E+00	6.11E-09	6.11E-09	6.11E-09	6.11E-09	6.11E-09	6.11E-09

Storm Drain Releases to the Hudson River via the Discharge Canals from Units 1 and 3 (Zones D and E)

Release Rate **2.17E+08** ml/day or 5.72E+04 gpd or 39.75 gpm

Duration of Release, in days **365** Waste vol released = 2.09E+07 gal

Dilution flow **1.39E+06** gpm Dilution vol released = 7.31E+11 gal

Dil Factor 2.86E-05 (dilution from actual 2005 data)

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 *	1.56E-06	1.00E-02	1.56E-04	4.46E-11	4.46E-09	1.23E+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-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
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	1.56E-06	n/a	1.56E-04	4.46E-11	4.46E-09	1.23E+05

* No gamma identified in storm drains, and 1.56E-6 was average of effected Storm Drains in 2005

NUREG 0133 "Applicable Factor" for Near Field Dilution =

5.00E+00

Adult Total Body mrem

ISOTOPE	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	2.20E-08	2.20E-08	2.20E-08	2.20E-08	2.20E-08	2.20E-08
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
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	0.00E+00	2.20E-08	2.20E-08	2.20E-08	2.20E-08	2.20E-08	2.20E-08

IP3 Releases to Hudson River via Bedrock Pathway

(from the area near IP3 waterfront, as determined by samples from Monitoring Wells - Area 3b)

Release Rate 4.26E+07 ml/day or 1.13E+04 gpd or 7.82 gpm

Duration of Release, in days 365 Waste vol released = 4.11E+06 gal

Dilution flow 1.11E+05 gpm Dilution vol released = 5.83E+10 gal

Dil Factor 7.04E-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	6.20E-07	1.00E-02	6.20E-05	4.37E-11	4.37E-09	9.64E+03
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-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
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	6.20E-07	n/a	6.20E-05	4.37E-11	4.37E-09	9.64E+03

NUREG 0133 "Applicable Factor" for Near Field Dilution =

1.00E+00

Adult Total Body mrem

ISOTOPE	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	1.08E-07	1.08E-07	1.08E-07	1.08E-07	1.08E-07	1.08E-07
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
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	0.00E+00	1.08E-07	1.08E-07	1.08E-07	1.08E-07	1.08E-07	1.08E-07

IP1 Releases to Hudson River via Bedrock Pathway

(from the area near IP1 waterfront, as determined by samples from Monitoring Wells - Area 3a)

Release Rate 3.26E+07 ml/day or 8.61E+03 gpd or 5.98 gpm

Duration of Release, in days 365 Waste vol released = 3.14E+06 gal

Dilution flow 1.11E+05 gpm Dilution vol released = 5.83E+10 gal

Dil 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	3.04E-12	3.04E-09	6.72E+02
SR-90	3.00E-08	5.00E-06	6.00E-03	1.62E-12	3.23E-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

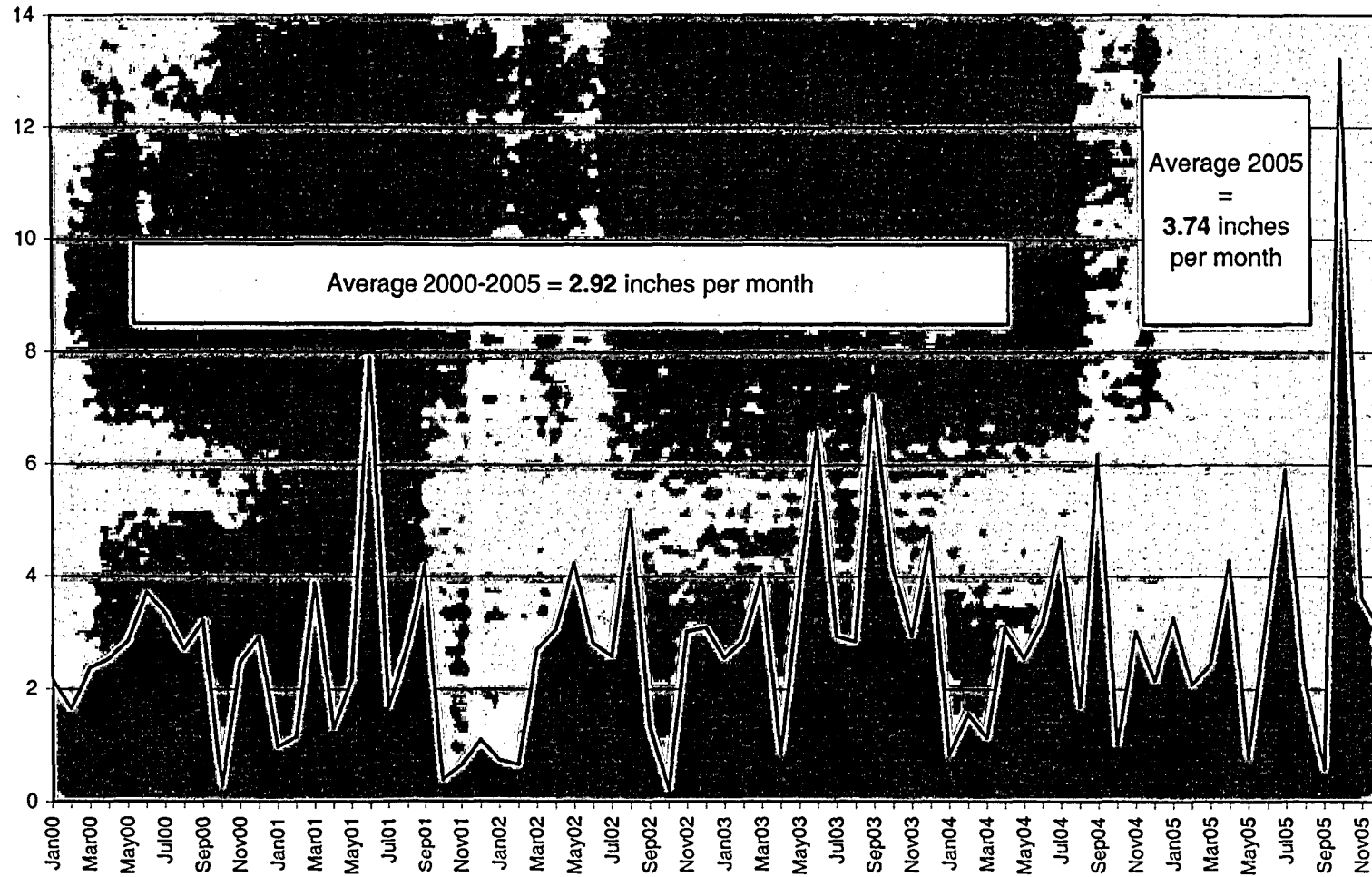
NUREG 0133 "Applicable Factor" for Near Field Dilution =

