IES Utilities Inc.
200 First Street S.E.
P.O. Box 351
Cedar Rapids, IA 52406-0351
Telephone 319 398 4411

IES UTILITIES

April 26, 1996
NG-96-0987

Mr. Hubert Miller
Regional Administrator
U.S. Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

SUBJECT: Duane Arnold Energy Center
Docket No: 50-331
Op. License No: DPR-49
Annual Radioactive Material Release Report
(January 1, 1995 through December 31, 1995)
FILE: A-118e, NRC-7a

Dear Mr. Martin:

Please find enclosed a copy of the Annual Radioactive Material Release Report for the Duane Arnold Energy Center, Unit No. 1, for the period January 1, 1995 through December 31, 1995. This report satisfies the requirements for the Annual Radioactive Material Release Report, as stated in Section 6.11.1f of Technical Specifications, (Appendix A to the Operating License DPR-49).

Sincerely,

Gary D. VanMiddlesworth
Plant Manager - Nuclear

DLW/CS/hc

Attachment: Annual Radioactive Material Release Report

cc: U.S. Nuclear Regulatory Commission (original w/a)
Attn: Document Control Desk
Mail Station P1-37
Washington, D.C. 20555-0001

L. Liu (w/o attachments)
NRC Resident Office (w/attachments)
Glenn Kelly (NRC-NRR) (w/attachments)
J. Franz (w/o attachments)
P. Bessette (w/o attachments)
DOCU (w/attachments)

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DUANE ARNOLD ENERGY CENTER

ANNUAL RADIOACTIVE

MATERIAL RELEASE REPORT

JANUARY 1, 1995 THROUGH DECEMBER 31, 1995

TABLE OF CONTENTS

INTRODUCTION

This Annual Radioactive Material Release Report is for the period of January 1, 1995, through December 31, 1995.

There were no radioactive liquid effluent releases from the Duane Arnold Energy Center during this report period.

Gaseous effluent releases were continuous for the period and resulted in a small fraction of the 10 CFR 20 site boundary concentration limits and the 10 CFR 50, Appendix I dose requirements. There were no abnormal releases of radioactive material to the environment.

A total of nine (9) solid radioactive waste shipments were made during 1995. Four (4) shipments were spent resin only in high integrity containers (HICs) and one (1) shipment was a mixture of resin and aqueous mechanical filters in a HIC. All five (5) of these shipments were sent directly for burial to Barnwell, South Carolina. Four (4) shipments of DAW were sent to Scientific Ecology Group (SEG) for processing and volume reduction at Oak Ridge, Tennessee prior to burial at Barnwell, South Carolina.

Changes made to the Offsite Dose Assessment Manual are described beginning on page 28 and the one revision (Rev. 8) implemented in 1995 is attached.

ANNUAL RADIOACTIVE MATERIAL RELEASE REPORT (1995) LIQUID EFFLUENTS BY CALENDAR QUARTER					
Nuclides Released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
strontium-89	Ci	<LLD	<LLD	<LLD	<LLD
strontium-90	Ci	<LLD	<LLD	<LLD	<LLD
cesium-134	Ci	<LLD	<LLD	<LLD	<LLD
cesium-137	Ci	<LLD	<LLD	<LLD	<LLD
iodine-131	Ci	<LLD	<LLD	<LLD	<LLD
cobalt-58	Ci	<LLD	<LLD	<LLD	<LLD
cobalt-60	Ci	<LLD	<LLD	<LLD	<LLD
iron-55	Ci	<LLD	<LLD	<LLD	<LLD
iron-59	Ci	<LLD	<LLD	<LLD	<LLD
zinc-65	Ci	<LLD	<LLD	<LLD	<LLD
manganese-54	Ci	<LLD	<LLD	<LLD	<LLD
chromium-51	Ci	<LLD	<LLD	<LLD	<LLD
zirconium-niobium-95	Ci	<LLD	<LLD	<LLD	<LLD
molybdenum-99	Ci	<LLD	<LLD	<LLD	<LLD
technetium-99m	Ci	<LLD	<LLD	<LLD	<LLD
barium-lanthanum-140	Ci	<LLD	<LLD	<LLD	<LLD
cerium-141	Ci	<LLD	<LLD	<LLD	<LLD
Other (specify)	Ci	<LLD	<LLD	<LLD	<LLD
	Ci				
	Ci				
	Ci				
	Ci				
Total for period (above)	Ci	<LLD	<LLD	<LLD	<LLD
xenon-133	Ci	<LLD	<LLD	<LLD	<LLD
xenon-135	Ci	<LLD	<LLD	<LLD	<LLD

<LLD means that the radionuclide was not identified in any samples and all measurement results were less than the lower limit of detection as required by the DAEC Offsite Dose Assessment Manual.

There were no radioactive liquid discharges from DAEC during this report period.

ANNUAL RADIOACTIVE MATERIAL RELEASE REPORT (1995) GASEOUS EFFLUENTS BY CALENDAR QUARTER					
Nuclides Released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
1. Fission gases					
krypton-85	Ci	<LLD	<LLD	<LLD	<LLD
krypton-85m	Ci	2.51E+00	1.33E+00	1.80E-01	5.62E-01
krypton-87	Ci	<LLD	<LLD	<LLD	3.40E-01
krypton-88	Ci	<LLD	<LLD	<LLD	<LLD
xenon-133	Ci	4.17E-07	4.75E+00	5.19E+00	4.41E+00
xenon-135	Ci	1.77E+00	1.37E+00	8.63E+00	7.19E+00
xenon-135m	Ci	<LLD	1.15E+00	5.64E-01	1.64E+00
xenon-138	Ci	<LLD	<LLD	<LLD	<LLD
xenon-131m	Ci	<LLD	<LLD	<LLD	<LLD
argon-41	Ci	2.58E+00	3.66E+00	4.99E-01	7.77E-01
tritium	Ci	3.37E+00	2.80E+00	4.68E+00	3.94E+00
Total for period	Ci	1.02E+01	1.51E+01	1.97E+01	1.89E+01
2. Iodines					
iodine-131	Ci	2.57E-05	4.51E-05	1.72E-05	9.42E-06
iodine-133	Ci	1.16E-05	4.67E-05	2.64E-05	1.81E-05
iodine-135	Ci	<LLD	9.72E-06	<LLD	8.20E-07
Total for period	Ci	3.73E-05	1.02E-04	4.36E-05	2.83E-05
3. Particulates					
strontium-89	Ci	3.62E-06	7.06E-06	9.53E-06	9.15E-06
strontium-90	Ci	2.21E-07	1.63E-08	2.61E-08	1.84E-08
cesium-134	Ci	<LLD	<LLD	<LLD	<LLD
cesium-137	Ci	5.64E-07	<LLD	<LLD	<LLD
barium-lanthanum-140	Ci	<LLD	2.25E-06	7.43E-06	2.10E-06
chromium-51	Ci	3.96E-04	1.17E-05	<LLD	<LLD
manganese-54	Ci	6.12E-04	2.59E-04	7.35E-06	1.29E-05
cobalt-58	Ci	9.60E-05	1.52E-05	<LLD	<LLD
cobalt-60	Ci	1.02E-03	3.48E-04	4.55E-05	6.26E-05
Total for Period	Ci	2.13E-03	6.43E-04	6.98E-05	8.68E-05

<LLD means that the radionuclide was not identified in any samples and all measurement results were less than the lower limit of detection as required by the DAEC Offsite Dose Assessment Manual.

ANNUAL RADIOACTIVE MATERIAL RELEASE REPORT (1995) GASEOUS EFFLUENTS BY RELEASE POINT (Curies)				
RELEASE POINT	OFFGAS STACK	REACTOR BUILDING	TURBINE BUILDING	LLRPSF
RELEASE HEIGHT	328 FEET	156 FEET	90 FEET	65 FEET
RELEASE MODE	ELEVATED	WAKE SPLIT	WAKE SPLIT	WAKE SPLIT
Ar-41	7.52E+00	<LLD	<LLD	<LLD
Kr-85m	4.58E+00	<LLD	<LLD	<LLD
Kr-85	<LLD	<LLD	<LLD	<LLD
Kr-87	3.40E-01	<LLD	<LLD	<LLD
Kr-88	<LLD	<LLD	<LLD	<LLD
Xe-131m	<LLD	<LLD	<LLD	<LLD
Xe-133	1.44E+01	<LLD	<LLD	<LLD
Xe-135m	3.35E+00	<LLD	<LLD	<LLD
Xe-135	1.90E+01	<LLD	<LLD	<LLD
Xe-138	<LLD	<LLD	<LLD	<LLD
H-3	4.09E+00	8.20E+00	2.40E+00	1.05E-01
Cr-51	<LLD	4.08E-04	<LLD	<LLD
Mn-54	2.57E-06	8.87E-04	1.57E-06	8.24E-07
Co-58	3.57E-07	1.10E-04	6.82E-07	<LLD
Co-60	9.39E-06	1.45E-03	4.40E-06	1.58E-05
Sr-89	9.95E-06	1.35E-05	5.91E-06	<LLD
Sr-90	6.77E-08	<LLD	2.14E-07	<LLD
Cs-134	<LLD	<LLD	<LLD	<LLD
Cs-137	7.86E-08	4.86E-07	<LLD	<LLD
Ba-140	1.18E-05	<LLD	<LLD	<LLD
I-131	8.01E-05	1.09E-05	6.40E-06	<LLD
I-133	9.45E-05	8.27E-06	<LLD	<LLD
I-135	1.05E-05	<LLD	<LLD	<LLD

SUMMARY OF RADIOACTIVE SOLID WASTE
(January 1, 1995 - December 31, 1995)

SHIPMENTS MADE TO BURIAL FACILITIES:

WASTE TYPE	NO. SHIPMENTS	VOLUME M^3	ACTIVITY (Ci)
Resin	Note-1	23.1	1.81E+02
Aqueous Mechanical Filters	5	1.2	2.61E+01
DESTINATION	Chem-Nuclear Systems, Inc (CNSI) Barnwell, South Carolina		

NOTE-1: One shipment contained both resin and aqueous mechanical filters.

SHIPMENT MADE TO PROCESSING FACILITIES:

WASTE TYPE	NO. SHIPMENTS	VOLUME M^3	ACTIVITY (Ci)
Dry Active Waste	4	89.0	1.22E+00
DESTINATION	Scientific Ecology Group (SEG) Oak Ridge, Tennessee		

SOLIDIFICATION AGENT: None
MODE OF TRANSPORTATION: Exclusive-Use Vehicle (Trucks)

TOTAL SOLID WASTE DISPOSITION:

WASTE	VOLUME M^3	ACTIVITY (Ci)
Shipped	113.3	2.08E+02
Buried *	50.3	2.08E+02

(*) Includes waste buried directly by DAEC and waste buried by processing facilities.

WASTE CLASSIFICATION PER 10 CFR 61	NUMBER OF SHIPMENTS
A-Unstable	4
A-Stable	5
B	0
C	0

SUMMARY OF RADIOACTIVE SOLID WASTE

(January 1, 1995 - December 31, 1995)

MAJOR NUCLIDE COMPOSITION

DRY ACTIVE WASTE

PRINCIPLE NUCLIDES	1ST QTR (Ci)	2ND QTR (Ci)	3RD QTR (Ci)	4TH QTR (Ci)	TOTAL (Ci)	PERCENT ABUNDANCE
H-3	0.00E+00	0.00E+00	1.38E-03	1.22E-03	2.60E-03	0.21
C-14	0.00E+00	0.00E+00	6.67E-4	9.18E-05	7.59E-04	0.06
Cr-51	0.00E+00	0.00E+00	4.86E-02	2.00E-03	5.06E-02	4.16
Mn-54	0.00E+00	0.00E+00	3.14E-02	4.51E-03	3.59E-02	2.95
Fe-55	0.00E+00	0.00E+00	6.68E-01	1.02E-01	7.71E-01	63.20
Co-58	0.00E+00	0.00E+00	0.00E+00	1.51E-03	1.51E-03	0.12
Co-60	0.00E+00	0.00E+00	2.80E-01	4.85E-02	3.29E-01	26.97
Ni-59	0.00E+00	0.00E+00	2.26E-04	5.39E-05	2.80E-04	0.02
Ni-63	0.00E+00	0.00E+00	1.96E-02	6.16E-03	2.58E-02	2.11
Sr-90	0.00E+00	0.00E+00	2.15E-06	1.17E-06	3.32E-06	0.00
Tc-99*	0.00E+00	0.00E+00	1.22E-05	1.22E-05	0.00E+00	MDA
Ru-106	0.00E+00	0.00E+00	0.00E+00	7.29E-04	7.29E-04	0.06
I-129*	0.00E+00	0.00E+00	2.97E-05	2.97E-05	0.00E+00	MDA
Cs-137	0.00E+00	0.00E+00	1.28E-03	2.45E-04	1.53E-03	0.13
Pu-241	0.00E+00	0.00E+00	3.92E-05	8.30E-05	1.22E-04	0.01
Cm-242	0.00E+00	0.00E+00	3.37E-07	2.96E-06	3.29E-06	0.00
TOTAL	0.00E+00	0.00E+00	1.05E+00	1.66E-01	1.22E+00	100.00

* Minimum Detectable Activities (MDA) in units of uCi/gm.

NOTE: H-3, C-14, Tc-99 and I-129 were required to be manifested per 10 CFR 20, Appendix F.

SUMMARY OF RADIOACTIVE SOLID WASTE

(January 1, 1995 - December 31, 1995)

MAJOR NUCLIDE COMPOSITION

AQUEOUS MECHANICAL FILTERS

PRINCIPLE NUCLIDES	1ST QTR (Ci)	2ND QTR (Ci)	3RD QTR (Ci)	4TH QTR (Ci)	TOTAL (Ci)	PERCENT ABUNDANCE
H-3	0.00E+00	0.00E+00	6.72E-03	0.00E+00	6.72E-03	0.03
C-14*	0.00E+00	0.00E+00	2.20E-05	0.00E+00	0.00E+00	MDA
Mn-54	0.00E+00	0.00E+00	8.36E-01	0.00E+00	8.36E-01	3.20
Fe-55	0.00E+00	0.00E+00	1.85E+01	0.00E+00	1.85E+01	70.88
Co-60	0.00E+00	0.00E+00	6.44E+00	0.00E+00	6.44E+00	24.67
Ni-59	0.00E+00	0.00E+00	3.12E-03	0.00E+00	3.12E-03	0.01
Ni-63	0.00E+00	0.00E+00	3.03E-01	0.00E+00	3.03E-01	1.16
Sr-90	0.00E+00	0.00E+00	7.41E-06	0.00E+00	7.41E-06	0.00
Tc-99*	0.00E+00	0.00E+00	3.00E-06	0.00E+00	0.00E+00	MDA
I-129*	0.00E+00	0.00E+00	1.94E-05	0.00E+00	0.00E+00	MDA
Cs-137	0.00E+00	0.00E+00	1.23E-02	0.00E+00	1.23E-02	0.05
Pu-241	0.00E+00	0.00E+00	9.99E-05	0.00E+00	9.99E-05	0.00
Cm-242	0.00E+00	0.00E+00	4.05E-07	0.00E+00	4.05E-07	0.00
TOTAL	0.00E+00	0.00E+00	2.61E+01	0.00E+00	2.61E+01	100.00

* (MDA) Minimum Detectable Activities in units of uCi/gm.

NOTE: H-3, C-14, Tc-99 and I-129 were required to be manifested per 10 CFR 20, Appendix F.

SUMMARY OF RADIOACTIVE SOLID WASTE

(January 1, 1995 - December 31, 1995)

MAJOR NUCLIDE COMPOSITION

SPENT RESIN

PRINCIPLE NUCLIDES	1ST QTR (Ci)	2ND QTR (Ci)	3RD QTR (Ci)	4TH QTR (Ci)	TOTAL (Ci)	PERCENT ABUNDANCE
H-3	0.00E+00	0.00E+00	2.01E-02	4.74E-02	6.75E-02	0.04
C-14	0.00E+00	0.00E+00	6.14E-02	6.17E-02	1.23E-01	0.07
Cr-51	0.00E+00	0.00E+00	0.00E+00	4.91E-01	4.91E-01	0.27
Mn-54	0.00E+00	0.00E+00	1.04E+01	6.62E+00	1.70E+01	9.40
Fe-55	0.00E+00	0.00E+00	4.67E+01	4.86E+01	9.53E+01	52.66
Co-60	0.00E+00	0.00E+00	2.49E+01	2.77E+01	5.26E+01	29.06
Ni-59	0.00E+00	0.00E+00	3.32E-02	4.96E-02	8.28E-02	0.05
Ni-63	0.00E+00	0.00E+00	4.79E+00	7.39E+00	1.22E+01	6.73
Sr-90	0.00E+00	0.00E+00	1.82E-03	2.13E-03	3.95E-03	0.00
Tc-99*	0.00E+00	0.00E+00	7.87E-06	7.87E-06	0.00E+00	MDA
Ru-106	0.00E+00	0.00E+00	6.84E-01	9.39E-01	1.62E+00	0.90
I-129*	0.00E+00	0.00E+00	1.94E-05	1.94E-05	0.00E+00	MDA
Cs-137	0.00E+00	0.00E+00	7.44E-01	4.46E-01	1.19E+00	0.66
Pu-238	0.00E+00	0.00E+00	8.13E-04	1.50E-03	2.31E-03	0.00
Pu-239/240	0.00E+00	0.00E+00	1.02E-03	1.88E-03	2.90E-03	0.00
Pu-241	0.00E+00	0.00E+00	9.98E-02	1.89E-01	2.89E-01	0.16
Am-241	0.00E+00	0.00E+00	6.79E-04	1.25E-03	1.93E-03	0.00
Cm-242	0.00E+00	0.00E+00	1.82E-03	2.76E-03	4.58E-03	0.00
Cm-243/244	0.00E+00	0.00E+00	1.54E-03	2.82E-03	4.36E-03	0.00
TOTAL	0.00E+00	0.00E+00	8.84E+01	9.26E+01	1.81E+02	100.00

* (MDA) Minimum Detectable Activities in units of uCi/gm.

NOTE: H-3, C-14, Tc-99 and I-129 were required to be manifested per 10 CFR 20, Appendix F.

SUMMARY OF METEOROLOGICAL DATA

The following pages are a summation of meteorological data accumulated during the calendar year 1995 by the MIDAS (Meteorological Information and Dose Assessment System) at the Duane Arnold Energy Center. Each table includes wind speed, wind direction, and stability class at the specified sensor height (33 feet or 156 feet). A summary table of all stability classes at each height is also included.

Data recovery for atmospheric stability, wind speed, and wind direction was greater than 95% at both 33 feet and 156 feet.

ENTER: [YRMODAHRYRMODAHR] START AND END DATE (HOURS)
[LD] LAST DATE ENTRY, 95010101 - 95123124
[RETURN] GO BACK TO PREVIOUS OPTION

LD

03/15/96 09:56SITE: DUANE ARNO

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 95010101-95123124
STABILITY CLASS: A DT/DZ
ELEVATION: SPEED:WS33 DIRECTION:WD33 LAPSE:DEL T

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	3	4	3	0	0	0	31
NNE	1	11	12	0	0	0	24
NE	4	14	8	4	0	0	30
ENE	2	11	5	0	0	0	19
E	5	13	4	0	0	1	23
ESE	4	21	16	2	0	0	44
SE	3	27	24	0	0	0	54
SSE	3	46	31	2	0	0	83
S	3	29	53	16	1	0	102
SSW	4	15	34	13	0	0	66
SW	1	13	27	6	1	0	48
WSW	0	11	22	19	2	0	56
W	1	5	10	16	8	0	45
WNW	1	6	30	34	10	0	84
NW	0	5	24	24	7	0	60
NNW	0	4	7	9	0	0	20
TOTAL	35	235	310	145	29	1	789

PERIODS OF CALM(HOURS): 96
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 419

ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 95010101-95123124
STABILITY CLASS: B DT/DZ
ELEVATION: SPEED:WS33 DIRECTION:WD33 LAPSE:DEL T

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	2	3	0	0	0	6
NNE	0	2	5	0	0	0	7
NE	1	4	9	1	0	0	15
ENE	1	5	0	0	0	0	6
E	0	3	3	0	0	0	6
ESE	0	2	7	1	0	0	10
SE	2	8	2	0	0	0	12
SSE	0	4	5	0	0	0	9
S	2	9	6	8	0	0	25
SSW	0	2	6	2	0	0	10
SW	2	4	5	1	0	0	12
WSW	1	5	5	1	0	0	12
W	0	3	3	4	2	0	12
WNW	0	6	13	5	4	0	28
NW	2	4	16	12	4	0	38
NNW	1	2	13	4	1	0	21
TOTAL	13	65	101	39	11	0	229

PERIODS OF CALM(HOURS): 96
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 419

ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 95010101-95123124
STABILITY CLASS: C D?/DZ
ELEVATION: SPEED:WS33 DIRECTION:WD33 LAPSE:DEL T

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	2	2	4	2	0	0	10
NNE	1	4	4	3	0	0	12
NE	0	9	2	1	0	0	12
ENE	2	5	3	0	0	0	10
E	0	3	3	0	0	0	6
ESE	3	4	6	1	0	0	14
SE	2	11	6	0	0	0	19
SSE	3	13	5	0	0	0	21
S	1	8	8	8	0	0	25
SSW	2	7	5	2	0	0	16
SW	2	1	3	1	0	0	7
WSW	1	4	8	2	0	0	15
W	1	7	10	0	3	0	21
WNW	0	5	12	14	3	1	36
NW	0	4	21	12	1	1	39
NNW	0	2	16	2	4	0	24
TOTAL	20	89	116	48	11	2	287

PERIODS OF CALM(HOURS): 96
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 419

ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 95010101-95123124
STABILITY CLASS: D DT/DZ
ELEVATION: SPEED:WS33 DIRECTION:WD33 LAPSE:DEL T

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	9	24	41	7	0	0	81
NNE	9	40	35	13	1	0	98
NE	14	57	64	48	2	0	185
ENE	16	63	68	20	0	0	167
E	16	85	41	4	1	1	148
ESE	12	61	49	22	0	0	145
SE	14	62	45	9	0	0	130
SSE	14	72	69	7	0	0	162
S	10	67	99	43	0	0	219
SSW	20	34	39	14	3	2	112
SW	17	36	20	5	5	0	83
WSW	9	26	31	8	3	0	77
W	11	33	48	53	6	1	152
WNW	9	46	67	81	33	5	241
NW	9	92	224	122	31	0	478
NNW	7	44	147	76	8	0	282
TOTAL	196	842	1087	532	93	6	2760

PERIODS OF CALM(HOURS): 96
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 419
ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 95010101-95123124
STABILITY CLASS: E DT/DZ
ELEVATION: SPEED:WS33 DIRECTION:WD33 LAPSE:DEL T

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	18	36	28	4	1	0	87
NNE	21	47	40	19	0	0	127
NE	31	61	44	10	1	0	148
ENE	21	59	28	6	0	0	115
E	47	65	32	0	0	0	147
ESE	48	76	47	8	1	0	181
SE	51	116	37	1	0	0	205
SSE	54	173	124	9	0	0	360
S	40	161	133	10	0	0	344
SSW	29	64	32	7	1	0	133
SW	25	39	11	6	2	2	85
WSW	10	50	21	13	4	0	98
W	15	44	35	14	6	0	114
WNW	10	68	84	43	8	0	216
NW	7	127	117	37	6	0	294
NNW	8	41	96	22	1	0	168
TOTAL	435	1227	909	209	31	2	2822

PERIODS OF CALM(HOURS): 96
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 419
ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 95010101-95123124
STABILITY CLASS: F DT/DZ
ELEVATION: SPEED:WS33 DIRECTION:WD33 LAPSE:DEL T

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	6	5	5	3	0	0	19
NNE	13	13	9	3	0	0	38
NE	31	16	1	0	0	0	49
ENE	28	4	3	0	0	0	38
E	25	17	5	0	0	0	48
ESE	20	20	2	1	0	0	43
SE	50	13	8	0	0	0	71
SSE	45	37	2	0	0	0	84
S	51	31	1	0	0	0	85
SSW	30	24	5	0	0	0	60
SW	21	23	4	3	0	0	51
WSW	19	25	1	0	0	0	46
W	14	30	3	0	0	0	48
WNW	7	21	4	0	1	0	33
NW	5	13	1	1	0	0	20
NNW	4	2	5	2	0	0	13
TOTAL	369	294	59	13	1	0	746

PERIODS OF CALM(HOURS): 96
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 419

ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 95010101-95123124
STABILITY CLASS: G DT/DZ
ELEVATION: SPEED:WS33 DIRECTION:WD33 LAPSE:DEL T

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	4	0	0	1	0	4	9
NNE	19	23	0	1	0	0	44
NE	38	19	0	0	0	0	60
ENE	66	1	0	0	0	0	70
E	33	0	0	0	0	0	44
ESE	53	1	0	0	0	0	58
SE	51	0	0	0	0	0	55
SSE	60	7	0	0	0	0	68
S	68	9	0	0	0	0	77
SSW	66	7	0	0	0	0	75
SW	49	14	0	0	0	0	63
WSW	30	16	1	0	0	0	47
W	20	6	0	0	0	0	26
WNW	4	4	0	0	0	0	8
NW	2	0	0	0	0	0	2
NNW	1	0	0	1	0	0	2
TOTAL	564	107	1	3	0	4	708

PERIODS OF CALM(HOURS): 96
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 419

ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 95010101-95123124
STABILITY CLASS: ALL DT/DZ
ELEVATION: SPEED:WS33 DIRECTION:WD33 LAPSE:DEL T

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	43	73	84	17	1	4	243
NNE	64	140	105	39	1	0	350
NE	119	180	128	64	3	0	499
ENE	136	148	107	26	0	0	425
E	126	186	88	4	1	2	422
ESE	140	185	127	35	1	0	495
SE	173	237	122	10	0	0	546
SSE	179	352	236	18	0	0	787
S	175	314	300	85	1	0	877
SSW	151	153	121	38	4	2	472
SW	117	130	70	22	8	2	349
WSW	70	137	89	43	9	0	351
W	62	128	109	87	25	1	418
WNW	31	156	210	177	59	3	646
NW	25	245	403	208	49	1	931
NNW	21	95	284	116	14	0	530
TOTAL	1632	2859	2583	989	176	15	8341

PERIODS OF CALM(HOURS): 96
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 419

ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT

ENTER: [YRMODAHRYRMODAHR] START AND END DATE (HOURS)
[LD] LAST DATE ENTRY, 95010101 - 95123124
[RETURN] GO BACK TO PREVIOUS OPTION
LD

03/15/96 10:01SITE: DUANE ARNO

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 95010101-95123124
STABILITY CLASS: A DT/DZ
ELEVATION: SPEED:WS156 DIRECTION:WD156 LAPSE:DEL T

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	10	23	40	38	6	6	137
NNE	0	5	12	2	0	0	19
NE	1	7	18	2	2	0	30
ENE	0	7	5	0	0	0	12
E	2	7	10	0	0	0	19
ESE	1	8	8	3	0	0	20
SE	0	10	15	18	0	0	43
SSE	2	22	42	15	2	0	83
S	3	13	38	24	5	1	84
SSW	1	5	25	26	8	1	66
SW	1	8	18	18	5	1	51
WSW	2	6	13	15	4	1	41
W	0	6	7	9	13	4	39
WNW	1	2	14	15	16	5	53
NW	2	3	20	32	12	6	75
NNW	0	2	7	7	0	1	17
TOTAL	26	134	292	224	73	26	789

PERIODS OF CALM(HOURS): 26
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 420
ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 95010101-95123124
STABILITY CLASS: B DT/DZ
ELEVATION: SPEED:WS156 DIRECTION.WD156 LAPSE:DEL T

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	2	8	22	16	8	1	57
NNE	1	3	3	2	0	0	9
NE	1	0	11	4	0	0	16
ENE	0	0	0	0	0	0	0
E	0	1	3	0	0	0	4
ESE	0	1	2	3	1	0	7
SE	0	3	2	3	0	0	8
SSE	0	3	5	2	0	0	10
S	0	6	3	2	1	0	12
SSW	0	4	4	6	2	0	16
SW	1	3	1	3	1	0	9
WSW	2	1	1	1	0	0	5
W	1	3	4	3	1	0	12
WNW	0	2	7	1	6	1	17
NW	1	4	7	11	3	2	28
NNW	1	1	6	10	1	0	19
TOTAL	10	43	81	67	24	4	229

PERIODS OF CALM(HOURS): 26
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 420

ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 95010101-95123124
STABILITY CLASS: C DT/DZ
ELEVATION: SPEED:WS156 DIRECTION:WD156 LAPSE:DEL T

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	5	17	24	14	6	4	71
NNE	3	2	4	2	1	0	12
NE	0	2	2	1	0	0	5
ENE	0	3	6	0	0	0	9
E	0	0	0	2	0	0	2
ESE	0	1	7	1	0	0	9
SE	0	4	6	5	0	0	15
SSE	0	8	7	4	0	0	19
S	0	2	2	4	1	0	9
SSW	0	1	7	8	4	0	20
SW	0	3	3	2	0	0	8
WSW	0	3	5	5	0	0	13
W	0	3	7	2	1	1	14
WNW	1	3	10	8	4	0	26
NW	0	2	10	10	7	1	30
NNW	1	0	16	5	3	0	25
TOTAL	10	54	116	73	27	6	287

PERIODS OF CALM(HOURS): 26
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 420
ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 95010101-95123124
STABILITY CLASS: D DT/DZ
ELEVATION: SPEED:WS156 DIRECTION:WD156 LAPSE:DEL T

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	20	96	305	247	102	32	805
NNE	4	39	53	16	2	0	114
NE	5	28	43	14	3	0	93
ENE	11	30	30	22	11	0	104
E	6	32	43	20	5	0	106
ESE	5	20	48	25	19	0	117
SE	7	29	43	24	6	0	109
SSE	7	21	55	30	6	0	119
S	2	26	62	46	20	2	158
SSW	7	17	26	42	10	3	105
SW	7	26	23	13	1	9	79
WSW	9	22	13	9	3	2	58
W	3	23	31	29	16	5	107
WNW	4	28	40	47	33	13	165
NW	4	35	86	97	24	11	257
NNW	4	30	94	115	18	2	263
TOTAL	105	502	995	796	279	79	2759

PERIODS OF CALM(HOURS): 26
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 420
ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 95010101-95123124
STABILITY CLASS: E DT/DZ
ELEVATION: SPEED:WS156 DIRECTION:WD156 LAPSE:DEL T

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	23	85	211	153	29	5	507
NNE	6	30	54	29	5	0	124
NE	6	28	51	14	5	0	104
ENE	4	31	44	14	3	0	96
E	11	40	35	22	0	0	108
ESE	6	40	64	36	6	2	154
SE	8	41	92	30	1	0	172
SSE	8	38	107	88	18	0	259
S	7	41	134	114	13	0	309
SSW	5	24	64	36	3	2	134
SW	5	26	27	13	5	4	80
WSW	11	29	14	15	10	5	84
W	4	18	45	25	8	4	104
WNW	5	23	54	43	19	7	151
NW	7	35	86	62	18	3	211
NNW	9	35	107	65	9	0	225
TOTAL	125	564	1189	759	152	32	2822

PERIODS OF CALM(HOURS): 26
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 420

ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 95010101-95123124
STABILITY CLASS: F DT/DZ
ELEVATION: SPEED:WS156 DIRECTION:WD156 LAPSE:DEL T

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	21	36	65	16	2	0	140
NNE	3	9	8	9	0	0	30
NE	4	10	10	1	0	0	26
ENE	4	1	6	0	0	0	11
E	6	9	9	1	0	0	25
ESE	7	17	16	3	0	0	43
SE	0	15	30	6	0	0	51
SSE	3	14	29	4	0	0	50
S	4	15	47	3	0	0	69
SSW	3	26	15	2	0	0	46
SW	9	22	8	4	2	0	45
WSW	3	17	18	3	0	0	41
W	6	16	14	0	0	0	36
WNW	4	18	31	3	0	1	57
NW	2	12	20	2	0	0	36
NNW	8	19	10	2	0	0	40
TOTAL	87	256	336	59	4	1	746

PERIODS OF CALM(HOURS): 26
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 420

ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 95010101-95123124
STABILITY CLASS: G DT/DZ
ELEVATION: SPEED:WS156 DIRECTION:WD156 LAPSE:DEL T

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	37	58	18	1	3	3	121
NNE	6	12	13	0	1	0	32
NE	5	12	7	0	0	0	24
ENE	3	19	4	0	0	0	28
E	13	9	2	0	0	0	24
ESE	8	22	9	1	0	0	40
SE	10	35	14	0	0	0	59
SSE	4	33	35	0	0	0	72
S	12	31	20	0	0	0	63
SSW	9	32	3	0	0	0	44
SW	12	28	5	0	0	0	46
WSW	7	16	2	1	0	0	26
W	8	11	7	0	0	0	26
WNW	6	18	18	0	0	0	42
NW	10	19	4	0	0	0	33
NNW	17	7	4	0	0	0	28
TOTAL	167	362	165	3	4	3	708

PERIODS OF CALM(HOURS): 26
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 420
ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 95010101-95123124
STABILITY CLASS: ALL DT/DZ
ELEVATION: SPEED:WS156 DIRECTION:WD156 LAPSE:DEL T

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	118	323	685	485	156	51	1838
NNE	23	100	147	60	9	0	340
NE	22	87	142	36	10	0	298
ENE	22	91	95	36	14	0	260
E	38	98	102	45	5	0	288
ESE	27	109	154	72	26	2	390
SE	25	137	202	86	7	0	457
SSE	24	139	280	143	26	0	612
S	28	134	306	193	40	3	704
SSW	25	109	144	120	27	6	431
SW	35	116	85	53	14	14	318
WSW	34	94	66	49	17	8	268
W	22	80	115	68	39	14	338
WNW	21	94	174	117	78	27	511
NW	26	110	233	214	64	23	670
NNW	40	94	244	204	31	3	617
TOTAL	530	1915	3174	1981	563	151	8340

PERIODS OF CALM(HOURS): 26
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 420

ENTER: [RETURN] CONTINUE, [SO] START OVER, [EX] TO EXIT

SUMMARY OF CHANGES TO THE

OFFSITE DOSE ASSESSMENT MANUAL

One revision to the Offsite dose Assessment Manual (ODAM) was implemented in 1995. This revision (Rev. 8) was implemented on November 20, 1995. A detailed listing of changes to the ODAM is included below.

SUMMARY

Page 18	Section 3.2	Changed **semi-annual** to **annual**. This was overlooked as a change from the last revision.
Page 44	Table 3-2	Corrected typos for Plant Vents Release: Kr-85m fraction from **1098E-02** to **1.98E-02**.
Page 53	Figure 5-2	Add location 42 for new TLD location.
Page 55	Table 5-1	Assign location 42 to 3 miles SSE and add a TLD. The TLD is added due to population increase at that location as identified by the Land Use Census for 1995. TLD to Be deployed as of the first quarter of 1996.
Page 57	Table 5-1	Remove milk from location 72. The farmer no longer keeps milk animals.
Page 70	Sect. 6/7 bases	Add statement to Liquid Effluent Instrumentation bases that clarifies that the Radwaste Effluent Radiation Monitor recorder 3972 is not required in order to comply with routine functional and calibration surveillances when there is no release. This was identified as an action per AR951389.01 as an unnecessary burden for maintenance. It's removal from routine surveillance alleviates the need to either run the device or maintain the device except for use during a release. The pathway that is monitored by the associated radiation detector is normally locked shut, and plant policy is to not release via this pathway.
Page 84	Table 7.2-2	Add statement to footnote b that allows taking into account slight variations in release rates due to normal operational events such as line up changes for condensate demineralizers and reactor water cleanup. These slight, temporary changes are not indicative of changes in fuel status or other significant changes in releases, but more indicative of the process used n changing system lineups.
Page 88	Sect. 6/7 bases	Corrected miscellaneous typos.
Page 93	Section 6.3.2.1	Substitute paragraph from NUREG 1302 that allows consideration for environmental sampling problems due to hazardous conditions, seasonal unavailability, malfunction of automatic sampling equipment and other legitimate reasons. The paragraph from revision 7 did not take the above factors into account. By not taking the above factors into account, procedural conformance had become an issue each time a sample was not obtained for legitimate reasons. The appropriate action is stated to be

		documentation in the Annual Radiological Environmental Report. This revision is per AR951659.01 which was initiated when less than the required number of milk samples were obtained due to legitimate reasons. ARs should no longer be needed under these circumstances.
Page 96	Table 6.3-1	Change the required number of Ambient Radiation TLDs from thirty-eight to thirty-nine due to the addition of site 42 at 3 miles SSE. Change the number of required milk samples from four to three due to the loss of another milk sampling location as reported by the 1995 Land Use Census. This is the third milk animal sampling location lost in the last two years due to farmers no longer keeping milk animals. Two (out of the five) remaining milk animal locations are goats that only produce milk during the grazing season.

Per DAEC Technical Specification 6.14, the above mentioned changes do not reduce the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR 190, 10 CFR 50.36a or Appendix I to 10 CFR 50, and do not adversely impact the accuracy of reliability of effluent dose or setpoint calculations.

Each change has been identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed. The date that changes are to be implemented are indicated along with the revision and page numbers at the footer of each page.

OFFSITE DOSE ASSESSMENT MANUAL

GASEOUS AND LIQUID EFFLUENTS

Duane Arnold Energy Center
IES Utilities, Inc.

Approved by: Louis B. Kriege — Chemistry Supervisor — 11-6-95 — Date

Approved by: Robert C. Fitz — Radiation Protection Manager — 11-14-95 — Date

Reviewed by: [signature] — Operations Committee Chairman — 11/14/95 — Date

Approved by: Gary Van Middlesworth — Plant Manager — 11/16/95 — Date

Issue Date: NOV 20 1995

STOP, CHECK AND THINK

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1.0 INTRODUCTION

This Manual describes acceptable methods of calculating radioactivity concentrations in the environment and the potentially resultant committed doses to a member of the public in the unrestricted area* that are associated with LWR liquid and gaseous effluents. The methodology stated in this Manual is acceptable for use in demonstrating operational compliance with 10 CFR 20.1301, 10 CFR 50 Appendix I, and 40 CFR 190. Only the dose attributable to the Duane Arnold Energy Center is considered in demonstrating compliance with 40 CFR 190 since no other nuclear facility exists within 50 miles of the Center.

Calculations are made monthly to assess the potential air doses offsite and to a nearby resident in order to guide the management of station effluents. The receptor is described such that the dose to any resident near the Station is unlikely to be underestimated. Calculations made to assess the radioactive noble gas dose to air are based on the location offsite that could be occupied by a person where the maximum airdose is expected. For these monthly accumulated dose calculations, atmospheric dispersion and deposition of gaseous effluents is based on reference meteorological conditions.** More conservative conditions (i.e., location and/or exposure pathways expected to yield higher computed doses) than appropriate for the maximally exposed person may be assumed in the dose estimated.

Calculations of dose committed from radioactive releases over extended time (3 and 12 months) are also made for the purpose of verifying compliance with regulatory limits on offsite dose. For these calculations the receptor is selected on the basis of the combination of applicable exposure pathways identified in the land use census and the maximum ground level χ/Q at a residence, or on the basis of more conservative conditions such that the dose to any resident near the Station is unlikely to be underestimated.

---

* Unrestricted area means outside of the boundary of property owned, leased, or controlled by IES on which DAEC is sited. The DAEC site boundary is identified by UFSAR Figure 1.2-1.

** Reference meteorological conditions are 1971, 1974 and 1975 data composited as discussed in "Duane Arnold Energy Center, Evaluation of Liquid and Gaseous Effluent Releases In Accordance With 10 CFR 50 Appendix I," submitted to the NRC June 3, 1976.

2.0 LIQUID EFFLUENT

2.1 Radioactivity In Liquid Waste

The concentration of radionuclides in liquid waste is determined by sampling and analysis in accord with the surveillance requirements of Section 7.1.2, Table 7.1-2. When a radionuclide concentration is below the LLD for the analysis, it is not reported as being present in the sample.

2.2 Aqueous Concentration

Radioactive material in liquid effluent is diluted successively by water flowing in the discharge canal and in the River. The diluted concentration of radionuclide *i* in a receiving stream is estimated with the equation

$$C_{zi} = C_i \frac{F_1}{F_2}$$

where

C_i = concentration of radionuclide *i* in liquid radwaste released (μCi/ml)

C_{zi} = concentration of radionuclide *i* in the receiving stream (μCi/ml)

F_1 = release rate of liquid radwaste (ml/sec)*

F_2 = dilution flow of receiving stream of water (ml/sec)*

For the purpose of calculating the radioactivity concentration in water at the restricted area boundary (section 2.5), the flow in the discharge canal, F_c, is assigned to F_2. The water flow in the discharge canal may include the liquid waste effluent flow, the liquid radwaste dilution water flow, the cooling tower blowdown flow and other streams such as RHR and emergency service water discharged via the dilution structure and discharge canal. These streams are illustrated in Figure 2-1.

---

* F_1, F_2, and F_c may have any convenient units of flow (i.e., volume/time) provided the units of all are identical.

In the River immediately beyond the discharge canal and the restricted area boundary, the effective dilution is

$$F_2 = F_c \times M$$

where

F_c = discharge canal flow

M = factor of additional mixing in the River

A near field mixing ratio from the canal into the near field of the River, M = 5, is assigned when estimating maximum potential individual doses involving exposure by eating fish or from consuming irrigated foods. In the event water is drawn from the River downstream of the Station for drinking water or another exposure pathway, F_2 represents the portion of the River flow into which the liquid effluent from the Station is effectively mixed.

2.3 Basis of Mixing Ratios

Downstream dilution of aqueous discharge from the DAEC has been estimated based on thermal plume studies conducted in 1974 at the DAEC*. Measurements of the discharge temperature and river temperature indicated that the 1°F excess temperature isotherm was about 350 feet downstream of the discharge. This 1°F isotherm represented a dilution of the discharge by the Cedar River of about a factor of 12.

In determining additional dilution within the receiving water for evaluating doses from a plant with cooling towers, the NRC guideline** is that the factor should be limited to a number such that the product of the number and the average blowdown flow to the receiving water body is 1000 cfs or less. At the DAEC, the discharge rate can be conservatively approximated by a cooling tower blowdown rate of 4000 gpm, or about 9 cfs. Using the NRC guideline, an additional dilution of 100 in the Cedar River could be assumed for evaluating doses due to liquid effluent. Since the average flow in the Cedar River is about 3065 cfs, the additional dilution in the River is achievable.

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* IELP, Cedar River Baseline Ecological Study, DAEC, annual report, Jan. 1974-Jan. 1975.

** Boegli, J.S., et. al., Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants, NUREG-0133, p. 16, October, 1978.

These results indicate both a dilution factor of 12 at a downstream distance of 350 feet and conformance to the NRC guideline. Therefore, it is conservative to assume the dilution factors of 5 for fish or irrigation and 10 for drinking water for the evaluation of doses during DAEC operation.

2.4 Method of Establishing Alarm Setpoints

The liquid radwaste effluent line has a monitor which provides automatic isolation when 10 times the water effluent concentration listed in 10 CFR 20 Appendix B, Table 2, are being exceeded in the unrestricted area. The other liquid effluent pathways have monitors which provide alarms when 10 times the 10 CFR 20 water effluent concentration is being exceeded in the unrestricted area. Given the nature and frequency of discharges, prompt action to reduce radioactive releases following an alarm, will assure the requirements of 10 CFR Part 20. 1301; 10 CFR Part 50 Appendix I, Section IV; and 40 CFR Part 190 are not exceeded.

The alarm setpoint for the liquid effluent radiation monitor is derived from the concentration limit provided in 10 CFR Part 20.1001-20.2401 Appendix B Table 2 Column 2 applied at the unrestricted area boundary where the discharge canal flows into the river. The alarm setpoint does not consider dilution, dispersion, or decay of radioactive material beyond the site boundary. That is, the alarm setpoint is based on a concentration limit at the end of the discharge canal. The radiation monitoring and isolation points are located in each line through which radioactive waste effluent is eventually discharged into the discharge canal.

The alarm setpoint for effluent monitors on batch releases is based on measurements, according to Table 7.1-2. For liquids released in continuous aqueous discharge which are normally radioactively clean, the setpoint is based on the effective Water Effluent Concentration (WEC) for the most likely contaminating source, i.e., the primary coolant water. A measured spectrum from the primary coolant water is used to determine the effective WEC based on WEC fractions according to 10 CFR 20 Appendix B. Alternately, the alarm setpoint may be based upon gross β-γ activity analysis of the liquid waste provided the unrestricted area WEC for unidentified emitters, 1×10^{-8} μCi/ml, is observed in accord with Section 7.1.2.

2.4.1 Setpoint for a Batch Release

A sample of each batch of liquid radwaste is analyzed for I-131 and other principal gamma emitters, or for total activity concentration prior to release. The ratio, $FWEC_b$, of the activity concentration in the tank to the unrestricted area WEC (10 CFR Part 20, Appendix B, Table 2, Column 2) is calculated with the equation

$$FWEC_b = \sum_i \frac{C_{bi}}{WEC_i}$$

where

$FWEC_b$ = fraction of unrestricted area WEC in batch derived from activity measured prior to release.

C_{bi} = concentration of radionuclide i (including I-131 and principal gamma emitters) in batch sample taken prior to release (μCi/ml)

In the event total or gross β-γ analysis alone is used to determine the radioactivity in a batch prior to release, the fraction of the unrestricted area WEC in the batch is just

$$FWEC_b = \frac{C_b}{1 \times 10^{-8}}$$

where

C_b = the total or gross β-γ activity measured in the batch sample (μCi/ml)

1×10^{-8} = the unrestricted area WEC for unidentified radionuclides (μCi/ml)

Whether radioiodine and primary gamma emitters are identified prior to a batch release or not, the liquid radwaste effluent line radiation monitor alarm setpoint is determined with the equation

$$S = 10 \times \left[\frac{A}{FWEC_b} \times \frac{F_{S2}}{F_{S1}} \times g \right] + Bkg$$

where

S = radiation monitor alarm setpoint (cpm)

10 = factor to account for fact that DAEC's instantaneous release limit is ten times the listed WECs

A = counting rate (cpm/ml) or activity concentration (μCi/ml) of

sample in laboratory analysis. A equals $\sum_i C_{bi}$ if an isotopic analysis were performed or C_b if a gross activity analysis was performed.

g = ratio of effluent radiation monitor counting rate to laboratory counting rate or activity concentration in a given batch of liquid (cpm per cpm/ml or cpm per μCi/ml)

Bkg = monitoring instrument background (cpm)

F_{s1} = flow in the batch release line (gal/min).* Value not greater than the discharge line flow alarm maximum setpoint.

F_{s2} = minimum flow in the discharge canal (gal/min).* Value not less than the discharge canal flow alarm minimum setpoint.

Note that $A/FWEC_b$ represents the counting rate of a solution having the same radionuclide distribution as the sample and having the water effluent concentration of that mixture.

2.4.2 Setpoint for a Continuous Release

Continuous aqueous discharges are sampled and analyzed according to the schedule in Table 7.1-2. The ratio, $FWEC_c$, of the activity concentration in each of the continuous release streams to the unrestricted area WEC is calculated with the equations

$$FWEC_c = \sum_i \frac{C_{ci}}{WEC_i}$$

where

$FWEC_c$ = fraction of unrestricted area WEC in continuous release based upon activity measured in primary coolant sample(s)

C_{ci} = concentration of radionuclide i in sample(s) (μCi/ml)

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* Any suitable but identical units of flow (volume/time)

In the event the total or gross β-γ analysis alone is used to determine the radioactivity, the fraction of the unrestricted area WEC in the continuous release is

$$FWEC_c = \frac{C_c}{1 \times 10^{-5}}$$

where

C_c = the total or gross β-γ activity measured in the continuous release sample (μCi/ml).

The alarm setpoint of the radiation monitor on a continuous radioactive discharge line is determined with the equation

$$S = 10 \times \left[\frac{A}{FWEC_c} \times \frac{F_{s2}}{F_{s1}} \times g \right] + Bkg$$

where

10 = factor to account for fact that DAEC's instantaneous release limit is ten times the listed WECs

A = activity concentration (μCi/ml) or counting rate (cpm/ml) in laboratory of monthly reactor primary coolant sample.

F_{s1} = Flow in the liquid discharge line (ml/sec).* Value not greater than off discharge line flow alarm maximum setpoint.

F_{s2} = flow in the discharge canal (ml/sec).* Value not less than discharge canal flow alarm minimum setpoint.

g = ratio of effluent radiation monitor counting rate to laboratory counting rate or activity concentration in a given batch of liquid (cpm per cpm/ml or cpm per μCi/ml)

The radioactivity concentration in continuous aqueous effluent is usually so low that measurement of a representative radionuclide in a sample of the water is uncertain. Thus, the ratio, $A/FWEC_c$, which represents the WEC of a given spectrum of radionuclides, is usually derived from reactor primary coolant analysis(es). Alternatively, it may be determined from analyses of the continuous effluent itself.

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* Any suitable but identical units of flow (volume/time).

In the event the concentration of radioactive material in the sample from the continuous release is below measurable levels (i.e., less than the lower limit of detection), the value of 1×10^{-6} µCi/ml or the equivalent counting rate (cpm/ml) may be substituted for the factor

$$\frac{A}{FWEC_c} \quad (i.e., \quad \frac{A}{FWEC_c} = 1 \times 10^{-6}).$$

2.5 Radioactivity Concentration in Water at the Restricted Area Boundary

Section 6.1.2 provides limits on instantaneous radioactivity concentration in the unrestricted area due to aqueous effluents from DAEC. Compliance is assessed by monitoring, sampling, analyzing and establishing setpoints according to Section 7.1.2. As long as a liquid effluent monitor named in Table 6.1-1 does not exceed an alarm or trip setpoint, determined in accordance with section 2.3 herein, or as long as the total or gross activity concentration, measured as required in Section 7.1.2, does not exceed 1×10^{-7} µCi/ml after dilution in the discharge canal, Section 6.1.2 is satisfied.

In the event of an alarm, indicating concentrations in the unrestricted area in excess of section 6.1.2 limits, the release shall be terminated and dose calculations will be performed to assure the limits specified in sections 6.1.3 and 6.3.1 are not exceeded.

Compliance with 10 CFR 20.1301 shall not be demonstrated on the basis of determining the average annual liquid effluent concentration. But rather by demonstrating compliance with 40 CFR 190 (i.e., section 6.3.1). Such a practice was deemed acceptable by the NRC in their preamble to the revised 10 CFR 20.*

2.6 Accumulated Personal Maximum Dose

Section 7.1.3 requires an assessment to be performed at least once every 31 days in any quarter in which radioactive effluent is discharged which determines whether the dose or dose commitment to a person offsite due to radioactive material released in liquid effluent calculated on a cumulative basis exceeds the limits of Section 6.1.3. The requirement is satisfied by computing the accumulated dose commitment to the most exposed organ and to the total body of a hypothetical person exposed by eating fish or consuming irrigated strawberries and drinking water taken from the river offsite downstream of the discharge canal.

The pathway(s) and or age group(s) selected may vary by season. For instance, fishing near the DAEC is practically non-existent during the winter; thus, a dose evaluation of the fish pathway is not required for

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* Federal Register Volume 56, #98, Tuesday, May 21, 1991, p. 23360

aqueous effluent discharged during the winter months of January, February, or March.

The accumulated dose commitment is computed at least once every 31 days but may be computed as analyses become available.

Normally, DAEC employs the MIDAS computer program to calculate dose to a member of the public from aqueous effluent that uses the equations in Reg Guide 1.109* and standard values therein for maximally exposed people. The amount of strawberries a person may eat is estimated to be one-half the amount of fresh leafy vegetable consumption. Alternatively, the amount of strawberries eaten may be assumed to equal the amount of fresh leafy vegetables eaten.

Alternatively, the dose may be calculated in the following way, for instance, in the event calculations by hand were necessary.

$$\Delta D_{ank} = 3.785 \times 10^{-3} \sum_i C_{ik} \times \Delta T_k \sum_e \frac{F1_k}{F2_{ek}} \times A_{eani}$$

$$D_{an} = \sum_k \Delta D_{ank}$$

where

ΔD_{ank} = the dose commitment (mrem) to organ n of age group a due to the isotopes identified in analysis k, where

the analyses are those required by Table 7.1-2. Thus the contribution to the dose from gamma emitters become available on a batch basis for batch releases and on a weekly basis for continuous releases. Similarly the contributions from H-3 is available on a monthly basis and the contributions from Fe-55, Sr-89, and Sr-90 become available on a quarterly basis.

D_{an} = the dose commitment during the quarter-to-date to organ n, including total body, of the maximally exposed person in age group a (mrem)

A_{eani} = transfer factor relating a unit release of radionuclide i (Ci) in a unit stream flow (gal/min) to dose commitment to organ n, or total body, of an exposed person in age group a $\left[\frac{mrem\ gal}{Ci\ min}\right]$ via environmental pathway e.

C_{ik} = the concentration of radionuclide i in the undiluted liquid waste represented by sample k to be discharged (μCi/ml)

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* USNRC, Regulatory Guide 1.109, revision 1, Position C.1, pp. 1.109-2 thru 1.109-4, Oct. 1977.

Δt_k = duration of radioactive release represented by sample k which occurs within time boundaries TB and TE and during which concentration C_{ik} and flows $F1_k$ and $F2_k$ exist. (min.)

3.785×10^{-3} = conversion constant (3785 ml/gal x 10^{-6} Ci/μCi)

$F1_k$ = flow in the radioactive waste release line (gal/min)* represented by sample k.

$F2_{ke}$ = flow into which radioactive release represented by sample k is mixed in the river at the point of exposure or withdrawal of water for use (same units as $F1_k$)*

= $M \times F_{ck}$

where

F_{ck} = discharge canal flow (gal/min)* during release represented by sample k

M = factor of additional mixing in the river

Pathway-to-dose transfer factors, A_{aani}, for use in calculating the dose commitment arising from radioactive material released in aqueous effluents are tabulated in Appendix C. These dose transfer factors were derived using LADTAP II and standard values from Regulatory Guide 1.109, revision 1, except where corrections have been incorporated in LADTAP II. Appropriate tables representing applicable environmental pathways of exposure and most exposed age group(s) are selected and used in calculating the dose commitment. The pathway(s) and/or age group(s) selected may vary by season.

For the purpose of calculating the dose to a Member of the Public who is potentially exposed by eating fish taken from the river offsite near the discharge canal, $F_2 = 5F_c$. The age group potentially the most exposed via eating fish is expected to be the adult. $F_2 = 5F_c$ is also used for the irrigated food pathway when the pathway exists.

The age group potentially the most exposed via drinking water taken from the Cedar River is expected to be the infant. As long as water is known not to be taken from the Cedar River within 3 miles downstream of the DAEC, for drinking water, as verified by the annual land use survey, the potential dose to a Member of the Public via drinking water will be assessed on the basis of water assumed to be taken from the river three miles downstream. At that location, F_2 is conservatively assumed to be $F_2 = 10F_c$. Variables F_1, F_2, and F_c are also defined in section 2.2.

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* Any suitable, identical units of flow (volume/time).

2.7 Projected Maximum Dose to a Person Offsite

The dose commitment to a person offsite due to radioactive material released in liquid effluent may be projected by calculating the extrapolated total body and most exposed organ dose commitments to a hypothetical person exposed via the same pathways evaluated in section 2.5. The potential dose commitments to organs and to the total body are computed separately.

The dose commitment to a maximally exposed hypothetical person will be projected by calculating the doses accumulated during the most recent three months (according to the method described in section 2.5) and by assuming the result represents the projected doses during the current quarter. Alternatively, the quarterly dose commitment may be projected by using the equation:

$$P_{an} = \frac{92\ D_{an}}{X}$$

where

P_{an} = projected dose commitment (mrem) to organ n (including total body) of age group a for the current quarter

92 = number of days in a quarter

X = number of days to date in current quarter

D_{an} = dose commitment to organ n, including total body, of the maximally exposed person in age group a based on available aqueous effluent measurements during the quarter to date (mrem)

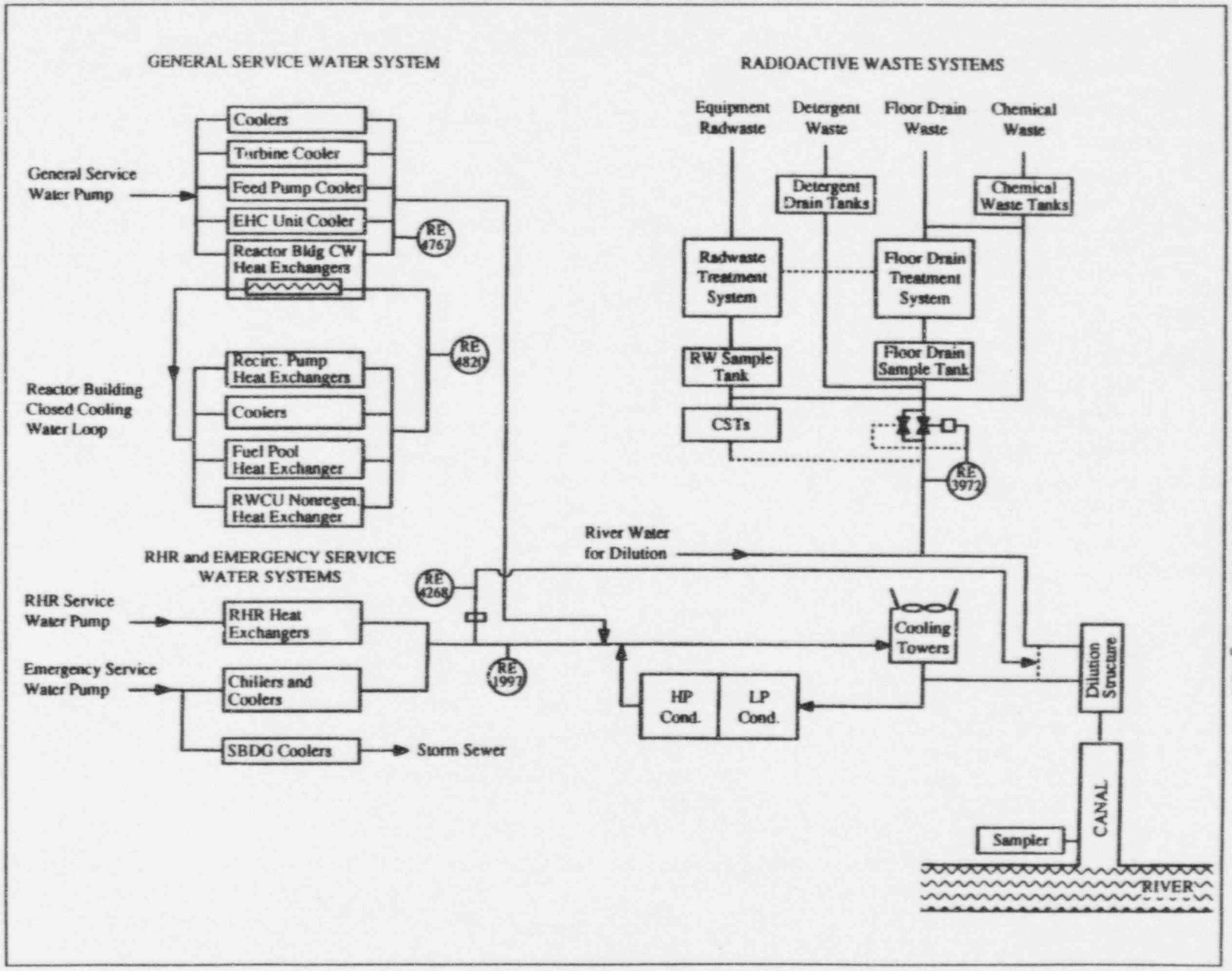

Figure 2-1
Duane Arnold Energy Center
Radioactive Water Effluent Diagram

3.0 GASEOUS EFFLUENT

3.1 Introduction

The Station discharges gaseous effluent through a stack and discharges ventilation air from the reactor and radwaste building through the reactor building vents. Ventilation air from the Turbine Building is discharged through the Turbine Building vent and through the Reactor Building vent. Ventilation from the LLRPSF is discharged through the LLRPSF vent. These gaseous effluent streams, radioactivity monitoring points, and effluent discharge points are shown schematically in Figure 3-1. Gaseous release point locations and elevations at the Station are described in Table 3-1. Gaseous discharges from the stack are treated as an elevated release while discharges via the building vents are assumed to be ground-level, building wake, or split wake releases.

3.2 Radioactivity in Gaseous Effluent

For the purpose of estimating offsite radionuclide concentrations and radiation doses, measured radionuclide concentrations in gaseous effluent and in ventilation air exhausted from the Station are relied upon.

The gross radioactivity of noble gases discharged is measured by the radioactive noble gas effluent monitors according to Tables 6.2-1 and 7.2-2. Radionuclides other than noble gases in gaseous effluents are measured by sampling and analyses in accordance with Table 7.2-2. Each radionuclide measured in an effluent may be assumed to be discharged uniformly during the sampling period. When a radioactivity concentration is below the LLD for the analysis, it is not reported as being present in the sample.

The quantity of radioactive noble gas discharged via the offgas stack or a vent during an interval of time is determined by integrating the release rate measurement of each effluent noble gas monitor. An hourly interval is normally used for dose rate assessments and a daily or longer interval is used for dose assessments. If ΔQ_j represents the gross activity of noble gas discharged via the offgas stack or a vent and g_i represents the fraction of radionuclide i in the distribution of radioactive gases in that effluent stream, then the quantity of radionuclide i released in the gaseous effluent stream during counting interval j is estimated by the relation:

$$\Delta Q_{ij} = \Delta Q_j \times g_i$$

The distribution of radioactive noble gases in gaseous effluent streams is determined by gamma spectrum analysis of gaseous effluent samples in accordance with Table 7.2-2. Results of one or more previous analyses may be averaged to obtain a representative spectrum. In the event a representative distribution is not available or is unobtainable from

sample(s) of an effluent stream taken during the current quarter, it will be derived from past measurements, e.g., earlier sample results or annual radioactive material release reports. Alternatively, a noble gas spectrum for a given effluent stream in Table 3-2 herein, may be assumed.

An airborne discharge of radionuclides other than noble gases may be represented by multiple samples with each sample providing a measure of the concentration of specific radionuclides, C_i, in gaseous effluent discharged at flow, F_a, during a time increment Δt. Thus, each release is quantified according to the relation:

$$Q_{ik} = \sum_j C_{ik} F_{aj} \Delta t_j$$

where

Q_{ik} = the quantity of radionuclide i released in a given effluent stream based on analysis k (Ci)

C_{ik} = concentration of radionuclide i in gaseous effluent identified by analysis k (μCi/ml or Ci/m^3)

F_{aj} = effluent stream discharge rate during the increment Δt_j (m^3/sec)

Δt_j = time increment during which radionuclide i at concentration C_{ik} is being discharged (sec)

The analysis index k may represent either a grab sample, integrated sample, or a composite sample required by the effluent sampling and analysis program specified in Table 7.2-2.

3.3 Main Condenser Offgas Pretreatment Monitor Alarm Setpoint

A noble gas activity monitor is provided to measure gross gamma activity in gases from the main condenser air ejector. The pretreatment monitor includes an alarm that is set to report when the gamma radiation level in gas discharged by the main condenser air ejector indicates the gross radioactivity discharge rate, after 30 minutes delay and decay, exceeds 1 Ci/sec. The alarm setpoint is determined with the relation:

$$S = \frac{2120\, g}{F \sum_i f_i e^{-\lambda_i t}} + BKG$$

where

S = main condenser air ejector noble gas monitor alarm setpoint

(cpm) or (mR/hr)

2120 = [(1.0 E6 μCi/sec) · (1 ft^3/28317 cm^3)] · 60 sec/min

F = air ejector discharge rate (ft^3/min)

g = noble gas monitor calibration or counting rate response for gamma radiation

$$\left(\frac{cpm}{\mu Ci/cm^3}\right) \quad or \quad \left(\frac{mR/hr}{\mu Ci/cm^3}\right)$$

f_i = fraction of noble gas gross activity due to noble gas radionuclide i in a representative spectrum of noble gases at the main condenser offgas detector

λ_i = radioactive decay constant of noble gas nuclide i (min^{-1})

t = 30 min; decay time in delay line

3.4 Effluent Noble Gas Monitor Alarm Setpoint

Section 6.2.2 provides limits on dose equivalent rates associated with airborne radioactive materials concentrations in the unrestricted area due to airborne effluents from the Station. Instrumentation is provided to monitor gamma radiation in the airborne effluents according to Table 6.2-1. Each effluent noble gas monitor includes an alarm that can be set to activate when the dose rate off site or the noble gas concentration at ground level offsite is expected (calculated) to exceed a specified level. Compliance with the limits on dose rate from noble gases is demonstrated by setting each gaseous effluent monitor alarm setpoint so that an alarm will occur at or before the dose rate limit for noble gases is reached. If an alarm occurs with the setpoint at the limit, compliance with Section 6.2.2.1 is assessed as described in section 3.5.

On the basis of effluent noble gases from the DAEC during recent years, the gamma dose rate to a person's body is expected to be a larger fraction of the limit, 500 mrem/yr, than is the beta plus gamma dose rate to skin is to its limit, 3000 mrem/yr. In which case, a gaseous effluent monitor setpoint may be derived on the basis of the gamma dose rate to a person's body alone such that an alarm is set to occur at or before the total body dose rate offsite exceeds 500 mrem/yr.

A noble gas monitor may be set to activate an alarm at a lower setting than the derived setpoint corresponding to the dose rate limit (or corresponding concentration limit). In the event an alarm occurs at the lower setting, the monitor record is compared with the derived setpoint. If the derived setpoint is exceeded, compliance with Section 6.2.2.1 is

assessed as described in section 3.5.

Each radioactive noble gas effluent monitor setpoint is derived on the basis of total body dose equivalent rate in the unrestricted area. Setpoints for gaseous effluent monitors may be set independently because excessive effluent release via the turbine building vent is unlikely. Other releases are likely to be initiated independently and released from different levels, i.e., vent and stack releases with points of maximum concentration offsite not likely to coincide.

For the purpose of deriving a setpoint, the distribution of radioactive noble gases in an effluent stream is determined as described in section 3.2.

Setpoint Determination

The alarm setpoint of a radioactive noble gas effluent monitor may be calculated on the basis of whole body dose equivalent rate offsite, 500 mrem/yr. A setpoint of a monitor of an elevated release, e.g., from the stack, may be calculated with the equation:

$$S = \left[1.06 \times \frac{h}{f} \times \frac{\sum_i C_i}{\sum_i C_i \times DF_i^s} \right] + Bkg$$

The setpoint of a monitor of a ground-level or building release, e.g., from the turbine building vent or 3 reactor building vents or LLRPSF vent may be calculated with the equation:

$$S = \left[1.06 \times \frac{h}{f\left(\frac{\chi}{Q}\right)} \frac{\sum_i C_i}{\sum_i C_i \times DF_i^v} \right] + Bkg$$

where

s = the alarm setpoint (cpm) or (mR/hr)

h = monitor response to activity concentration of effluent being monitored,

$$\left(\frac{cpm}{\mu Ci/cm^3}\right) \quad or \quad \left(\frac{mR/hr}{\mu Ci/cm^3}\right)$$

C_i = relative concentration of noble gas radionuclide i in effluent at the point of monitoring ($\mu Ci/cm^3$)

χ/Q = atmospheric dispersion from point of ground-level or

building wake release to the location of potential exposure (sec/m^3)

DF_i^s = factor converting elevated release rate of radionuclide i to total body dose equivalent rate at the location of potential exposure

$$\left(\frac{mrem}{yr \cdot \frac{\mu Ci}{sec}}\right)$$

DF_i^v = factor converting ground-level of split-wake release of radionuclide i to the total body dose equivalent rate at the location of potential exposure

$$\left(\frac{mrem}{yr \cdot \frac{\mu Ci}{m^3}}\right)$$

f = flow of gaseous effluent stream, i.e., flow past the monitor (ft^3/min)

Bkg = monitoring instrument background (cpm) or (mR/hr)

$$1.06 = 500 \frac{mrem}{yr} \times 60 \frac{sec}{min} \times 35.3 \frac{ft^3}{m^3} \times \frac{1\ m^3}{10^6\ cm^3}$$

Each monitoring channel has a unique response, h, which is determined by the instrument calibration.

The concentration of each noble gas radionuclide, C_i, in a gaseous effluent is determined as discussed earlier in this section.

Since the dose <u>rate</u> limits for airborne effluents apply everywhere offsite, alarm setpoints are determined and compliance is assessed at the site boundary where the minimum atmospheric dispersion (maximum χ/Q) occurs. The atmospheric dispersion factor and the dose conversion factor DF_i^s depend on local conditions. The value of χ/Q adopted in a setpoint calculation will be based either on prevailing meteorological conditions or on reference meteorological conditions at the DAEC. The minimum atmospheric dispersion offsite from a ground-level or building wake release derived from reference meteorological conditions is at the site boundary 1260 meters NNW of the Station where:

$$\left(\frac{\chi}{Q}\right)_{vent} = 4.3 \times 10^{-6}\ sec/m^3$$

The dose conversion factors, DF_i^s, used in setpoint calculations for

gaseous effluent monitors are in Table 3-4. In the event DF_i^s is derived on the basis of prevailing meteorology, it will be calculated in accordance with Regulatory Guide 1.109, Appendix B.

3.5 Dose Equivalent Rate Offsite

Section 6.2.2 provides limits on dose equivalent rates associated with airborne radioactive materials concentrations in the unrestricted area due to airborne effluents from the Station. Compliance is assessed on the basis of measurements specified in Table 7.2-2.

3.5.1 Noble Gas

Limits on radioactive noble gas in the unrestricted area are provided in Section 6.2.2.1. Each radioactive noble gas effluent monitor is set to alarm when, or below when, the noble gas in airborne effluent from a monitored stack or vent is expected to cause either dose rate limit in Section 6.2.2.1 to be exceeded. In the event an airborne effluent release from the Station exceeds the derived setpoint (limit) for an effluent noble gas monitor (except when caused by the performance of a Surveillance Test Procedure), an assessment of compliance is performed as described herein.

The quantity of radioactive noble gas released in a increment of time is measured by the radioactive noble gas effluent monitors and the distribution of radioactive noble gases in a gaseous effluent stream is determined as described in section 3.2 herein.

Compliance with Section 6.2.2.1 may be assessed by calculating the dose equivalent rate as described hereafter and by comparing it with the limiting dose rate in the Specification.

3.5.1.1 Total Body Dose Rate

For evaluating compliance with Effluent Control, Section 6.2.2.1, the total body dose equivalent rate due to noble gas gamma radiation is calculated with the equation:

$$\dot{D}_\gamma = \frac{1}{3600}\left[\sum_i \left(\frac{Qg_i}{t} \times DF_i^s\right)_s + \sum_v \sum_i \left(\frac{Qg_i}{t} \times \left(\frac{\chi}{Q}\right) \times DF_i^v\right)_v\right]$$

where

$\dot{D}_\gamma$ = noble gas gamma dose rate to total body (mrem/yr)

Qg_i/t = quantity of noble gas radionuclide i discharged (μCi) during time increment t (yr)

DF_i^s = factor converting unit noble gas nuclide i stack release to total body dose at ground level received from the overhead plume

$$\left[\frac{mrem}{(\mu Ci\ yr)/sec}\right]$$

DF_i^γ = factor converting time integrated, ground level concentration of noble gas nuclide i to total body dose from gamma dose from gamma radiation $\left(\frac{mrem}{\mu Ci\ yr/m^3}\right)$

$\frac{1}{3600}$ = conversion (hr/sec)

Dose factor DF_i^s, for exposure to noble gases released from an elevated stack are calculated by a finite plume model implemented in the MIDAS program.* It assumes decay of short-lived nuclides, an air dose-to-tissue dose conversion of 1.11, and that the dose to internal organs is equivalent to the tissue dose. In this model, meteorological data concurrent with the period of release are used to evaluate the dose rate.

The dose from noble gases released from a vent (near ground level) or to skin from an elevated release is derived from a semi-infinite cloud model. Noble gas semi-infinite cloud gamma-to-total body dose factors, DF_i^γ, are listed in Table 3-4.

When the total body and organ doses from noble gases are computed as required by Section 7.3.1, the nearby resident exposed to the maximal ground-level noble gas concentration (maximum χ/Q) is selected as the receptor.

Alternatively, the dose from noble gases may be computed at 1260 meters NNW of the reactor, a location identified in Figure 3-2, where the nearby resident who may be exposed to maximal ground-level noble gas concentrations (maximum χ/Q) is selected as the receptor. In that case, values of the dose factors DF_i^s and DF_i^γ in Table 3-4 are employed.** Total body dose factors for exposure from a plume from an elevated, stack release, DF_i^s, in Table 3-4 were computed with the aid

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* David Slade, ed., Meteorology and Atomic Energy 1968, TID-24190, pp. 350-355.

** Dose transfer factors DF_i^γ in Table 3.4 are a units conversion of values in Regulatory Guide 1.109, Table B-1, column 5.

of an NRC code, RABFIN. In those computations, reference meteorology was assumed as the basis of atmospheric dispersion. For discharge from a vent, reference meteorological dispersion at the 1260 m NNW, $(\chi/Q)_v$, is 4.3×10^{-6} sec/m^3.

3.5.1.2 Skin Dose Rate

The skin dose equivalent rate due to radioactive noble gas is calculated with the equation:

$$\dot{D}_\beta = \frac{1}{3600}\left[\sum_i S_{\beta i} \left(\frac{Q_i}{t} x \left(\frac{\chi}{Q} \right) \right)_g + \sum_v \sum_i S_{\beta i} \left(\frac{Q_i}{t} \cdot \left(\frac{\chi}{Q} \right) \right)_v \right]$$

where

$\dot{D}_\beta$ = noble gas beta dose rate to skin (mrem/yr)

$\frac{Q_i}{t}$ = quantity of noble gas radionuclide i (μCi) discharged during time increment t (hr)

$S_{\beta i}$ = factor converting time integrated ground level concentration of noble gas to skin dose from beta radiation $\left[\frac{mrem\ m_3}{\mu Ci\ yr} \right]$

$\frac{1}{3600}$ = conversion (hr/sec)

Compliance with Section 6.2.2.1 dose rate to skin is evaluated by calculating the noble gas beta dose equivalent rate offsite at a location 1260 meters NNW of the Station, which is also identified in Figure 3-2. At that location, the reference atmospheric dispersion factors to be used in the calculations are:

$$\left(\frac{\chi}{Q} \right)_v = 4.3 \times 10^{-6}\ \text{sec/m}^3 \quad \textit{and} \quad \left(\frac{\chi}{Q} \right)_g = 2.8 \times 10^{-7}\ \text{sec/m}^3$$

Alternatively, averaged meteorological dispersion data coincident with the period of release may be used to evaluate the dose rate. The semi-infinite noble gas cloud-to-skin dose equivalent factors are in Table 3-4. They are also derived from Regulatory Guide 1.109, Table B-1.

3.5.2 Iodine, Tritium, and Particulates

Section 6.2.2.2 provides a limit on iodine-131, iodine-133, H-3, and on radioactive particulates having 8 day or longer half-lives in air in the unrestricted area around the Station. In the event airborne effluent from the Station causes a radioactive noble gas effluent monitor to alarm (except when alarm is due to the performance of a Surveillance Test Procedure) or if the assessment required by Section 7.2.4 shows Section 6.2.4 to have been exceeded, an assessment of compliance with Section 6.2.2.2 will be performed using a method described in this section.

3.5.2.1 Organ Dose Rate*

Compliance with Section 6.2.2.2 is assessed by calculating the dose rate* to the most exposed organ of an assumed adult member of the public inhaling airborne I-131, I-133, H-3, and inhaling radioactive particulates having half-lives of 8 days or longer at the location in the unrestricted area having the maximum potential concentration of the effluents (i.e., the location at which reference meteorological data indicates minimum atmospheric dispersion from the Station (max χ/Q).

The organ dose rate is calculated with the following equations:

For a vent discharge:

$$\dot{D}_{anv} = \frac{8.766E\text{-}3}{TE\text{-}TB} \sum_i \sum_k Q_{ikv}\, TA_{ani} \left(\frac{\chi_i}{Q}\right)_v$$

For an offgas stack discharge:

$$\dot{D}_{ans} = \frac{8.766E\text{-}3}{TE\text{-}TB} \sum_i \sum_k Q_{iks}\, TA_{ani} \left(\frac{\chi_i}{Q}\right)_s$$

Combining separate release points gives

$$\dot{D}_{an} = \dot{D}_{ans} + \sum_v \dot{D}_{anv}$$

where

$\dot{D}_{an}$ = the dose equivalent rate to organ n of a person in age group a due to radionuclides discharged in airborne effluents during time interval TB to TE (mrem/yr)

$\dot{D}_{ans}$ = dose equivalent rate from a stack discharge (mrem/yr)

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* For inhaled or ingested radioactive material, the consequent "dose" means the committed dose equivalent. The "dose rate" is the committed dose equivalent per unit of time of exposure to the radioactive material in the environment.

$\dot{D}_{anv}$ = dose equivalent rate from a vent discharge (mrem/yr)

Q_{iks}, Q_{ikv} = quantity of radionuclide i released in a given effluent stream based on analysis k (μCi) during discharged time increment TB to TE (hr) of interest

TA_{ani} = factor converting airborne concentration of radionuclide i to dose commitment to organ n of a person in age group a where exposure is directly to airborne material

$$\left(\frac{mrem}{(Ci\ sec)/m_3}\right)$$

$\left(\frac{\chi_i}{Q}\right)_s$, $\left(\frac{\chi_i}{Q}\right)_v$ = atmospheric dispersion from stack and vent, respectively, to ground level at location of interest (sec/m^3)

8.766E-3 = Conversion (1 Ci/1E6 μCi)(8766 hr/yr)

Radionuclides other than noble gases airborne effluent are measured and quantified as described in section 3.2. Normally, radioactive material measured in effluent is assumed to be discharged uniformly over the period represented by the sample.

The averaging time of the measured releases used to evaluate compliance will not exceed 92 days for Sr-89 and Sr-90 and will not exceed 31 days for the other radionuclides.

The maximum offsite exposure potential is expected to occur at 1260 meters NNW of the Station where the reference atmospheric dispersion, to be used in the calculation is

$\left(\frac{\chi}{Q}\right)_v$ = 4.3×10^{-6} sec/m^3 and

$\left(\frac{\chi}{Q}\right)_s$ = 2.8×10^{-7} sec/m^3

Currently, compliance with Section 6.2.2.2 is evaluated by calculating an adult inhalation dose rate at 1260 meters NNW of the Station. The dose transfer factors, TA_{ani}, used in the computation are tabulated in Appendix A.