1.00E+00

Adult Total Body mrem

ISOTOPE	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	4.54E-06	4.54E-06	4.54E-06	4.54E-06	4.54E-06	4.54E-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	1.33E-03	9.20E-05	4.45E-05	0.00E+00	0.00E+00	0.00E+00	1.92E-05
SR-90	8.95E-03	0.00E+00	2.19E-03	0.00E+00	0.00E+00	0.00E+00	2.58E-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	1.03E-02	9.65E-05	2.24E-03	4.54E-06	4.54E-06	4.54E-06	2.81E-04

Precipitation (inches) at IPEC



Adult Dose Factors Only

ISOTOPE	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	2.82E-01	2.82E-01	2.82E-01	2.82E-01	2.82E-01	2.82E-01
MN-54	0.00E+00	5.43E+03	1.04E+03	0.00E+00	1.61E+03	0.00E+00	1.66E+04
FE-55	3.21E+04	2.21E+04	5.16E+03	0.00E+00	0.00E+00	1.24E+04	1.27E+04
CO-58	0.00E+00	5.15E+02	1.15E+03	0.00E+00	0.00E+00	0.00E+00	1.04E+04
CO-60	0.00E+00	1.48E+03	3.26E+03	0.00E+00	0.00E+00	0.00E+00	2.78E+04
NI-63	4.97E+04	3.45E+03	1.67E+03	0.00E+00	0.00E+00	0.00E+00	7.19E+02
SR-90	6.32E+05	0.00E+00	1.55E+05	0.00E+00	0.00E+00	0.00E+00	1.82E+04
SB-125	3.11E+02	3.47E+00	7.40E+01	3.16E-01	0.00E+00	2.40E+02	3.42E+03
CS-134	4.14E+04	9.84E+04	8.04E+04	0.00E+00	3.18E+04	1.06E+04	1.72E+03
CS-137	5.30E+04	7.25E+04	4.75E+04	0.00E+00	2.46E+04	8.18E+03	1.40E+03
CO-57	0.00E+00	1.21E+02	2.01E+02	0.00E+00	0.00E+00	0.00E+00	3.07E+03

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

Child Dose Factors

ISOTOPE	BONE	LIVER	TOT BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	1.81E-01	1.81E-01	1.81E-01	1.81E-01	1.81E-01	1.81E-01
MN-54	0.00E+00	4.20E+03	1.12E+03	0.00E+00	1.18E+03	0.00E+00	3.53E+03
FE-55	4.55E+04	2.42E+04	7.48E+03	0.00E+00	0.00E+00	1.37E+04	4.47E+03
CO-58	0.00E+00	4.20E+02	1.29E+03	0.00E+00	0.00E+00	0.00E+00	2.45E+03
CO-60	0.00E+00	1.23E+03	3.64E+03	0.00E+00	0.00E+00	0.00E+00	6.84E+03
NI-63	6.85E+04	3.67E+03	2.33E+03	0.00E+00	0.00E+00	0.00E+00	2.47E+02
SR-90	4.68E+05	0.00E+00	1.19E+05	0.00E+00	0.00E+00	0.00E+00	6.30E+03
SB-125	4.22E+02	3.25E+00	8.85E+01	3.91E-01	0.00E+00	2.35E+02	1.01E+03
CS-134	5.15E+04	8.44E+04	1.78E+04	0.00E+00	2.62E+04	9.39E+03	4.55E+02
CS-137	7.19E+04	6.88E+04	1.02E+04	0.00E+00	2.24E+04	8.07E+03	4.31E+02
CO-57	0.00E+00	1.15E+02	2.33E+02	0.00E+00	0.00E+00	0.00E+00	9.43E+02

Report Date.....: 03/22/2006 08:38
 Report Name.....: Liquid Dose Summary Report
 Release Sources.....: Steam Generator Blowdown
 Sphere Found Drain Sump
 North Curtain Drain
 Distillate Tank 13
 Distillate Tank 14
 Steam Generator Drain Down 21
 Steam Generator Drain Down 22
 Steam Generator Drain Down 23
 Steam Generator Drain Down 24
 Unplanned Batch Release
 Non-Routine Batch Release
 Start Date.....: 01/01/2005 00:00
 End Date.....: 04/01/2005 00:00

1st Qtr 2005

Period Duration (mins).....: 1.296e+05
 Universal Scaling Factor.....: 1.0
 Include PreRelease/Open Permits: NO
 Permit/Period Based Doses.....: PERIOD
 Delta T1 Duration.....: Period
 Delta T2 Duration.....: Period
 Delta T3 Duration.....: Period
 Dose Projection.....: NO

TOTALS BY RELEASE POINT

Release Point.....: Discharge Canal
 Release Duration (min).....: 3.902e+05
 Undiluted Volume (gal).....: 1.910e+07
 Dilution Volume (gal).....: 1.117e+11
 Mixing Factor.....: 5.000e+00
 Pathway Factors.....: Potable Water (PWtr).....: 1.000e+00
 SW Invt & FW Fish (SIFF).....: 1.000e+00
 Fresh Water Fish - Comm. (FFCM).....: 1.000e+00
 Shoreline Sediment (SHDp).....: 1.000e+00
 Conc Dil Factor (w/o Mixing)....: 1.710e-04
 Dose Dil Factor (w/Mixing).....: 3.419e-05