3.6 Noble Gas Gamma Radiation Dose Accumulated in Air

Section 6.2.3 requires that the offsite air dose during any calendar quarter not exceed 5 mrad and the annual air dose not exceed 10 mrad from noble gas gamma radiation. Section 7.2.3.1 requires a monthly

calculational assessment to verify that the cumulative air dose due to gamma radiation from radioactive noble gas released in gaseous effluents during the quarter and year do not exceed Section 6.2.3.

The distribution of radioactive noble gases in gaseous releases and the quantity of radioactive noble gas discharged during an interval of time are determined as described in section 3.2 herein.

The gamma radiation dose to air offsite as a consequence of noble gas discharge from DAEC is calculated with the

$$D_\gamma = \sum_i \sum_j \left(\Delta Q_j \times g_i \times A\gamma_i^g \right) + \sum_v \sum_i \left[A\gamma_i^v \sum_j \Delta Q_j \times gi \times \left(\frac{\chi}{Q} \right)_v \right]$$

where

D_γ = noble gas gamma dose to air due to effluent from stack and vent (mrad)

ΔQ_j = total measured radioactivity release via stack or vent measured by noble gas effluent monitor during counting interval j (μCi)

g_i = the fraction of radioactive gas in a given effluent stream attributable to noble gas radionuclide i.

$A\gamma_i^g$ = factor converting unit release of noble gas radionuclide i from the stack to air dose at ground-level received from gamma radiation from the overhead plume (mrad/μCi)

$A\gamma_i^v$ = factor converting time integrated, ground-level concentration of noble gas to air dose from gamma radiation $\left(\frac{mrad}{(\mu Ci \text{ sec}) / m^3} \right)$

$\left(\frac{\chi}{Q} \right)_v$ = atmospheric dispersion factor for a vent (ground-level or building wake) discharge (sec/m^3)

Section 7.2.3.1 is satisfied by calculating the noble gas gamma radiation dose to air at the offsite location identified in Figure 3-2. At that location, 1260 meters NNW of the Station, the reference*

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* Reference atmospheric conditions are summarized and discussed in "Duane Arnold Energy Center, Evaluation of Liquid and Gaseous Effluent Releases in Accordance with 10 CFR 50 Appendix I," submitted to NRC June 3, 1976, Reference atmospheric dispersion factors tabulated therein, also appear in Appendix B herein.

atmospheric dispersion factor to be used is

$$\left(\frac{\chi}{Q}\right)_v = 4.3 \times 10^{-6} \text{ sec/m}^3$$

Values of $A\gamma^s$ and $A\gamma^v$ appropriate for use at that location, assuming reference meteorological conditions, are listed in Table 3-3. An NRC code, RABFIN, modified for sector width averaged meteorology was used to calculate the air dose transfer factors, $A\gamma_i^s$ for a stack discharge, in ODAM Table 3-3. They represent air dose at ground level 1260 meters NNW of the station from a unit release of each radionuclide i from the stack. Dose transfer factors for vent discharges, $A\gamma_i^v$, are equivalent to factors in Regulatory Guide 1.109, Table B-1, γ-air expressed in different units.

3.6.1 Alternate Method of Evaluating Compliance with Gamma Air Dose Limits

Alternatively, the gamma radiation dose to air offsite may be calculated with the equation

$$D_\gamma = \frac{1}{0.8} \sum_j \left(\Delta Q_j \times A_{\gamma_{eff}} \right)_s + \frac{1}{0.8} \sum_v \sum_j \left(\Delta Q_j \times \left(\frac{\chi}{Q}\right) \times A_{\gamma_{eff}} \right)_v$$

where

$A_{\gamma_{eff}}$ = an effective dose conversion factor based on the typical radionuclide distribution in stack releases converting unit release of radioactive noble gases from the stack to air dose at ground level at a specific location (mrad/μCi).

$A_{\gamma_{eff}}$ = an effective dose conversion factor based on the typical radioactive distribution in vent releases converting a time integrated, ground level concentration of noble gases to air dose from gamma radiation $\left(\frac{mrad}{(\mu Ci \text{ sec/m}^3)}\right)$

0.8 = a factor of conservatism which compensates for variability in radionuclide distribution

The derivation and basis of the effective gamma air dose conversion factor are provided in Appendix B. Values of the effective factors are tabulated in Table 3-3. By inserting the appropriate values for Dγ (5 mrad/quarter γ-air dose) and for $A\gamma_{seff}$ (1.6×10^{-11} mrad/μCi) or $A\gamma_{veff}$ (6.4×10^{-5} mrad/(μCi sec/m³)) into the equation above and solving for either $(\Delta Q_j)s$ or $(\Delta Q_j)v$, respectively, release quantities of noble gases from either the stack or vent corresponding to the technical specification limit of 5 mrad/quarter (total for all release points) may be determined. At the location, 1260 meters NNW of the station, (which is the controlling location based on reference meteorology) the release

limits are individually

Release Point	Quarterly Limit (Ci)	Annual Limit (Ci)
Stack	2.5×10^5	5.0×10^5
Vent	1.25×10^4	2.5×10^4

The following equations may be used to assess both the stack and vent discharges for compliance with the quarterly release limits on noble gas gamma dose to air.

$$\frac{\sum_j (\Delta Q_j)_s}{250,000} + \frac{\sum_v \sum_j (\Delta Q_j)_v}{12,500} \leq 1$$

or, on a monthly rate basis (although not a requirement)

$$\frac{\sum_j (\Delta Q_j)_s}{250,000} + \frac{\sum_v \sum_j (\Delta Q_j)_v}{12,500} \leq \frac{1}{3}$$

The equations which may be used to assess both the stack and vent discharges for compliance with the annual air dose limits from noble gas are:

$$\frac{\sum_j (\Delta Q_j)_s}{500,000} + \frac{\sum_v \sum_j (\Delta Q_j)_v}{25,000} \leq 1$$

or, on a monthly rate basis (although not a requirement)

$$\frac{\sum_j (\Delta Q_j)_s}{500,000} + \frac{\sum_v \sum_j (\Delta Q_j)_v}{25,000} \leq \frac{1}{12}$$

As long as these relations are satisfied for both stack and vent releases of noble gases, no additional calculations are needed to verify compliance with the gamma-air dose limits of Section 6.2.3. Calculations of beta air doses per Section 3.6 may be omitted as discussed in Appendix B.

3.7 Noble Gas Beta Radiation Dose Accumulated in Air

Section 6.2.3 requires that the offsite air dose during any calendar quarter not exceed 10 mrad from noble gas beta radiation and not exceed 20 mrad during any calendar year. Section 7.2.3.1 requires a monthly assessment to verify that the cumulative air dose due to beta radiation from radioactive noble gas released in gaseous effluents not exceed either limit of Section 6.2.3.

The radioactive noble gas distribution and activity discharged are determined as described in paragraph 3.6 herein.

The beta radiation dose to air offsite as a consequence of noble gas released from the Station is calculated with the equation:

$$D_\beta = \sum_i A_{\beta_i} \left[\Delta Q_j \, g_i \, \frac{\chi}{Q} \right]_s + \sum_v \sum_i A_{\beta_i} \sum_j \left[\Delta Q_j \, g_i \, \frac{\chi}{Q} \right]_v$$

where

D_β = noble gas beta dose to air due to stack and vent releases (mrad)

A_{β_i} = factor converting time-integrated, ground-level concentration of noble gas radionuclide i to air dose from beta radiation $\left(\frac{mrad\text{-}m^3}{\mu Ci\text{-}sec} \right)$

$\left(\frac{\chi}{Q} \right)_s$ = atmospheric dispersion factor for a discharge via the stack (sec/m^3)

$\left(\frac{\chi}{Q} \right)_v$ = atmospheric dispersion factor for a vent (ground level or building wake) discharge (sec/m^3).

Specification 7.2.3.1 is satisfied by calculating the noble gas beta radiation dose to air at the location identified on Figure 3-2. At that location, 1260 meters NNW of the reactor, the reference atmospheric dispersion factors to be used are

$\left(\frac{\chi}{Q} \right)_s = 2.8 \times 10^{-7}$

$\left(\frac{\chi}{Q} \right)_v = 4.3 \times 10^{-6}$

Beta radiation-to-air dose conversion factors, $A_{\beta i}$, for noble gas radionuclides are listed in Table 3-3.

3.8 Dose Due to Iodine and Particulates in Gaseous Effluents*

Section 6.2.4 requires that I-131, I-133, H-3, and radioactive material in particulate form having half-lives greater than 8 days in gaseous effluents released to the area offsite cause no more than 7.5 mrem to any organ of a member of the public during a calendar quarter and no more than 15 mrem during any calendar year. Section 7.2.4 requires an assessment at least once every month to verify that the cumulative dose commitment does not exceed either limit of Section 6.2.4.

Airborne releases are discharged either via the offgas stack as an elevated release or via building vents and treated as a ground-level, building wake, or split wake release. Radionuclides mentioned above in airborne effluents that are measured by the sampling and analysis schedule in Table 7.2-2 are included in the release term used to calculate doses. Section 3.2 describes the quantification of these radionuclides other than noble gases.

A person may be exposed directly to an airborne concentration of radioactive material discharged in effluent and indirectly via pathways involving deposition of radioactive material onto the ground. Dose estimates account for the separate exposure pathways. The dose commitment to a person offsite associated with a gaseous release, Q_{ik}, of radioactive material other than noble gas is calculated with the appropriate one(s) of the following equations

for a stack release:

$$D_{anske} = \sum_i Q_{iks} \left[TA_{anie} \left(\frac{\chi}{Q} \right)_s + TG_{anie} \left(\frac{D}{Q} \right)_s \right]$$

for a vent release:

$$D_{anvke} = \sum_i Q_{ikv} \left[TA_{anie} \left(\frac{\chi}{Q} \right)_v + TG_{anie} \left(\frac{D}{Q} \right)_v \right]$$

where

D_{anske} = the dose commitment (mrem) to organ n of a person in age group a via exposure pathway e due to radionuclides

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* The dose to any organ of a person arising from radioactive iodine-131, iodine-133, tritium, and radioactive material in particulate form having half-lives greater than 8 days. Noble gases not considered.

identified in analysis k of a stack release where the analysis is required by Table 7.2-2.

D_{anvke} = the dose commitment via pathway e from a vent release (mrem)

TA_{anie} = factor converting airborne concentration of radionuclide i to dose commitment to organ n of a person in any group a where exposure is directly to airborne material via exposure pathway e.

$$\left(\frac{mrem}{(Ci\ sec)/m^3}\right)$$

TG_{anie} = factor converting ground deposition of radionuclide i to dose commitment organ n of a person in age group a where exposure is directly or indirectly to radioactive material that has been deposited on the ground via exposure pathway e. $\left(\frac{mrem}{Ci/m^2}\right)$

Q_{ik} = quantity of radionuclide i released in a given effluent stream based on analysis k (Ci)

$\left(\frac{D}{Q}\right)_s$, $\left(\frac{D}{Q}\right)_v$ = relative deposition factor, i.e., factor converting airborne effluent discharge from stack or vent respectively, to a real deposition on land (m^{-2}).

The analysis index k may represent either an analysis of a grab sample, a weekly composite analysis, a monthly composite analysis, or a quarterly composite analysis.

Since tritium in water vapor is absorbed directly by vegetation, the tritium concentration in growing vegetation is proportional to the airborne concentration rather than to relative deposition as in the case of particulates. Thus the dose commitment from airborne tritium via vegetation (fruit and vegetables), air-grass-cow-milk, or air-grass-cow-meat pathways is calculated with the appropriate one(s) of the equations:

for a stack release

$$D_{anse} = \left(\frac{\chi}{Q}\right)_s \sum_i \sum_k Q_{iks}\, TA_{anie}$$

for a vent release

$$D_{anve} = \left(\frac{\chi}{Q}\right)_v \sum_i \sum_k Q_{ikv}\, TA_{anie}$$

The dose commitment accumulated by a person offsite is computed at least every 30 days to satisfy Section 7.2.4.1 but may be calculated as analytical results of effluent measurements, performed as specified in Table 7.2-2, become available.

The dose accumulated as a result of stack discharge is computed with

$$D_{ans} = \sum_e D_{anse}$$

and the dose accumulated as a result of vent discharge is computed with

$$D_{anv} = \sum_e D_{anve}$$

Doses committed during the same time period due to discharges from the stack and vents are additive, thus

$$D_{an} = D_{ans} + \sum_v D_{anv}$$

where

D_{an} = the dose commitment accumulated during the quarter to date as a result of all measured radioactive gaseous discharges except noble gases to any organ n, including total body, of a person offsite in age group a (mrem).

When the dose to a person from iodine and particulates discharged in gaseous effluents is calculated as required by Section 7.2.4, appropriate environmental pathways (from among those for which dose transfer factors are provided in Appendix A) will be evaluated. The dose calculated is to a receptor at the location of the nearby residence experiencing the minimum atmospheric dispersion at ground-level from the station, i.e., maximum $\frac{\chi}{Q}$, concurrent with the effluent discharge.

Alternatively, the dose may be calculated to a receptor at the location identified in Figure 3-2 where reference atmospheric dispersion and deposition factors are:

$$\left(\frac{\chi}{Q}\right)_s = 3.1 \times 10^{-7}\ \text{sec/m}^3 \quad \left(\frac{D}{Q}\right)_s = 7.2 \times 10^{-9}\text{m}^{-2}$$

$$\left(\frac{\chi}{Q}\right)_v = 3.9 \times 10^{-6}\ \text{sec/m}^3 \quad \left(\frac{D}{Q}\right)_v = 1.3 \times 10^{-8}\text{m}^{-2}$$

Food pathways are evaluated at the location of food production based on

minimum atmospheric dispersion at ground-level concurrent with the effluent discharge or, alternatively, with reference meteorology applicable at that location. Seasonal appropriateness of pathways is considered. The air-grass (fresh or stored)-cow-milk-man pathway is evaluated where a cow is located, 2650 meters WNW of DAEC, reference atmospheric deposition factors are:

$$\left(\frac{D}{Q}\right)_g = 2.1 \times 10^{-9}\ m^{-2} \qquad \left(\frac{D}{Q}\right)_v = 4.28 \times 10^{-9}\ m^{-2}$$

3.8.1 Alternate Method of Evaluating Doses Due to Iodine and Particulates in Gaseous Effluents

Alternatively, the dose commitment to a maximally exposed, hypothetical individual may be calculated by the equation

$$D_{inf\text{-}thy} = \frac{1}{0.8} \times \sum_i \left[Q_i \times TG_{inf\text{-}thy\text{-}I\text{-}131} \times (D/Q) \right]_g$$

$$= \frac{1}{0.8} \times \sum_i \left[Q_i \times TG_{inf\text{-}thy\text{-}I\text{-}131} \times (D/Q) \right]_v$$

where:

$D_{inf\text{-}thy}$ = the dose commitment accumulated during the quarter to date to a hypothetical infant's thyroid as a result of the releases of I-131 (mrem)

Q_i = the measured quantity of I-131 released in a given effluent stream, stack or vent (Ci)

$TG_{inf\text{-}thy\text{-}I\text{-}131}$ = the dose transfer factor for the infant thyroid from the cow-milk pathway for I-131 measured in the effluent stream $\left(\frac{mrem}{Ci/m^2}\right)$

$\frac{1}{0.8}$ = a factor of conservatism which accounts for the dose contribution for releases of particulate radioactive material other than I-131

When the maximum organ dose is evaluated by using the equation above, analyses of other organ doses via other pathways are not needed to demonstrate compliance within the dose limits of Section 6.2.4.

The rationale for only evaluating the dose contribution of I-131 is derived from an evaluation of the radioactive material releases and the environmental pathways. The air-grass-cow-milk-man pathway is by far

the controlling pathway and the infant's thyroid is the limiting organ. This pathway typically contributes greater than 90% of the total calculated dose to the infant's thyroid and I-131 contributes essentially all of the dose (~95%). Therefore, it is possible to demonstrate compliance with the dose limits of Section 6.2.4 by the conservative calculational method presented above.

3.9 Dose to a Person from Noble Gases

Section 7.3.1 requires the calculation of the dose or dose commitment to a person offsite exposed to 12 consecutive months of radioactive liquid and gaseous effluents from the Station. One component of personal dose is total body irradiation by gamma rays from noble gases. Another is irradiation of skin by beta and gamma radiation from noble gases. The methods of calculating these doses are presented in sections 3.9.1 and 3.9.2.

The amount of radioactive noble gas discharged is determined in the manner described in section 3.2.

3.9.1 Gamma Dose to Total Body

The gamma radiation dose to the whole body of a member of the public as a consequence of noble gas released from the Station is calculated with the equation:

$$D\gamma_i = \sum_i \left(Q_i \times P\gamma_i^g\right)_g + \sum_v \sum_i \left(Q_i \times \left(\frac{\chi}{Q}\right) \times P\gamma_i^v\right)_v$$

where:

D_γ = noble gas gamma dose to total body (mrem)

Q_i = quantity of noble gas nuclide i released via stack or vent (Ci)

$P\gamma_i^g$ = factor converting unit noble gas nuclide i stack release to total body dose at ground level received from the overhead plume (mrem/Ci)

$P\gamma_i^v$ = factor converting time integrated, ground level concentration of noble gas nuclide i to total body dose from gamma radiation

$$\left(\frac{mrem}{Ci\ sec/m^3}\right)$$

The dose to total body and organs other than skin from noble gases released from an elevated stack are calculated by a finite plume model.* It assumes decay of short-lived nuclides, a residential shielding factor of 0.7, an air dose-to-tissue dose conversion of 1.11, and that the dose to internal organs is equivalent to the tissue dose. Dose

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* David Slade, ed., Meteorology and Atomic Energy 1968, TID-24190, pp. 350-355.

factors for exposure to noble gas plume gamma radiation, $P\gamma_i^s$, are computed by the MIDAS program.

The dose from noble gases released from a vent (near ground level) or to skin from an elevated release is derived from a semi-infinite cloud model. Noble gas semi-infinite cloud gamma-to-total body dose factors, $P\gamma_i^v$, are listed in Appendix A under the plume pathway.

When the total body and organ doses from noble gases are computed as required by Section 7.3.1, the nearby resident exposed to the maximal ground-level noble gas concentration (minimum χ/Q) is selected as the receptor.

Alternatively, the dose from noble gases may be computed at 1260 meters NNW of the reactor where the nearby resident who maybe exposed to maximal ground-level noble gas concentrations (minimum χ/Q) is selected as the receptor. In that case, values of the dose factors $P\gamma_i^s$ and $P\gamma_i^v$ in Table 3-5 are employed.* Reference meteorological dispersion for vent discharges at that location, $(\chi/Q)_v$, is 4.3×10^{-6}sec/m^3.

3.9.2 Dose to Skin

The beta radiation dose to the skin of a member of the public due to beta radiation from noble gas released from the Station may be calculated with the equation

$$D_\beta = \sum_i S_{\beta i}\left[Q_i \times \left(\frac{\chi}{Q}\right)\right]_s + \sum_v \sum_i S_{\beta i} \times \left[Q_i \times \left(\frac{\chi}{Q}\right)\right]_v$$

where

D_β = noble as dose to skin (mrem)

$S_{\beta i}$ = factor converting time integrated ground level concentration of noble gas to skin dose from beta radiation $\left(\frac{mrem}{Ci\ sec/m^3}\right)$

Semi-infinite cloud noble gas beta-to-skin dose factors, $S_{\beta i}$ appear in Table 3-5.

The total dose to the skin from noble gases is approximately equal to the beta radiation dose to the skin plus the gamma radiation dose to the total body.

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* Dose transfer factors $P\gamma_i^v$ in Table 3.5 and in Appendix A under the plume pathway are the same.

When the skin dose due to noble gas beta radiation is computed as required by Section 7.3.1, the receptor selected is the nearby resident exposed to maximal ground-level concentrations (maximum χ/Q).

Alternatively, the skin dose to a postulated receptor (resident) at 1260 meters NNW of the reactor may be calculated.

Figure 3-1
Gaseous Radioactive Waste
Flow Diagram

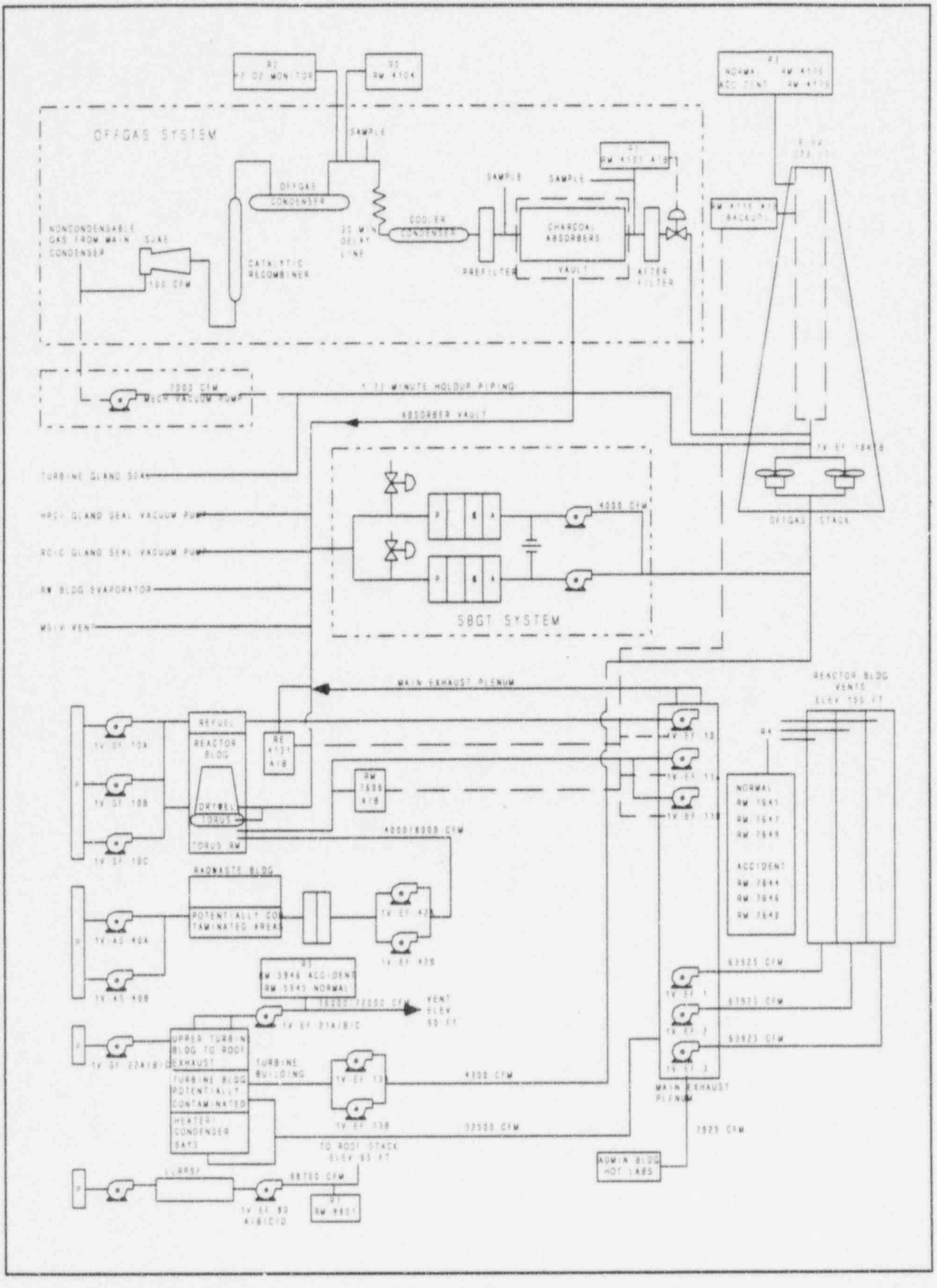


Figure 3-1 (Continued)

R1 Main Condenser SJAE Offgas Post-treatment Noble Gas Activity Monitor

R2 Main Condenser SJAE Offgas Hydrogen Monitor

R3 Offgas Stack Radiation Monitoring System

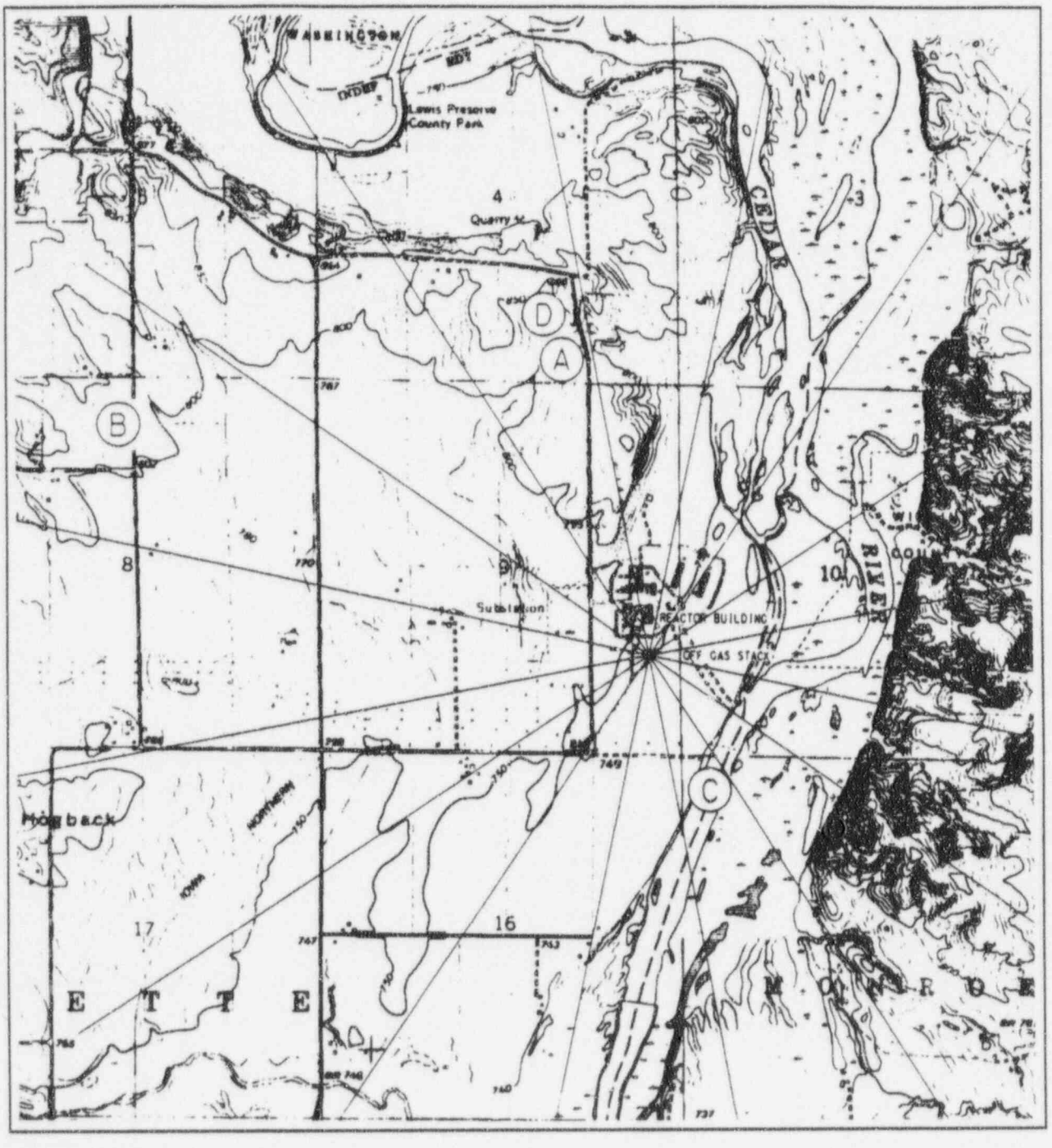
R4 Reactor Building Exhaust Vent Monitoring System

R5 Turbine Building Exhaust Vent Monitoring System

R6 Main Condenser SJAE Offgas Pretreatment Noble Gas Activity Monitor

R7 LLRPSF Exhaust Vent Monitoring System

Figure 3-2
Dose Calculation Sites



Site	Description
A	Noble gas gamma and beta doses to air, 1260 meters NNW
B	Milk cow, 2650 meters WNW
C	Aquatic pathways, in Cedar River
D	Most exposed residence, 1610 meters NNW

Table 3-1

Atmospheric Gaseous Release Points
at the Duane Arnold Energy Center

Parameter	RELEASE POINT			
	Offgas Stack	Reactor Building Vent	Turbine Building Vent	LLRPSF Building Vent
Release Height	328 feet	156 feet	90 feet	65 feet
Release Mode	Elevated	Wake-split	Wake-split	Wake-split
Effluent Source	Waste Gas System Standby Gas Treatment System	Reactor Building Radwaste Building Lower Turbine Building	Upper Turbine Building	LLRPSF Building and Storage Facility

Table 3-2

Computed Releases of Radioactive Noble Gases in Gaseous Effluent from Duane Arnold Energy Center

	STACK RELEASE		PLANT VENTS RELEASE	
Nuclide	(Ci/yr)[a]	Fraction[b]	(Ci/yr)[a]	Fraction[b]
Kr-83m	4.90E+01	2.53E-03	0	0
Kr-85m	2.34E+03	1.21E-01	7.40E+01	1.98E-02
Kr-85	1.40E+02	7.23E-03	0	0
Kr-87	1.56E+02	8.06E-03	1.36E+02	3.64E-02
Kr-88	1.65E+03	8.52E-02	2.36E+02	6.32E-02
Kr-89	6.40E+02	3.31E-02	0	0
Xe-131m	4.80E+01	2.48E-03	0	0
Xe-133m	3.50E+01	1.81E-03	0	0
Xe-133	1.24E+04	6.41E-01	3.92E+02	1.05E-01
Xe-135m	1.80E+01	9.30E-04	7.42E+02	1.99E-01
Xe-135	5.10E+02	2.63E-02	7.43E+02	1.99E-01
Xe-137	7.80E+02	4.03E-02	0	0
Xe-138	5.90E+02	3.05E-02	1.41E+03	3.78E-01
	19356	1.0	3733.	1.0

TABLE NOTATION

[a] Releases computed by BWR-GALE for DAEC Base Case gaseous radwaste treatment. Computed releases are included only to show the basis of the radionuclide distribution.

[b] This is the calculated distribution of radionuclides in gaseous effluents in each release pathway. To estimate radionuclide concentrations in a sample in which only the total activity concentration has been measured, multiply the total activity concentration by the fraction of respective radionuclides listed above.

Table 3-3

Transfer Factors for Maximum Offsite Air Dose

Radionuclide	Air Dose Transfer Factors		
	$A\gamma_i^s$ [a] $\left(\frac{mrad}{\mu Ci}\right)$	$A\gamma_i^v$ [b] $\left(\frac{mrad}{\mu Ci\ sec/m^3}\right)$	$A\beta_i$ [b] $\left(\frac{mrad}{\mu Ci\ sec/m^3}\right)$
Kr-83m	4.3E-14	6.1E-7	9.1E-6
Kr-85m	6.0E-12	3.9E-5	6.2E-5
Kr-85	8.4E-14	5.4E-7	6.2E-5
Kr-87	2.3E-11	2.0E-4	3.3E-4
Kr-88	6.4E-11	4.8E-4	9.3E-5
Kr-89	3.0E-11	5.5E-4	3.4E-4
Kr-90	---	5.2E-4	2.5E-4
Xe-131m	1.8E-12	4.9E-6	3.5E-5
Xe-133m	1.4E-12	1.0E-5	4.7E-5
Xe-133	1.5E-12	1.1E-5	3.3E-5
Xe-135m	1.1E-11	1.1E-4	2.3E-5
Xe-135	9.5E-12	6.1E-5	7.8E-5
Xe-137	2.6E-12	4.8E-5	4.0E-4
Xe-138	3.6E-11	2.9E-4	1.5E-4
Ar-41	4.4E-11	2.9E-4	1.0E-4

TABLE NOTATIONS

[a] An NRC code, RABFIN, modified for sector width averaged meteorology, was used to calculate the air dose transfer factors, $A\gamma_i^s$ for a stack discharge. They represent air dose at ground level 1260 meters NNW of the station from a unit release of each radionuclide i from the stack and dispersed by reference meteorology at the DAEC.

[b] Dose transfer factors for vent discharges, $A\gamma_i^v$ and $A_{\beta i}$ are equivalent to factors in Regulatory Guide 1.109, Table B-1, γ-air and β-air, expressed in different units.

Table 3-4

Transfer Factors for Dose Equivalent Rate to A Person Offsite Due to Radioactive Noble Gases

Radionuclide	Dose Transfer Factors		
	DF_i^{s} [a, b, c] $\left[\frac{mrem}{(\mu Ci\ yr)/sec}\right]$	DF_i^{v} [d] $\left[\frac{mrem}{(\mu Ci\ yr)/m^3}\right]$	$S_{\beta i}$ $\left[\frac{mrem}{(\mu Ci\ yr)/m^3}\right]$
Kr-83m	6.27E-9	7.56E-2	0
Kr-85m	1.81E-4	1.17E+3	1.46E+3
Kr-85	2.51E-6	1.61E+1	9.73E+3
Kr-87	6.97E-4	5.92E+3	9.73E+3
Kr-88	1.91E-3	1.47E+4	2.37E+3
Kr-89	9.14E-4	1.66E+4	1.01E+4
Kr-90	---	1.56E+4	7.29E+3
Xe-131m	4.83E-5	9.15E+1	4.76E+2
Xe-133m	3.61E-5	2.51E+2	9.94E+2
Xe-133	4.09E-5	2.94E+2	3.06E+2
Xe-135m	3.39E-4	3.12E+3	7.11E+2
Xe-135	2.84E-4	1.81E+3	1.86E+3
Xe-137	7.90E-5	1.42E+3	1.22E+4
Xe-138	1.08E-3	8.83E+3	4.13E+3
Ar-41	1.32E-3	8.84E+3	2.69E+3

TABLE NOTATIONS

[a] Receptor located 1260 meters NNW of Station

[b] Based on reference meteorology at DAEC

[c] Factors DF_i^{s} computed by computer code RABFIN, modified for sector width averaged meteorology

[d] Factors DF_i^{v} from Regulatory Guide 1.109, revision 1, Table B-1, column 5

Table 3-5
Transfer Factors for Dose Equivalent Rate to A
Person Offsite Due to Radioactive Noble Gases

Radionuclide	Dose Transfer Factors		
	$P\gamma_i^{s}$ [a, b, c] $\left[\frac{mrem}{Ci}\right]$	$P\gamma_i^{v}$ [d] $\left[\frac{mrem}{(Ci\ sec)/m_3}\right]$	$S_{\beta i}$ $\left[\frac{mrem}{(Ci\ sec)/m_3}\right]$
Kr-83m	1.39E-10	1.68E-3	---
Kr-85m	4.03E-6	2.60E+1	4.63E+1
Kr-85	5.58E-8	3.58E-1	4.25E+1
Kr-87	1.55E-5	1.31E+2	3.08E+2
Kr-88	4.25E-5	3.26E+2	7.51E+1
Kr-89	2.03E-5	3.68E+2	3.20E+2
Kr-90	---	3.46E+2	2.31E+2
Xe-131m	1.07E-6	2.03	1.51E+1
Xe-133m	8.05E-7	5.57	3.15E+1
Xe-133	9.03E-7	6.52	9.70
Xe-135m	7.49E-6	6.92E+1	2.25E+1
Xe-135	6.31E-6	4.01E+1	5.89E+1
Xe-137	1.75E-6	3.15E+1	3.87E+2
Xe-138	2.39E-5	1.96E+2	1.31E+2
Ar-41	2.92E-5	1.96E+2	8.52E+1

TABLE NOTATIONS

[a] Receptor located 1260 meters NNW of Station

[b] Based on reference meteorology at DAEC

[c] Factors $P\gamma_i^{s}$ and $P\gamma_i^{v}$ already account for a 0.7 residential shielding factor. Factors $P\gamma_i^{s}$ were computed by computer code RABFIN, modified for sector width averaged meteorology

[d] Factors $P\gamma_i^{v}$ from Regulatory Guide 1.109, revision 1, Table B-1

4.0 DOSE COMMITMENT FROM RELEASE OVER EXTENDED TIME

4.1 Dose Assessment for 10 CFR Part 50, Appendix I

Sections 7.1.3, 7.2.3, and 7.2.4 require quarterly and annual assessments to demonstrate compliance with Appendix I dose limits. The assessment includes the following calculations of dose as described by equations for:

1. total body and maximally exposed organ doses due to liquid effluent via drinking water and eating fish from the River and from consuming food irrigated with river water as in paragraph 2.5.

2. total body and maximally exposed organ doses due to gaseous effluents[a] other than noble gases as in paragraph 3.8.

3. doses to air offsite due to noble gas γ as in paragraph 3.6 and due to noble gas β as in paragraph 3.7.

The dose calculations are based on liquid and gaseous effluents from the Station during each calendar quarter and for a calendar year, determined in accord with Tables 7.1-2 and 7.2-2.

Environmental concentrations depend on dispersion and dilution of the effluent. For aqueous effluents over extended time, the aquatic concentration is estimated according to section 2.2. Atmospheric dispersion and deposition factors used to estimate the dose commitment due to gaseous effluents are ordinarily derived from reference meteorological data. Otherwise, quarterly averaged or annual averaged meteorological conditions concurrent with the gaseous release being evaluated will be used to estimate atmospheric dispersion and deposition.

The receptor of the dose is described such that the dose to any resident near the Station is unlikely to be underestimated. That is, the receptor is selected on the basis of the combination of applicable pathways of exposure to gaseous effluent identified in the annual land use census and maximum ground level χ/Q at the residence. Conditions (i.e., location, χ/Q, and/or pathways) more conservative (i.e, expected to yield higher calculated doses) than appropriate for the maximally exposed individual may be assumed in the dose assessment.

Seasonal appropriateness of exposure pathways may be considered. Exposure by eating fresh vegetation or drinking milk from cows or goats fed fresh forage is an inappropriate assumption during the first or fourth calendar quarter; rather consumption of stored vegetation and stored forage is assumed during those quarters. Otherwise, during the second and third calendar quarters, exposure by

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[a] Radioactive iodine-131, iodine-133, tritium, and radioactive material in particulate form having half-lives greater than 8 days.

eating fresh vegetation and/or drinking milk from cows or goats fed fresh forage is assumed where those pathways exist. Similarly, the liquid effluent-river-fish-man pathway is not assumed during the winter quarter.

Factors converting stack-released noble gas to gamma radiation dose from the overhead plume are calculated on the basis of reference meteorological data for the receptor location or alternatively, by the MIDAS program for a residential location offsite where maximum χ/Q at ground level occurs.

Other environmental pathway-to-dose transfer factors used in the dose calculations are provided in Appendix A.

4.2 Dose Assessment for 40 CFR Part 190

The regulation governing the maximum allowable dose or dose commitment to a member of the public from all uranium fuel cycle-sources of radiation and radioactive material in the environment is stated in 40 CFR Part 190. It requires that the dose or dose commitment to a member of the public from all sources not exceed 25 mrem/yr to any organ or 75 mrem/yr to the thyroid. Section 7.3.1 requires calculation of the dose at least once every year to assess compliance with the regulation. More frequent calculations may be performed if higher than normal releases are experienced (twice the design objective rates in a single quarter).

Fuel cycle sources or nuclear power reactors other than the Station itself do not measurably or significantly increase the radioactivity concentration in the vicinity of the Station; therefore, only radiation and radioactivity in the environment attributable to the Station itself are considered in the assessment of compliance with 40 CFR Part 190.