Nuclide	Activity (uCi)	Avg Und Conc (uCi/ml)	Diluted Conc (uCi/ml)	EC Limit (uCi/ml)	Percent of 10*EC
H-3	1.239e+08	1.714e-03	2.931e-07	1.000e-03	0.00
NI-63	3.020e+02	4.177e-09	7.141e-13	1.000e-04	0.00
SR-89	0.000e+00	0.000e+00	0.000e+00	8.000e-06	0.00
SR-90	8.620e+01	1.192e-09	2.038e-13	5.000e-07	0.00
CS-137	3.879e+03	5.365e-08	9.172e-12	1.000e-06	0.00
CO-58	3.208e+02	4.437e-09	7.586e-13	2.000e-05	0.00
CO-60	1.856e+02	2.567e-09	4.389e-13	3.000e-06	0.00
SB-124	3.046e+02	4.213e-09	7.202e-13	7.000e-06	0.00
SB-125	2.755e+03	3.811e-08	6.515e-12	3.000e-05	0.00
TE-123M	3.221e+01	4.455e-10	7.616e-14	9.000e-06	0.00
CO-57	1.416e+01	1.959e-10	3.349e-14	6.000e-05	0.00
CS-134	6.600e+02	9.129e-09	1.561e-12	9.000e-07	0.00
XE-133	6.338e+01	8.766e-10	1.499e-13	1.000e-04	0.00

TOTALS BY RECEPTOR

Receptor.....: Liquid Receptor

Dose Factor = AiTau, Units = mRem

Agegrp/Pathway	Nuclide	Bone	Liver	Thyroid	Kidney	Lung	GillLi	Skin	TBody
Adult /SIFF	H-3	0.00e+00	3.57e-05	3.57e-05	3.57e-05	3.57e-05	3.57e-05	0.00e+00	3.57e-05
Adult /SIFF	NI-63	1.53e-05	1.06e-06	0.00e+00	0.00e+00	0.00e+00	2.22e-07	0.00e+00	5.15e-07
Adult /SIFF	SR-90	5.56e-05	0.00e+00	0.00e+00	0.00e+00	0.00e+00	1.60e-06	0.00e+00	1.36e-05
Adult /SIFF	CS-137	2.10e-04	2.87e-04	0.00e+00	9.75e-05	3.24e-05	5.55e-06	0.00e+00	1.88e-04
Adult /SIFF	CO-58	0.00e+00	1.68e-07	0.00e+00	0.00e+00	0.00e+00	3.41e-06	0.00e+00	3.77e-07
Adult /SIFF	CO-60	0.00e+00	2.81e-07	0.00e+00	0.00e+00	0.00e+00	5.25e-06	0.00e+00	6.18e-07
Adult /SIFF	SB-124	1.51e-07	2.85e-09	3.67e-10	0.00e+00	1.18e-07	4.29e-06	0.00e+00	5.97e-08
Adult /SIFF	SB-125	8.72e-07	9.77e-09	8.89e-10	0.00e+00	6.73e-07	9.63e-06	0.00e+00	2.08e-07
Adult /SIFF	TE-123M	2.26e-07	8.09e-08	5.79e-08	9.18e-07	0.00e+00	7.57e-07	0.00e+00	2.75e-08
Adult /SIFF	CO-57	0.00e+00	1.75e-09	0.00e+00	0.00e+00	0.00e+00	4.43e-08	0.00e+00	2.91e-09
Adult /SIFF	CS-134	2.78e-05	6.63e-05	0.00e+00	2.14e-05	7.15e-06	1.16e-06	0.00e+00	5.41e-05
Teen /SIFF	H-3	0.00e+00	2.75e-05	2.75e-05	2.75e-05	2.75e-05	2.75e-05	0.00e+00	2.75e-05
Teen /SIFF	NI-63	1.59e-05	1.12e-06	0.00e+00	0.00e+00	0.00e+00	1.78e-07	0.00e+00	5.37e-07
Teen /SIFF	SR-90	4.63e-05	0.00e+00	0.00e+00	0.00e+00	0.00e+00	1.30e-06	0.00e+00	1.14e-05
Teen /SIFF	CS-137	2.24e-04	2.98e-04	0.00e+00	1.01e-04	3.95e-05	4.24e-06	0.00e+00	1.04e-04
Teen /SIFF	CO-58	0.00e+00	1.67e-07	0.00e+00	0.00e+00	0.00e+00	2.30e-06	0.00e+00	3.83e-07
Teen /SIFF	CO-60	0.00e+00	2.79e-07	0.00e+00	0.00e+00	0.00e+00	3.64e-06	0.00e+00	6.30e-07
Teen /SIFF	SB-124	1.59e-07	2.92e-09	3.61e-10	0.00e+00	1.38e-07	3.20e-06	0.00e+00	6.19e-08

Teen /SIFF	TE-123M	2.46e-07	8.72e-08	5.86e-08	9.97e-07	0.00e+00	6.12e-07	0.00e+00	2.92e-08
Teen /SIFF	CO-57	0.00e+00	1.81e-09	0.00e+00	0.00e+00	0.00e+00	3.37e-08	0.00e+00	3.02e-09
Teen /SIFF	CS-134	2.85e-05	6.72e-05	0.00e+00	2.14e-05	8.16e-06	8.36e-07	0.00e+00	3.11e-05
Child /SIFF	H-3	0.00e+00	2.28e-05	2.28e-05	2.28e-05	2.28e-05	2.28e-05	0.00e+00	2.28e-05
Child /SIFF	NI-63	2.11e-05	1.13e-06	0.00e+00	0.00e+00	0.00e+00	7.62e-08	0.00e+00	7.19e-07
Child /SIFF	SR-90	4.11e-05	0.00e+00	0.00e+00	0.00e+00	0.00e+00	5.54e-07	0.00e+00	1.04e-05
Child /SIFF	CS-137	2.84e-04	2.72e-04	0.00e+00	8.88e-05	3.19e-05	1.70e-06	0.00e+00	4.00e-05
Child /SIFF	CO-58	0.00e+00	1.38e-07	0.00e+00	0.00e+00	0.00e+00	8.03e-07	0.00e+00	4.19e-07
Child /SIFF	CO-60	0.00e+00	2.33e-07	0.00e+00	0.00e+00	0.00e+00	1.30e-06	0.00e+00	6.90e-07
Child /SIFF	SB-124	2.03e-07	2.64e-09	4.48e-10	0.00e+00	1.13e-07	1.27e-06	0.00e+00	7.12e-08
Child /SIFF	SB-125	1.19e-06	9.15e-09	1.10e-09	0.00e+00	6.61e-07	2.84e-06	0.00e+00	2.49e-07
Child /SIFF	TE-123M	3.17e-07	8.55e-08	7.60e-08	9.05e-07	0.00e+00	2.57e-07	0.00e+00	3.78e-08
Child /SIFF	CO-57	0.00e+00	1.66e-09	0.00e+00	0.00e+00	0.00e+00	1.36e-08	0.00e+00	3.37e-09
Child /SIFF	CS-134	3.47e-05	5.68e-05	0.00e+00	1.76e-05	6.32e-06	3.07e-07	0.00e+00	1.20e-05

Agegrp/Pathway	Bone	Liver	Thyroid	Kidney	Lung	GiLLi	Skin	TBody
Adult /SIFF	3.10e-04	3.90e-04	3.58e-05	1.56e-04	7.60e-05	6.76e-05	0.00e+00	2.93e-04
Teen /SIFF	3.16e-04	3.95e-04	2.75e-05	1.51e-04	7.60e-05	5.10e-05	0.00e+00	1.76e-04
Child /SIFF	3.83e-04	3.53e-04	2.29e-05	1.30e-04	6.18e-05	3.19e-05	0.00e+00	8.74e-05

Agegroup	Bone	Liver	Thyroid	Kidney	Lung	GiLLi	Skin	TBody
ADULT	3.10e-04	3.90e-04	3.58e-05	1.56e-04	7.60e-05	6.76e-05	0.00e+00	2.93e-04
TEEN	3.16e-04	3.95e-04	2.75e-05	1.51e-04	7.60e-05	5.10e-05	0.00e+00	1.76e-04
CHILD	3.83e-04	3.53e-04	2.29e-05	1.30e-04	6.18e-05	3.19e-05	0.00e+00	8.74e-05

Max Dose Analysis

Max AO Receptor..... Liquid Receptor
 Max AO Agegroup..... Teen
 Max AO Organ..... Liver
 Max AO Dose (mRem).... 3.946e-04

Max TB Receptor..... Liquid Receptor
 Max TB Agegroup..... Adult
 Max TB Organ..... TBody
 Max TB Dose (mRem).... 2.931e-04

Report Date.....: 03/22/2006 08:40
 Report Name.....: Liquid Dose Summary Report
 Release Sources.....: Steam Generator Blowdown
 Sphere Found Drain Sump
 North Curtain Drain
 Distillate Tank 13
 Distillate Tank 14
 Steam Generator Drain Down 21
 Steam Generator Drain Down 22
 Steam Generator Drain Down 23
 Steam Generator Drain Down 24
 Unplanned Batch Release
 Non-Routine Batch Release
 Start Date.....: 04/01/2005 00:00
 End Date.....: 07/01/2005 00:00

2nd Qtr 2005

Period Duration (mins).....: 1.310e+05
 Universal Scaling Factor.....: 1.0
 Include PreRelease/Open Permits: NO
 Permit/Period Based Doses.....: PERIOD
 Delta T1 Duration.....: Period
 Delta T2 Duration.....: Period
 Delta T3 Duration.....: Period
 Dose Projection.....: NO

TOTALS BY RELEASE POINT

Release Point.....: Discharge Canal
 Release Duration (min).....: 3.937e+05
 Undiluted Volume (gal).....: 1.239e+07
 Dilution Volume (gal).....: 1.944e+11
 Mixing Factor.....: 5.000e+00
 Pathway Factors.....: Potable Water (PWtr).....: 1.000e+00
 SW Invt & FW Fish (SIFF).....: 1.000e+00
 Fresh Water Fish - Comm. (FFCM).....: 1.000e+00
 Shoreline Sediment (SHDP).....: 1.000e+00
 Conc Dil Factor (w/o Mixing)....: 6.373e-05
 Dose Dil Factor (w/Mixing).....: 1.275e-05

Nuclide	Activity (uCi)	Avg Und Conc (uCi/ml)	Diluted Conc (uCi/ml)	EC Limit (uCi/ml)	Percent of 10*EC
H-3	3.888e+07	8.290e-04	5.283e-08	1.000e-03	0.00
NI-63	3.405e+02	7.259e-09	4.626e-13	1.000e-04	0.00
SR-89	1.164e+02	2.481e-09	1.581e-13	8.000e-06	0.00
SR-90	1.849e+02	3.942e-09	2.512e-13	5.000e-07	0.00
CS-137	9.385e+03	2.001e-07	1.275e-11	1.000e-06	0.00
CO-58	3.217e+01	6.858e-10	4.371e-14	2.000e-05	0.00
CO-60	2.289e+01	4.881e-10	3.111e-14	3.000e-06	0.00
SB-125	1.103e+02	2.351e-09	1.498e-13	3.000e-05	0.00