Contributions to the dose due to liquid and gaseous effluent are calculated as described by the equations for:

1. total body and maximally exposed organ doses due to liquid effluent via drinking water, consuming irrigated food and from eating fish from the River as in paragraph 2.5

2. total body dose due to noble gas γ as in paragraph 3.9.1

3. skin dose due to noble gas β as in paragraph 3.9.2

4. total body and maximally exposed organ doses due to gaseous effluents[a] other than noble gases as in Paragraph 3.8.

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[a] Radioactive iodine-131, iodine-133, tritium, and radioactive material in particulate form having half-lives greater than 8 days.

Additionally, the contribution to total dose from direct radiation is assessed annually by using environmental TLDs.

The doses are calculated on the basis of liquid and gaseous effluents from the Station during 12 consecutive months, determined in accord with Tables 7.1-2 and 7.2-2. For the purpose of the Annual Radiological Environmental Report, doses are based upon release during a calendar year.

Aqueous radioactive material concentrations are estimated according to paragraph 2.2 on the basis of annual averaged stream flow. Annual averaged meteorological conditions concurrent with gaseous releases being evaluated are used to estimate atmospheric dispersion, deposition, and elevated plume gamma exposure.

The receptor of the dose is described such that the dose to any resident near the Station is not likely to be underestimated, although conditions more conservative than appropriate for the maximally exposed person may be assumed in the dose assessment.

Ordinarily, the receptor is selected on the basis of the applicable combination of existing pathways of exposure to gaseous effluent identified in the annual land use census and the maximum ground level χ/Q at the residence.

When assessing compliance with 40 CFR 190, Radiological Environmental Monitoring Program results may be used to indicate actual radioactivity levels in the environment attributable to the DAEC. These measured levels may be used to supplement the evaluation of doses to members of the public for assessing compliance with 40 CFR 190.

Factors converting stack-released noble gas to gamma radiation dose from the overhead plume are calculated on the basis of annual averaged meteorological data for the receptor location. Other environmental pathway-to-dose transfer factors are listed in Appendices A, B and C.

5.0 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SAMPLING STATION LOCATIONS

Sampling station locations identified in Table 5-1 correspond to the minimum required number of radiological environmental monitoring program sampling stations in Table 6.3-1. Environmental monitoring locations are shown on Figures 5-1 and 5-2. DAEC may conduct additional environmental monitoring exclusive of the requirements of Specifications 6.3.2 and 6.4.2.

Figure 5-1
Radiological Environmental Monitoring Program
Sampling near the Duane Arnold Energy Center

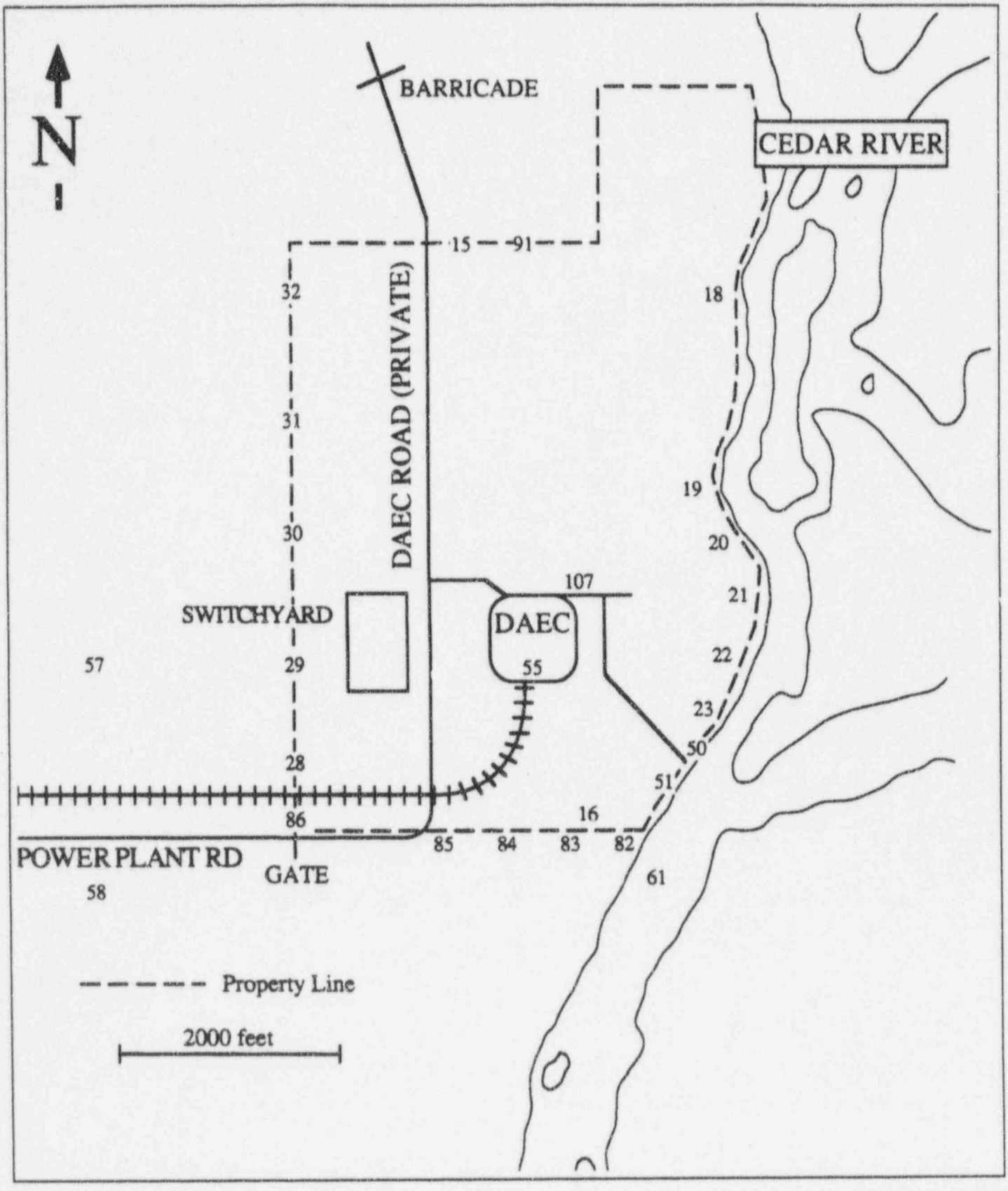

Figure 5-2
Radiological Environmental Monitoring Program
Sampling Stations Outside 0.5 Miles from DAEC

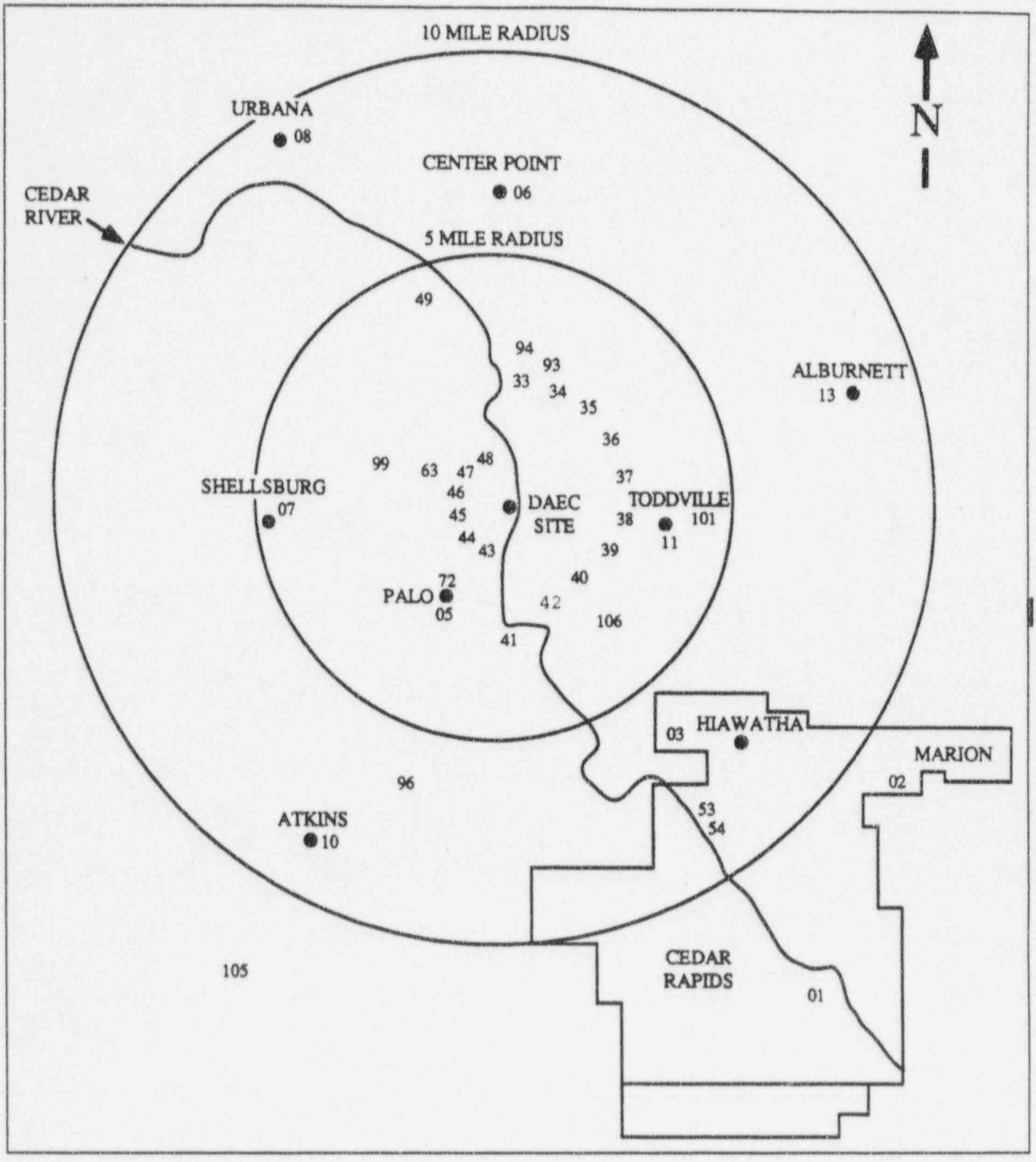

Table 5-1
ENVIRONMENTAL SAMPLE STATIONS

Station Number	Station Location and Sample Type
1	Location: Cedar Rapids, 11 miles (135°) SE Type : TLD Control Airborne Particulate Control
2	Location: Marion, 11 miles (125°) ESE Type : TLD Control Airborne Particulate and Iodine Control
3	Location: Hiawatha, 7 miles (130°) SE Type : TLD Control Airborne Particulate
4	Not used
5	Location: Palo, 3 miles (200°) SSW Type : TLD Control Airborne Particulate and Iodine
6	Location: Center Point, 7 miles (0°) N Type : TLD Control Airborne Particulate
7	Location: Shellsburg, 6 miles (255°) W Type : TLD Control Airborne Particulate and Iodine
8	Location: Urbana, 10 miles (345°) NW Type : TLD Control Airborne Particulate and Iodine
9	Not Used
10	Location: Atkins, 9 miles (210°) SSW Type : TLD Control Airborne Particulate
11	Location: Toddville, 4 miles (90°) E Type : TLD Control Airborne Particulate and Iodine
12	Not Used
13	Location: Alburnett, 9 miles (70°) ENE Type : TLD Control Airborne Particulate Control
14	Not Used
15	Location: On-site North, 0.5 miles (305°) NW Type : TLD Airborne Particulate and Iodine
16	Location: On-site South, 0.5 miles (190°) SSE Type : TLD Airborne Particulate Vegetation
17	Not Used
18	Location: On-site, 0.5 miles NNE Type : TLD
19	Location: On-site, 0.5 miles NE Type : TLD

Table 5-1
ENVIRONMENTAL SAMPLE STATIONS

Station Number	Station Location and Sample Type
20	Location: On-site, 0.5 miles ENE Type : TLD
21	Location: On-site, 0.5 miles ENE Type : TLD
22	Location: On-site, 0.5 miles E Type : TLD
23	Location: On-site, 0.5 miles ESE Type : TLD
24	Not Used
25	Not Used
26	Not Used
27	Not Used
28	Location: On-site, 0.5 miles WSW Type : TLD
29	Location: On-site, 0.5 miles W Type : TLD
30	Location: On-site, 0.5 miles WNW Type : TLD
31	Location: On-site, 0.5 miles NW Type : TLD
32	Location: On-site, 0.5 miles NNW Type : TLD
33	Location: 3 miles N Type : TLD
34	Location: 3 miles NNE Type : TLD
35	Location: 3 miles NE Type : TLD
36	Location: 3 miles ENE Type : TLD
37	Location: 3 miles E Type : TLD
38	Location: 3 miles ESE Type : TLD
39	Location: 3 miles SE Type : TLD
40	Location: 3 miles SSE Type : TLD
41	Location: 3 miles S Type : TLD
42	Location: 3 miles SSE Type : TLD (new January, 1996)
43	Location: 1 mile SSW Type : TLD

Table 5-1
ENVIRONMENTAL SAMPLE STATIONS

Station Number	Station Location and Sample Type
44	Location: 1 mile WSW Type : TLD
45	Location: 1 mile W Type : TLD
46	Location: 1 mile WNW Type : TLD
47	Location: 1 mile WNW Type : TLD
48	Location: 1 mile NW Type : TLD
49	Location: Lewis Access, upstream of DAEC 4 miles NNW Type : Fish Control Surface Water Control
50	Location: Plant Intake Type : Sediment Control Surface Water
51	Location: Plant Discharge Type : Sediment Surface Water
52	Not Used
53	Location: Treated Municipal Water Type : Ground Water
54	Location: Inlet to Municipal Water Treatment System Type : Ground Water
55	Location: On-site Well Type : Ground Water
56	Not Used
57	Location: Farm, 1 mile WSW Type : Ground Water Vegetation
58	Location: Farm, 1 mile WSW-SW Type : Ground Water Vegetation
59	Not Used
60	Not Used
61	Location: Cedar River about one-half mile downstream from DAEC discharge Type : Fish
62	Not Used
63	Location: Farm, 1.5 miles WNW Type : Milk Vegetation
64	Not Used
65	Not Used
66	Not Used

Table 5-1
ENVIRONMENTAL SAMPLE STATIONS

Station Number	Station Location and Sample Type
67	Not Used
68	Not Used
69	Not Used
70	Not Used
71	Not Used
72	Location: Farm, 2 miles SSW Type : Ground Water Vegetation
73	Not Used
74	Not Used
75	Not Used
76	Not Used
77	Not Used
78	Not Used
79	Not Used
80	Not Used
81	Not Used
82	Location: On-site, 0.5 miles SE Type : TLD
83	Location: On-site, 0.5 miles SSE Type : TLD
84	Location: On-site, 0.5 miles S Type : TLD
85	Location: On-site, 0.5 miles SSW Type : TLD
86	Location: On-site, 0.5 miles SW Type : TLD
87	Not Used
88	Not Used
89	Not Used
90	Not Used
91	Location: On-site, 0.5 miles N Type : TLD
92	Not Used
93	Location: Farm, 2.8 miles NNE Type : Vegetation Milk
94	Location: Farm, 2.7 miles N Type : Vegetation

Table 5-1
ENVIRONMENTAL SAMPLE STATIONS

Station Number	Station Location and Sample Type
95	Not Used
96	Location: Farm, 8 miles SSW Type : Milk
97	Not Used
98	Not Used
99	Location: Pleasant Creek Lake, 2.5 miles WNW Type : Surface Water
100	Not Used
101	Location: Farm, 4 miles E Type : Milk
102	Not Used
103	Not Used
104	Not Used
105	Location: Farm, 21.3 miles SSW Type : Milk Control Vegetation Control
106	Location: Farm, 4.5 miles SE Type : Vegetation
107	Location: DAEC Sewage Plant Effluent Type : Surface Water Bottom Sediments

6.0 RADIOLOGICAL EFFLUENT CONTROLS AND SURVEILLANCE REQUIREMENTS

Section 6.0 of the ODAM provides the radiological effluent and environmental controls and surveillance requirements previously located in Technical Specification sections 3.14, 3.15 and 3.16 and the administrative reporting requirements previously located in Technical Specification sections 6.11.1.f and 6.11.1.g.

Changes to the ODAM shall be processed in accordance with the requirements of Section 6.4.3 and Technical Specification 6.14.1.

6.0.1 Definitions

The following terms are defined so that uniform interpretation of requirements of this section may be achieved. The defined terms appear in capitalized type and shall be applicable throughout this manual.

OPERABLE-OPERABILITY

A system, subsystem, train, component or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified function(s). Implicit in this definition shall be the assumption that all necessary attendant instrumentation, controls, normal and emergency electrical power sources, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its function(s) are also capable of performing their related support function(s).

IMMEDIATE

Immediate means that the required action will be initiated as soon as practical considering the safe operation of the unit and the importance of the required action.

INSTRUMENTATION

a. Instrument Calibration or Channel Calibration - An Instrument Calibration means the verification or adjustment of an instrument signal output so that it corresponds, within acceptable range and accuracy, to a known value(s) of the parameter which the instrument monitors. The acceptable range and accuracy of an instrument and its setpoint is used in the Technical Specifications. Instrument calibration may be performed by any series of sequential, overlapping, or total channel steps such that the entire instrument is calibrated. Instrument calibration includes the Instrument or Channel Functional Test, as appropriate.

b. Channel - A channel is an arrangement of a sensor and associated components used to evaluate plant variables and produce discrete outputs used in logic. A channel terminates and loses its identity where individual channel outputs are combined in logic.

c. Instrument or Channel Functional Test - An Instrument or Channel Functional Test for

(1) Analog channels means the injection of a simulated signal into the channel as close to the sensor as practicable to verify the proper response, alarm, and/or initiating action.

(2) Bistable channels means the injection of a simulated signal into the sensor to verify the proper response, alarm and/or initiating action.

d. Instrument or Channel Check - An instrument or channel check is a qualitative determination of acceptable operability by observation of instrument behavior during operation. This determination shall include, where possible, comparison of the instrument or channel with another independent instrument measuring the same variable.

e. Source Check - A Source Check is the assessment of channel response when the channel sensor is exposed to a source of radiation.

MEMBER(S) OF THE PUBLIC

Member(s) of the Public are persons who are not occupationally associated with Iowa Electric Light and Power Company and who do not normally frequent the DAEC site. The category does not include contractors, contractor employees, vendors, or persons who enter the site to make deliveries or to service equipment.

SITE BOUNDARY

The Site Boundary is that line beyond which the land is neither owned, nor leased, nor otherwise controlled by IES. UFSAR Figure 1.2-1 identifies the DAEC Site Boundary. For the purpose of implementing radiological effluent controls, the Unrestricted Area is that land (offsite) beyond the Site Boundary.

GASEOUS RADWASTE TREATMENT SYSTEM

A Gaseous Radwaste Treatment System is any system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system offgases from the primary system and providing delay or holdup for the purpose of reducing radioactivity prior to release to the environment.

SURVEILLANCE FREQUENCY

Each Surveillance Requirement shall be performed within the specified time interval with a maximum allowable extension not to exceed 25 percent of the specified surveillance interval.

It is not intended that this provision be used repeatedly as a convenience to extend non-outage-related surveillance intervals.

FREQUENCY NOTATION

NOTATION	FREQUENCY
S	At least once per 12 hours.
D	At least once per 24 hours.
W	At least once per 7 days.
M	At least once per 31 days.
Q	At least once per 92 days.
SA	At least once per 184 days.
A	At least once per year.
R	At least once per 18 months.
S/U	Prior to each reactor startup.
P	Prior to each release.
NA	Not applicable.

6.0.2 General Requirements

Compliance with the Controls contained in Section 6 is required during the conditions specified therein. Upon failure to meet the Controls, the associated Action(s) shall be met.

Non-Compliance exists when the requirements of the controls are not met and the associated Action(s) is not met within the specified time limits.

6.0.3 General Surveillance Requirements

Surveillance Requirements shall be met during the applicable conditions specified in and for the associated Controls unless otherwise stated in the individual Surveillance Requirement.

Failure to perform a surveillance within the specified time interval shall constitute a failure to meet the OPERABILITY requirements for the associated Control. Surveillance requirements do not have to be performed on inoperable equipment.

6/7.1 Radioactive Liquid Effluent Controls and Surveillance Requirements

6.1.1 Radioactive Liquid Effluent Instrumentation

CONTROLS

6.1.1.1 The radioactive liquid effluent monitoring instrumentation channels shown in Table 6.1-1 shall be OPERABLE with their alarm and trip setpoints set to ensure that the limits of Section 6.1.2 are not exceeded.

APPLICABILITY As shown in Table 6.1-1.

ACTION

a. When a radioactive liquid effluent monitoring instrumentation channel alarm and trip setpoint is less conservative than a value which will ensure that the limits of Section 6.1.2 are met, adjust without delay to meet Section 6.1.2, or suspend the release of radioactive liquid effluents monitored by the affected channel, or declare the channel inoperable.

b. When less than the minimum required liquid effluent monitoring instrument channel is OPERABLE, take the ACTION stated in Table 6.1-1 and make every reasonable effort to restore the instrument to operable status. In the event the minimum required instrumentation is not returned to OPERABLE status within 30 days, explain in the next Annual Radioactive Material Release Report, in lieu of any other report, why the instrument was not made OPERABLE in a timely manner.

7.1.1 Radioactive Liquid Effluent Instrumentation

SURVEILLANCE REQUIREMENTS

7.1.1.1 Each radioactive liquid effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations during the modes and at the frequencies shown in Table 7.1-1.

7.1.1.2 The setpoints shall be determined in accordance with the method described in the ODAM.

6.1.2 Liquid Effluent Concentration

CONTROLS

6.1.2.1 The concentration of radioactive material in liquid effluent released from the site to the unrestricted area (see UFSAR Figure 1.2-1) shall not exceed ten times the concentrations specified in 10 CFR Part 20, Appendix B to §§20.1001 - 20.2401, Table 2, Column 2.

APPLICABILITY At all times.

ACTION:

a. With the concentration of radioactive material released from the site to unrestricted areas exceeding the limit, without delay restore the concentration within the limit.

7.1.2 Liquid Effluent Concentration

SURVEILLANCE REQUIREMENTS

7.1.2.1 Each radioactive liquid waste batch shall be sampled and analyzed in accordance with Table 7.1-2 before release.

Alternatively, pre-release analysis of batch(es) of radioactive liquid waste may be by gross β or γ counting provided the water effluent concentration, 1×10^{-7} μCi/ml, is applied at the unrestricted area boundary.

7.1.2.2 The results of pre-release analyses shall be used with the calculational methods in the ODAM to establish trip setpoints for batch releases to assure that the concentration at the unrestricted area boundary does not exceed the limit in Section 6.1.2.

7.1.2.3 In any week during which Service Water is released to the unrestricted area, a grab sample of water shall be collected from that Service Water System and analyzed as specified in Table 7.1-2 Item B.1 or B.2, and Item B.4.

In the event the radioactivity concentration in the service water exceeds the LLD stated in Table 7.1-2 for the analytical method used, the activity concentration shall be determined by sampling and post-release analyses specified in Table 7.1-2 Items B.2 through B.5.

6.1.3 Dose Due to Radioactive Effluents

CONTROLS

6.1.3.1 The dose or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released to the unrestricted area (see UFSAR Figure 1.2-1) shall not exceed:

1.5 mrem to the total body during any calendar quarter,

5.0 mrem to any organ during any calendar quarter,

3.0 mrem to the total body during any calendar year, or

10.0 mrem to any organ during any calendar year.

APPLICABILITY At all times.

ACTION:

a. With the calculated dose from the release of radioactive materials in liquid effluents exceeding the above limit, prepare and submit to the Commission within 30 days from the end of the quarter during which the release occurred, pursuant to Technical Specification 6.11.3, and in lieu of any other report, a Special Report which identifies the cause(s) for exceeding the limit and defines the corrective actions to be taken.

7.1.3 Dose Due to Radioactive Effluents

SURVEILLANCE REQUIREMENTS

7.1.3.1 Dose Calculations

In any quarter in which radioactive liquid effluent is discharged, an assessment shall be performed in accordance with the ODAM at least once per 30 days in order to verify that the cumulative dose commitment does not exceed the limits in Section 6.1.3.

6.1.4 Liquid Waste Treatment

CONTROLS

6.1.4.1 Appropriate liquid radwaste equipment shall be used to treat any untreated batch of liquid waste prior to discharge when a pre-release analysis indicates a radioactivity concentration (exclusive of tritium and dissolved noble gases) of 0.01 μCi/ml or higher.

APPLICABILITY: At all times.

ACTIONS:

a. With radioactive liquid waste being discharged without treatment and in excess of the above limit, prepare and submit to the Commission within 30 days, pursuant to Technical Specification 6.11.3, a Special Report, in lieu of any other report, which includes the following information:

1. Identification of equipment or subsystems not OPERABLE and the reason for inoperability.

2. Action(s) taken to restore the inoperable equipment to OPERABLE status.

3. Summary description of action(s) taken to prevent a recurrence.

7.1.4 Liquid Waste Treatment

SURVEILLANCE REQUIREMENTS

7.1.4.1 Each radioactive liquid waste batch shall be sampled and analyzed in accordance with Table 7.1-2 before release.

Alternatively, pre-release analysis of batch(es) of radioactive liquid waste may be by gross β or γ counting provided the water effluent concentration, 1×10^{-7} μCi/ml, is applied at the unrestricted area boundary.

TABLE 6.1-1

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY [a]	ACTION
1. Gross Radioactivity Monitors Providing Automatic Termination of Release			
a. Liquid Radwaste Effluent Line	(1)	During releases	18
2. Gross Radioactivity Monitors Not Providing Automatic Termination of Release			
a. RHR Service Water System	(1)	During releases	20
b. General Service Water System	(1)	During releases	20
c. RHR Rupture Disc Effluent Line	(1)	During releases	20
3. Flow Rate Measurement Devices			
a. Liquid Radwaste Effluent Line[b]	(1)	At all times	21
b. Liquid Radwaste Dilution Line	(1)	During releases	22

TABLE NOTATION

ACTION 18 With no channel OPERABLE, effluent may be released provided that prior to initiating a release:

1. At least two samples are analyzed in accordance with Section 7.1.2.1, and;

2. A technically qualified member of the Facility Staff verifies the release rate calculations and discharge valving determined by another technically qualified Facility Staff member.

Otherwise, suspend release of radioactive effluents via this pathway.

ACTION 20 With no channel OPERABLE, effluent releases via the affected pathway may continue provided the effluent is sampled and analyzed for either gross beta/gamma or gamma isotopic radioactivity at least once per 8 hours during actual release. The analysis shall be capable of detecting gross beta/gamma or principal gamma emitters and I-131 as specified in Table 7.1-2.

ACTION 21 With no channel OPERABLE, effluent releases via this pathway may continue provided the flow rate is estimated with pump curves at least once per batch during actual releases.

ACTION 22 With no channel OPERABLE, suspend release of radioactive effluents via this pathway.

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[a] Channel(s) shall be OPERABLE and in service except that channels out of service are permitted for preventive maintenance and required tests, checks, or calibrations.

[b] Pump curves may be utilized to estimate flow in lieu of flow measurement devices.

TABLE 7.1-1

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL[a] CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST
1. Gross Beta or Gamma Radioactivity Monitors Providing Alarm and Automatic Isolation		[b]	[c]	[de]
a. Liquid Radwaste Effluent Line	D	D	R	Q
2. Gross Beta or Gamma Radioactivity Monitors Providing Alarm But Not Providing Automatic Isolation			[c]	[e]
a. RHR Service Water System Effluent Line	D	M	R	Q
b. General Service Water System Effluent Line	D	M	R	Q
c. RHR Rupture Disc Effluent Line	D	M	R	Q
3. Flow Rate Measurement Devices	[f]			
a. Liquid Radwaste Effluent Line	D	N.A.	R	Q
b. Liquid Radwaste Dilution Line	D	N.A.	R	Q

TABLE NOTATIONS

[a] During releases via this pathway.

[b] On any day on which a release is made, a SOURCE CHECK shall be made at least once, prior to the first release.

[c] The CHANNEL CALIBRATION shall include the use of a known radioactive source (traceable to the NIST radiation measurement system or acceptable non-NIST standards) positioned in a reproducible geometry with respect to the sensor and emitting beta or gamma radiation in the range measured by the channel. CHANNEL CALIBRATION may normally be done during refueling outages.

[d] The CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway if the following condition exists:
1. Instrument indicates measured levels above the alarm/trip setpoint.

[e] The CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exist:

1. Instrument indicates measured levels above the alarm/trip setpoint.

2. Circuit failure.

3. Instrument indicates a downscale failure.

4. Instrument controls not set in operate mode.

[f] CHANNEL CHECK shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once daily on any day on which continuous, periodic, or batch releases are made.

TABLE 7.1-2				
RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM				
Liquid Release Type	Sampling Frequency	Minimum Analysis Frequency	Type of Activity Analysis	Lower Limit of Detection (LLD)[a] (μCi/ml)
A. Batch Waste Release Tanks	P Each Batch	P Each Batch	Principal Gamma Emmitters[c]	5×10^{-7}
			I-131[c]	1×10^{-6}
	P Each Batch	M Composite[b]	H-3	1×10^{-5}
			Gross alpha	1×10^{-7}
	P Each Batch	Q[d] Composite[b]	Sr-89, Sr-90	5×10^{-8}
			Fe-55	1×10^{-6}
B. Continuous Service Water Release Sample Points: • General Services Water • RHR Service Water System A • RHR Service Water System B	1. W Grab Sample	W[d]	Gross beta/gamma	1×10^{-7}
	2. W Grab Sample	W[d]	Principal Gamma Emitters	5×10^{-7}
			I-131	1×10^{-6}
	4. W Grab Sample	M[d] Composite	H-3	1×10^{-5}
			Gross alpha	1×10^{-7}
	5. W Grab Sample	Q[d] Composite	Sr-89, Sr-90	5×10^{-8}
			Fe-55	1×10^{-6}

TABLE NOTATIONS

a. The LLD is defined, for purposes of these controls, as the smallest concentration of radioactive material in a sample that will yield a net count, above system background, that will be detected with 95% probability with only 5% probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement, which may include radiochemical separation:

$$LLD = \frac{4.66\ S_b}{E \times V \times 2.22E6 \times e^{-\lambda \Delta t}}$$

where

LLD is the "a priori" lower limit of detection as defined above (microcuries per unit mass or volume)

S_b is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (counts per minute)

E is the counting efficiency (counts per disintegration)

V is the sample size (units of mass or volume)

2.22E6 is the number of disintegrations per minute per microcurie,

Y is the fractional radiochemical yield, when applicable,

TABLE NOTATIONS (Continued)

λ is the radioactive decay constant for the particular radionuclide (sec^{-1}), and

Δt for effluents is the elapsed time between the midpoint of sample collection and the time of counting (sec^{-1}).

Alternatively, exp may be replaced by $\frac{\lambda t_1 e^{-\lambda t_1}}{1-e^{-\lambda t_1}} \times e^{-\lambda t_2}$

Where:

t_1 is the total sampling time or sample compositing time

t_2 is the elapsed time between the end of sample collection and the time of counting.

It should be recognized that the LLD is defined as an a priori (before the fact) limit representing the capability of a measurement system and not as an a posteriori (after the fact) limit for a particular measurement.

Analyses shall be performed in such a manner that the stated LLDs will be achieved under routine conditions with typical values of E, V, Y, and Δt for the radionuclides Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144. Occasionally background fluctuations, unavoidably small sample sizes, interfering radionuclides, or other uncontrollable circumstances may render these LLDs unachievable.

When calculating the LLD for a radionuclide determined by gamma ray spectrometry, the background may include the typical contributions of other radionuclides normally present in the samples. The background count rate of a Ge(Li) detector is determined from background counts that are determined to be within the full width of the specific energy band used for the quantitive analysis for that radionuclide.

The principal gamma emitters for which the LLD specification will apply are exclusively the following radionuclides: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137 and Ce-141. Ce-144 shall be measured, but with an LLD of 5E-6. This list does not mean that only these nuclides are to be detected and reported. Other peaks which are measurable and identifiable, together with the above nuclides, shall also be identified and reported. Nuclides which are below the LLD for the analyses should not be reported as being present at the LLD level. When unusual circumstances result in LLD's higher than required, the reasons shall be documented in the Annual Radioactive Material Release Report.

b. A composite sample is one in which the quantity of liquid sampled is proportional to the quantity of liquid waste discharged and in which the method of sampling employed results in a specimen which is representative of the liquids released.

c. In the event a gross β or γ analysis is performed in lieu of an isotopic analysis before a batch is discharged, a sample shall be analyzed for principal gamma emitters afterward.

d. Analysis may be performed after release.

6.1.1 and 7.1.1 BASES

1. Radioactive Liquid Effluent Instrumentation

The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the release of radioactive material in liquid effluents. The OPERABILITY and use of these instruments implements the requirements of 10 CFR Part 50, Appendix A, General Design Criteria 60, 63, and 64. The alarm and/or trip setpoints for these instruments are calculated in the manner described in the ODAM to assure that the alarm and/or trip will occur before ten times the values specified in 10 CFR Part 20.2001 - 20.2401, Appendix B are exceeded. Instrumentation is expected to be OPERABLE and in service when required by controls. An instrument may be removed from service voluntarily for the purpose of tests, checks, calibration, or preventative maintenance without declaring the channel inoperable.

| The radwaste effluent line radiation monitor recorder RR3972 is not
| required in order to comply with the controls stated in the ODAM. It is
| provided for recording trends during a release and need not be
| maintained OPERABLE - i.e. calibrated and functionally tested - other
| than during a release.
|

6.1.2 and 7.1.2 BASES

1. Liquid Effluent Concentration

The basic requirements concerning effluents from nuclear power are stated in 10 CFR 50.36a. These requirements indicate that compliance with Technical Specifications will keep average annual releases of radioactive material in effluents to a small percentage of the limits specified in 10 CFR 20.106. These (new 10 CFR 20.1301) requirements further indicate that operational flexibility is allowed, compatible with considerations of health and safety, which may temporarily result in releases higher than such small percentages, but still within the limits specified in the old 10 CFR 20.106. These referenced concentrations are specific values which relate to an annual average dose of 500 millirems.

As stated in the Introduction to Appendix B of the new 10 CFR 20, the liquid effluent concentrations limits, given in the appendix, are based on an annual dose of 50 millirem. Prior to the issuance of the revision to Part 20, a release concentration corresponding to a limiting dose of 500 millirem had been acceptable as a TS limit for liquid effluents. The limit was applicable at all times and has been used to provide assurance that the limits of 10 CFR 50 Appendix I were not likely to be exceeded. Since the limits of 10 CFR 50 are the ultimate value to which a license must adhere, and since the old concentration limits adequately provide such assurance, it should not be necessary to reduce this limit by a factor of 10.

Conformance with the dose limits in section 6.1.3 will necessitate average annual liquid effluent concentrations being below those specified in 10 CFR 20.1001 - 20.2401 Appendix B to §§ 20.1001-20.2401.

Demonstrating compliance with section 6.1.3 will result in a de facto demonstration of compliance with 10 CFR 20 limits.

The sample points noted in Table 7.1-2 are adequate to ensure sampling of potential liquid radioactive effluents from the service water systems. The sample points include the General Service Water System and the RHR Service Water Systems A and B. The sample point for the RHR Service Water Systems is at a location downstream of the point where Emergency Service Water discharge joins with the RHR Service Water System, and upstream of the point where the RHR Rupture Disc Line branches off of the RHR Service Water System. This sample point will therefore provide for sampling effluents from the RHR Service Water System, Emergency Service Water System and/or RHR Rupture Disc Line.

6.1.3 and 7.1.3 BASES

1. Dose Due to Radioactive Effluents

Section 6.1.3, 6.2.3 and 6.2.4 implement the requirements of 10 CFR Part 50.36a and of 10 CFR Part 50, Appendix I, Section IV. These sections keep levels of radioactive materials in LWR effluents as low as is reasonably achievable. Compliance with these sections will also keep average releases of radioactive material to effluent at small percentages of the limits specified in 10 CFR Part 20.106. Surveillance requirements provide for the measurement of releases and calculation of doses to verify compliance with the controls. Action statements in these sections implement the requirements of 10 CFR Part 50.36(c)(2) and 10 CFR Part 50, Appendix I, Section IV.A in the event a control is not met.

2. Liquid Effluents

With the implementation of Section 6.1.3, there is reasonable assurance that Station operation will not cause a radionuclide concentration in public drinking water taken from the River that exceeds the standard for anthropogenic radioactivity in community drinking water. The equations in the ODAM for calculating doses due to measured releases of radioactive material in liquid effluent are consistent with the methodology in Regulatory Guide 1.109 and 1.113. The assessment of personal doses will examine potential exposure pathways including, as appropriate, consumption of fish and water taken from the River downstream of the discharge canal.

6.1.4 and 7.1.4 BASES

1. Liquid Waste Treatment

This section implements the requirements of 10 CFR Part 50.36a (a)(1) that operating procedures be established and followed and that equipment be maintained and used to keep releases to the environment as low as is reasonably achievable. The section intends that appropriate portions of the system which were used to establish compliance with the design objectives in 10 CFR Part 50, Appendix I, Section II be used when specified to provide reasonable assurance that releases of radioactive material in liquid effluent will be kept as low as is reasonably achievable. The components in the liquid radwaste system which are appropriate to process liquid waste in order to satisfy Section 7.1.4 are the floor drain demineralizer and the radwaste demineralizer. The activity concentration, μCi/ml, below which liquid radwaste treatment would not be cost-beneficial, and therefore not required, is demonstrated below. The quantity of radioactive material in liquid effluent released annually from the DAEC has been calculated to be*

total iodines	0.11 curie
total others (less H^3)	0.25
Total	0.36 curie

The population dose commitment resulting from the radioactive material in liquid effluent released annually has been calculated to be*

thyroid	0.164 man rem
total body	0.114
Total	0.278 man rem

Therefore, population doses are about 1.5 man rem per curie of iodine released and about 0.5 man rem per curie of other radionuclides (less H^3) released in liquids. On the basis of gross activity, the population dose is about one man rem per curie released in liquids.

The volume of liquid waste processed and intended for discharge is estimated to be:

Low Purity Waste	5700 gal/day = 1.8×10^6 gal/yr
Chemical Waste	600 gal/day = 1.9×10^5 gal/yr

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* "Evaluation of the Duane Arnold Energy Center to demonstrate Conformance to the Design Objectives of 10 CFR 50, Appendix I", Iowa Electric Light & Power Company, May 1976.

Since the same DAEC equipment is used to process both streams, the total volume to be processed is about 2×10^6 gal/yr. The annual cost to operate the radwaste processing equipment, based on Dirty Waste Ion Exchange operation, has been estimated* (neglecting credit for capital recovery) to be $88,000 per year. Thus the unit volume operating cost is about:

$$\frac{\$88,000/yr}{2 \times 10^6\ gal/yr} = \$0.05/gal$$

Thus the operating cost to treat a 4000 gallon batch of chemical waste by ion exchange would be about $200. The operating cost to treat a 10000 gallon batch of floor drain waste by ion exchange would be about $500. Assuming the cost-benefit balance is $1000 expenditure per man rem reduced and assuming treatment removes all radioactivity from the liquid, then

(1) the activity concentration in a Chemical Waste batch below which treatment is not cost-beneficial is

$$C = \frac{\$200}{4000\ gal \times 3785\ \frac{ml}{gal}} \times \frac{1\ curie}{man\ rem} \times \frac{10^6 \mu Ci}{curie} \times \frac{1\ man\ rem}{\$1000}$$

$$C = 0.013\ \mu Ci/ml$$

(2) the activity concentration in a batch of Floor Drain Waste below which treatment is not cost-beneficial is

$$C = \frac{\$500}{10000\ gal \times 3785\ \frac{ml}{gal}} \times \frac{1\ curie}{man\ rem} \times \frac{10^6 \mu Ci}{curie} \times \frac{1\ man\ rem}{\$1000}$$

$$C = 0.013\ \mu Ci/ml$$

Liquid waste treatment with the evaporator at DAEC has been shown to be neither cost-beneficial nor necessary to comply with 10 CFR 50 Appendix I, Section II. Consequently, liquid radwaste treatment to achieve an activity concentration below 0.01 μCi/ml in liquid effluent is not justified.