TOTALS BY RECEPTOR

Receptor.....: Liquid Receptor

Dose Factor = AiTau, Units = mRem

Agegrp/Pathway	Nuclide	Bone	Liver	Thyroid	Kidney	Lung	GiLLi	Skin	TBody
Adult /SIFF	H-3	0.00e+00	6.51e-06	6.51e-06	6.51e-06	6.51e-06	6.51e-06	0.00e+00	6.51e-06
Adult /SIFF	NI-63	1.00e-05	6.95e-07	0.00e+00	0.00e+00	0.00e+00	1.45e-07	0.00e+00	3.37e-07
Adult /SIFF	SR-89	1.77e-06	0.00e+00	0.00e+00	0.00e+00	0.00e+00	2.84e-07	0.00e+00	5.08e-08
Adult /SIFF	SR-90	6.92e-05	0.00e+00	0.00e+00	0.00e+00	0.00e+00	2.00e-06	0.00e+00	1.70e-05
Adult /SIFF	CS-137	2.95e-04	4.03e-04	0.00e+00	1.37e-04	4.55e-05	7.80e-06	0.00e+00	2.64e-04
Adult /SIFF	CO-58	0.00e+00	9.81e-09	0.00e+00	0.00e+00	0.00e+00	1.99e-07	0.00e+00	2.20e-08
Adult /SIFF	CO-60	0.00e+00	2.01e-08	0.00e+00	0.00e+00	0.00e+00	3.76e-07	0.00e+00	4.43e-08
Adult /SIFF	SB-125	2.03e-08	2.27e-10	2.07e-11	0.00e+00	1.56e-08	2.24e-07	0.00e+00	4.84e-09
Teen /SIFF	H-3	0.00e+00	5.01e-06	5.01e-06	5.01e-06	5.01e-06	5.01e-06	0.00e+00	5.01e-06
Teen /SIFF	NI-63	1.04e-05	7.34e-07	0.00e+00	0.00e+00	0.00e+00	1.17e-07	0.00e+00	3.52e-07
Teen /SIFF	SR-89	1.93e-06	0.00e+00	0.00e+00	0.00e+00	0.00e+00	2.29e-07	0.00e+00	5.52e-08
Teen /SIFF	SR-90	5.77e-05	0.00e+00	0.00e+00	0.00e+00	0.00e+00	1.62e-06	0.00e+00	1.43e-05
Teen /SIFF	CS-137	3.15e-04	4.19e-04	0.00e+00	1.43e-04	5.55e-05	5.96e-06	0.00e+00	1.46e-04
Teen /SIFF	CO-58	0.00e+00	9.74e-09	0.00e+00	0.00e+00	0.00e+00	1.34e-07	0.00e+00	2.23e-08
Teen /SIFF	CO-60	0.00e+00	2.00e-08	0.00e+00	0.00e+00	0.00e+00	2.61e-07	0.00e+00	4.51e-08
Teen /SIFF	SB-125	2.14e-08	2.34e-10	2.04e-11	0.00e+00	1.88e-08	1.66e-07	0.00e+00	5.00e-09
Child /SIFF	H-3	0.00e+00	4.15e-06	4.15e-06	4.15e-06	4.15e-06	4.15e-06	0.00e+00	4.15e-06
Child /SIFF	NI-63	1.38e-05	7.40e-07	0.00e+00	0.00e+00	0.00e+00	4.99e-08	0.00e+00	4.71e-07
Child /SIFF	SR-89	2.51e-06	0.00e+00	0.00e+00	0.00e+00	0.00e+00	9.67e-08	0.00e+00	7.19e-08
Child /SIFF	SR-90	5.12e-05	0.00e+00	0.00e+00	0.00e+00	0.00e+00	6.90e-07	0.00e+00	1.29e-05
Child /SIFF	CS-137	4.00e-04	3.83e-04	0.00e+00	1.25e-04	4.49e-05	2.40e-06	0.00e+00	5.63e-05
Child /SIFF	CO-58	0.00e+00	8.02e-09	0.00e+00	0.00e+00	0.00e+00	4.68e-08	0.00e+00	2.44e-08
Child /SIFF	CO-60	0.00e+00	1.67e-08	0.00e+00	0.00e+00	0.00e+00	9.28e-08	0.00e+00	4.95e-08

Agegrp/Pathway	Bone	Liver	Thyroid	Kidney	Lung	GiLLi	Skin	TBody
Adult /SIFF	3.76e-04	4.11e-04	6.51e-06	1.44e-04	5.20e-05	1.75e-05	0.00e+00	2.88e-04
Teen /SIFF	3.85e-04	4.25e-04	5.01e-06	1.48e-04	6.05e-05	1.35e-05	0.00e+00	1.66e-04
Child /SIFF	4.68e-04	3.88e-04	4.15e-06	1.29e-04	4.91e-05	7.59e-06	0.00e+00	7.40e-05

Agegroup	Bone	Liver	Thyroid	Kidney	Lung	GiLLi	Skin	TBody
ADULT	3.76e-04	4.11e-04	6.51e-06	1.44e-04	5.20e-05	1.75e-05	0.00e+00	2.88e-04
TEEN	3.85e-04	4.25e-04	5.01e-06	1.48e-04	6.05e-05	1.35e-05	0.00e+00	1.66e-04
CHILD	4.68e-04	3.88e-04	4.15e-06	1.29e-04	4.91e-05	7.59e-06	0.00e+00	7.40e-05

Max Dose Analysis

Max AO Receptor.....: Liquid Receptor
 Max AO Agegroup.....: Child
 Max AO Organ.....: Bone
 Max AO Dose (mRem)....: 4.676e-04

Max TB Receptor.....: Liquid Receptor
 Max TB Agegroup.....: Adult
 Max TB Organ.....: TBody
 Max TB Dose (mRem)....: 2.880e-04

Report Date.....: 03/22/2006 08:41
 Report Name.....: Liquid Dose Summary Report
 Release Sources.....: Steam Generator Blowdown
 Sphere Found Drain Sump
 North Curtain Drain
 Distillate Tank 13
 Distillate Tank 14
 Steam Generator Drain Down 21
 Steam Generator Drain Down 22
 Steam Generator Drain Down 23
 Steam Generator Drain Down 24
 Unplanned Batch Release
 Non-Routine Batch Release
 Start Date.....: 07/01/2005 00:00
 End Date.....: 10/01/2005 00:00

3rd Qtr 2005

Period Duration (mins).....: 1.325e+05
 Universal Scaling Factor.....: 1.0
 Include PreRelease/Open Permits: NO
 Permit/Period Based Doses.....: PERIOD
 Delta T1 Duration.....: Period
 Delta T2 Duration.....: Period
 Delta T3 Duration.....: Period
 Dose Projection.....: NO

TOTALS BY RELEASE POINT

Release Point.....: Discharge Canal
 Release Duration (min).....: 4.421e+05
 Undiluted Volume (gal).....: 1.375e+07
 Dilution Volume (gal).....: 2.300e+11
 Mixing Factor.....: 5.000e+00
 Pathway Factors.....: Potable Water (PWtr).....: 1.000e+00
 SW Invt & FW Fish (SIFF).....: 1.000e+00
 Fresh Water Fish - Comm. (FFCM).....: 1.000e+00
 Shoreline Sediment (SHDp).....: 1.000e+00
 Conc Dil Factor (w/o Mixing)....: 5.979e-05
 Dose Dil Factor (w/Mixing).....: 1.196e-05