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* Ibid., based on Regulatory Guide 1.110

6/7.2 Radioactive Gaseous Effluent Controls and Surveillance Requirements

6.2.1 Radioactive Gaseous Effluent Instrumentation

CONTROLS

6.2.1.1 The radioactive gaseous effluent monitoring instrumentation channels shown in Table 6.2-1 shall be OPERABLE. Their radioactive noble gas monitor alarm setpoint shall be set to cause automatic alarm when the limits of Section 6.2.2.1 are exceeded.

APPLICABILITY: As shown in Table 6.2-1

ACTION:

a. When a radioactive gaseous effluent monitoring instrumentation channel alarm setpoint is less conservative than a value which will ensure that the limits of 6.2.2 are met, adjust without delay to meet Section 6.2.1, declare the channel inoperable, or immediately suspend any release via the instrumented pathway.

b. When less than the minimum required gaseous effluent monitoring instrument channels are OPERABLE, take the ACTION stated in Table 6.2-1 and make every reasonable effort to restore the instrument to operable status. In the event the minimum required instrumentation is not returned to OPERABLE status within 30 days, explain in the next Annual Radioactive Material Release Report, in lieu of any other report, why the instrument was not made OPERABLE in a timely manner.

7.2.1 Radioactive Gaseous Effluent Instrumentation

SURVEILLANCE REQUIREMENTS

7.2.1.1 Each radioactive gaseous effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations during the MODES and at the frequencies shown in Table 7.2-1.

7.2.1.2 The setpoints shall be determined according to the method described in the ODAM.

6.2.2 Gaseous Effluent Dose Rate

CONTROLS

6.2.2.1 The dose rate in the unrestricted area (see UFSAR Figure 1.2-1) due to radioactive noble gas released in effluents shall not exceed 500 mrem/year to the total body or 3000 mrem/year to skin.

6.2.2.2 The dose rate in the unrestricted area due to I-131,I-133, H-3, and to radioactive particulates having half-lives of 8 days or more that are released in effluents shall not exceed 1500 mrem/year to any organ.

APPLICABILITY: Whenever monitoring or sampling is required.

ACTION: When the dose rate exceeds a limit in 6.2.2, decrease the release rate without delay to comply with the limit.

7.2.2 Gaseous Effluent Concentration

SURVEILLANCE REQUIREMENTS

7.2.2.1 Compliance with 6.2.2 shall be assessed on the basis of results of measurements specified in Table 7.2-2 and according to methodology stated in the ODAM.

6.2.3 Doses Due to Noble Gases

CONTROLS

6.2.3.1 The air dose in the unrestricted area (see UFSAR Figure 1.2-1) due to noble gases released in gaseous effluents shall not exceed:

5.0 mrad from gamma radiation during any calendar quarter,

10.0 mrad from beta radiation during any calendar quarter,

10.0 mrad from gamma radiation during any calendar year, or,

20.0 mrad from beta radiation during any calendar year.

APPLICABILITY: At all times when monitors are required.

ACTIONS:

a. If the calculated air dose from radioactive noble gases in gaseous effluents exceeds either of the above limits prepare and submit a Special Report to the Commission within 30 days following the end of the calendar quarter during which the release occurred. The Special Report shall be pursuant to Technical Specification 6.11.3, shall be in lieu of any other report, and shall identify the cause(s) for exceeding the limit and define the corrective actions taken.

7.2.3 Doses Due to Noble Gases

SURVEILLANCE REQUIREMENTS

7.2.3.1 Dose Assessment

An assessment shall be performed in accord with the ODAM at least once every 30 days to verify that the cumulative air dose during the quarter and year due to noble gases does not exceed the limits in Section 6.2.3.

6.2.4 Doses Due to Iodine and Particulates in Air

CONTROLS

6.2.4.1 The dose to a MEMBER OF THE PUBLIC from Iodine-131, I-133, H-3, and from radionuclides in particulate form having half-lives greater than eight days in gaseous effluents released from the site to the unrestricted area (see UFSAR Figure 1.2-1) shall not exceed:

7.5 mrem to any organ during any calendar quarter, or,

15.0 mrem to any organ during any calendar year.

APPLICABILITY: At all times when monitors are required.

ACTION:

a. With the calculated dose from the release of I-131, I-133, H-3, and radionuclides in particulate form having half-lives greater than eight days in gaseous effluents exceeding the above limit, prepare and submit a Special Report to the Commission within 30 days following the end of the calendar quarter during which the release occurred. The Special Report shall be made pursuant to Technical Specification 6.11.3, shall be in lieu of any other report, and shall identify the cause(s) for exceeding the limit and define the corrective actions taken.

7.2.4 Doses Due to Iodine and Particulates in Air

SURVEILLANCE REQUIREMENTS

7.2.4.1 An assessment shall be performed in accordance with the ODAM at least once every 31 days to verify that the cumulative dose commitment due to I-131, I-133, H-3, and radioactive particulates having half-lives greater than eight days in gaseous effluents does not exceed the limits in Section 6.2.4.

6.2.5 Gaseous Radwaste Treatment

CONTROLS

6.2.5.1 Every reasonable effort shall be made to maintain at least one train of the Offgas System OPERABLE.

Within four hours after commencing operation of the main condenser air ejector, at least one train of charcoal beds in the Offgas System shall be placed in operation to treat radioactive gases from the main condenser air ejector. During continuing reactor operation, at least one train of charcoal beds in the Offgas System shall be used to treat the gases before discharge.

APPLICABILITY: When the main condenser air ejector is operating.

ACTION:

a. If gaseous wastes are discharged for more than 7 days without treatment, prepare and submit a Special Report to the Commission within 30 days pursuant to Technical Specification 6.11.3, in lieu of any other report, including the following information:

1. Identification of the inoperable equipment or subsystem and reason for inoperability.

2. Action(s) taken to restore the inoperable equipment to OPERABLE status.

3. Summary description of action(s) taken to prevent a recurrence.

7.2.5 Gaseous Radwaste Treatment

SURVEILLANCE REQUIREMENTS

7.2.5.1 The gaseous effluent monitoring systems of Technical Specification 3.2.D shall be used to verify the operation of the offgas system.

TABLE 6.2-1

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

Instrument [a]	Minimum Channels Operable	Applicability [b]	Function	Action
1. Offgas Stack Monitoring System (R3)		During release via this pathway		
a. Noble Gas Activity Monitor	1		Monitor activity concentration, alarm	27
b. Iodine Sampler Cartridge	1		Collect iodine sample	31
c. Particulate Sampler Filter	1		Collect particulate sample	31
d. Effluent Flow Measuring Device	1		Measure air flow	26
e. Sample Flow Measuring Device	1		Measure air flow	26
2. Reactor Building Exhaust Vent Monitoring System (R4)		During release via this pathway		
a. Noble Gas Activity Monitor	1		Monitor activity concentration, alarm	27
b. Iodine Sampler Cartridge	1		Collect iodine sample	31
c. Particulate Sampler Filter	1		Collect particulate sample	31
d. Effluent Flow Measuring Device	1		Measure air flow	26
e. Sample Flow Measuring Device	1		Measure air flow	26
3. Turbine Building Exhaust Vent Monitoring System (R5)		During release via this pathway		
a. Noble Gas Activity Monitor	1		Monitor activity concentration, alarm	27
b. Iodine Sampler Cartridge	1		Collect iodine sample	32
c. Particulate Sampler Filter	1		Collect particulate sample	32
d. Effluent Flow Measuring Device	1		Measure air flow	26
e. Sample Flow Measuring Device	1		Measure air flow	26
4. Low-Level Radwaste Processing and Storage Facility Exhaust Vent Monitoring System (R7)		During release via this pathway		
a. Noble Gas Activity Monitor	1		Monitor activity concentration, alarm	33
b. Iodine Sampler Cartridge	1		Collect iodine sample	31
c. Particulate Sampler Filter	1		Collect particulate sample	31
d. Effluent Flow Measuring Device	1		Measure air flow	26
e. Sample Flow Measuring Device	1		Measure air flow	26

TABLE NOTATIONS

ACTION 26 With no channel OPERABLE, effluent releases via this pathway may continue provided the flow rate is estimated whenever operation of a main exhaust fan combination is changed in the system.

ACTION 27 With no channel OPERABLE, effluent releases via this pathway may continue if grab samples are taken at least once per eight hours and these samples are analyzed for radioactivity within 24 hours or if an alternate monitoring system is utilized. Drywell purge is permitted whenever the offgas stack monintor or its alternate monitor is operating.

ACTION 31 With no channel OPERABLE, effluent releases via this pathway may continue, provided samples required in Table 7.2-2 are continuously collected with auxiliary sampling equipment.

ACTION 32 With no channel OPERABLE, effluent releases via this pathway may continue if grab samples are taken at least once per eight hours and these samples are analyzed for radioactivity within 24 hours or if an alternate monitoring system is utilized.

ACTION 33 With no channel OPERABLE, effluent releases via this pathway may continue provided a grab sample is taken at least once per day and is analyzed for radioactivity or principal gamma emitters within 24 hours.

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[a] Refer to ODAM Figure 3-1 for location of effluent monitoring points R1 thru R7.

[b] Channels shall be OPERABLE and in service except that channels out of service are permitted for the purpose of required tests, checks, calibration, and preventative maintenance without declaring the channel to be inoperable

TABLE 7.2-1

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL [a] CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	REQUIRED [b] MODE
1. Offgas Stack Monitoring System					
a. Noble Gas Activity Monitor	D	M	R [c]	Q [d]	During release via this pathway
b. Iodine Sampler Cartridge	W	N.A.	N.A.	N.A.	
c. Particulate Sampler Filter	W	N.A.	N.A.	N.A.	
d. Effluent Flow Measuring Device	D	N.A.	R	Q	
e. Sample Flow Measuring Device	D	N.A.	R	Q	
2. Reactor Building Vent Monitoring System					
a. Noble Gas Activity Monitor	D	M	R [c]	Q [d]	During release via this pathway
b. Iodine Sampler Cartridge	W	N.A.	N.A.	N.A.	
c. Particulate Sampler Filter	W	N.A.	N.A.	N.A.	
d. Effluent Flow Measuring Device	D	N.A.	R	Q	
e. Sample Flow Measuring Device	D	N.A.	R	Q	
3. Turbine Building Ventilation Monitoring System					
a. Noble Gas Activity Monitor	D	M	R [c]	Q [d]	During release via this pathway
b. Iodine Sampler Cartridge	W	N.A.	N.A.	N.A.	
c. Particulate Sampler Filter	W	N.A.	N.A.	N.A.	
d. Effluent Flow Measuring Device	D	N.A.	R	Q	
e. Sample Flow Measuring Device	D	N.A.	R	Q	
4. Low-Level Radwaste Processing and Storage Facility Ventilation Monitoring System					
a. Noble Gas Activity Monitor	D	M	R [c]	Q [d]	During release via this pathway
b. Iodine Sampler Cartridge	W	N.A.	N.A.	N.A.	
c. Particulate Sampler Filter	W	N.A.	N.A.	N.A.	
d. Effluent Flow Measuring Device	D	N.A.	R	Q	
e. Sample Flow Measuring Device	D	N.A.	R	Q	

TABLE NOTATIONS

[a] During releases via this pathway.

[b] Instrumentation shall be OPERABLE and in service except that channels out of service are permitted for the purpose of required tests, checks, calibrations, and preventative maintenance without declaring the channel to be inoperable.

[c] The CHANNEL CALIBRATION shall include the use of a known radioactive source (traceable to the NIST radiation measurement system or other acceptable non-NIST standards) positioned in a reproducible geometry with respect to the sensor and emitting beta and/or gamma radiation in the range measured by the channel in accord with established station calibration procedures. Alternately, after the initial calibration, noble gas activity monitors maybe calibrated by laboratory analyzed gas samples collected and analyzed per Table 7.2-2, item A.

TABLE NOTATIONS

[d] The CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exist:

1.0 Instrument indicates measured levels above the alarm setpoint.
2.0 Circuit failure.
3.0 Instrument indicates a downscale failure.
4.0 Deleted.

TABLE 7.2-2

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

	Gaseous Release Type	Sampling Frequency	Minimum Analysis Frequency	Type of Activity Analysis	Lower Limit of Detection (LLD)[a]
A	Offgas Stack, and Reactor Building Vent	M Grab Sample [b] Q Grab Sample [c]	M [b] Q	Principal Gamma Emitters H-3	1×10^{-4} [d] 1×10^{-6}
B	Offgas Stack, Reactor Building Vent, Turbine Building Vent, and Low-Level Radwaste Processing Storage Facility Vent	Continuous [e]	W [f] Charcoal Sample	I-131	1×10^{-12}
		Continuous [e]	W [f] Particulate Sample	Principal Gamma Emitters (I-131, Others)	1×10^{-11} [d]
		Continuous [e]	Q [g] Composite Particulate Sample	Sr-89, Sr-90 Gross Alpha	1×10^{-11} 1×10^{-11}
C.	Offgas Stack, Reactor Building Vent, Turbine Building Vent, and Low-Level Radwaste Processing and Storage Facility	Continuous	Continuous	Radioactive Noble Gas gamma activity	1×10^{-6}

[a] See Table 7.1-2 for a definition of the lower limit of detection (LLD).

[b] Monthly analyses shall be performed following an increase of more than 50% in the steady state releases as indicated by the post-treat noble gas activity monitor, after factoring out the effect due to a change in reactor power, or other minor temporary fluctuations not related to fuel integrity such as line up changes for condensate demineralizers or reactor water cleanup.

[c] A H-3 grab sample will also be taken from the Offgas Stack or Reactor Building Vent when the reactor head is removed.

[d] The principal gamma emitters for which the LLD will apply are exclusively the following radionuclides: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, and Xe-138 for gaseous emissions and Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99,Cs--134, Cs-137, Ce-141 and Ce-144 for particulate emissions. This list does not mean that only these nuclides are to be detected and reported. Other peaks which are measurable and identifiable, together with the above nuclides, shall also be identified and reported. Nuclides which are below the LLD may be reported as "less than" their respective LLD and should not be reported as being present at the LLD of the nuclide. Each measured radionuclide concentration is used in a required concentration or dose calculation only if it is detected at or above the LLD. When unusual circumstances persist more than 30 days and cause LLD higher than required, the reasons shall be documented in the Annual Radioactive Material

Release Report.

TABLE 7.2-2 (Continued)

TABLE NOTATIONS

[e] The ratio of the sample flow rate to the sampled stream flow rate shall be known for the time period covered by each dose or dose rate calculations made in accordance with Sections 6.2.2, 6.2.3, and 6.2.4.

[f] Sample media shall be changed at least once per seven days and the analysis completed within 48 hours after changing (or after removal from the sampler). Analyses shall also be performed within 48 hours following an increase of more than 50% in the steady state release as indicated by the post-treat noble gas activity monitor, after factoring out the effect due to a change in reactor power. When samples collected for 24 hours or less are analyzed, the corresponding LLD may be increased by a factor of 10.

[g] A quarterly composite sample shall include an equal fraction of each weekly particulate sample collected during the quarter.

1. Radioactive Gaseous Effluent Instrumentation

The radioactive gaseous effluent instrumentation is provided to monitor the release of radioactive materials in gaseous effluents and, as appropriate, to control potential releases. The presence of instruments for monitoring radioactive effluents is depicted in ODAM Figure 3-1. The OPERABILITY and use of these instruments implements the requirements of 10 CFR Part 50, Appendix A, General Design Criteria 60, 63, and 64.

Reactor building exhaust ventilation shaft radiation monitors initiate isolation of the reactor building normal ventilation and start standby gas treatment when a high trip point is reached.

DAEC is equipped with a radioactive gaseous effluent monitoring system which includes detectors at the offgas stack (R3), the reactor building vent (R4), the turbine building vent (R5), and the LLRPSF vent (R7). A remote indication and control unit located near each detector displays the detector reading and, whenever the setpoint is exceeded, an indicator light. The data are also routed to a control computer and a control room display and, except for the LLRPSF vent detector, do not cause a trip to isolate the ventilated area. The LLRPSF vent detector does isolate the LLRPSF ventilation system. However, the isolation function is not required by regulation but is provided as an engineering design conservatism. In the event the control computer and/or control room display fail to function or are voluntarily taken out of service, each remote indication and control unit is designed to acquire data for up to 30 hours. It is intended that each affected remote indication and control unit display be observed at least once per 24 hours (in which case the affected channel remains OPERABLE).

If an alarm trip setpoint is exceeded at the same time the control computer and/or control room display are neither functioning nor in service, alarm annunciation will still occur in the control room. In the event the detector reading and the indication of exceeding the monitor setpoint are not provided at either the control room or the remote indication and control unit, then the affected channel is not OPERABLE and DAEC will either perform the appropriate ACTION or will provide an alternate monitoring system. This permits DAEC to retain the GE gaseous monitoring system as an alternate system for normal effluent monitoring when the Kaman system is temporarily inoperable. When used as an alternate monitoring system, the GE system is subject to the requirements stated in Sections 6.2.1 and 7.2.1 and to LLD requirements stated in Table 7.2-2, Note d.

2. Not used

3. Gaseous Effluents

Assessments of dose required by Sections 7.2.3 and 7.2.4 to verify compliance with Appendix I, Section IV are based on measured radioactivity in gaseous effluent and on calculational methods stated in the ODAM. Pathways of exposure and location of individuals are selected such that the dose to a nearby resident is unlikely to be underestimated. Dose assessment methodology described in the ODAM for gaseous effluent will be consistent with the methodology in Regulatory Guides 1.109 and 1.111. Cumulative and projected assessments of dose made during a quarter are based on historical average meteorological conditions measured at DAEC. Assessment made for the annual radiological environmental report will be based on annual averages of atmospheric conditions during the period of release.

Gaseous Effluent Concentration

The basic requirements concerning effluents from nuclear power are stated in 10 CFR 50.36a. These requirements indicate that compliance with Technical Specifications will keep average annual releases of radioactive material in effluents to a small percentage of the limits specified in 10 CFR 20. These (new 10 CFR 20.1301) requirements further indicate that operational flexibility is allowed, compatible with considerations of health and safety, which may temporarily result in releases higher than such small percentages, but still within the limits specified in the old 10 CFR 20.106. These referenced concentrations are specific values which relate to an annual average dose of 500 millirems.

As stated in the Introduction to Appendix B of the new 10 CFR 20, the gaseous effluent concentration limits given in the appendix are based on an annual dose of 50 millirem for isotopes for which inhalation or ingestion is limiting or 100 millirem for isotopes for which submersion (noble gases) is limiting. Prior to the issuance of the revision to Part 20 a release concentration corresponding to limiting dose rates less than or equal to 500 mrem/yr to the whole body, 3000 mrem/yr to the skin from noble gases, and 1500 mrem/yr to any organ from iodine, and tritium, had been acceptable as a TS limit for airborne effluents. This limit was applicable at all times and had been used to provide assurance that the limits of 10 CFR 50 Appendix I and 40 CFR 190 were not likely to be exceeded.

Since the limits of 10 CFR 50 Appendix I and 40 CFR 90 are more restrictive than 10 CFR 20, and because the dose limits specified have been successfully used to assure compliance with these regulations, it should not be necessary to reduce the dose rate basis to 50 or 100 millirem.

Conformance with the dose limits of 7.3.1 will necessitate the average annual airborne effluent concentrations being below those specified in 10 CFR 20 Appendix B. Demonstrating compliance with section 6.3.1 will result in a de facto demonstration of compliance with 10 CFR 20 limits. Assessment of compliance is based upon an effluents measurement program defined in Table 7.2-2 and methodology stated in the ODAM. The resolving time of the measurements, ie., the sample integration time, bounds the minimum averaging time of the effluent measurements waste streams. The Standby Gas Treatment System is considered an Engineered Safety Feature and not an exhaust ventilation treatment system. Thus the exhaust ventilation system discharges via the reactor building vent.

Doses due to Noble Gases

These specifications implement the requirements of 10 CFR Part 50, Appendix I.

6.2.4 and 7.2.4 BASES

Doses due to Iodine and Particulates in Air

These specifications implement 10 CFR Part 50, Appendix I. The dose calculation methods in the ODAM depend on existing pathways of exposure to a member of the public or more conservative conditions assumed (yielding a higher calculated dose). Calculations and methods are such that an estimate of the dose to a member of the public is not likely to be underestimated substantially.

6.2.5 and 7.2.5 BASES

1. Gaseous Radwaste Treatment

This specification implements the requirement of 10 CFR Part 50.36a(a)(1) that operating procedures be established and followed and that equipment be maintained and used to keep releases to the environment as low as is reasonably achievable. In order to satisfy Section 6.2.5, every reasonable effort shall be made to maintain and operate at least one train of the Offgas System charcoal adsorbers with pre- and aft-particulate filters to process radioactive gaseous effluent prior to release. The specification that the Offgas System which was used to establish compliance with the design objectives in 10 CFR Part 50, Appendix I, Section II be used when specified provides reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept as low as is reasonably achievable.

ODAM Figure 3-1 is a flow diagram depicting gaseous radioactive waste streams. The Standby Gas Treatment System is considered an Engineered Safety Feature and not an exhaust ventilation treatment system.

6/7.3 Offsite Dose Assessment Controls and Surveillance Requirements

6.3.1 Dose

CONTROLS

6.3.1.1 The annual dose or dose commitment to any MEMBER OF THE PUBLIC due to radiation and radioactive material in effluents from DAEC shall not exceed 75 mrem to his thyroid or 25 mrem to his total body or any other organ.

APPLICABILITY: At all times.

ACTION:

a. If the calculated dose from radioactive material released in liquid or gaseous effluents exceeds twice the limits of Sections 6.1.3, 6.2.3 or 6.2.4, perform an assessment of compliance with 40 CFR 190 and limit subsequent releases such that the dose or dose commitment to a MEMBER OF THE PUBLIC is ≤ 75 mrem to his thyroid and ≤ 25 mrem to his total body or any other organ over 12 consecutive months including the period of elevated release.

b. If the estimated dose exceeds either limit in Section 6.3.1, prepare and submit a Special Report to the NRC within 30 days in lieu of any other report; it shall include the cause of the release of exposure, an estimate of the dose to the likely most exposed MEMBER(s) OF THE PUBLIC, corrective actions taken or planned to prevent a recurrence, and a schedule for achieving compliance. If the condition causing the limit(s) to be exceeded has not been corrected, the Special Report may also state a request for a variance in accordance with the provisions of 40 CFR Part 190. In that event, the request is timely and a variance is granted until NRC action on the request is complete.

7.3.1 Dose

SURVEILLANCE REQUIREMENTS:

7.3.1.1 Cumulative dose contributions from liquid and gaseous effluents to a MEMBER OF THE PUBLIC offsite shall be evaluated at least once every year as described in the ODAM.

6.3.2 Radiological Environmental Monitoring Program

CONTROLS

6.3.2.1 A radiological environmental monitoring program shall be conducted as specified in Table 6.3-1.

APPLICABILITY: At all times.

ACTION:

a. Deviations are permitted from Table 6.3-1 if specimens are unobtainable due to hazardous conditions, seasonal unavailablility, malfunction of automatic sampling equipment and other legitimate reasons. If specimens are unobtainable due to sampling equipment malfunction, every effort shall be made to complete corrective action prior to the end of the next sampling period. All deviations from Table 6.3-1 shall be documented in the Annual Radiological Environmental Report.

b. In the event radioactivity in a sampled environmental medium, averaged over a calendar quarter, is attributable to DAEC and exceeds an appropriate value listed in Table 6.3-3 or, if not listed, causes a potential annual dose exceeding two times the quarterly dose limit in Section 6.1.3 or 6.2.4, prepare and submit to the Commission within 30 days after discovery a Special Report which includes an evaluation of any release conditions, environmental factors or other conditions which caused the value(s) of Table 6.3-3 or two times the quarterly dose limit to be exceeded and which defines the corrective actions to be taken. If the radioactivity in environmental sample(s) is not attributable to releases from the Station, the Special Report is not required. Instead, the sample(s) result(s) shall be reported and explained in the Annual Radiological Environmental Report.

c. When environmental sampling medium is not available from a sampling location or the location is no longer appropriate, the cause and the location where replacement samples were obtained and/or will be obtained shall be reported in the Annual Radiological Environmental Report.

d. In the event a location is identified at which the calculated personal dose associated with one or more exposure pathways exceeds by 20% the maximum calculated dose associated with like pathway(s) at a location where sampling is conducted as specified by Table 6.3-1, then the pathway(s) having maximum exposure potential at the newly identified location will be added to the radiological monitoring program at a subsequent Operations Committee meeting, if samples are reasonably attainable at the new location. Like pathway(s) monitored (sampled) at a location, excluding the control station location(s), having a lesser associated calculated personal dose may be deleted from the program at the time the new pathway(s) and location are added.

7.3.2 Radiological Environmental Monitoring Program

SURVEILLANCE REQUIREMENTS:

7.3.2.1 Sampling and analyses required in Table 6.3-1 shall be performed such that the detection capabilities specified in Table 6.3-2 are achieved under routine conditions. If a sample analysis does not meet the LLD specified, report the reason attributed in the next Annual Radiological Environmental Report.

7.3.2.2 Land Use Census

DAEC shall conduct annually a land use census within three miles of the Station to identify radiologically important changes in land use.

6.3.3 Interlaboratory Comparison Program

CONTROLS

6.3.3.1 Analyses shall be performed on radioactive materials supplied in an Interlaboratory Comparison Program which has been approved by the NRC.

APPLICABILITY: Applicable to the Radiological Environmental Monitoring Program at all times.

ACTION:

In the event analyses were not performed as required in Section 6.3.3, report the corrective actions taken to prevent a recurrence in the Annual Radiological Environmental Report.

7.3.3 Interlaboratory Comparison Program

SURVEILLANCE REQUIREMENTS

(None)

TABLE 6.3-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample Type	Minimum Number of Sampling Stations	Sampling and Collection Frequency	Type and Frequency of Analysis
Airborne Particulates	Five	Continuous operation of sampler with sample collection at least once per week or as required by dust loading	Analyze for gross beta activity ≥ 24 hours after filter change. Perform gamma isotopic analysis on each sample having gross beta activity > 10 times the yearly mean of control samples. Perform gamma isotopic analysis on composite (by sampling location) of samples collected during each quarter
Airborne Particulate	Five	Continuous operation of sampler with sample	Analyze each cartridge for I-131.
Ambient Radiation	Thirty-nine	Two dosimeters at each point continuously. Change at least once per quarter.	Read gamma radiation dose quarterly.
Surface Water	Two	At least once per month.	Gamma isotopic analysis of each sample or monthly composite (by location). Tritium analysis of a composite (by location) at least once per quarter.
Ground Water (potable)	Four	At least once per quarter. (May be composited if collected more frequently.)	Analyze quarterly for tritium and gross beta activity; if gross beta > 10 times the yearly mean of control samples, analyze for SR-89, SR-90, and gamma isotopic.
River Sediment	One	At least once every six months	Gamma isotopic analysis of each sample.
Milk	Three	At least once every two weeks (biweekly) during the grazing season. At least once per month during non-grazing season.	Gamma isotopic and I-131 analysis of each sample.
Fish	Two	Two times per year. (Once during January through July and once during August thru December.)	Gamma isotopic analysis on edible portion.

TABLE 6.3-1 (Continued)			
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM			
Exposure Pathway and/or Sample Type	Minimum Number of Sampling Stations	Sampling and Collection Frequency	Type and Frequency of Analysis
Vegetation	Three	Annually at harvest time. One sample of each: grain green leafy vegetation forage.	Gamma isotopic analysis on edible portion.
	One	One sample of broadleaf vegetation at time of harvest	I-131 analysis

TABLE 6.3-2

MAXIMUM VALUES OF THE LOWER LIMIT OF DETECTION FOR ENVIRONMENTAL SAMPLE ANALYSIS [a]

Analysis	Medium					
	Water (pCi/1)	Airborne Particulate or Gas (pCi/m^3)	Fish (pCi/kg, wet)	Milk (pCi/1)	Food Procucts (pCi/kg, wet)	Sediment (pCi/kg, dry)
Gross beta	4	1×10^{-2}				
H-3	2000 [b] 3000 [c]					
Mn-54	15		130			
Fe-59	30		260			
Co-58, Co-60	15		130			
Zn-65	30		260			
Zr-95	30					
Nb-95	15					
I-131	1 [d]	7×10^{-2}		1	60	
Cs-134	15	5×10^{-2}	130	15	60	150
Cs-137	18	6×10^{-2}	150	18	80	180
Ba-140	60			60		
La-140	15			15		

TABLE NOTATION

a. The LLD is defined, for purposes of these specifications, as the smallest concentration of radioactive material in a sample that will yield a new count, above system background, that will be detected with 95% probability with only 5% probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement, which may include radiochemical separation

$$LLD = (4.66S_b)/(E \times V \times 2.22\ Y\ e^{-\lambda\delta t})$$

where:

LLD is the lower limit of detection as defined above (picocuries per unit mass or volume)

TABLE NOTATIONS (Continued)

S_b is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (counts per minute)

E is the counting efficiency (counts per disintegration)

V is the sample size (units of mass or volume)

2.22 is the number of disintegrations per minute per picocurie,

Y is the fractional radiochemical yield, when applicable,

λ is the radioactive decay constant for the particular radionuclide, and Δ

t for environmental samples is the elapsed time between sample collection, or end of the sample collection period, and time of counting

Analyses shall be performed in such a manner that the stated LLDs will be achieved under routine conditions. With typical values of E, V, Y, and Δ t for the radionuclides named in the Table. Occasionally background fluctuations, unavoidably small sample sizes, the presence of interfering nuclides, or other uncontrollable circumstances may render these LLDs unachievable. In such cases, the contributing factors shall be identified and described in the Annual Radiological Environmental Report.

When a radionuclide attributable to DAEC but not listed in this table is measured (more than the LLD) it shall be reported. Any nuclide that is below the LLD for the analysis should not be reported as being present at the LLD level.

b. For Drinking Water.

c. For samples of water not used as a source of drinking water.

d. If no drinking water pathway exists, a value of 15 pCi/l may be used.

TABLE 6.3-3					
REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES					
	Reporting Levels [a]				
Analysis	Water (pCi/l)	Airborne Particulate or Gases (pCi/m^3)	Fish (pCi/Kg, wet)	Milk (pCi/l)	Food Products (pCi/Kg, wet)
H-3	2×10^{-4} [b] 3×10^{-4} [c]				
Mn-54	1×10^3		3×10^4		
Fe-59	4×10^2		1×10^4		
Co-58	1×10^3		3×10^4		
Co-60	3×10^2		1×10^4		
Zn-65	3×10^2		2×10^4		
Zr-Nb95	4×10^2 [c]				
I-131	2 [d]	0.9		3	1×10^2
Cs-134	30	10	1×10^3	60	1×10^3
Cs-137	50	20	2×10^3	70	2×10^3
Ba-La140	2×10^2 [e]			3×10^2 [e]	

TABLE NOTATIONS

a. The reporting level is exceeded when one or more radionuclides are detected in a sample and $\Sigma[(\text{concentration})/(\text{reporting level})] \geq 1$.

b. For drinking water samples. This is 40 CFR Part 141 value.

c. For samples of water not used as a source of drinking water.

d. If no drinking water pathway exists, a value of 20 pCi/l may be used.

e. Concentration of parent or daughter.

6.3.1 and 7.3.1 BASES

1. Dose

Section 6.3.1 is provided to comply with the dose limitation requirement of 40 CFR 190. This section requires the assessment of dose to demonstrate that a person (a nearby resident) has not received a radiation dose exceeding that specified in 40 CFR 190 including doses from direct radiation. There is no other licensed nuclear fuel cycle facility within 50 miles of DAEC, thus it is assumed that the dose from other uranium fuel cycle facilities is negligible. In the event a report is required to satisfy Section 6.3.1, Action b, it shall be deemed adequate to satisfy the reporting requirement in Section 6.4.2.5. By demonstrating compliance with 40 CFR 190, DAEC will be, de facto, in compliance with the dose limits specified in 10 CFR 20.1301. Such a position is in keeping with that stated by the NRC in the preamble to the revised 10 CFR 20 (56 CFR 23360).

6.3.2 and 7.3.2 BASES

1. Radiological Environmental Monitoring

The radiological environmental monitoring program, including the land use census, is conducted to satisfy the requirements of 10 CFR Part 50, Appendix I, Section IV.B.2 and .3. The minimum radiological monitoring program required by this specification provides measurements of radiation and of radioactive materials in those exposure pathways and for those radionuclides which lead to the highest potential radiation exposures of individuals resulting from the station operation. This monitoring program thereby supplements the radiological effluent monitoring program by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and modeling of the environmental exposure pathways.

The land use census is conducted annually to identify changes in use of the unrestricted area in order to recommend modifications in monitoring programs for evaluating individual doses from principal exposure pathways. It may be conducted by door-to-door survey, by aerial survey, or by consulting with local agricultural or governmental authorities.

In order that radiological environmental monitoring stations may be relocated to reflect current conditions, the locations of stations required by Table 6.3-1 are described in the Offsite Dose Assessment Manual. Revisions thereto are administered in accordance with Specification 6.15. IES may conduct additional environmental monitoring exclusive of the requirements of Sections 6.3.2 and 6.4.2.

6.3.3 BASES

1. Interlaboratory Comparison Program

The requirement for participation in an Interlaboratory Comparison Program is provided to ensure that independent checks on the precision and accuracy of the measurements of radioactive material in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring in order to demonstrate that the results are reasonably valid.

6.4 Reporting Requirements

6.4.1 Annual Radioactive Material Release Report

(1) A report of radioactive materials released from the Station shall be submitted to the NRC on or before May 1 of each year. Each report shall include the information specified in item (2) below covering the preceding twelve months.

(2) An Annual Radioactive Material Release Report shall include a summary by calendar quarter of the quantities of radioactive liquid and gaseous effluents and radioactive solid waste released from the Station. The data on radioactive liquid and gaseous effluents should be reported in the format in Tables 6.4-1 and 6.4-2. The data on radioactive solid waste should include:

1. classification of the waste (per 10 CFR Part 61)

2. total volume shipped

3. total radioactive material shipped (curies)

4. identification of principal radionuclides

5. solidification agent

6. physical description of the waste

(3) A summary description of any changes to the ODAM.

(4) A summary of meteorological data collected during the year will be submitted in the annual report following January 1. Alternatively, summary meteorological data may be retained by DAEC and made available to the NRC upon request.

6.4.2 Annual Radiological Environmental Report

An annual report of radiological environmental surveillance activities required by Section 6.3.2 shall be submitted to the NRC on or before May 1 of each year. Each report shall include the following information:

(1) A summary description of the radiological environmental monitoring program required by Section 6.3.2.

(2) A map and a table of distances and directions of locations of sampling stations required in Table 6.3-1.

(3) A summary of the land use census required in Section 7.3.2.2.

(4) Results of analyses of samples required by the radiological environmental monitoring program, Table 6.3-1. In the event some results are not available, the reasons shall be explained in the report. In the event the missing results are obtained, they shall be submitted in a supplementary report as soon as is reasonable.

(5) An assessment of radiation doses to a MEMBER OF THE PUBLIC likely to be the most exposed due to radioactive liquid and gaseous effluents released from DAEC during the year. The assessment shall be performed as described in the ODAM.

(6) Deleted.

(7) Results of participation in the Interlaboratory Comparison Program.

(8) Deviation from environmental sampling schedule.

(9) A report of all analyses in which the LLD, required by Table 6.3-2, was not achieved.

(10) A report of any changes in sample locations.

6.4.3 Changes to the ODAM

a. Shall be documented and records of reviews performed shall be retained as required by Technical Specification 6.10.2.14. This documentation shall contain:

1) Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s) and:

2) A determination that the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50 and not adversely impact the accuracy or reliability of effluent dose or setpoint calculations.

b. Shall become effective after review and acceptance by the Operations Committee and approval by the Plant Superintendent, Nuclear.

c. Shall be submitted to the commission in the form of a complete, legible copy of the entire ODAM as a part of or concurrent with the Annual Radioactive Material Release Report for the period of the report in which any change to the ODAM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date the change was implemented.

TABLE 6.4-1			
ANNUAL RADIOACTIVE MATERIAL RELEASE REPORT (YEAR) LIQUID EFFLUENTS			
Nuclides Released	Unit	Quarter	Quarter
strontium-89	Ci	. E	. E
strontium-90	Ci	. E	. E
cesium-134	Ci	. E	. E
cesium-137	Ci	. E	. E
iodine-131	Ci	. E	. E
cobalt-58	Ci	. E	. E
cobalt-60	Ci	. E	. E
iron-55	Ci	. E	. E
iron-59	Ci	. E	. E
zinc-65	Ci	. E	. E
manganese-54	Ci	. E	. E
chromium-51	Ci	. E	. E
zirconium-niobium-95	Ci	. E	. E
molybdenum-99	Ci	. E	. E
technetium-99m	Ci	. E	. E
barium-lanthanum-140	Ci	. E	. E
cerium-141	Ci	. E	. E
Other (specify)	Ci	. E	. E
	Ci	. E	. E
	Ci	. E	. E
	Ci	. E	. E
	Ci	. E	. E
Total for period (above)	Ci	. E	. E
xenon-133	Ci	. E	. E
xenon-135	Ci	. E	. E

TABLE 6.4-2			
ANNUAL RADIOACTIVE MATERIAL RELEASE REPORT (YEAR) GASEOUS EFFLUENTS			
Nuclides Released	Unit	Quarter	Quarter
1. Fission gases			
krypton-85	Ci	. E	. E
krypton-85m	Ci	. E	. E
krypton-87	Ci	. E	. E
krypton-88	Ci	. E	. E
xenon-133	Ci	. E	. E
xenon-135	Ci	. E	. E
xenon-135m	Ci	. E	. E
xenon-138	Ci	. E	. E
Others (specify)	Ci	. E	. E
	Ci	. E	. E
	Ci	. E	. E
Total for period	Ci	. E	. E
2. Iodines			
iodine-131	Ci	. E	. E
iodine-133	Ci	. E	. E
iodine-135	Ci	. E	. E
Total for period	Ci	. E	. E
3. Particulates			
strontium-89	Ci	. E	. E
strontium-90	Ci	. E	. E
cesium-134	Ci	. E	. E
cesium-137	Ci	. E	. E
barium-lanthanum-140	Ci	. E	. E
Others (specify)	Ci	. E	. E
	Ci	. E	. E
	Ci	. E	. E

APPENDIX A: DOSE TRANSFER FACTORS FOR AIRBORNE PATHWAYS

Environmental pathway models have been solved on the bases of unit radionuclide release in effluent (1 Ci/yr) and unit atmospheric dispersion (1 sec/m^3) or deposition ($1/m^2$) to derive dose transfer factors for airborne effluent. The dose transfer factors in this appendix were computed with the GASPAR II computer program[a], using default values of parameters applicable to the most exposed members of the public as recommended in Regulatory Guide 1.109, revision 1, with the following exceptions.

- Significant revisions of data since publication of the Regulatory Guide 1.109, revision 1 and incorporated into GASPAR II were employed. Data differing from those in the Regulatory Guide 1.109 are identified in GASPAR II documentation.[b]

- After publishing Reg. Guide 1.109, the NRC recommended that soil-to-plant bioaccumulation factors, B_{iv}, of cesium and strontium be changed.[c] The revised values were used to derive dose transfer factors tabulated for Sr89, Sr90, and Cs137.

- Values of environmental transit time recommended in Reg. Guide 1.109,[d] namely 1440 hr from harvest of stored vegetables to ingestion, were retained in lieu of default values in GASPAR II.[e]

These factors affected dose transfer factors more than 10% only for H3, Sr89, Sr90, Cs137, Ce141, and Ce144.

Dose transfer factors from C14 via inhalation and from Kr90 via irradiation by an airborne cloud are the same as in the previous MIDAS library since GASPAR II does not produce them. Skin dose transfer factors are assumed to be the same as total body dose transfer factors for H3 and C14 in exposure pathways involving inhalation or ingestion also because GASPAR II does not calculate them.

Dose transfer factors are included hereafter for the following parameters.

Pathway	Age Group	Organ
Inhalation	Adult	Total Body
Ground irradiation	Teenager	GI tract
Grass-cow-milk	Child	Bone
Grass-goat-milk	Infant	Liver
Grass-cow-meat		Kidney
Vegetables, leafy + produce		Thyroid
Plume irradiation		Lung
		Skin

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[a] Strenge, D.L., et. al., GASPAR II - Technical Reference and User Guide, NUREG/CR-4653, March 1987

[b] Ibid., 3.3.1.1, 3.3.2.3

[c] USNRC, SECY-79-653A, January 30, 1980.

[d] Regulatory Guide 1.109, rev. 1, Table E-15

[e] Strenge, et. al., p. C.3.

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = ADULT
PATHWAY = INHALATION

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem-m³)/(Ci sec)				
H 3	2.28E+01	2.28E+01	0.00E-01	2.28E+01	2.28E+01	2.28E+01	2.28E+01	2.28E+01
C 14	1.08E+02	1.08E+02	5.76E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	0.00E-01
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	3.17E+00	1.05E+02	0.00E-01	0.00E-01	7.23E-01	1.89E+00	4.56E+02	0.00E-01
MN 54	2.00E+02	2.45E+03	0.00E-01	1.25E+03	3.12E+02	0.00E-01	4.44E+04	0.00E-01
FE 59	3.36E+02	5.96E+03	3.74E+02	8.81E+02	0.00E-01	0.00E-01	3.23E+04	0.00E-01
CO 58	6.56E+01	3.36E+03	0.00E-01	5.01E+01	0.00E-01	0.00E-01	2.94E+04	0.00E-01
CO 60	4.69E+02	9.03E+03	0.00E-01	3.64E+02	0.00E-01	0.00E-01	1.89E+05	0.00E-01
ZN 65	1.48E+03	1.70E+03	1.03E+03	3.26E+03	2.19E+03	0.00E-01	2.74E+04	0.00E-01
SR 89	2.76E+02	1.11E+04	9.63E+03	0.00E-01	0.00E-01	0.00E-01	4.44E+04	0.00E-01
SR 90	1.83E+04	2.29E+04	9.10E+05	0.00E-01	0.00E-01	0.00E-01	3.04E+05	0.00E-01
ZR 95	7.38E+02	4.75E+03	3.39E+03	1.09E+03	1.72E+03	0.00E-01	5.61E+04	0.00E-01
SB124	3.93E+02	1.29E+04	9.89E+02	1.87E+01	0.00E-01	2.40E+00	7.86E+04	0.00E-01
CS134	2.31E+04	3.30E+02	1.18E+04	2.69E+04	9.10E+03	0.00E-01	3.09E+03	0.00E-01
CS136	3.49E+03	3.71E+02	1.24E+03	4.63E+03	2.71E+03	0.00E-01	3.80E+02	0.00E-01
CS137	1.36E+04	2.66E+02	1.52E+04	1.97E+04	7.07E+03	0.00E-01	2.38E+03	0.00E-01
BA140	8.14E+01	6.91E+03	1.24E+03	1.56E+00	5.29E-01	0.00E-01	4.02E+04	0.00E-01
CE141	4.85E+01	3.80E+03	6.31E+02	4.28E+02	1.99E+02	0.00E-01	1.15E+04	0.00E-01
CE144	5.83E+03	2.59E+04	1.09E+05	4.53E+04	2.69E+04	0.00E-01	2.47E+05	0.00E-01
I 131	6.50E+02	1.99E+02	7.99E+02	1.13E+03	1.94E+03	3.77E+05	0.00E-01	0.00E-01
I 133	1.43E+02	2.81E+02	2.74E+02	4.69E+02	8.21E+02	6.81E+04	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = ADULT
PATHWAY = GROUND PLANE

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.47E+05	1.47E+05	1.47E+05	1.47E+05	1.47E+05	1.47E+05	1.47E+05	1.74E+05
MN 54	4.37E+07	4.37E+07	4.37E+07	4.37E+07	4.37E+07	4.37E+07	4.37E+07	5.13E+07
FE 59	8.65E+06	8.65E+06	8.65E+06	8.65E+06	8.65E+06	8.65E+06	8.65E+06	1.01E+07
CO 58	1.20E+07	1.20E+07	1.20E+07	1.20E+07	1.20E+07	1.20E+07	1.20E+07	1.41E+07
CO 60	6.81E+08	6.81E+08	6.81E+08	6.81E+08	6.81E+08	6.81E+08	6.81E+08	8.02E+08
ZN 65	2.36E+07	2.36E+07	2.36E+07	2.36E+07	2.36E+07	2.36E+07	2.36E+07	2.72E+07
SR 89	6.85E+02	6.85E+02	6.85E+02	6.85E+02	6.85E+02	6.85E+02	6.85E+02	7.95E+02
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	7.76E+06	7.76E+06	7.76E+06	7.76E+06	7.76E+06	7.76E+06	7.76E+06	9.03E+06
SB124	1.90E+07	1.90E+07	1.90E+07	1.90E+07	1.90E+07	1.90E+07	1.90E+07	2.19E+07
CS134	2.17E+08	2.17E+08	2.17E+08	2.17E+08	2.17E+08	2.17E+08	2.17E+08	2.53E+08
CS136	4.75E+06	4.75E+06	4.75E+06	4.75E+06	4.75E+06	4.75E+06	4.75E+06	5.39E+06
CS137	3.26E+08	3.26E+08	3.26E+08	3.26E+08	3.26E+08	3.26E+08	3.26E+08	3.80E+08
BA140	6.50E+05	6.50E+05	6.50E+05	6.50E+05	6.50E+05	6.50E+05	6.50E+05	7.45E+05
CE141	4.34E+05	4.34E+05	4.34E+05	4.34E+05	4.34E+05	4.34E+05	4.34E+05	4.88E+05
CE144	2.21E+06	2.21E+06	2.21E+06	2.21E+06	2.21E+06	2.21E+06	2.21E+06	2.55E+06
I 131	2.73E+05	2.73E+05	2.73E+05	2.73E+05	2.73E+05	2.73E+05	2.73E+05	3.33E+05
I 133	3.90E+04	3.90E+04	3.90E+04	3.90E+04	3.90E+04	3.90E+04	3.90E+04	4.72E+04

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = ADULT
PATHWAY = COW-MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	1.39E+01	1.39E+01	0.00E-01	1.39E+01	1.39E+01	1.39E+01	1.39E+01	1.39E+01
C 14	2.33E+03	2.33E+03	1.16E+04	2.33E+03	2.33E+03	2.33E+03	2.33E+03	2.33E+03
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	8.08E+02	2.03E+05	0.00E-01	0.00E-01	1.78E+02	4.85E+02	1.07E+03	0.00E-01
MN 54	4.06E+04	6.53E+05	0.00E-01	2.13E+05	6.34E+04	0.00E-01	0.00E-01	0.00E-01
FE 59	7.29E+05	6.34E+06	8.08E+05	1.90E+06	0.00E-01	0.00E-01	5.29E+05	0.00E-01
CO 58	2.79E+05	2.52E+06	0.00E-01	1.24E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	9.10E+05	7.73E+06	0.00E-01	4.12E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	5.61E+07	7.83E+07	3.90E+07	1.25E+08	8.33E+07	0.00E-01	0.00E-01	0.00E-01
SR 89	1.21E+06	6.75E+06	4.21E+07	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	1.40E+08	1.76E+08	6.97E+09	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	5.42E+00	2.54E+04	2.50E+01	8.02E+00	1.26E+01	0.00E-01	0.00E-01	0.00E-01
SB124	2.72E+05	1.95E+07	6.85E+05	1.30E+04	0.00E-01	1.66E+03	5.32E+05	0.00E-01
CS134	2.77E+08	5.93E+06	1.43E+08	3.39E+08	1.10E+08	0.00E-01	3.64E+07	0.00E-01
CS136	2.26E+07	3.55E+06	7.95E+06	3.14E+07	1.75E+07	0.00E-01	2.39E+06	0.00E-01
CS137	1.76E+08	5.20E+06	1.97E+08	2.69E+08	9.13E+07	0.00E-01	3.04E+07	0.00E-01
BA140	5.32E+04	1.68E+06	8.14E+05	1.02E+03	3.49E+02	0.00E-01	5.86E+02	0.00E-01
CE141	1.04E+01	3.49E+05	1.35E+02	9.16E+01	4.25E+01	0.00E-01	0.00E-01	0.00E-01
CE144	4.82E+02	3.03E+06	8.97E+03	3.74E+03	2.22E+03	0.00E-01	0.00E-01	0.00E-01
I 131	3.77E+06	1.74E+06	4.63E+06	6.59E+06	1.13E+07	2.16E+09	0.00E-01	0.00E-01
I 133	3.26E+04	9.60E+04	6.15E+04	1.07E+05	1.87E+05	1.57E+07	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = ADULT
PATHWAY = GOAT-MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	2.84E+01	2.84E+01	0.00E-01	2.84E+01	2.84E+01	2.84E+01	2.84E+01	2.84E+01
C 14	2.33E+03	2.33E+03	1.16E+04	2.33E+03	2.33E+03	2.33E+03	2.33E+03	2.33E+03
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	9.70E+01	2.44E+04	0.00E-01	0.00E-01	2.14E+01	5.80E+01	1.29E+02	0.00E-01
MN 54	4.88E+03	7.83E+04	0.00E-01	2.55E+04	7.61E+03	0.00E-01	0.00E-01	0.00E-01
FE 59	9.44E+04	8.21E+05	1.05E+05	2.47E+05	0.00E-01	0.00E-01	6.91E+04	0.00E-01
CO 58	3.36E+04	3.02E+05	0.00E-01	1.49E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	1.09E+05	9.29E+05	0.00E-01	4.91E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	6.75E+06	9.41E+06	4.69E+06	1.49E+07	9.98E+06	0.00E-01	0.00E-01	0.00E-01
SR 89	2.54E+06	1.42E+07	8.84E+07	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	2.94E+08	3.68E+08	1.46E+10	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	6.53E-01	3.05E+03	3.00E+00	9.63E-01	1.51E+00	0.00E-01	0.00E-01	0.00E-01
SB124	3.26E+04	2.34E+06	8.24E+04	1.56E+03	0.00E-01	2.00E+02	6.40E+04	0.00E-01
CS134	8.30E+08	1.78E+07	4.28E+08	1.02E+09	3.30E+08	0.00E-01	1.09E+08	0.00E-01
CS136	6.78E+07	1.07E+07	2.38E+07	9.41E+07	5.23E+07	0.00E-01	7.16E+06	0.00E-01
CS137	5.29E+08	1.56E+07	5.89E+08	8.08E+08	2.74E+08	0.00E-01	9.10E+07	0.00E-01
BA140	6.40E+03	2.01E+05	9.76E+04	1.23E+02	4.18E+01	0.00E-01	7.04E+01	0.00E-01
CE141	1.25E+00	4.18E+04	1.62E+01	1.10E+01	5.10E+00	0.00E-01	0.00E-01	0.00E-01
CE144	5.77E+01	3.64E+05	1.07E+03	4.50E+02	2.67E+02	0.00E-01	0.00E-01	0.00E-01
I 131	4.53E+06	2.09E+06	5.55E+06	7.92E+06	1.36E+07	2.60E+09	0.00E-01	0.00E-01
I 133	3.90E+04	1.15E+05	7.38E+04	1.28E+05	2.24E+05	1.89E+07	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = ADULT
PATHWAY = ANIMAL-MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m²)/Ci				
H 3	5.93E+00	5.93E+00	0.00E-01	5.93E+00	5.93E+00	5.93E+00	5.93E+00	5.93E+00
C 14	2.13E+03	2.13E+03	1.06E+04	2.13E+03	2.13E+03	2.13E+03	2.13E+03	2.13E+03
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.99E+02	5.01E+04	0.00E-01	0.00E-01	4.40E+01	1.19E+02	2.65E+02	0.00E-01
MN 54	4.44E+04	7.10E+05	0.00E-01	2.32E+05	6.91E+04	0.00E-01	0.00E-01	0.00E-01
FE 59	6.50E+06	5.64E+07	7.23E+06	1.70E+07	0.00E-01	0.00E-01	4.75E+06	0.00E-01
CO 58	1.08E+06	9.76E+06	0.00E-01	4.82E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	4.15E+06	3.55E+07	0.00E-01	1.89E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.46E+07	2.03E+07	1.01E+07	3.23E+07	2.16E+07	0.00E-01	0.00E-01	0.00E-01
SR 89	2.51E+05	1.40E+06	8.75E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	3.74E+07	4.66E+07	1.85E+09	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	1.08E+04	5.04E+07	4.98E+04	1.59E+04	2.50E+04	0.00E-01	0.00E-01	0.00E-01
SB124	2.09E+05	1.50E+07	5.26E+05	9.98E+03	0.00E-01	1.28E+03	4.12E+05	0.00E-01
CS134	3.23E+07	6.91E+05	1.66E+07	3.93E+07	1.28E+07	0.00E-01	4.25E+06	0.00E-01
CS136	1.03E+06	1.63E+05	3.61E+05	1.43E+06	7.95E+05	0.00E-01	1.09E+05	0.00E-01
CS137	2.08E+07	6.15E+05	2.33E+07	3.17E+07	1.08E+07	0.00E-01	3.58E+06	0.00E-01
BA140	5.70E+04	1.79E+06	8.71E+05	1.09E+03	3.71E+02	0.00E-01	6.27E+02	0.00E-01
CE141	3.01E+01	1.01E+06	3.93E+02	2.65E+02	1.23E+02	0.00E-01	0.00E-01	0.00E-01
CE144	1.96E+03	1.24E+07	3.64E+04	1.53E+04	9.06E+03	0.00E-01	0.00E-01	0.00E-01
I 131	1.37E+05	6.31E+04	1.67E+05	2.39E+05	4.09E+05	7.83E+07	0.00E-01	0.00E-01
I 133	3.11E-03	9.16E-03	5.86E-03	1.02E-02	1.78E-02	1.50E+00	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = ADULT
PATHWAY = VEGETABLES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	4.12E+01	4.12E+01	0.00E-01	4.12E+01	4.12E+01	4.12E+01	4.12E+01	4.12E+01
C 14	5.74E+03	5.74E+03	2.87E+04	5.74E+03	5.74E+03	5.74E+03	5.74E+03	5.74E+03
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.45E+03	3.64E+05	0.00E-01	0.00E-01	3.20E+02	8.68E+02	1.93E+03	0.00E-01
MN 54	1.86E+06	2.99E+07	0.00E-01	9.76E+06	2.90E+06	0.00E-01	0.00E-01	0.00E-01
FE 59	3.52E+06	3.07E+07	3.93E+06	9.19E+06	0.00E-01	0.00E-01	2.57E+06	0.00E-01
CO 58	2.13E+06	1.93E+07	0.00E-01	9.51E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	1.16E+07	9.92E+07	0.00E-01	5.29E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.83E+07	2.55E+07	1.27E+07	4.06E+07	2.70E+07	0.00E-01	0.00E-01	0.00E-01
SR 89	9.19E+06	5.13E+07	3.20E+08	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	1.26E+09	1.57E+09	6.27E+10	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	7.89E+03	3.68E+07	3.64E+04	1.16E+04	1.83E+04	0.00E-01	0.00E-01	0.00E-01
SB124	1.27E+06	9.13E+07	3.20E+06	6.08E+04	0.00E-01	7.80E+03	2.50E+06	0.00E-01
CS134	2.87E+08	6.15E+06	1.47E+08	3.52E+08	1.13E+08	0.00E-01	3.77E+07	0.00E-01
CS136	3.83E+06	6.02E+05	1.35E+06	5.32E+06	2.96E+06	0.00E-01	4.06E+05	0.00E-01
CS137	2.06E+08	6.08E+06	2.30E+08	3.14E+08	1.07E+08	0.00E-01	3.55E+07	0.00E-01
BA140	2.67E+05	8.37E+06	4.06E+06	5.10E+03	1.74E+03	0.00E-01	2.92E+03	0.00E-01
CE141	4.72E+02	1.59E+07	6.15E+03	4.15E+03	1.93E+03	0.00E-01	0.00E-01	0.00E-01
CE144	5.36E+04	3.39E+08	9.98E+05	4.18E+05	2.48E+05	0.00E-01	0.00E-01	0.00E-01
I 131	1.05E+06	4.82E+05	1.28E+06	1.83E+06	3.14E+06	5.99E+08	0.00E-01	0.00E-01
I 133	1.75E+04	5.17E+04	3.30E+04	5.74E+04	1.00E+05	8.43E+06	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = ADULT
PATHWAY = PLUME

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m³)/(Ci sec)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AR 41	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	3.14E+02
KR 83m	1.68E-03	1.68E-03	1.68E-03	1.68E-03	1.68E-03	1.68E-03	9.38E-02	4.75E-01
KR 85m	2.60E+01	2.60E+01	2.60E+01	2.60E+01	2.60E+01	2.60E+01	2.66E+01	7.67E+01
KR 85	3.58E-01	3.58E-01	3.58E-01	3.58E-01	3.58E-01	3.58E-01	9.51E-01	4.28E+01
KR 87	1.32E+02	1.32E+02	1.32E+02	1.32E+02	1.32E+02	1.32E+02	1.35E+02	4.60E+02
KR 88	3.26E+02	3.26E+02	3.26E+02	3.26E+02	3.26E+02	3.26E+02	3.26E+02	4.50E+02
KR 89	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.71E+02	7.48E+02
KR 90	3.46E+02	3.46E+02	3.46E+02	3.46E+02	3.46E+02	3.46E+02	3.49E+02	6.33E+02
XE131m	2.03E+00	2.03E+00	2.03E+00	2.03E+00	2.03E+00	2.03E+00	2.38E+00	1.89E+01
XE133m	5.58E+00	5.58E+00	5.58E+00	5.58E+00	5.58E+00	5.58E+00	6.02E+00	3.96E+01
XE133	6.53E+00	6.53E+00	6.53E+00	6.53E+00	6.53E+00	6.53E+00	6.85E+00	1.84E+01
XE135m	6.91E+01	6.91E+01	6.91E+01	6.91E+01	6.91E+01	6.91E+01	6.94E+01	1.05E+02
XE135	4.02E+01	4.02E+01	4.02E+01	4.02E+01	4.02E+01	4.02E+01	4.09E+01	1.06E+02
XE137	3.15E+01	3.15E+01	3.15E+01	3.15E+01	3.15E+01	3.15E+01	3.55E+01	4.25E+02
XE138	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.97E+02	3.58E+02
CR 51	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 54	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 58	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SB124	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS136	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = TEENAGER
PATHWAY = INHALATION

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m³)/(Ci sec)				
H 3	2.30E+01	2.30E+01	0.00E-01	2.30E+01	2.30E+01	2.30E+01	2.30E+01	2.30E+01
C 14	1.54E+02	1.54E+02	8.24E+02	1.54E+02	1.54E+02	1.54E+02	1.54E+02	0.00E-01
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	4.28E+00	9.51E+01	0.00E-01	0.00E-01	9.73E-01	2.38E+00	6.65E+02	0.00E-01
MN 54	2.66E+02	2.12E+03	0.00E-01	1.62E+03	4.02E+02	0.00E-01	6.27E+04	0.00E-01
FE 59	4.53E+02	5.64E+03	5.04E+02	1.17E+03	0.00E-01	0.00E-01	4.85E+04	0.00E-01
CO 58	8.81E+01	3.02E+03	0.00E-01	6.56E+01	0.00E-01	0.00E-01	4.25E+04	0.00E-01
CO 60	6.27E+02	8.21E+03	0.00E-01	4.79E+02	0.00E-01	0.00E-01	2.76E+05	0.00E-01
ZN 65	1.98E+03	1.48E+03	1.22E+03	4.25E+03	2.74E+03	0.00E-01	3.93E+04	0.00E-01
SR 89	3.96E+02	1.18E+04	1.38E+04	0.00E-01	0.00E-01	0.00E-01	7.67E+04	0.00E-01
SR 90	2.11E+04	2.42E+04	1.05E+06	0.00E-01	0.00E-01	0.00E-01	5.23E+05	0.00E-01
ZR 95	9.98E+02	4.72E+03	4.63E+03	1.45E+03	2.14E+03	0.00E-01	8.52E+04	0.00E-01
SB124	5.32E+02	1.26E+04	1.37E+03	2.52E+01	0.00E-01	3.09E+00	1.22E+05	0.00E-01
CS134	1.74E+04	3.09E+02	1.59E+04	3.58E+04	1.19E+04	0.00E-01	4.63E+03	0.00E-01
CS136	4.34E+03	3.45E+02	1.63E+03	6.15E+03	3.49E+03	0.00E-01	5.64E+02	0.00E-01
CS137	9.86E+03	2.69E+02	2.13E+04	2.69E+04	9.63E+03	0.00E-01	3.83E+03	0.00E-01
BA140	1.12E+02	7.26E+03	1.73E+03	2.13E+00	7.23E-01	0.00E-01	6.43E+04	0.00E-01
CE141	6.88E+01	3.99E+03	9.00E+02	6.02E+02	2.81E+02	0.00E-01	1.95E+04	0.00E-01
CE144	8.33E+03	2.74E+04	1.55E+05	6.40E+04	3.83E+04	0.00E-01	4.25E+05	0.00E-01
I 131	8.37E+02	2.06E+02	1.12E+03	1.56E+03	2.66E+03	4.63E+05	0.00E-01	0.00E-01
I 133	1.97E+02	3.26E+02	3.87E+02	6.50E+02	1.14E+03	9.25E+04	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = TEENAGER
PATHWAY = GROUND PLANE

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.47E+05	1.47E+05	1.47E+05	1.47E+05	1.47E+05	1.47E+05	1.47E+05	1.74E+05
MN 54	4.37E+07	4.37E+07	4.37E+07	4.37E+07	4.37E+07	4.37E+07	4.37E+07	5.13E+07
FE 59	8.65E+06	8.65E+06	8.65E+06	8.65E+06	8.65E+06	8.65E+06	8.65E+06	1.01E+07
CO 58	1.20E+07	1.20E+07	1.20E+07	1.20E+07	1.20E+07	1.20E+07	1.20E+07	1.41E+07
CO 60	6.81E+08	6.81E+08	6.81E+08	6.81E+08	6.81E+08	6.81E+08	6.81E+08	8.02E+08
ZN 65	2.36E+07	2.36E+07	2.36E+07	2.36E+07	2.36E+07	2.36E+07	2.36E+07	2.72E+07
SR 89	6.85E+02	6.85E+02	6.85E+02	6.85E+02	6.85E+02	6.85E+02	6.85E+02	7.95E+02
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	7.76E+06	7.76E+06	7.76E+06	7.76E+06	7.76E+06	7.76E+06	7.76E+06	9.03E+06
SB124	1.90E+07	1.90E+07	1.90E+07	1.90E+07	1.90E+07	1.90E+07	1.90E+07	2.19E+07
CS134	2.17E+08	2.17E+08	2.17E+08	2.17E+08	2.17E+08	2.17E+08	2.17E+08	2.53E+08
CS136	4.75E+06	4.75E+06	4.75E+06	4.75E+06	4.75E+06	4.75E+06	4.75E+06	5.39E+06
CS137	3.26E+08	3.26E+08	3.26E+08	3.26E+08	3.26E+08	3.26E+08	3.26E+08	3.80E+08
BA140	6.50E+05	6.50E+05	6.50E+05	6.50E+05	6.50E+05	6.50E+05	6.50E+05	7.45E+05
CE141	4.34E+05	4.34E+05	4.34E+05	4.34E+05	4.34E+05	4.34E+05	4.34E+05	4.88E+05
CE144	2.21E+06	2.21E+06	2.21E+06	2.21E+06	2.21E+06	2.21E+06	2.21E+06	2.55E+06
I 131	2.73E+05	2.73E+05	2.73E+05	2.73E+05	2.73E+05	2.73E+05	2.73E+05	3.33E+05
I 133	3.90E+04	3.90E+04	3.90E+04	3.90E+04	3.90E+04	3.90E+04	3.90E+04	4.72E+04

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = TEENAGER
PATHWAY = COW-MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	1.81E+01	1.81E+01	0.00E-01	1.81E+01	1.81E+01	1.81E+01	1.81E+01	1.81E+01
C 14	4.28E+03	4.28E+03	2.15E+04	4.28E+03	4.28E+03	4.28E+03	4.28E+03	4.28E+03
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.41E+03	2.37E+05	0.00E-01	0.00E-01	3.10E+02	7.86E+02	2.02E+03	0.00E-01
MN 54	7.04E+04	7.26E+05	0.00E-01	3.55E+05	1.06E+05	0.00E-01	0.00E-01	0.00E-01
FE 59	1.27E+06	7.76E+06	1.41E+06	3.30E+06	0.00E-01	0.00E-01	1.04E+06	0.00E-01
CO 58	4.82E+05	2.89E+06	0.00E-01	2.09E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	1.57E+06	9.10E+06	0.00E-01	6.97E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	9.73E+07	8.84E+07	6.02E+07	2.09E+08	1.33E+08	0.00E-01	0.00E-01	0.00E-01
SR 89	2.22E+06	9.25E+06	7.76E+07	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	2.11E+08	2.41E+08	1.06E+10	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	9.51E+00	3.20E+04	4.37E+01	1.38E+01	2.03E+01	0.00E-01	0.00E-01	0.00E-01
SB124	4.79E+05	2.47E+07	1.22E+06	2.25E+04	0.00E-01	2.78E+03	1.07E+06	0.00E-01
CS134	2.70E+08	7.26E+06	2.47E+08	5.83E+08	1.85E+08	0.00E-01	7.07E+07	0.00E-01
CS136	3.58E+07	4.28E+06	1.35E+07	5.32E+07	2.90E+07	0.00E-01	4.56E+06	0.00E-01
CS137	1.65E+08	6.75E+06	3.58E+08	4.75E+08	1.62E+08	0.00E-01	6.27E+07	0.00E-01
BA140	9.48E+04	2.27E+06	1.47E+06	1.80E+03	6.12E+02	0.00E-01	1.21E+03	0.00E-01
CE141	1.90E+01	4.72E+05	2.48E+02	1.65E+02	7.80E+01	0.00E-01	0.00E-01	0.00E-01
CE144	8.87E+02	4.15E+06	1.65E+04	6.81E+03	4.09E+03	0.00E-01	0.00E-01	0.00E-01
I 131	6.31E+06	2.32E+06	8.37E+06	1.17E+07	2.02E+07	3.42E+09	0.00E-01	0.00E-01
I 133	5.80E+04	1.44E+05	1.12E+05	1.90E+05	3.33E+05	2.66E+07	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = TEENAGER
PATHWAY = GOAT-MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	3.71E+01	3.71E+01	0.00E-01	3.71E+01	3.71E+01	3.71E+01	3.71E+01	3.71E+01
C 14	4.28E+03	4.28E+03	2.15E+04	4.28E+03	4.28E+03	4.28E+03	4.28E+03	4.28E+03
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.70E+02	2.85E+04	0.00E-01	0.00E-01	3.71E+01	9.41E+01	2.42E+02	0.00E-01
MN 54	8.43E+03	8.71E+04	0.00E-01	4.25E+04	1.27E+04	0.00E-01	0.00E-01	0.00E-01
FE 59	1.65E+05	1.01E+06	1.83E+05	4.28E+05	0.00E-01	0.00E-01	1.35E+05	0.00E-01
CO 58	5.80E+04	3.45E+05	0.00E-01	2.51E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	1.89E+05	1.09E+06	0.00E-01	8.37E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.17E+07	1.06E+07	7.19E+06	2.50E+07	1.60E+07	0.00E-01	0.00E-01	0.00E-01
SR 89	4.66E+06	1.94E+07	1.63E+08	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	4.44E+08	5.07E+08	2.22E+10	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	1.14E+00	3.83E+03	5.26E+00	1.66E+00	2.43E+00	0.00E-01	0.00E-01	0.00E-01
SB124	5.74E+04	2.96E+06	1.47E+05	2.70E+03	0.00E-01	3.33E+02	1.28E+05	0.00E-01
CS134	8.11E+08	2.17E+07	7.42E+08	1.75E+09	5.55E+08	0.00E-01	2.12E+08	0.00E-01
CS136	1.07E+08	1.28E+07	4.06E+07	1.60E+08	8.68E+07	0.00E-01	1.37E+07	0.00E-01
CS137	4.94E+08	2.02E+07	1.07E+09	1.42E+09	4.85E+08	0.00E-01	1.89E+08	0.00E-01
BA140	1.14E+04	2.72E+05	1.77E+05	2.16E+02	7.32E+01	0.00E-01	1.45E+02	0.00E-01
CE141	2.28E+00	5.67E+04	2.98E+01	1.99E+01	9.35E+00	0.00E-01	0.00E-01	0.00E-01
CE144	1.06E+02	4.98E+05	1.98E+03	8.18E+02	4.88E+02	0.00E-01	0.00E-01	0.00E-01
I 131	7.54E+06	2.78E+06	1.00E+07	1.41E+07	2.42E+07	4.09E+09	0.00E-01	0.00E-01
I 133	6.97E+04	1.73E+05	1.35E+05	2.28E+05	3.99E+05	3.20E+07	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = TEENAGER
PATHWAY = ANIMAL-MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	3.55E+00	3.55E+00	0.00E-01	3.55E+00	3.55E+00	3.55E+00	3.55E+00	3.55E+00
C 14	1.80E+03	1.80E+03	9.00E+03	1.80E+03	1.80E+03	1.80E+03	1.80E+03	1.80E+03
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.59E+02	2.68E+04	0.00E-01	0.00E-01	3.49E+01	8.84E+01	2.28E+02	0.00E-01
MN 54	3.52E+04	3.64E+05	0.00E-01	1.77E+05	5.29E+04	0.00E-01	0.00E-01	0.00E-01
FE 59	5.20E+06	3.17E+07	5.77E+06	1.35E+07	0.00E-01	0.00E-01	4.25E+06	0.00E-01
CO 58	8.56E+05	5.10E+06	0.00E-01	3.71E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	3.30E+06	1.91E+07	0.00E-01	1.46E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.16E+07	1.05E+07	7.13E+06	2.47E+07	1.58E+07	0.00E-01	0.00E-01	0.00E-01
SR 89	2.12E+05	8.81E+05	7.38E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	2.57E+07	2.93E+07	1.28E+09	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	8.62E+03	2.90E+07	3.99E+04	1.25E+04	1.84E+04	0.00E-01	0.00E-01	0.00E-01
SB124	1.68E+05	8.68E+06	4.31E+05	7.95E+03	0.00E-01	9.76E+02	3.77E+05	0.00E-01
CS134	1.44E+07	3.87E+05	1.32E+07	3.10E+07	9.86E+06	0.00E-01	3.77E+06	0.00E-01
CS136	7.48E+05	8.94E+04	2.83E+05	1.11E+06	6.05E+05	0.00E-01	9.54E+04	0.00E-01
CS137	8.94E+06	3.64E+05	1.93E+07	2.57E+07	8.75E+06	0.00E-01	3.39E+06	0.00E-01
BA140	4.63E+04	1.11E+06	7.19E+05	8.81E+02	2.99E+02	0.00E-01	5.93E+02	0.00E-01
CE141	2.52E+01	6.27E+05	3.30E+02	2.20E+02	1.03E+02	0.00E-01	0.00E-01	0.00E-01
CE144	1.65E+03	7.73E+06	3.08E+04	1.27E+04	7.61E+03	0.00E-01	0.00E-01	0.00E-01
I 131	1.05E+05	3.83E+04	1.39E+05	1.95E+05	3.36E+05	5.67E+07	0.00E-01	0.00E-01
I 133	2.54E-03	6.31E-03	4.91E-03	8.30E-03	1.46E-02	1.16E+00	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = TEENAGER
PATHWAY = VEGETABLES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	4.72E+01	4.72E+01	0.00E-01	4.72E+01	4.72E+01	4.72E+01	4.72E+01	4.72E+01
C 14	9.32E+03	9.32E+03	4.66E+04	9.32E+03	9.32E+03	9.32E+03	9.32E+03	9.32E+03
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.93E+03	3.23E+05	0.00E-01	0.00E-01	4.21E+02	1.07E+03	2.75E+03	0.00E-01
MN 54	2.81E+06	2.91E+07	0.00E-01	1.42E+07	4.21E+06	0.00E-01	0.00E-01	0.00E-01
FE 59	5.01E+06	3.07E+07	5.58E+06	1.30E+07	0.00E-01	0.00E-01	4.09E+06	0.00E-01
CO 58	3.11E+06	1.86E+07	0.00E-01	1.35E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	1.77E+07	1.02E+08	0.00E-01	7.86E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	2.75E+07	2.50E+07	1.70E+07	5.89E+07	3.77E+07	0.00E-01	0.00E-01	0.00E-01
SR 89	1.39E+07	5.80E+07	4.88E+08	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	1.66E+09	1.90E+09	8.33E+10	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	1.15E+04	3.87E+07	5.32E+04	1.68E+04	2.47E+04	0.00E-01	0.00E-01	0.00E-01
SB124	1.87E+06	9.63E+07	4.79E+06	8.81E+04	0.00E-01	1.09E+04	4.18E+06	0.00E-01
CS134	2.45E+08	6.56E+06	2.24E+08	5.29E+08	1.68E+08	0.00E-01	6.40E+07	0.00E-01
CS136	3.64E+06	4.37E+05	1.38E+06	5.42E+06	2.95E+06	0.00E-01	4.66E+05	0.00E-01
CS137	1.70E+08	6.94E+06	3.68E+08	4.88E+08	1.66E+08	0.00E-01	6.43E+07	0.00E-01
BA140	2.82E+05	6.75E+06	4.37E+06	5.36E+03	1.82E+03	0.00E-01	3.61E+03	0.00E-01
CE141	6.78E+02	1.69E+07	8.84E+03	5.89E+03	2.78E+03	0.00E-01	0.00E-01	0.00E-01
CE144	8.62E+04	4.02E+08	1.60E+06	6.62E+05	3.96E+05	0.00E-01	0.00E-01	0.00E-01
I 131	9.16E+05	3.36E+05	1.22E+06	1.70E+06	2.93E+06	4.98E+08	0.00E-01	0.00E-01
I 133	1.58E+04	3.93E+04	3.06E+04	5.20E+04	9.13E+04	7.26E+06	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = TEENAGER
PATHWAY = PLUME

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m³)/(Ci sec)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AR 41	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	3.14E+02
KR 83m	1.68E-03	1.68E-03	1.68E-03	1.68E-03	1.68E-03	1.68E-03	9.38E-02	4.75E-01
KR 85m	2.60E+01	2.60E+01	2.60E+01	2.60E+01	2.60E+01	2.60E+01	2.66E+01	7.67E+01
KR 85	3.58E-01	3.58E-01	3.58E-01	3.58E-01	3.58E-01	3.58E-01	9.51E-01	4.28E+01
KR 87	1.32E+02	1.32E+02	1.32E+02	1.32E+02	1.32E+02	1.32E+02	1.35E+02	4.60E+02
KR 88	3.26E+02	3.26E+02	3.26E+02	3.26E+02	3.26E+02	3.26E+02	3.26E+02	4.50E+02
KR 89	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.71E+02	7.48E+02
KR 90	3.46E+02	3.46E+02	3.46E+02	3.46E+02	3.46E+02	3.46E+02	3.49E+02	6.33E+02
XE131m	2.03E+00	2.03E+00	2.03E+00	2.03E+00	2.03E+00	2.03E+00	2.38E+00	1.89E+01
XE133m	5.58E+00	5.58E+00	5.58E+00	5.58E+00	5.58E+00	5.58E+00	6.02E+00	3.96E+01
XE133	6.53E+00	6.53E+00	6.53E+00	6.53E+00	6.53E+00	6.53E+00	6.85E+00	1.84E+01
XE135m	6.91E+01	6.91E+01	6.91E+01	6.91E+01	6.91E+01	6.91E+01	6.94E+01	1.05E+02
XE135	4.02E+01	4.02E+01	4.02E+01	4.02E+01	4.02E+01	4.02E+01	4.09E+01	1.06E+02
XE137	3.15E+01	3.15E+01	3.15E+01	3.15E+01	3.15E+01	3.15E+01	3.55E+01	4.25E+02
XE138	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.97E+02	3.58E+02
CR 51	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 54	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 58	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SB124	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS136	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = CHILD
PATHWAY = INHALATION

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^3)/(Ci sec)				
H 3	2.03E+01	2.03E+01	0.00E-01	2.03E+01	2.03E+01	2.03E+01	2.03E+01	2.03E+01
C 14	2.13E+02	2.13E+02	1.14E+03	2.13E+02	2.13E+02	2.13E+02	2.13E+02	0.00E-01
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	4.88E+00	3.42E+01	0.00E-01	0.00E-01	7.70E-01	2.71E+00	5.39E+02	0.00E-01
MN 54	3.01E+02	7.26E+02	0.00E-01	1.36E+03	3.17E+02	0.00E-01	5.01E+04	0.00E-01
FE 59	5.29E+02	2.24E+03	6.56E+02	1.06E+03	0.00E-01	0.00E-01	4.02E+04	0.00E-01
CO 58	1.00E+02	1.09E+03	0.00E-01	5.61E+01	0.00E-01	0.00E-01	3.52E+04	0.00E-01
CO 60	7.19E+02	3.05E+03	0.00E-01	4.15E+02	0.00E-01	0.00E-01	2.24E+05	0.00E-01
ZN 65	2.23E+03	5.17E+02	1.35E+03	3.58E+03	2.26E+03	0.00E-01	3.16E+04	0.00E-01
SR 89	5.45E+02	5.29E+03	1.90E+04	0.00E-01	0.00E-01	0.00E-01	6.85E+04	0.00E-01
SR 90	2.43E+04	1.09E+04	1.22E+06	0.00E-01	0.00E-01	0.00E-01	4.69E+05	0.00E-01
ZR 95	1.17E+03	1.94E+03	6.02E+03	1.32E+03	1.89E+03	0.00E-01	7.07E+04	0.00E-01
SB124	6.34E+02	5.20E+03	1.82E+03	2.35E+01	0.00E-01	3.99E+00	1.03E+05	0.00E-01
CS134	7.13E+03	1.22E+02	2.06E+04	3.20E+04	1.05E+04	0.00E-01	3.83E+03	0.00E-01
CS136	3.68E+03	1.32E+02	2.06E+03	5.42E+03	3.03E+03	0.00E-01	4.60E+02	0.00E-01
CS137	4.06E+03	1.15E+02	2.87E+04	2.61E+04	8.94E+03	0.00E-01	3.30E+03	0.00E-01
BA140	1.37E+02	3.23E+03	2.35E+03	2.05E+00	6.69E-01	0.00E-01	5.51E+04	0.00E-01
CE141	9.19E+01	1.79E+03	1.24E+03	6.18E+02	2.71E+02	0.00E-01	1.72E+04	0.00E-01
CE144	1.15E+04	1.23E+04	2.15E+05	6.72E+04	3.71E+04	0.00E-01	3.80E+05	0.00E-01
I 131	8.65E+02	9.00E+01	1.52E+03	1.52E+03	2.50E+03	5.17E+05	0.00E-01	0.00E-01
I 133	2.44E+02	1.74E+02	5.26E+02	6.43E+02	1.07E+03	1.22E+05	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = CHILD
PATHWAY = GROUND PLANE