Nuclide	Activity (uCi)	Avg Und Conc (uCi/ml)	Diluted Conc (uCi/ml)	EC Limit (uCi/ml)	Percent of 10*EC
H-3	8.534e+07	1.639e-03	9.801e-08	1.000e-03	0.00
NI-63	2.189e+03	4.205e-08	2.514e-12	1.000e-04	0.00
SR-89	0.000e+00	0.000e+00	0.000e+00	8.000e-06	0.00
SR-90	4.717e+01	9.061e-10	5.417e-14	5.000e-07	0.00
CS-137	4.804e+03	9.228e-08	5.517e-12	1.000e-06	0.00
SB-125	6.751e+03	1.297e-07	7.753e-12	3.000e-05	0.00
CO-60	3.144e+02	6.038e-09	3.610e-13	3.000e-06	0.00
CO-58	1.849e+02	3.553e-09	2.124e-13	2.000e-05	0.00
CS-134	1.384e+02	2.659e-09	1.590e-13	9.000e-07	0.00
MN-54	8.399e+00	1.613e-10	9.646e-15	3.000e-05	0.00
AG-110M	1.165e+01	2.238e-10	1.338e-14	6.000e-06	0.00
SB-124	3.011e+01	5.784e-10	3.458e-14	7.000e-06	0.00

TOTALS BY RECEPTOR

Receptor.....: Liquid Receptor

Dose Factor = AiTau, Units = mRem

Agegrp/Pathway	Nuclide	Bone	Liver	Thyroid	Kidney	Lung	GI/Li	Skin	TBody
Adult /SIFF	H-3	0.00e+00	1.22e-05	1.22e-05	1.22e-05	1.22e-05	1.22e-05	0.00e+00	1.22e-05
Adult /SIFF	NI-63	5.51e-05	3.82e-06	0.00e+00	0.00e+00	0.00e+00	7.97e-07	0.00e+00	1.85e-06
Adult /SIFF	SR-90	1.51e-05	0.00e+00	0.00e+00	0.00e+00	0.00e+00	4.35e-07	0.00e+00	3.71e-06
Adult /SIFF	CS-137	1.29e-04	1.76e-04	0.00e+00	5.99e-05	1.99e-05	3.41e-06	0.00e+00	1.15e-04
Adult /SIFF	SB-125	1.06e-06	1.19e-08	1.08e-09	0.00e+00	8.18e-07	1.17e-05	0.00e+00	2.53e-07
Adult /SIFF	CO-60	0.00e+00	2.36e-07	0.00e+00	0.00e+00	0.00e+00	4.42e-06	0.00e+00	5.20e-07
Adult /SIFF	CO-58	0.00e+00	4.82e-08	0.00e+00	0.00e+00	0.00e+00	9.76e-07	0.00e+00	1.08e-07
Adult /SIFF	CS-134	2.90e-06	6.90e-06	0.00e+00	2.23e-06	7.44e-07	1.21e-07	0.00e+00	5.64e-06
Adult /SIFF	MN-54	0.00e+00	2.31e-08	0.00e+00	6.86e-09	0.00e+00	7.07e-08	0.00e+00	4.39e-09
Adult /SIFF	AG-110M	2.71e-09	2.50e-09	0.00e+00	4.92e-09	0.00e+00	1.02e-06	0.00e+00	1.48e-09
Adult /SIFF	SB-124	7.42e-09	1.40e-10	1.80e-11	0.00e+00	5.77e-09	2.11e-07	0.00e+00	2.93e-09
Teen /SIFF	H-3	0.00e+00	9.39e-06	9.39e-06	9.39e-06	9.39e-06	9.39e-06	0.00e+00	9.39e-06
Teen /SIFF	NI-63	5.72e-05	4.03e-06	0.00e+00	0.00e+00	0.00e+00	6.42e-07	0.00e+00	1.93e-06
Teen /SIFF	SR-90	1.26e-05	0.00e+00	0.00e+00	0.00e+00	0.00e+00	3.54e-07	0.00e+00	3.11e-06
Teen /SIFF	CS-137	1.38e-04	1.83e-04	0.00e+00	6.24e-05	2.43e-05	2.61e-06	0.00e+00	6.38e-05
Teen /SIFF	SB-125	1.12e-06	1.22e-08	1.07e-09	0.00e+00	9.83e-07	8.70e-06	0.00e+00	2.62e-07
Teen /SIFF	CO-60	0.00e+00	2.34e-07	0.00e+00	0.00e+00	0.00e+00	3.06e-06	0.00e+00	5.29e-07
Teen /SIFF	CO-58	0.00e+00	4.78e-08	0.00e+00	0.00e+00	0.00e+00	6.59e-07	0.00e+00	1.10e-07
Teen /SIFF	CS-134	2.97e-06	6.99e-06	0.00e+00	2.23e-06	8.49e-07	8.71e-08	0.00e+00	3.24e-06

Teen /SIFF	AG-110M	2.63e-09	2.49e-09	0.00e+00	4.75e-09	0.00e+00	6.97e-07	0.00e+00	1.51e-09
Teen /SIFF	SB-124	7.79e-09	1.44e-10	1.77e-11	0.00e+00	6.80e-09	1.57e-07	0.00e+00	3.04e-09
Child /SIFF	H-3	0.00e+00	7.79e-06	7.79e-06	7.79e-06	7.79e-06	7.79e-06	0.00e+00	7.79e-06
Child /SIFF	NI-63	7.59e-05	4.06e-06	0.00e+00	0.00e+00	0.00e+00	2.74e-07	0.00e+00	2.59e-06
Child /SIFF	SR-90	1.12e-05	0.00e+00	0.00e+00	0.00e+00	0.00e+00	1.50e-07	0.00e+00	2.82e-06
Child /SIFF	CS-137	1.75e-04	1.67e-04	0.00e+00	5.46e-05	1.96e-05	1.05e-06	0.00e+00	2.46e-05
Child /SIFF	SB-125	1.44e-06	1.11e-08	1.34e-09	0.00e+00	8.05e-07	3.46e-06	0.00e+00	3.03e-07
Child /SIFF	CO-60	0.00e+00	1.96e-07	0.00e+00	0.00e+00	0.00e+00	1.09e-06	0.00e+00	5.80e-07
Child /SIFF	CO-58	0.00e+00	3.94e-08	0.00e+00	0.00e+00	0.00e+00	2.30e-07	0.00e+00	1.20e-07
Child /SIFF	CS-134	3.61e-06	5.92e-06	0.00e+00	1.83e-06	6.59e-07	3.19e-08	0.00e+00	1.25e-06
Child /SIFF	MN-54	0.00e+00	1.79e-08	0.00e+00	5.03e-09	0.00e+00	1.50e-08	0.00e+00	4.77e-09
Child /SIFF	AG-110M	3.10e-09	2.09e-09	0.00e+00	3.89e-09	0.00e+00	2.49e-09	0.00e+00	1.67e-09
Child /SIFF	SB-124	9.99e-09	1.30e-10	2.20e-11	0.00e+00	5.54e-09	6.25e-08	0.00e+00	3.50e-09