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.47E+05	1.47E+05	1.47E+05	1.47E+05	1.47E+05	1.47E+05	1.47E+05	1.74E+05
MN 54	4.37E+07	4.37E+07	4.37E+07	4.37E+07	4.37E+07	4.37E+07	4.37E+07	5.13E+07
FE 59	8.65E+06	8.65E+06	8.65E+06	8.65E+06	8.65E+06	8.65E+06	8.65E+06	1.01E+07
CO 58	1.20E+07	1.20E+07	1.20E+07	1.20E+07	1.20E+07	1.20E+07	1.20E+07	1.41E+07
CO 60	6.81E+08	6.81E+08	6.81E+08	6.81E+08	6.81E+08	6.81E+08	6.81E+08	8.02E+08
ZN 65	2.36E+07	2.36E+07	2.36E+07	2.36E+07	2.36E+07	2.36E+07	2.36E+07	2.72E+07
SR 89	6.85E+02	6.85E+02	6.85E+02	6.85E+02	6.85E+02	6.85E+02	6.85E+02	7.95E+02
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	7.76E+06	7.76E+06	7.76E+06	7.76E+06	7.76E+06	7.76E+06	7.76E+06	9.03E+06
SB124	1.90E+07	1.90E+07	1.90E+07	1.90E+07	1.90E+07	1.90E+07	1.90E+07	2.19E+07
CS134	2.17E+08	2.17E+08	2.17E+08	2.17E+08	2.17E+08	2.17E+08	2.17E+08	2.53E+08
CS136	4.75E+06	4.75E+06	4.75E+06	4.75E+06	4.75E+06	4.75E+06	4.75E+06	5.39E+06
CS137	3.26E+08	3.26E+08	3.26E+08	3.26E+08	3.26E+08	3.26E+08	3.26E+08	3.80E+08
BA140	6.50E+05	6.50E+05	6.50E+05	6.50E+05	6.50E+05	6.50E+05	6.50E+05	7.45E+05
CE141	4.34E+05	4.34E+05	4.34E+05	4.34E+05	4.34E+05	4.34E+05	4.34E+05	4.88E+05
CE144	2.21E+06	2.21E+06	2.21E+06	2.21E+06	2.21E+06	2.21E+06	2.21E+06	2.55E+06
I 131	2.73E+05	2.73E+05	2.73E+05	2.73E+05	2.73E+05	2.73E+05	2.73E+05	3.33E+05
I 133	3.90E+04	3.90E+04	3.90E+04	3.90E+04	3.90E+04	3.90E+04	3.90E+04	4.72E+04

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = CHILD
PATHWAY = COW-MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	2.87E+01	2.87E+01	0.00E-01	2.87E+01	2.87E+01	2.87E+01	2.87E+01	2.87E+01
C 14	1.06E+04	1.06E+04	5.26E+04	1.06E+04	1.06E+04	1.06E+04	1.06E+04	1.06E+04
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	2.88E+03	1.53E+05	0.00E-01	0.00E-01	4.37E+02	1.60E+03	2.92E+03	0.00E-01
MN 54	1.41E+05	4.44E+05	0.00E-01	5.29E+05	1.49E+05	0.00E-01	0.00E-01	0.00E-01
FE 59	2.63E+06	5.51E+06	3.26E+06	5.29E+06	0.00E-01	0.00E-01	1.53E+06	0.00E-01
CO 58	9.79E+05	1.87E+06	0.00E-01	3.20E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	3.20E+06	5.99E+06	0.00E-01	1.08E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.95E+08	5.51E+07	1.18E+08	3.14E+08	1.98E+08	0.00E-01	0.00E-01	0.00E-01
SR 89	5.48E+06	7.45E+06	1.92E+08	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	4.40E+08	1.95E+08	2.18E+10	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	1.99E+01	2.33E+04	1.02E+02	2.23E+01	3.20E+01	0.00E-01	0.00E-01	0.00E-01
SB124	1.01E+06	1.81E+07	2.89E+06	3.74E+04	0.00E-01	6.40E+03	1.61E+06	0.00E-01
CS134	1.97E+08	5.04E+06	5.70E+08	9.38E+08	2.90E+08	0.00E-01	1.04E+08	0.00E-01
CS136	5.42E+07	2.95E+06	3.05E+07	8.40E+07	4.47E+07	0.00E-01	6.65E+06	0.00E-01
CS137	1.21E+08	5.17E+06	8.59E+08	8.24E+08	2.68E+08	0.00E-01	9.63E+07	0.00E-01
BA140	2.07E+05	1.80E+06	3.55E+06	3.11E+03	1.01E+03	0.00E-01	1.85E+03	0.00E-01
CE141	4.53E+01	3.80E+05	6.12E+02	3.05E+02	1.33E+02	0.00E-01	0.00E-01	0.00E-01
CE144	2.17E+03	3.33E+06	4.06E+04	1.27E+04	7.07E+03	0.00E-01	0.00E-01	0.00E-01
I 131	1.16E+07	1.82E+06	2.03E+07	2.04E+07	3.36E+07	6.75E+09	0.00E-01	0.00E-01
I 133	1.28E+05	1.36E+05	2.73E+05	3.36E+05	5.61E+05	6.27E+07	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = CHILD
PATHWAY = GOAT-MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	5.86E+01	5.86E+01	0.00E-01	5.86E+01	5.86E+01	5.86E+01	5.86E+01	5.86E+01
C 14	1.06E+04	1.06E+04	5.26E+04	1.06E+04	1.06E+04	1.06E+04	1.06E+04	1.06E+04
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	3.45E+02	1.83E+04	0.00E-01	0.00E-01	5.23E+01	1.92E+02	3.52E+02	0.00E-01
MN 54	1.70E+04	5.36E+04	0.00E-01	6.37E+04	1.78E+04	0.00E-01	0.00E-01	0.00E-01
FE 59	3.42E+05	7.16E+05	4.25E+05	6.88E+05	0.00E-01	0.00E-01	1.99E+05	0.00E-01
CO 58	1.18E+05	2.24E+05	0.00E-01	3.83E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	3.83E+05	7.19E+05	0.00E-01	1.30E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	2.34E+07	6.62E+06	1.41E+07	3.77E+07	2.37E+07	0.00E-01	0.00E-01	0.00E-01
SR 89	1.15E+07	1.56E+07	4.02E+08	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	9.22E+08	4.09E+08	4.60E+10	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	2.39E+00	2.80E+03	1.22E+01	2.68E+00	3.83E+00	0.00E-01	0.00E-01	0.00E-01
SB124	1.22E+05	2.17E+06	3.49E+05	4.50E+03	0.00E-01	7.67E+02	1.93E+05	0.00E-01
CS134	5.93E+08	1.51E+07	1.71E+09	2.81E+09	8.71E+08	0.00E-01	3.12E+08	0.00E-01
CS136	1.63E+08	8.84E+06	9.16E+07	2.52E+08	1.34E+08	0.00E-01	2.00E+07	0.00E-01
CS137	3.64E+08	1.55E+07	2.58E+09	2.47E+09	8.05E+08	0.00E-01	2.89E+08	0.00E-01
BA140	2.48E+04	2.16E+05	4.25E+05	3.74E+02	1.21E+02	0.00E-01	2.22E+02	0.00E-01
CE141	5.42E+00	4.56E+04	7.32E+01	3.64E+01	1.60E+01	0.00E-01	0.00E-01	0.00E-01
CE144	2.60E+02	3.99E+05	4.88E+03	1.53E+03	8.46E+02	0.00E-01	0.00E-01	0.00E-01
I 131	1.39E+07	2.18E+06	2.44E+07	2.45E+07	4.02E+07	8.11E+09	0.00E-01	0.00E-01
I 133	1.53E+05	1.63E+05	3.26E+05	4.06E+05	6.75E+05	7.51E+07	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = CHILD
PATHWAY = ANIMAL-MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	4.28E+00	4.28E+00	0.00E-01	4.28E+00	4.28E+00	4.28E+00	4.28E+00	4.28E+00
C 14	3.39E+03	3.39E+03	1.69E+04	3.39E+03	3.39E+03	3.39E+03	3.39E+03	3.39E+03
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	2.48E+02	1.32E+04	0.00E-01	0.00E-01	3.77E+01	1.38E+02	2.52E+02	0.00E-01
MN 54	5.39E+04	1.70E+05	0.00E-01	2.02E+05	5.67E+04	0.00E-01	0.00E-01	0.00E-01
FE 59	8.24E+06	1.72E+07	1.02E+07	1.65E+07	0.00E-01	0.00E-01	4.79E+06	0.00E-01
CO 58	1.32E+06	2.53E+06	0.00E-01	4.34E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	5.13E+06	9.63E+06	0.00E-01	1.74E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.77E+07	5.01E+06	1.07E+07	2.85E+07	1.80E+07	0.00E-01	0.00E-01	0.00E-01
SR 89	3.99E+05	5.42E+05	1.40E+07	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	4.09E+07	1.82E+07	2.03E+09	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	1.38E+04	1.62E+07	7.07E+04	1.55E+04	2.22E+04	0.00E-01	0.00E-01	0.00E-01
SB124	2.73E+05	4.88E+06	7.80E+05	1.01E+04	0.00E-01	1.72E+03	4.34E+05	0.00E-01
CS134	8.05E+06	2.06E+05	2.33E+07	3.80E+07	1.18E+07	0.00E-01	4.25E+06	0.00E-01
CS136	8.68E+05	4.72E+04	4.88E+05	1.34E+06	7.13E+05	0.00E-01	1.06E+05	0.00E-01
CS137	5.01E+06	2.13E+05	3.55E+07	3.39E+07	1.11E+07	0.00E-01	3.99E+06	0.00E-01
BA140	7.76E+04	6.72E+05	1.33E+06	1.16E+03	3.80E+02	0.00E-01	6.94E+02	0.00E-01
CE141	4.60E+01	3.87E+05	6.21E+02	3.09E+02	1.36E+02	0.00E-01	0.00E-01	0.00E-01
CE144	3.10E+03	4.75E+06	5.80E+04	1.82E+04	1.01E+04	0.00E-01	0.00E-01	0.00E-01
I 131	1.47E+05	2.31E+04	2.58E+05	2.59E+05	4.25E+05	8.56E+07	0.00E-01	0.00E-01
I 133	4.25E-03	4.53E-03	9.10E-03	1.12E-02	1.88E-02	2.09E+00	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = CHILD
PATHWAY = VEGETABLES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	7.32E+01	7.32E+01	0.00E-01	7.32E+01	7.32E+01	7.32E+01	7.32E+01	7.32E+01
C 14	2.24E+04	2.24E+04	1.12E+05	2.24E+04	2.24E+04	2.24E+04	2.24E+04	2.24E+04
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	3.68E+03	1.94E+05	0.00E-01	0.00E-01	5.55E+02	2.03E+03	3.71E+03	0.00E-01
MN 54	5.51E+06	1.74E+07	0.00E-01	2.07E+07	5.80E+06	0.00E-01	0.00E-01	0.00E-01
FE 59	9.95E+06	2.08E+07	1.23E+07	2.00E+07	0.00E-01	0.00E-01	5.80E+06	0.00E-01
CO 58	6.08E+06	1.16E+07	0.00E-01	1.99E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	3.52E+07	6.62E+07	0.00E-01	1.19E+07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	5.39E+07	1.52E+07	3.26E+07	8.68E+07	5.45E+07	0.00E-01	0.00E-01	0.00E-01
SR 89	3.30E+07	4.47E+07	1.16E+09	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	3.39E+09	1.51E+09	1.69E+11	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	2.33E+04	2.73E+07	1.19E+05	2.62E+04	3.74E+04	0.00E-01	0.00E-01	0.00E-01
SB124	3.83E+06	6.81E+07	1.09E+07	1.42E+05	0.00E-01	2.41E+04	6.05E+06	0.00E-01
CS134	1.75E+08	4.47E+06	5.07E+08	8.30E+08	2.58E+08	0.00E-01	9.25E+07	0.00E-01
CS136	4.63E+06	2.50E+05	2.59E+06	7.13E+06	3.80E+06	0.00E-01	5.67E+05	0.00E-01
CS137	1.22E+08	5.20E+06	8.65E+08	8.27E+08	2.70E+08	0.00E-01	9.70E+07	0.00E-01
BA140	5.10E+05	4.44E+06	8.78E+06	7.67E+03	2.50E+03	0.00E-01	4.56E+03	0.00E-01
CE141	1.52E+03	1.27E+07	2.05E+04	1.02E+04	4.47E+03	0.00E-01	0.00E-01	0.00E-01
CE144	2.06E+05	3.16E+08	3.87E+06	1.21E+06	6.69E+05	0.00E-01	0.00E-01	0.00E-01
I 131	1.29E+06	2.03E+05	2.27E+06	2.28E+06	3.74E+06	7.54E+08	0.00E-01	0.00E-01
I 133	2.61E+04	2.78E+04	5.58E+04	6.91E+04	1.15E+05	1.28E+07	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = CHILD
PATHWAY = PLUME

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^3)/(Ci sec)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AR 41	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	3.14E+02
KR 83m	1.68E-03	1.68E-03	1.68E-03	1.68E-03	1.68E-03	1.68E-03	9.38E-02	4.75E-01
KR 85m	2.60E+01	2.60E+01	2.60E+01	2.60E+01	2.60E+01	2.60E+01	2.66E+01	7.67E+01
KR 85	3.58E-01	3.58E-01	3.58E-01	3.58E-01	3.58E-01	3.58E-01	9.51E-01	4.28E+01
KR 87	1.32E+02	1.32E+02	1.32E+02	1.32E+02	1.32E+02	1.32E+02	1.35E+02	4.60E+02
KR 88	3.26E+02	3.26E+02	3.26E+02	3.26E+02	3.26E+02	3.26E+02	3.26E+02	4.50E+02
KR 89	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.71E+02	7.48E+02
KR 90	3.46E+02	3.46E+02	3.46E+02	3.46E+02	3.46E+02	3.46E+02	3.49E+02	6.33E+02
XE131m	2.03E+00	2.03E+00	2.03E+00	2.03E+00	2.03E+00	2.03E+00	2.38E+00	1.89E+01
XE133m	5.58E+00	5.58E+00	5.58E+00	5.58E+00	5.58E+00	5.58E+00	6.02E+00	3.96E+01
XE133	6.53E+00	6.53E+00	6.53E+00	6.53E+00	6.53E+00	6.53E+00	6.85E+00	1.84E+01
XE135m	6.91E+01	6.91E+01	6.91E+01	6.91E+01	6.91E+01	6.91E+01	6.94E+01	1.05E+02
XE135	4.02E+01	4.02E+01	4.02E+01	4.02E+01	4.02E+01	4.02E+01	4.09E+01	1.06E+02
XE137	3.15E+01	3.15E+01	3.15E+01	3.15E+01	3.15E+01	3.15E+01	3.55E+01	4.25E+02
XE138	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.97E+02	3.58E+02
CR 51	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 54	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 58	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SB124	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS136	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = INFANT
PATHWAY = INHALATION

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
		(mrem m³)/(Ci sec)						
H 3	1.17E+01	1.17E+01	0.00E-01	1.17E+01	1.17E+01	1.17E+01	1.17E+01	1.17E+01
C 14	1.68E+02	1.68E+02	8.39E+02	1.68E+02	1.68E+02	1.68E+02	1.68E+02	0.00E-01
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	2.84E+00	1.13E+01	0.00E-01	0.00E-01	4.18E-01	1.83E+00	4.06E+02	0.00E-01
MN 54	1.58E+02	2.24E+02	0.00E-01	8.05E+02	1.58E+02	0.00E-01	3.17E+04	0.00E-01
FE 59	3.00E+02	7.86E+02	4.31E+02	7.45E+02	0.00E-01	0.00E-01	3.23E+04	0.00E-01
CO 58	5.77E+01	3.52E+02	0.00E-01	3.87E+01	0.00E-01	0.00E-01	2.46E+04	0.00E-01
CO 60	3.74E+02	1.01E+03	0.00E-01	2.54E+02	0.00E-01	0.00E-01	1.43E+05	0.00E-01
ZN 65	9.86E+02	1.63E+03	6.12E+02	1.98E+03	1.03E+03	0.00E-01	2.05E+04	0.00E-01
SR 89	3.61E+02	2.03E+03	1.26E+04	0.00E-01	0.00E-01	0.00E-01	6.43E+04	0.00E-01
SR 90	9.89E+03	4.15E+03	4.91E+05	0.00E-01	0.00E-01	0.00E-01	3.55E+05	0.00E-01
ZR 95	6.43E+02	6.88E+02	3.64E+03	8.84E+02	9.86E+02	0.00E-01	5.55E+04	0.00E-01
SB124	3.80E+02	1.87E+03	1.20E+03	1.76E+01	0.00E-01	3.20E+00	8.40E+04	0.00E-01
CS134	2.36E+03	4.21E+01	1.25E+04	2.23E+04	6.02E+03	0.00E-01	2.53E+03	0.00E-01
CS136	1.68E+03	4.53E+01	1.53E+03	4.28E+03	1.79E+03	0.00E-01	3.74E+02	0.00E-01
CS137	1.44E+03	4.21E+01	1.74E+04	1.94E+04	5.45E+03	0.00E-01	2.26E+03	0.00E-01
BA140	9.19E+01	1.22E+03	1.77E+03	1.77E+00	4.25E-01	0.00E-01	5.07E+04	0.00E-01
CE141	6.31E+01	6.85E+02	8.78E+02	5.29E+02	1.66E+02	0.00E-01	1.64E+04	0.00E-01
CE144	5.58E+03	4.69E+03	1.01E+05	3.83E+04	1.70E+04	0.00E-01	3.12E+05	0.00E-01
I 131	6.21E+02	3.36E+01	1.20E+03	1.41E+03	1.64E+03	4.69E+05	0.00E-01	0.00E-01
I 133	1.77E+02	6.85E+01	4.18E+02	6.08E+02	7.10E+02	1.13E+05	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = INFANT
PATHWAY = GROUND PLANE

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.47E+05	1.47E+05	1.47E+05	1.47E+05	1.47E+05	1.47E+05	1.47E+05	1.74E+05
MN 54	4.37E+07	4.37E+07	4.37E+07	4.37E+07	4.37E+07	4.37E+07	4.37E+07	5.13E+07
FE 59	8.65E+06	8.65E+06	8.65E+06	8.65E+06	8.65E+06	8.65E+06	8.65E+06	1.01E+07
CO 58	1.20E+07	1.20E+07	1.20E+07	1.20E+07	1.20E+07	1.20E+07	1.20E+07	1.41E+07
CO 60	6.81E+08	6.81E+08	6.81E+08	6.81E+08	6.81E+08	6.81E+08	6.81E+08	8.02E+08
ZN 65	2.36E+07	2.36E+07	2.36E+07	2.36E+07	2.36E+07	2.36E+07	2.36E+07	2.72E+07
SR 89	6.85E+02	6.85E+02	6.85E+02	6.85E+02	6.85E+02	6.85E+02	6.85E+02	7.95E+02
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	7.76E+06	7.76E+06	7.76E+06	7.76E+06	7.76E+06	7.76E+06	7.76E+06	9.03E+06
SB124	1.90E+07	1.90E+07	1.90E+07	1.90E+07	1.90E+07	1.90E+07	1.90E+07	2.19E+07
CS134	2.17E+08	2.17E+08	2.17E+08	2.17E+08	2.17E+08	2.17E+08	2.17E+08	2.53E+08
CS136	4.75E+06	4.75E+06	4.75E+06	4.75E+06	4.75E+06	4.75E+06	4.75E+06	5.39E+06
CS137	3.26E+08	3.26E+08	3.26E+08	3.26E+08	3.26E+08	3.26E+08	3.26E+08	3.80E+08
BA140	6.50E+05	6.50E+05	6.50E+05	6.50E+05	6.50E+05	6.50E+05	6.50E+05	7.45E+05
CE141	4.34E+05	4.34E+05	4.34E+05	4.34E+05	4.34E+05	4.34E+05	4.34E+05	4.88E+05
CE144	2.21E+06	2.21E+06	2.21E+06	2.21E+06	2.21E+06	2.21E+06	2.21E+06	2.55E+06
I 131	2.73E+05	2.73E+05	2.73E+05	2.73E+05	2.73E+05	2.73E+05	2.73E+05	3.33E+05
I 133	3.90E+04	3.90E+04	3.90E+04	3.90E+04	3.90E+04	3.90E+04	3.90E+04	4.72E+04

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = INFANT
PATHWAY = COW-MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	4.34E+01	4.34E+01	0.00E-01	4.34E+01	4.34E+01	4.34E+01	4.34E+01	4.34E+01
C 14	2.21E+04	2.21E+04	1.03E+05	2.21E+04	2.21E+04	2.21E+04	2.21E+04	2.21E+04
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	4.56E+03	1.33E+05	0.00E-01	0.00E-01	6.50E+02	2.98E+03	5.80E+03	0.00E-01
MN 54	2.23E+05	3.61E+05	0.00E-01	9.86E+05	2.19E+05	0.00E-01	0.00E-01	0.00E-01
FE 59	4.18E+06	5.10E+06	6.08E+06	1.06E+07	0.00E-01	0.00E-01	3.15E+06	0.00E-01
CO 58	1.60E+06	1.59E+06	0.00E-01	6.40E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	5.23E+06	5.26E+06	0.00E-01	2.21E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	2.50E+08	4.60E+08	1.58E+08	5.42E+08	2.63E+08	0.00E-01	0.00E-01	0.00E-01
SR 89	1.05E+07	7.51E+06	3.64E+08	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	4.88E+08	1.97E+08	2.41E+10	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	3.12E+01	2.19E+04	1.80E+02	4.40E+01	4.75E+01	0.00E-01	0.00E-01	0.00E-01
SB124	1.73E+06	1.72E+07	5.58E+06	8.21E+04	0.00E-01	1.48E+04	3.49E+06	0.00E-01
CS134	1.73E+08	4.66E+06	9.19E+08	1.71E+09	4.40E+08	0.00E-01	1.81E+08	0.00E-01
CS136	6.56E+07	2.66E+06	5.96E+07	1.75E+08	7.00E+07	0.00E-01	1.43E+07	0.00E-01
CS137	1.14E+08	5.01E+06	1.37E+09	1.61E+09	4.31E+08	0.00E-01	1.75E+08	0.00E-01
BA140	3.77E+05	1.79E+06	7.29E+06	7.29E+03	1.73E+03	0.00E-01	4.50E+03	0.00E-01
CE141	8.68E+01	3.80E+05	1.21E+03	7.38E+02	2.28E+02	0.00E-01	0.00E-01	0.00E-01
CE144	3.26E+03	3.33E+06	5.83E+04	2.38E+04	9.63E+03	0.00E-01	0.00E-01	0.00E-01
I 131	2.20E+07	1.78E+06	4.25E+07	5.01E+07	5.83E+07	1.64E+10	0.00E-01	0.00E-01
I 133	2.46E+05	1.42E+05	5.77E+05	8.40E+05	9.86E+05	1.52E+08	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = INFANT
PATHWAY = GOAT-MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	8.87E+01	8.87E+01	0.00E-01	8.87E+01	8.87E+01	8.87E+01	8.87E+01	8.87E+01
C 14	2.21E+04	2.21E+04	1.03E+05	2.21E+04	2.21E+04	2.21E+04	2.21E+04	2.21E+04
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	5.48E+02	1.60E+04	0.00E-01	0.00E-01	7.80E+01	3.58E+02	6.94E+02	0.00E-01
MN 54	2.68E+04	4.34E+04	0.00E-01	1.19E+05	2.62E+04	0.00E-01	0.00E-01	0.00E-01
FE 59	5.45E+05	6.62E+05	7.92E+05	1.38E+06	0.00E-01	0.00E-01	4.09E+05	0.00E-01
CO 58	1.91E+05	1.91E+05	0.00E-01	7.67E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	6.27E+05	6.31E+05	0.00E-01	2.66E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	3.00E+07	5.51E+07	1.90E+07	6.53E+07	3.16E+07	0.00E-01	0.00E-01	0.00E-01
SR 89	2.20E+07	1.50E+07	7.67E+08	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	1.03E+09	4.15E+08	5.07E+10	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	3.74E+00	2.63E+03	2.16E+01	5.29E+00	5.67E+00	0.00E-01	0.00E-01	0.00E-01
SB124	2.08E+05	2.07E+06	6.69E+05	9.86E+03	0.00E-01	1.78E+03	4.18E+05	0.00E-01
CS134	5.20E+08	1.40E+07	2.76E+09	5.13E+09	1.32E+09	0.00E-01	5.42E+08	0.00E-01
CS136	1.96E+08	7.99E+06	1.79E+08	5.26E+08	2.10E+08	0.00E-01	4.28E+07	0.00E-01
CS137	3.42E+08	1.51E+07	4.12E+09	4.82E+09	1.29E+09	0.00E-01	5.23E+08	0.00E-01
BA140	4.50E+04	2.15E+05	8.78E+05	8.78E+02	2.08E+02	0.00E-01	5.39E+02	0.00E-01
CE141	1.04E+01	4.56E+04	1.45E+02	8.87E+01	2.73E+01	0.00E-01	0.00E-01	0.00E-01
CE144	3.93E+02	4.02E+05	7.00E+03	2.86E+03	1.16E+03	0.00E-01	0.00E-01	0.00E-01
I 131	2.63E+07	2.14E+06	5.07E+07	5.99E+07	7.00E+07	1.97E+10	0.00E-01	0.00E-01
I 133	2.95E+05	1.70E+05	6.91E+05	1.01E+06	1.18E+06	1.83E+08	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = INFANT
PATHWAY = ANIMAL-MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 54	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 58	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SB124	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS136	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = INFANT
PATHWAY = VEGETABLES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^2)/Ci				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AR 41	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 83m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 87	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE131m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135m	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 54	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 58	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SB124	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS136	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT AIR

Computed by GASPAR II

AGE = INFANT
PATHWAY = PLUME

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem m^3)/(Ci sec)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AR 41	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	3.14E+02
KR 83m	1.68E-03	1.68E-03	1.68E-03	1.68E-03	1.68E-03	1.68E-03	9.38E-02	4.75E-01
KR 85m	2.60E+01	2.60E+01	2.60E+01	2.60E+01	2.60E+01	2.60E+01	2.66E+01	7.67E+01
KR 85	3.58E-01	3.58E-01	3.58E-01	3.58E-01	3.58E-01	3.58E-01	9.51E-01	4.28E+01
KR 87	1.32E+02	1.32E+02	1.32E+02	1.32E+02	1.32E+02	1.32E+02	1.35E+02	4.60E+02
KR 88	3.26E+02	3.26E+02	3.26E+02	3.26E+02	3.26E+02	3.26E+02	3.26E+02	4.50E+02
KR 89	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.71E+02	7.48E+02
KR 90	3.46E+02	3.46E+02	3.46E+02	3.46E+02	3.46E+02	3.46E+02	3.49E+02	6.33E+02
XE131m	2.03E+00	2.03E+00	2.03E+00	2.03E+00	2.03E+00	2.03E+00	2.38E+00	1.89E+01
XE133m	5.58E+00	5.58E+00	5.58E+00	5.58E+00	5.58E+00	5.58E+00	6.02E+00	3.96E+01
XE133	6.53E+00	6.53E+00	6.53E+00	6.53E+00	6.53E+00	6.53E+00	6.85E+00	1.84E+01
XE135m	6.91E+01	6.91E+01	6.91E+01	6.91E+01	6.91E+01	6.91E+01	6.94E+01	1.05E+02
XE135	4.02E+01	4.02E+01	4.02E+01	4.02E+01	4.02E+01	4.02E+01	4.09E+01	1.06E+02
XE137	3.15E+01	3.15E+01	3.15E+01	3.15E+01	3.15E+01	3.15E+01	3.55E+01	4.25E+02
XE138	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.96E+02	1.97E+02	3.58E+02
CR 51	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 54	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 58	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SB124	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS136	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

APPENDIX B: TECHNICAL BASES FOR EFFECTIVE DOSE FACTORS

Overview

The evaluation of doses due to releases of radioactive material to the atmosphere can be simplified by the use of effective dose transfer factors instead of using dose factors which are radionuclide specific. These effective factors, which are based on the total radioactivity released to approximate the dose in the environment, i.e., instead of having to sum the isotopic distribution multiplied by the isotope specific dose factor only a single multiplication times the total quantity of radioactive material released would be needed. This approach provides a reasonable estimate of the actual dose while eliminating the need for a detailed calculational technique.

Determination of Effective Dose Factors

The effective dose transfer factors are based on past operating data. The radioactive effluent distribution for the past years can be used to derive single effective factors by the following equations:

$$A\gamma_{s\,eff} = \sum_i A\gamma_i \times f_i$$

where

$A\gamma_{s\,eff}$ = the effective gamma-air dose factor due to stack releases of noble gases (mrad/μCi)

$A\gamma_i$ = the gamma-air dose factor due to stack releases of each noble gas radionuclide i (mrad/μCi)

f_i = the fraction of noble gas radioactivity constituted by radionuclide i

$$A\gamma_{v\,eff} = \sum_i A\gamma_{vi} \times f_i$$

where

$A\gamma_{v\,eff}$ = the effective gamma-air dose factor due to vent releases of all noble gases $\left(\frac{mrad}{\mu Ci\ sec/m^3}\right)$

$A\gamma_{vi}$ = the gamma-air dose factor due to vent releases of each noble gas radionuclide i $\left(\frac{mrad}{\mu Ci\ sec/m^3}\right)$

$$A\beta_{v\,eff} = \sum_i A\beta_i \times f_i$$

where

$A\beta_{eff}$ = the effective beta-air dose factor due to either vent or stack releases of all noble gases $\left(\frac{mrad}{\mu Ci\ sec/m^3}\right)$

$A\beta_i$ = the beta air dose factor due to either vent or stack releases of each noble gas radionuclide i $\left(\frac{mrad}{\mu Ci\ sec/m^3}\right)$

To determine the appropriate effective factors to be used and to evaluate the degree of variability, the atmospheric radioactive effluents for the past 3 years have been evaluated.

Table B-1 presents the radionuclide distribution for stack and vent releases as measured by isotopic analysis of periodic grab samples from the respective effluent release points. Table B-2 presents the effective dose factors (gamma-air and beta-air) derived on the basis of the radionuclide distribution.

Except for the year 1981, the variability of the effective factors is minor. For 1981, Xe-138 contributes significantly to the derivation of the effective factors for stack releases. The Xe-138 contribution for the years 1979 and 1980 is not so significant. This increase in Xe-138 from 1981 results in a larger variability of the yearly values from the average than what is considered typical. Therefore, in order to assure adequate conservatism, the effective dose factors for stack releases will be based on the radionuclide distribution for the year 1981. Because this is considered an atypical distribution resulting in higher doses, use of the data will provide dose estimates which are conservative. As more data become available to further establish a typical radionuclide distribution, the effective dose factors for stack releases may be reevaluated.

To provide an additional degree of conservatism, a factor of 0.8 is introduced into the dose calculational process when the effective dose transfer factor is used. This added conservatism provides additional assurance that the evaluation of doses by the use of a single effective factor will not significantly underestimate any actual doses in the environment.

By evaluating doses using these effective dose factors, maximum allowable releases of noble gases for any calendar quarter may be determined. As discussed in Section 3.6.1, the maximum allowable releases based on the gamma-air effective dose factor have been determined to be 250,000 Ci/quarter for stack releases and 12,700 Ci/quarter for vent releases.

For the beta air effective dose factors, the releases of noble gases corresponding to the quarterly limit of 10 mrads corresponds to 307,000 Ci/quarter for stack releases and 29,600 Ci/quarter for vent releases. Comparing these values for allowable releases with the values based on the gamma-air effective dose factors, it is demonstrated that the gamma-air doses are more restrictive than the beta-air doses. In other words, the doses calculated by using the gamma-air effective dose factors represent a larger fraction of the allowable dose than does the dose calculated by using the beta-air effective dose factors. Therefore, when using the effective dose factors for evaluating compliance with the quarterly dose limits of Section 6.2.3, only the gamma-air dose need be evaluated; compliance with the gamma-air dose limit represents a de facto compliance with the beta-air dose limit.

Reevaluation

The doses due to the gaseous effluents are evaluated by the more detailed calculational methods (i.e., use of nuclide specific dose factors) on a yearly basis. At that time, a comparison can be made between the simplified method and the detailed method to assure the overall reasonableness of this limited analysis approach. If the comparison indicates that the radionuclide distribution has changed significantly, thereby causing the simplified method to underestimate the doses, the value of the effective factors will need to be reexamined to assure the overall acceptability of this approach. However, this reexamination will only be needed if the doses as calculated by the detailed analysis exceed 50% of the design bases doses (i.e., greater than 50% of the 10 mrad gamma air dose or 20 mrad beta air dose).

Table B-1

RADIONUCLIDE DISTRIBUTION OF STACK AND VENT RELEASES

Radionuclide	Fraction of Total Releases					
	Stack			Vent		
	1979	1980	1981	1979	1980	1981
Kr-85m	.11	.05	.09	.02	---	---
Kr-87	.01	---	.02	---	.01	---
Kr-88	.07	.04	.08	---	---	---
Xe-133	.76	.82	.45	.24	.24	.14
Xe-135	.01	.02	.03	.72	.50	.59
Xe-135m	---	.02	.08	.02	.22	.21
Xe-138	.02	.06	.25	---	.03	.05

Table B-2

EFFECTIVE DOSE FACTORS NOBLE GASES - AIR DOSES

Year	Stack Releases		Vent Releases	
	Gamma-Air Effective Dose Factor $A\gamma_{seff}$ $\left(\frac{mrad}{\mu Ci}\right)$	Beta-Air Effective Dose Factor $A\beta_{seff}$ $\left(\frac{mrad}{\mu Ci\ sec/m^3}\right)$	Gamma-Air Effective Dose Factor $A\gamma_{veff}$ $\left(\frac{mrad}{\mu Ci\ sec/m^3}\right)$	Beta-Air Effective Dose Factor $A\beta_{veff}$ $\left(\frac{mrad}{\mu Ci\ sec/m^3}\right)$
1979	7.0×10^{-12}	5.9×10^{-5}	5.0×10^{-5}	6.5×10^{-5}
1980	6.7×10^{-12}	5.3×10^{-5}	6.7×10^{-5}	6.0×10^{-5}
1981	1.6×10^{-11}	9.3×10^{-12}	6.4×10^{-5}	6.3×10^{-5}
Average	9.9×10^{-12}	6.8×10^{-5}	6.4×10^{-5}	6.3×10^{-5}

APPENDIX C: DOSE TRANSFER FACTORS FOR WATERBORNE PATHWAYS

Dose transfer factors for waterborne effluent have been derived by solving environmental pathway models on the bases of unit radionuclide release in effluent (1 Ci/yr) discharged in 1 gallon/minute of water. The dose transfer factors in this appendix were computed with the LADTAP II computer program, using default values of parameters applicable to the most exposed members of the public as recommended in Regulatory 1.109, revision 1, with the following exceptions:

- In order to account for significant revisions of data since publication of the Regulatory Guide, data differing from those in Regulatory Guide 1.109, revision 1 are identified in LADTAP II documentation.[1]
- After publishing Reg. Guide 1.109, the NRC recommended that soil-to-plant bioaccumulation factors, B_{iv}, of cesium and strontium be changed.[2]
- The revised values were used to derive dose transfer factors tabulated for Sr89, Sr90, and Cs137 in irrigated vegetation.
- Values of environmental transit time recommended in Reg. Guide 1.109[3], namely 1440 hr from harvest of stored vegetables to ingestion, were retained.

Dose transfer factors are included hereafter for the following parameters. Only those pathways applicable at the time of a radioactive liquid effluent release will be used for dose calculations. Likely pathways would include potable water, freshwater fish and irrigated fresh leafy vegetables (including strawberries).

Pathway	Age Group	Organ
Potable water	Adult	Total Body
Freshwater fish	Teenager	GI tract
Freshwater invertebrates	Child	Bone
Irrigated fresh leafy vegetables	Infant	Liver
Irrigated stored vegetables, fruit, and grain		Kidney
Irrigated grass-cow-milk		Thyroid
Irrigated grass-cow-meat		Lung
Irrigated stored forage-cow-milk		Skin
Irrigated stored forage-cow-meat		
Animal drinks river water-milk		
Animal drinks river water-meat		
River shoreline deposits-irradiation		
Swimming		
Boating		

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[1] Strenge, D.L., et. al., LADTAP II - Technical Reference and User guide, NUREG/CR-4013, April 1986.

[2] NRC, SECY-79-653A, January 30, 1980.

[3] Regulatory Guide 1.109, rev. 1, Table E-15.