Agegrp/Pathway	Bone	Liver	Thyroid	Kidney	Lung	GiLLi	Skin	TBody
Adult /SIFF	2.03e-04	2.00e-04	1.22e-05	7.44e-05	3.37e-05	3.54e-05	0.00e+00	1.40e-04
Teen /SIFF	2.12e-04	2.04e-04	9.39e-06	7.40e-05	3.55e-05	2.64e-05	0.00e+00	8.24e-05
Child /SIFF	2.67e-04	1.85e-04	7.79e-06	6.42e-05	2.89e-05	1.42e-05	0.00e+00	4.01e-05

Agegroup	Bone	Liver	Thyroid	Kidney	Lung	GiLLi	Skin	TBody
ADULT	2.03e-04	2.00e-04	1.22e-05	7.44e-05	3.37e-05	3.54e-05	0.00e+00	1.40e-04
TEEN	2.12e-04	2.04e-04	9.39e-06	7.40e-05	3.55e-05	2.64e-05	0.00e+00	8.24e-05
CHILD	2.67e-04	1.85e-04	7.79e-06	6.42e-05	2.89e-05	1.42e-05	0.00e+00	4.01e-05

Max Dose Analysis

Max AO Receptor..... Liquid Receptor
 Max AO Agegroup..... Child
 Max AO Organ..... Bone
 Max AO Dose (mRem).... 2.671e-04

Max TB Receptor..... Liquid Receptor
 Max TB Agegroup..... Adult
 Max TB Organ..... TBody
 Max TB Dose (mRem).... 1.398e-04

Report Date.....: 03/22/2006 08:42
 Report Name.....: Liquid Dose Summary Report
 Release Sources.....: Steam Generator Blowdown
 Sphere Found Drain Sump
 North Curtain Drain
 Distillate Tank 13
 Distillate Tank 14
 Steam Generator Drain Down 21
 Steam Generator Drain Down 22
 Steam Generator Drain Down 23
 Steam Generator Drain Down 24
 Unplanned Batch Release
 Non-Routine Batch Release
 Start Date.....: 10/01/2005 00:00
 End Date.....: 01/01/2006 00:00

4th Qtr 2005

Period Duration (mins).....: 1.325e+05
 Universal Scaling Factor.....: 1.0
 Include PreRelease/Open Permits: NO
 Permit/Period Based Doses.....: PERIOD
 Delta T1 Duration.....: Period
 Delta T2 Duration.....: Period
 Delta T3 Duration.....: Period
 Dose Projection.....: NO

TOTALS BY RELEASE POINT

Release Point.....: Discharge Canal
 Release Duration (min).....: 3.988e+05
 Undiluted Volume (gal).....: 1.780e+07
 Dilution Volume (gal).....: 1.985e+11
 Mixing Factor.....: 5.000e+00
 Pathway Factors.....: Potable Water (PWtr).....: 1.000e+00
 SW Invt & FW Fish (SIFF).....: 1.000e+00
 Fresh Water Fish - Comm. (FFCM).....: 1.000e+00
 Shoreline Sediment (SHDp).....: 1.000e+00
 Conc Dil Factor (w/o Mixing)....: 8.967e-05
 Dose Dil Factor (w/Mixing).....: 1.793e-05

Nuclide	Activity (uCi)	Avg Und Conc (uCi/ml)	Diluted Conc (uCi/ml)	EC Limit (uCi/ml)	Percent of 10*EC
H-3	7.317e+07	1.086e-03	9.737e-08	1.000e-03	0.00
NI-63	8.580e+02	1.273e-08	1.142e-12	1.000e-04	0.00
SR-89	2.460e+02	3.651e-09	3.274e-13	8.000e-06	0.00
SR-90	3.236e+02	4.802e-09	4.306e-13	5.000e-07	0.00
CS-137	1.289e+03	1.913e-08	1.715e-12	1.000e-06	0.00
CO-58	1.192e+02	1.768e-09	1.586e-13	2.000e-05	0.00
CO-60	3.229e+02	4.792e-09	4.297e-13	3.000e-06	0.00
SB-125	7.760e+03	1.152e-07	1.033e-11	3.000e-05	0.00
CS-134	2.239e+02	3.323e-09	2.980e-13	9.000e-07	0.00
XE-133M	4.995e+01	7.413e-10	6.647e-14	2.000e-04	0.00
XE-133	5.922e+03	8.789e-08	7.881e-12	1.000e-04	0.00
CR-51	8.520e+01	1.265e-09	1.134e-13	5.000e-04	0.00
MN-54	2.637e+01	3.913e-10	3.509e-14	3.000e-05	0.00

TOTALS BY RECEPTOR

Receptor.....: Liquid Receptor

Dose Factor = AiTau, Units = mRem

Agegrp/Pathway	Nuclide	Bone	Liver	Thyroid	Kidney	Lung	GiLLi	Skin	TBody
Adult /SIFF	H-3	0.00e+00	1.21e-05	1.21e-05	1.21e-05	1.21e-05	1.21e-05	0.00e+00	1.21e-05
Adult /SIFF	NI-63	2.50e-05	1.73e-06	0.00e+00	0.00e+00	0.00e+00	3.62e-07	0.00e+00	8.42e-07
Adult /SIFF	SR-89	3.70e-06	0.00e+00	0.00e+00	0.00e+00	0.00e+00	5.94e-07	0.00e+00	1.06e-07
Adult /SIFF	SR-90	1.20e-04	0.00e+00	0.00e+00	0.00e+00	0.00e+00	3.46e-06	0.00e+00	2.95e-05
Adult /SIFF	CS-137	4.01e-05	5.48e-05	0.00e+00	1.86e-05	6.19e-06	1.06e-06	0.00e+00	3.59e-05
Adult /SIFF	CO-58	0.00e+00	3.60e-08	0.00e+00	0.00e+00	0.00e+00	7.28e-07	0.00e+00	8.05e-08
Adult /SIFF	CO-60	0.00e+00	2.81e-07	0.00e+00	0.00e+00	0.00e+00	5.26e-06	0.00e+00	6.19e-07
Adult /SIFF	SB-125	1.41e-06	1.58e-08	1.44e-09	0.00e+00	1.09e-06	1.56e-05	0.00e+00	3.37e-07
Adult /SIFF	CS-134	5.43e-06	1.29e-05	0.00e+00	4.18e-06	1.39e-06	2.26e-07	0.00e+00	1.06e-05
Adult /SIFF	CR-51	0.00e+00	0.00e+00	1.29e-10	4.75e-11	2.86e-10	5.41e-08	0.00e+00	2.16e-10
Adult /SIFF	MN-54	0.00e+00	8.40e-08	0.00e+00	2.49e-08	0.00e+00	2.57e-07	0.00e+00	1.60e-08
Teen /SIFF	H-3	0.00e+00	9.33e-06	9.33e-06	9.33e-06	9.33e-06	9.33e-06	0.00e+00	9.33e-06
Teen /SIFF	NI-63	2.60e-05	1.83e-06	0.00e+00	0.00e+00	0.00e+00	2.91e-07	0.00e+00	8.77e-07
Teen /SIFF	SR-89	4.03e-06	0.00e+00	0.00e+00	0.00e+00	0.00e+00	4.80e-07	0.00e+00	1.16e-07
Teen /SIFF	SR-90	1.00e-04	0.00e+00	0.00e+00	0.00e+00	0.00e+00	2.81e-06	0.00e+00	2.47e-05
Teen /SIFF	CS-137	4.29e-05	5.70e-05	0.00e+00	1.94e-05	7.54e-06	8.10e-07	0.00e+00	1.98e-05
Teen /SIFF	CO-58	0.00e+00	3.57e-08	0.00e+00	0.00e+00	0.00e+00	4.92e-07	0.00e+00	8.19e-08
Teen /SIFF	CO-60	0.00e+00	2.79e-07	0.00e+00	0.00e+00	0.00e+00	3.64e-06	0.00e+00	6.30e-07

Teen /SIFF	CS-134	5.57e-06	1.31e-05	0.00e+00	4.17e-06	1.59e-06	1.63e-07	0.00e+00	6.08e-06
Teen /SIFF	CR-51	0.00e+00	0.00e+00	1.23e-10	4.86e-11	3.17e-10	3.73e-08	0.00e+00	2.22e-10
Teen /SIFF	MN-54	0.00e+00	8.26e-08	0.00e+00	2.46e-08	0.00e+00	1.69e-07	0.00e+00	1.64e-08
Child /SIFF	H-3	0.00e+00	7.74e-06	7.74e-06	7.74e-06	7.74e-06	7.74e-06	0.00e+00	7.74e-06
Child /SIFF	NI-63	3.45e-05	1.85e-06	0.00e+00	0.00e+00	0.00e+00	1.25e-07	0.00e+00	1.17e-06
Child /SIFF	SR-89	5.25e-06	0.00e+00	0.00e+00	0.00e+00	0.00e+00	2.02e-07	0.00e+00	1.50e-07
Child /SIFF	SR-90	8.88e-05	0.00e+00	0.00e+00	0.00e+00	0.00e+00	1.20e-06	0.00e+00	2.24e-05
Child /SIFF	CS-137	5.44e-05	5.20e-05	0.00e+00	1.70e-05	6.10e-06	3.26e-07	0.00e+00	7.65e-06
Child /SIFF	CO-58	0.00e+00	2.94e-08	0.00e+00	0.00e+00	0.00e+00	1.72e-07	0.00e+00	8.96e-08
Child /SIFF	CO-60	0.00e+00	2.33e-07	0.00e+00	0.00e+00	0.00e+00	1.30e-06	0.00e+00	6.91e-07
Child /SIFF	SB-125	1.92e-06	1.48e-08	1.78e-09	0.00e+00	1.07e-06	4.61e-06	0.00e+00	4.03e-07
Child /SIFF	CS-134	6.76e-06	1.11e-05	0.00e+00	3.43e-06	1.23e-06	5.99e-08	0.00e+00	2.34e-06
Child /SIFF	CR-51	0.00e+00	0.00e+00	1.35e-10	3.69e-11	2.46e-10	1.29e-08	0.00e+00	2.43e-10
Child /SIFF	MN-54	0.00e+00	6.51e-08	0.00e+00	1.83e-08	0.00e+00	5.45e-08	0.00e+00	1.74e-08

Agegrp/Pathway	Bone	Liver	Thyroid	Kidney	Lung	GiLLi	Skin	TBody
Adult /SIFF	1.96e-04	8.20e-05	1.21e-05	3.50e-05	2.08e-05	3.97e-05	0.00e+00	9.01e-05
Teen /SIFF	1.80e-04	8.17e-05	9.33e-06	3.29e-05	1.98e-05	2.98e-05	0.00e+00	6.20e-05
Child /SIFF	1.92e-04	7.31e-05	7.74e-06	2.82e-05	1.62e-05	1.58e-05	0.00e+00	4.27e-05

Agegroup	Bone	Liver	Thyroid	Kidney	Lung	GiLLi	Skin	TBody
ADULT	1.96e-04	8.20e-05	1.21e-05	3.50e-05	2.08e-05	3.97e-05	0.00e+00	9.01e-05
TEEN	1.80e-04	8.17e-05	9.33e-06	3.29e-05	1.98e-05	2.98e-05	0.00e+00	6.20e-05
CHILD	1.92e-04	7.31e-05	7.74e-06	2.82e-05	1.62e-05	1.58e-05	0.00e+00	4.27e-05

Max Dose Analysis

Max AO Receptor.....: Liquid Receptor
 Max AO Agegroup.....: Adult
 Max AO Organ.....: Bone
 Max AO Dose (mRem)....: 1.956e-04

Max TB Receptor.....: Liquid Receptor
 Max TB Agegroup.....: Adult
 Max TB Organ.....: TBody
 Max TB Dose (mRem)....: 9.007e-05

Child bone 1.31E-3