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = POTABLE WATER

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	2.19E+01	2.19E+01	0.00E-01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	0.00E-01
C 14	2.08E+02	2.08E+02	1.04E+03	2.08E+02	2.08E+02	2.08E+02	2.08E+02	0.00E-01
NA 24	2.06E+02	2.06E+02	2.06E+02	2.06E+02	2.06E+02	2.06E+02	2.06E+02	0.00E-01
P 32	2.60E+03	7.57E+03	6.73E+04	4.19E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	9.50E-01	2.39E+02	0.00E-01	0.00E-01	2.09E-01	5.68E-01	1.26E+00	0.00E-01
MN 54	3.19E+02	5.12E+03	0.00E-01	1.67E+03	4.97E+02	0.00E-01	0.00E-01	0.00E-01
MN 56	1.15E-02	2.06E+00	0.00E-01	6.46E-02	8.20E-02	0.00E-01	0.00E-01	0.00E-01
FE 55	1.62E+02	3.99E+02	1.01E+03	6.95E+02	0.00E-01	0.00E-01	3.88E+02	0.00E-01
FE 59	1.41E+03	1.23E+04	1.56E+03	3.68E+03	0.00E-01	0.00E-01	1.03E+03	0.00E-01
CO 58	6.06E+02	5.48E+03	0.00E-01	2.70E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	1.73E+03	1.47E+04	0.00E-01	7.84E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	1.60E+03	6.89E+02	4.76E+04	3.30E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	1.56E-02	8.66E-01	2.63E-01	3.42E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	3.85E+00	6.99E+02	0.00E-01	8.21E+00	2.07E+01	0.00E-01	0.00E-01	0.00E-01
ZN 65	2.54E+03	3.54E+03	1.77E+03	5.62E+03	3.76E+03	0.00E-01	0.00E-01	0.00E-01
ZN 69	1.21E-08	2.62E-08	9.11E-08	1.74E-07	1.13E-07	0.00E-01	0.00E-01	0.00E-01
BR 83	1.40E-02	2.02E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	3.47E+03	1.47E+03	0.00E-01	7.45E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	3.19E+03	1.78E+04	9.11E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	6.41E+04	8.02E+04	3.19E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	1.45E+01	1.71E+03	3.59E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	7.38E-02	3.38E+01	1.71E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	7.29E-02	2.88E+04	2.72E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	1.37E+00	2.81E+04	5.10E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	8.37E-05	5.62E+01	2.86E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	5.20E-03	5.98E+03	1.89E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	2.39E+00	1.12E+04	1.10E+01	3.53E+00	5.54E+00	0.00E-01	0.00E-01	0.00E-01
ZR 97	2.12E-02	1.44E+04	2.30E-01	4.64E-02	7.00E-02	0.00E-01	0.00E-01	0.00E-01
NB 95	6.68E-01	7.54E+03	2.23E+00	1.24E+00	1.23E+00	0.00E-01	0.00E-01	0.00E-01
MO 99	2.33E+02	2.84E+03	0.00E-01	1.23E+03	2.78E+03	0.00E-01	0.00E-01	0.00E-01
TC 99M	2.05E-01	9.53E+00	5.70E-03	1.61E-02	2.45E-01	0.00E-01	7.89E-03	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = POTABLE WATER

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	2.87E+01	7.77E+03	6.66E+01	0.00E-01	2.54E+02	0.00E-01	0.00E-01	0.00E-01
RU105	5.24E-02	8.12E+01	1.33E-01	0.00E-01	1.72E+00	0.00E-01	0.00E-01	0.00E-01
RU106	1.27E+02	6.51E+04	1.00E+03	0.00E-01	1.94E+03	0.00E-01	0.00E-01	0.00E-01
AG110M	3.21E+01	2.21E+04	5.85E+01	5.41E+01	1.06E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	1.30E+02	3.87E+03	9.70E+02	3.51E+02	3.94E+03	2.92E+02	0.00E-01	0.00E-01
TE127M	3.00E+02	8.26E+03	2.46E+03	8.81E+02	1.00E+04	6.30E+02	0.00E-01	0.00E-01
TE127	1.47E+00	5.36E+02	6.80E+00	2.44E+00	2.77E+01	5.03E+00	0.00E-01	0.00E-01
TE129M	6.53E+02	2.08E+04	4.13E+03	1.54E+03	1.72E+04	1.42E+03	0.00E-01	0.00E-01
TE129	1.66E-06	5.13E-06	6.79E-06	2.55E-06	2.85E-05	5.21E-06	0.00E-01	0.00E-01
TE131M	1.48E+02	1.77E+04	3.64E+02	1.78E+02	1.80E+03	2.82E+02	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	4.53E+02	2.28E+04	7.46E+02	4.83E+02	4.65E+03	5.33E+02	0.00E-01	0.00E-01
I 130	8.37E+01	1.83E+02	7.19E+01	2.12E+02	3.31E+02	1.80E+04	0.00E-01	0.00E-01
I 131	1.15E+03	5.28E+02	1.40E+03	2.00E+03	3.43E+03	6.55E+05	0.00E-01	0.00E-01
I 132	5.03E-02	2.70E-02	5.38E-02	1.44E-01	2.29E-01	5.03E+00	0.00E-01	0.00E-01
I 133	1.24E+02	3.66E+02	2.34E+02	4.07E+02	7.10E+02	5.98E+04	0.00E-01	0.00E-01
I 134	2.10E-07	5.11E-10	2.16E-07	5.86E-07	9.32E-07	1.02E-05	0.00E-01	0.00E-01
I 135	1.26E+01	3.85E+01	1.30E+01	3.41E+01	5.47E+01	2.25E+03	0.00E-01	0.00E-01
CS134	4.43E+04	9.48E+02	2.28E+04	5.42E+04	1.75E+04	0.00E-01	5.82E+03	0.00E-01
CS136	6.43E+03	1.01E+03	2.26E+03	8.93E+03	4.97E+03	0.00E-01	6.81E+02	0.00E-01
CS137	2.61E+04	7.73E+02	2.92E+04	3.99E+04	1.35E+04	0.00E-01	4.50E+03	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	5.81E-06	3.52E-04	1.98E-04	1.41E-07	1.32E-07	0.00E-01	8.02E-08	0.00E-01
BA140	4.61E+02	1.45E+04	7.04E+03	8.85E+00	3.01E+00	0.00E-01	5.07E+00	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	8.07E-02	2.24E+04	6.06E-01	3.05E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	1.08E-07	3.18E-03	9.57E-07	4.35E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	2.57E-01	8.68E+03	3.36E+00	2.27E+00	1.05E+00	0.00E-01	0.00E-01	0.00E-01
CE143	2.99E-02	1.01E+04	3.66E-01	2.70E+02	1.19E-01	0.00E-01	0.00E-01	0.00E-01
CE144	9.57E+00	6.03E+04	1.78E+02	7.46E+01	1.42E+01	0.00E-01	0.00E-01	0.00E-01
PR143	1.59E-01	1.40E+04	3.20E+00	1.28E+00	7.42E-01	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	1.50E-01	1.20E+04	2.16E+00	2.50E+00	1.46E+00	0.00E-01	0.00E-01	0.00E-01
W 187	5.50E+00	5.15E+03	1.88E+01	1.57E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	1.76E-02	6.55E+03	3.25E-01	3.20E-02	9.97E-02	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = FRESH WATER FISH

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	5.68E-01	5.68E-01	0.00E-01	5.68E-01	5.68E-01	5.68E-01	5.68E-01	0.00E-01
C 14	2.75E+04	2.75E+04	1.38E+05	2.75E+04	2.75E+04	2.75E+04	2.75E+04	0.00E-01
NA 24	5.90E+02	5.90E+02	5.90E+02	5.90E+02	5.90E+02	5.90E+02	5.90E+02	0.00E-01
P 32	7.49E+06	2.18E+07	1.94E+08	1.20E+07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	5.47E+00	1.37E+03	0.00E-01	0.00E-01	1.20E+00	3.27E+00	7.26E+00	0.00E-01
MN 54	3.67E+03	5.89E+04	0.00E-01	1.92E+04	5.72E+03	0.00E-01	0.00E-01	0.00E-01
MN 56	1.28E-01	2.31E+01	0.00E-01	7.24E-01	9.19E-01	0.00E-01	0.00E-01	0.00E-01
FE 55	4.66E+02	1.15E+03	2.90E+03	2.00E+03	0.00E-01	0.00E-01	1.12E+03	0.00E-01
FE 59	4.06E+03	3.53E+04	4.50E+03	1.06E+04	0.00E-01	0.00E-01	2.96E+03	0.00E-01
CO 58	8.71E+02	7.88E+03	0.00E-01	3.89E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	2.49E+03	2.12E+04	0.00E-01	1.13E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	4.59E+03	1.98E+03	1.37E+05	9.49E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	4.36E-02	2.42E+00	7.36E-01	9.56E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	5.51E+00	1.00E+03	0.00E-01	1.17E+01	2.96E+01	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.46E+05	2.04E+05	1.02E+05	3.24E+05	2.16E+05	0.00E-01	0.00E-01	0.00E-01
ZN 69	6.48E-07	1.40E-06	4.87E-06	9.32E-06	6.05E-06	0.00E-01	0.00E-01	0.00E-01
BR 83	1.65E-01	2.37E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	2.00E+05	8.45E+04	0.00E-01	4.28E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	2.76E+03	1.54E+04	9.60E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00F-01
SR 90	5.53E+04	6.92E+04	2.75E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	1.24E+01	1.47E+03	3.08E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	6.21E-02	2.85E+01	1.44E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	5.24E-02	2.07E+04	1.95E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	9.81E-01	2.02E+04	3.67E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	5.90E-05	3.54E+01	2.02E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	3.72E-03	4.27E+03	1.35E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	2.27E-01	1.06E+03	1.05E+00	3.35E-01	5.26E-01	0.00E-01	0.00E-01	0.00E-01
ZR 97	2.00E-03	1.36E+03	2.17E-02	4.38E-03	6.62E-03	0.00E-01	0.00E-01	0.00E-01
NB 95	5.76E+02	6.51E+06	1.93E+03	1.07E+03	1.06E+03	0.00E-01	0.00E-01	0.00E-01
MO 99	6.71E+01	8.17E+02	0.00E-01	3.52E+02	7.98E+02	0.00E-01	0.00E-01	0.00E-01
TC 99M	8.75E-02	4.07E+00	2.43E-03	6.87E-03	1.04E-01	0.00E-01	3.37E-03	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = FRESH WATER FISH

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	8.25E+00	2.24E+03	1.91E+01	0.00E-01	7.31E+01	0.00E-01	0.00E-01	0.00E-01
RU105	1.48E-02	2.30E+01	3.76E-02	0.00E-01	4.86E-01	0.00E-01	0.00E-01	0.00E-01
RU106	3.66E+01	1.87E+04	2.89E+02	0.00E-01	5.58E+02	0.00E-01	0.00E-01	0.00E-01
AG110M	2.12E+00	1.46E+03	3.87E+00	3.58E+00	7.03E+00	0.00E-01	0.00E-01	0.00E-01
TE125M	1.49E+03	4.46E+04	1.12E+04	4.04E+03	4.54E+04	3.36E+03	0.00E-01	0.00E-01
TE127M	3.45E+03	9.51E+04	2.83E+04	1.01E+04	1.15E+05	7.25E+03	0.00E-01	0.00E-01
TE127	1.68E+01	6.12E+03	7.76E+01	2.79E+01	3.16E+02	5.75E+01	0.00E-01	0.00E-01
TE129M	7.51E+03	2.39E+05	4.75E+04	1.77E+04	1.98E+05	1.63E+04	0.00E-01	0.00E-01
TE129	1.79E-05	5.56E-05	7.36E-05	2.77E-05	3.09E-04	5.65E-05	0.00E-01	0.00E-01
TE131M	1.70E+03	2.03E+05	4.18E+03	2.04E+03	2.07E+04	3.24E+03	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	5.21E+03	2.62E+05	8.58E+03	5.55E+03	5.35E+04	6.13E+03	0.00E-01	0.00E-01
I 130	3.59E+01	7.84E+01	3.09E+01	9.11E+01	1.42E+02	7.72E+03	0.00E-01	0.00E-01
I 131	4.94E+02	2.28E+02	6.03E+02	8.62E+02	1.48E+03	2.83E+05	0.00E-01	0.00E-01
I 132	2.11E-02	1.13E-02	2.25E-02	6.02E-02	9.60E-02	2.11E+00	0.00E-01	0.00E-01
I 133	5.33E+01	1.57E+02	1.01E+02	1.75E+02	3.05E+02	2.57E+04	0.00E-01	0.00E-01
I 134	8.36E-08	2.04E-10	8.60E-08	2.34E-07	3.72E-07	4.05E-06	0.00E-01	0.00E-01
I 135	5.37E+00	1.64E+01	5.56E+00	1.46E+01	2.33E+01	9.60E+02	0.00E-01	0.00E-01
CS134	2.55E+06	5.45E+04	1.31E+06	3.12E+06	1.01E+06	0.00E-01	3.35E+05	0.00E-01
CS136	3.70E+05	5.84E+04	1.30E+05	5.14E+05	2.86E+05	0.00E-01	3.92E+04	0.00E-01
CS137	1.50E+06	4.45E+04	1.68E+06	2.30E+06	7.80E+05	0.00E-01	2.59E+05	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	6.35E-07	3.85E-05	2.17E-05	1.55E-08	1.45E-08	0.00E-01	8.77E-09	0.00E-01
BA140	5.31E+01	1.67E+03	8.10E+02	1.02E+00	3.46E-01	0.00E-01	5.83E-01	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	5.80E-02	1.61E+04	4.35E-01	2.19E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	7.45E-08	2.18E-03	6.58E-07	2.99E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	7.41E-03	2.50E+02	9.65E-02	6.53E-02	3.03E-02	0.00E-01	0.00E-01	0.00E-01
CE143	8.59E-04	2.90E+02	1.05E-02	7.77E+00	3.42E-03	0.00E-01	0.00E-01	0.00E-01
CE144	2.75E-01	1.73E+03	5.13E+00	2.14E+00	1.27E+00	0.00E-01	0.00E-01	0.00E-01
PR143	1.14E-01	1.01E+04	2.30E+00	9.24E-01	5.33E-01	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	1.08E-01	8.63E+03	1.56E+00	1.80E+00	1.05E+00	0.00E-01	0.00E-01	0.00E-01
W 187	1.89E+02	1.77E+05	6.48E+02	5.41E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	5.06E-03	1.88E+03	9.34E-02	9.18E-03	2.86E-02	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = FRESH WATER INVERTEBRATES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.35E-01	1.35E-01	0.00E-01	1.35E-01	1.35E-01	1.35E-01	1.35E-01	0.00E-01
C 14	1.30E+04	1.30E+04	6.48E+04	1.30E+04	1.30E+04	1.30E+04	1.30E+04	0.00E-01
NA 24	2.81E+02	2.81E+02	2.81E+02	2.81E+02	2.81E+02	2.81E+02	2.81E+02	0.00E-01
P 32	3.57E+05	1.04E+06	9.22E+06	5.73E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.30E+01	3.27E+03	0.00E-01	0.00E-01	2.87E+00	7.78E+00	1.73E+01	0.00E-01
MN 54	1.96E+05	3.15E+06	0.00E-01	1.03E+06	3.06E+05	0.00E-01	0.00E-01	0.00E-01
MN 56	6.88E+00	1.24E+03	0.00E-01	3.88E+01	4.92E+01	0.00E-01	0.00E-01	0.00E-01
FE 55	3.55E+03	8.74E+03	2.21E+04	1.52E+04	0.00E-01	0.00E-01	8.50E+03	0.00E-01
FE 59	3.09E+04	2.69E+05	3.43E+04	8.06E+04	0.00E-01	0.00E-01	2.25E+04	0.00E-01
CO 58	8.30E+02	7.50E+03	0.00E-01	3.70E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	2.37E+03	2.02E+04	0.00E-01	1.07E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	1.09E+03	4.72E+02	3.26E+04	2.26E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	1.04E-02	5.77E-01	1.75E-01	2.28E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	1.05E+01	1.91E+03	0.00E-01	2.24E+01	5.64E+01	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.74E+05	2.43E+05	1.21E+05	3.85E+05	2.58E+05	0.00E-01	0.00E-01	0.00E-01
ZN 69	7.71E-07	1.67E-06	5.80E-06	1.11E-05	7.21E-06	0.00E-01	0.00E-01	0.00E-01
BR 83	3.08E-02	4.44E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	2.38E+04	1.01E+04	0.00E-01	5.10E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	2.19E+03	1.22E+04	7.62E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	4.39E+04	5.49E+04	2.18E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	9.87E+00	1.16E+03	2.44E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	4.93E-02	2.26E+01	1.14E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	4.99E-01	1.97E+05	1.86E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	9.35E+00	1.92E+05	3.50E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	5.62E-04	3.37E+02	1.92E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	3.54E-02	4.07E+04	1.28E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	1.10E-01	5.14E+02	5.06E-01	1.62E-01	2.54E-01	0.00E-01	0.00E-01	0.00E-01
ZR 97	9.69E-04	6.56E+02	1.05E-02	2.12E-03	3.20E-03	0.00E-01	0.00E-01	0.00E-01
NB 95	4.58E-01	5.17E+03	1.53E+00	8.51E-01	8.41E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	1.60E+01	1.95E+02	0.00E-01	8.39E+01	1.90E+02	0.00E-01	0.00E-01	0.00E-01
TC 99M	6.94E-03	3.23E-01	1.93E-04	5.45E-04	8.28E-03	0.00E-01	2.67E-04	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = FRESH WATER INVERTEBRATES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	5.89E+01	1.60E+04	1.37E+02	0.00E-01	5.22E+02	0.00E-01	0.00E-01	0.00E-01
RU105	1.06E-01	1.64E+02	2.68E-01	0.00E-01	3.47E+00	0.00E-01	0.00E-01	0.00E-01
RU106	2.61E+02	1.34E+05	2.07E+03	0.00E-01	3.99E+03	0.00E-01	0.00E-01	0.00E-01
AG110M	1.69E+02	1.16E+05	3.08E+02	2.85E+02	5.61E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	5.43E+03	1.62E+05	4.05E+04	1.47E+04	1.65E+05	1.22E+04	0.00E-01	0.00E-01
TE127M	1.25E+04	3.45E+05	1.03E+05	3.68E+04	4.18E+05	2.63E+04	0.00E-01	0.00E-01
TE127	6.10E+01	2.22E+04	2.82E+02	1.01E+02	1.15E+03	2.09E+02	0.00E-01	0.00E-01
TE129M	2.73E+04	8.68E+05	1.72E+05	6.43E+04	7.19E+05	5.92E+04	0.00E-01	0.00E-01
TE129	6.51E-05	2.02E-04	2.67E-04	1.00E-04	1.12E-03	2.05E-04	0.00E-01	0.00E-01
TE131M	6.18E+03	7.37E+05	1.52E+04	7.42E+03	7.51E+04	1.17E+04	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	1.89E+04	9.53E+05	3.12E+04	2.01E+04	1.94E+05	2.22E+04	0.00E-01	0.00E-01
I 130	2.85E+00	6.22E+00	2.45E+00	7.23E+00	1.13E+01	6.12E+02	0.00E-01	0.00E-01
I 131	3.92E+01	1.81E+01	4.79E+01	6.84E+01	1.17E+02	2.24E+04	0.00E-01	0.00E-01
I 132	1.67E-03	8.98E-04	1.79E-03	4.78E-03	7.62E-03	1.67E-01	0.00E-01	0.00E-01
I 133	4.23E+00	1.25E+01	7.98E+00	1.39E+01	2.42E+01	2.04E+03	0.00E-01	0.00E-01
I 134	6.64E-09	1.62E-11	6.83E-09	1.86E-08	2.95E-08	3.21E-07	0.00E-01	0.00E-01
I 135	4.26E-01	1.30E+00	4.41E-01	1.15E+00	1.85E+00	7.62E+01	0.00E-01	0.00E-01
CS134	3.03E+05	6.49E+03	1.56E+05	3.71E+05	1.20E+05	0.00E-01	3.99E+04	0.00E-01
CS136	4.40E+04	6.95E+03	1.55E+04	6.11E+04	3.40E+04	0.00E-01	4.66E+03	0.00E-01
CS137	1.79E+05	5.29E+03	2.00E+05	2.73E+05	9.28E+04	0.00E-01	3.09E+04	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	7.56E-06	4.58E-04	2.58E-04	1.84E-07	1.72E-07	0.00E-01	1.04E-07	0.00E-01
BA140	6.32E+02	1.99E+04	9.65E+03	1.21E+01	4.12E+00	0.00E-01	6.94E+00	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	5.52E-01	1.53E+05	4.14E+00	2.09E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	7.10E-07	2.08E-02	6.26E-06	2.85E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	1.76E+00	5.94E+04	2.30E+01	1.56E+01	7.22E+00	0.00E-01	0.00E-01	0.00E-01
CE143	2.05E-01	6.91E+04	2.50E+00	1.85E+03	8.14E-01	0.00E-01	0.00E-01	0.00E-01
CE144	6.56E+01	4.13E+05	1.22E+03	5.11E+02	3.03E+02	0.00E-01	0.00E-01	0.00E-01
PR143	1.09E+00	9.61E+04	2.19E+01	8.80E+00	5.08E+00	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	1.02E+00	8.22E+04	1.48E+01	1.71E+01	1.00E+01	0.00E-01	0.00E-01	0.00E-01
W 187	3.76E-01	3.52E+02	1.28E+00	1.07E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	4.82E-02	1.79E+04	8.89E-01	8.74E-02	2.73E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = IRRIGATED FRESH LEAFY VEGETABLES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.92E+00	1.92E+00	0.00E-01	1.92E+00	1.92E+00	1.92E+00	1.92E+00	0.00E-01
C 14	2.03E+03	2.03E+03	1.01E+04	2.03E+03	2.03E+03	2.03E+03	2.03E+03	0.00E-01
NA 24	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	0.00E-01
P 32	9.84E+02	2.86E+03	2.54E+04	1.58E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	4.60E-01	1.16E+02	0.00E-01	0.00E-01	1.01E-01	2.75E-01	6.10E-01	0.00E-01
MN 54	2.16E+02	3.47E+03	0.00E-01	1.13E+03	3.37E+02	0.00E-01	0.00E-01	0.00E-01
MN 56	4.90E-05	8.81E-03	0.00E-01	2.76E-04	3.50E-04	0.00E-01	0.00E-01	0.00E-01
FE 55	1.12E+02	2.76E+02	6.97E+02	4.81E+02	0.00E-01	0.00E-01	2.68E+02	0.00E-01
FE 59	7.75E+02	6.74E+03	8.61E+02	2.02E+03	0.00E-01	0.00E-01	5.65E+02	0.00E-01
CO 58	3.63E+02	3.28E+03	0.00E-01	1.62E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	1.21E+03	1.03E+04	0.00E-01	5.50E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	1.16E+03	5.02E+02	3.47E+04	2.41E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	6.50E-05	3.62E-03	1.10E-03	1.42E-04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	9.79E-02	1.78E+01	0.00E-01	2.08E-01	5.26E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.80E+03	2.51E+03	1.25E+03	3.99E+03	2.67E+03	0.00E-01	0.00E-01	0.00E-01
ZN 69	1.22E-11	2.63E-11	9.14E-11	1.75E-10	1.14E-10	0.00E-01	0.00E-01	0.00E-01
BR 83	5.52E-05	7.94E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	1.45E-16	1.14E-21	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	3.62E-37	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	1.46E+03	6.17E+02	0.00E-01	3.13E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	3.95E-28	1.03E-38	0.00E-01	7.45E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	3.31E-30	2.73E-43	0.00E-01	4.71E-30	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	1.82E+03	1.01E+04	6.33E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	6.25E+04	7.82E+04	3.11E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	2.74E-01	3.23E+01	6.78E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	3.38E-04	1.55E-01	7.82E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	8.54E-03	3.37E+03	3.18E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	1.82E-15	1.38E-13	4.71E-14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	7.92E-01	1.63E+04	2.96E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	5.32E-07	3.19E-01	1.82E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	1.04E-04	1.20E+02	3.78E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	1.41E+00	6.60E+03	6.49E+00	2.08E+00	3.27E+00	0.00E-01	0.00E-01	0.00E-01
ZR 97	7.19E-04	4.87E+02	7.79E-03	1.57E-03	2.37E-03	0.00E-01	0.00E-01	0.00E-01
NB 95	3.47E-01	3.92E+03	1.16E+00	6.45E-01	6.38E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	2.80E+01	3.41E+02	0.00E-01	1.47E+02	3.33E+02	0.00E-01	0.00E-01	0.00E-01
TC 99M	2.38E-03	1.11E-01	5.61E-05	1.87E-04	2.83E-03	0.00E-01	9.15E-05	0.00E-01
TC101	3.20E-31	9.81E-44	2.26E-32	3.26E-32	5.87E-31	0.00E-01	1.67E-32	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = IRRIGATED FRESH LEAFY VEGETABLES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	1.54E+01	4.16E+03	3.56E+01	0.00E-01	1.36E+02	0.00E-01	0.00E-01	0.00E-01
RU105	4.31E-04	6.68E-01	1.09E-03	0.00E-01	1.41E-02	0.00E-01	0.00E-01	0.00E-01
RU106	8.73E+01	4.47E+04	6.90E+02	0.00E-01	1.33E+03	0.00E-01	0.00E-01	0.00E-01
AG110M	2.20E+01	1.51E+04	4.00E+01	3.70E+01	7.28E+01	0.00E-01	0.00E-01	0.00E-01
TE125M	7.96E+01	2.37E+03	5.94E+02	2.15E+02	2.42E+03	1.79E+02	0.00E-01	0.00E-01
TE127M	2.08E+02	5.72E+03	1.71E+03	6.10E+02	6.93E+03	4.36E+02	0.00E-01	0.00E-01
TE127	2.76E-02	1.01E+01	1.27E-01	4.57E-02	5.19E-01	9.44E-02	0.00E-01	0.00E-01
TE129M	3.47E+02	1.10E+04	2.19E+03	8.18E+02	9.15E+03	7.53E+02	0.00E-01	0.00E-01
TE129	2.33E-09	7.23E-09	9.59E-09	3.60E-09	4.03E-08	7.36E-09	0.00E-01	0.00E-01
TE131M	8.86E+00	1.06E+03	2.17E+01	1.06E+01	1.08E+02	1.69E+01	0.00E-01	0.00E-01
TE131	2.02E-21	9.06E-22	6.40E-21	2.67E-21	2.80E-20	5.26E-21	0.00E-01	0.00E-01
TE132	6.34E+01	3.20E+03	1.04E+02	6.76E+01	6.51E+02	7.46E+01	0.00E-01	0.00E-01
I 130	2.07E+00	4.52E+00	1.78E+00	5.25E+00	8.19E+00	4.45E+02	0.00E-01	0.00E-01
I 131	3.07E+02	1.41E+02	3.75E+02	5.36E+02	9.19E+02	1.76E+05	0.00E-01	0.00E-01
I 132	1.87E-04	1.00E-04	2.00E-04	5.34E-04	8.51E-04	1.87E-02	0.00E-01	0.00E-01
I 133	5.16E+00	1.52E+01	9.74E+00	1.69E+01	2.96E+01	2.49E+03	0.00E-01	0.00E-01
I 134	1.82E-10	4.44E-13	1.87E-10	5.09E-10	8.10E-10	8.82E-09	0.00E-01	0.00E-01
I 135	1.61E-01	4.92E-01	1.67E-01	4.36E-01	6.99E-01	2.87E+01	0.00E-01	0.00E-01
CS134	3.07E+04	6.56E+02	1.58E+04	3.75E+04	1.21E+04	0.00E-01	4.03E+03	0.00E-01
CS136	2.28E+03	3.60E+02	8.04E+02	3.17E+03	1.76E+03	0.00E-01	2.42E+02	0.00E-01
CS137	1.86E+04	5.51E+02	2.08E+04	2.85E+04	9.67E+03	0.00E-01	3.21E+03	0.00E-01
CS138	2.37E-16	2.04E-21	2.42E-16	4.78E-16	3.52E-16	0.00E-01	3.47E-17	0.00E-01
BA139	1.05E-08	6.39E-07	3.60E-07	2.57E-10	2.40E-10	0.00E-01	1.46E-10	0.00E-01
BA140	1.62E+02	5.09E+03	2.47E+03	3.11E+00	1.06E+00	0.00E-01	1.78E+00	0.00E-01
BA141	7.72E-29	1.08E-36	2.29E-27	1.73E-30	1.61E-30	0.00E-01	9.81E-31	0.00E-01
BA142	3.45E-32	0.00E-01	5.48E-31	5.63E-34	4.76E-34	0.00E-01	3.19E-34	0.00E-01
LA140	6.27E-03	1.74E+03	4.70E-02	2.37E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	2.33E-10	6.82E-06	2.05E-09	9.34E-10	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	1.31E-01	4.41E+03	1.71E+00	1.15E+00	5.35E-01	0.00E-01	0.00E-01	0.00E-01
CE143	1.94E-03	6.56E+02	2.37E-02	1.75E+01	7.72E-03	0.00E-01	0.00E-01	0.00E-01
CE144	6.44E+00	4.05E+04	1.20E+02	5.01E+01	2.97E+01	0.00E-01	0.00E-01	0.00E-01
PR143	5.75E-02	5.08E+03	1.16E+00	4.65E-01	2.68E-01	0.00E-01	0.00E-01	0.00E-01
PR144	2.51E-33	7.11E-39	4.94E-32	2.05E-32	1.16E-32	0.00E-01	0.00E-01	0.00E-01
ND147	4.87E-02	3.90E+03	7.03E-01	8.13E-01	4.75E-01	0.00E-01	0.00E-01	0.00E-01
W 187	2.62E-01	2.45E+02	8.97E-01	7.49E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	1.85E-03	6.89E+02	3.42E-02	3.36E-03	1.05E-02	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = IRRIGATED STORED FRUIT, VEGETABLES, GRAIN

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.55E+01	1.55E+01	0.00E-01	1.55E+01	1.55E+01	1.55E+01	1.55E+01	0.00E-01
C 14	1.65E+04	1.65E+04	8.23E+04	1.65E+04	1.65E+04	1.65E+04	1.65E+04	0.00E-01
NA 24	1.34E-24	1.34E-24	1.34E-24	1.34E-24	1.34E-24	1.34E-24	1.34E-24	0.00E-01
P 32	4.58E+02	1.33E+03	1.18E+04	7.36E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	8.52E-01	2.14E+02	0.00E-01	0.00E-01	1.88E-01	5.09E-01	1.13E+00	0.00E-01
MN 54	1.54E+03	2.47E+04	0.00E-01	8.08E+03	2.40E+03	0.00E-01	0.00E-01	0.00E-01
MN 56	2.27E-27	4.09E-25	0.00E-01	1.28E-26	1.63E-26	0.00E-01	0.00E-01	0.00E-01
FE 55	8.75E+02	2.15E+03	5.43E+03	3.75E+03	0.00E-01	0.00E-01	2.09E+03	0.00E-01
FE 59	2.52E+03	2.19E+04	2.79E+03	6.57E+03	0.00E-01	0.00E-01	1.83E+03	0.00E-01
CO 58	1.66E+03	1.50E+04	0.00E-01	7.39E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	9.66E+03	8.23E+04	0.00E-01	4.38E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	9.45E+03	4.08E+03	2.82E+05	1.95E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	3.40E-27	1.89E-25	5.74E-26	7.46E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	2.59E-26	4.70E-24	0.00E-01	5.51E-26	1.39E-25	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.24E+04	1.73E+04	8.62E+03	2.74E+04	1.83E+04	0.00E-01	0.00E-01	0.00E-01
ZN 69	3.58E-29	7.74E-29	2.69E-28	5.15E-28	3.35E-28	0.00E-01	0.00E-01	0.00E-01
BR 83	4.12E-27	5.93E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	4.30E-28	3.38E-33	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	2.95E-36	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	1.33E+03	5.63E+02	0.00E-01	2.85E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	5.32E-29	1.39E-39	0.00E-01	1.00E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	2.69E-29	2.22E-42	0.00E-01	3.83E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	6.56E+03	3.67E+04	2.29E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	5.06E+05	6.33E+05	2.52E+07	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	1.13E-25	1.33E-23	2.79E-24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	1.11E-26	5.09E-24	2.57E-25	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	1.58E-08	6.26E-03	5.90E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	7.18E-32	5.44E-30	1.85E-30	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	3.20E+00	6.59E+04	1.20E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	4.09E-30	2.45E-24	1.40E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	3.87E-29	4.44E-23	1.40E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	6.05E+00	2.83E+04	2.79E+01	8.94E+00	1.40E+01	0.00E-01	0.00E-01	0.00E-01
ZR 97	3.38E-28	2.29E-22	3.66E-27	7.38E-28	1.12E-27	0.00E-01	0.00E-01	0.00E-01
NB 95	8.82E-01	9.95E+03	2.95E+00	1.64E+00	1.62E+00	0.00E-01	0.00E-01	0.00E-01
MO 99	7.80E-05	9.51E-04	0.00E-01	4.10E-04	9.29E-04	0.00E-01	0.00E-01	0.00E-01
TC 99M	2.69E-27	1.25E-25	7.46E-29	2.11E-28	3.20E-27	0.00E-01	1.03E-28	0.00E-01
TC101	2.60E-30	7.96E-43	1.84E-31	2.65E-31	4.77E-30	0.00E-01	1.35E-31	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = IRRIGATED STORED FRUIT, VEGETABLES, GRAIN

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	4.41E+01	1.19E+04	1.02E+02	0.00E-01	3.90E+02	0.00E-01	0.00E-01	0.00E-01
RU105	1.30E-27	2.02E-24	3.30E-27	0.00E-01	4.27E-26	0.00E-01	0.00E-01	0.00E-01
RU106	6.35E+02	3.25E+05	5.02E+03	0.00E-01	9.69E+03	0.00E-01	0.00E-01	0.00E-01
AG110M	1.52E+02	1.04E+05	2.76E+02	2.55E+02	5.02E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	3.20E+02	9.53E+03	2.39E+03	8.65E+02	9.71E+03	7.18E+02	0.00E-01	0.00E-01
TE127M	1.16E+03	3.19E+04	9.52E+03	3.40E+03	3.87E+04	2.43E+03	0.00E-01	0.00E-01
TE127	1.16E-26	4.24E-24	5.37E-26	1.93E-26	2.19E-25	3.98E-26	0.00E-01	0.00E-01
TE129M	8.34E+02	2.65E+04	5.27E+03	1.97E+03	2.20E+04	1.81E+03	0.00E-01	0.00E-01
TE129	2.81E-28	8.72E-28	1.16E-27	4.34E-28	4.86E-27	8.86E-28	0.00E-01	0.00E-01
TE131M	4.41E-13	5.25E-11	1.08E-12	5.29E-13	5.36E-12	8.38E-13	0.00E-01	0.00E-01
TE131	2.86E-29	1.28E-29	9.04E-29	3.78E-29	3.96E-28	7.44E-29	0.00E-01	0.00E-01
TE132	1.84E-03	9.30E-02	3.04E-03	1.97E-03	1.89E-02	2.17E-03	0.00E-01	0.00E-01
I 130	5.67E-25	1.24E-24	4.87E-25	1.44E-24	2.24E-24	1.22E-22	0.00E-01	0.00E-01
I 131	1.54E+01	7.10E+00	1.88E+01	2.69E+01	4.61E+01	8.81E+03	0.00E-01	0.00E-01
I 132	1.84E-26	9.87E-27	1.96E-26	5.25E-26	8.37E-26	1.84E-24	0.00E-01	0.00E-01
I 133	1.40E-19	4.11E-19	2.63E-19	4.58E-19	7.99E-19	6.73E-17	0.00E-01	0.00E-01
I 134	2.33E-27	5.68E-30	2.40E-27	6.52E-27	1.04E-26	1.13E-25	0.00E-01	0.00E-01
I 135	1.43E-25	4.37E-25	1.48E-25	3.87E-25	6.20E-25	2.55E-23	0.00E-01	0.00E-01
CS134	2.36E+05	5.05E+03	1.21E+05	2.89E+05	9.34E+04	0.00E-01	3.10E+04	0.00E-01
CS136	8.20E+02	1.29E+02	2.88E+02	1.14E+03	6.34E+02	0.00E-01	8.68E+01	0.00E-01
CS137	1.51E+05	4.46E+03	1.69E+05	2.30E+05	7.82E+04	0.00E-01	2.60E+04	0.00E-01
CS138	4.57E-28	3.94E-33	4.67E-28	9.23E-28	6.78E-28	0.00E-01	6.70E-29	0.00E-01
BA139	1.35E-28	8.14E-27	4.59E-27	3.27E-30	3.06E-30	0.00E-01	1.86E-30	0.00E-01
BA140	5.38E+01	1.69E+03	8.22E+02	1.03E+00	3.51E-01	0.00E-01	5.91E-01	0.00E-01
BA141	2.85E-30	3.98E-38	8.43E-29	6.37E-32	5.93E-32	0.00E-01	3.62E-32	0.00E-01
BA142	2.80E-31	0.00E-01	4.45E-30	4.58E-33	3.87E-33	0.00E-01	2.59E-33	0.00E-01
LA140	1.33E-12	3.70E-07	1.00E-11	5.04E-12	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	8.11E-31	2.38E-26	7.16E-30	3.26E-30	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	3.02E-01	1.02E+04	3.93E+00	2.66E+00	1.24E+00	0.00E-01	0.00E-01	0.00E-01
CE143	2.16E-15	7.31E-10	2.65E-14	1.96E-11	8.61E-15	0.00E-01	0.00E-01	0.00E-01
CE144	4.53E+01	2.85E+05	8.44E+02	3.53E+02	2.09E+02	0.00E-01	0.00E-01	0.00E-01
PR143	2.31E-02	2.04E+03	4.65E-01	1.87E-01	1.08E-01	0.00E-01	0.00E-01	0.00E-01
PR144	2.27E-33	6.41E-39	4.46E-32	1.85E-32	1.04E-32	0.00E-01	0.00E-01	0.00E-01
ND147	9.92E-03	7.95E+02	1.43E-01	1.66E-01	9.69E-02	0.00E-01	0.00E-01	0.00E-01
W 187	3.21E-18	3.01E-15	1.10E-17	9.18E-18	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	4.47E-10	1.66E-04	8.25E-09	8.11E-10	2.53E-09	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = IRRIGATED FRESH FORAGE--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	4.24E+00	4.24E+00	0.00E-01	4.24E+00	4.24E+00	4.24E+00	4.24E+00	0.00E-01
C 14	6.45E+03	6.45E+03	3.23E+04	6.45E+03	6.45E+03	6.45E+03	6.45E+03	0.00E-01
NA 24	5.70E+01	5.70E+01	5.70E+01	5.70E+01	5.70E+01	5.70E+01	5.70E+01	0.00E-01
P 32	1.52E+04	4.43E+04	3.94E+05	2.45E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	6.17E-01	1.55E+02	0.00E-01	0.00E-01	1.36E-01	3.69E-01	8.18E-01	0.00E-01
MN 54	3.07E+01	4.93E+02	0.00E-01	1.61E+02	4.79E+01	0.00E-01	0.00E-01	0.00E-01
MN 56	1.30E-08	2.34E-06	0.00E-01	7.32E-08	9.30E-08	0.00E-01	0.00E-01	0.00E-01
FE 55	7.62E+01	1.87E+02	4.73E+02	3.27E+02	0.00E-01	0.00E-01	1.82E+02	0.00E-01
FE 59	5.55E+02	4.83E+03	6.16E+02	1.45E+03	0.00E-01	0.00E-01	4.05E+02	0.00E-01
CO 58	2.13E+02	1.92E+03	0.00E-01	9.48E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	6.82E+02	5.81E+03	0.00E-01	3.09E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	4.30E+03	1.85E+03	1.28E+05	8.89E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	4.10E-07	2.28E-05	6.91E-06	8.98E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	2.55E-01	4.63E+01	0.00E-01	5.43E-01	1.37E+00	0.00E-01	0.00E-01	0.00E-01
ZN 65	3.88E+04	5.41E+04	2.70E+04	8.59E+04	5.74E+04	0.00E-01	0.00E-01	0.00E-01
ZN 69	7.91E-18	1.71E-17	5.94E-17	1.14E-16	7.39E-17	0.00E-01	0.00E-01	0.00E-01
BR 83	1.81E-06	2.61E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	1.82E-27	1.43E-32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	1.25E-35	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	2.71E+04	1.15E+04	0.00E-01	5.81E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	1.36E-28	3.54E-39	0.00E-01	2.56E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	6.87E-29	5.68E-42	0.00E-01	9.77E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	8.69E+02	4.86E+03	3.03E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	3.73E+04	4.67E+04	1.86E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	2.63E-02	3.10E+00	6.50E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	4.06E-07	1.86E-04	9.39E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	4.56E-05	1.80E+01	1.70E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	2.28E-26	1.73E-24	5.89E-25	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	4.67E-03	9.62E+01	1.75E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	3.40E-11	2.04E-05	1.16E-09	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	1.39E-07	1.59E-01	5.02E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	4.15E-03	1.94E+01	1.91E-02	6.12E-03	9.61E-03	0.00E-01	0.00E-01	0.00E-01
ZR 97	9.29E-07	6.29E-01	1.01E-05	2.03E-06	3.07E-06	0.00E-01	0.00E-01	0.00E-01
NB 95	5.23E-01	5.90E+03	1.75E+00	9.72E-01	9.61E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	1.13E+02	1.37E+03	0.00E-01	5.93E+02	1.34E+03	0.00E-01	0.00E-01	0.00E-01
TC 99M	2.59E-03	1.20E-01	7.19E-05	2.03E-04	3.08E-03	0.00E-01	9.95E-05	0.00E-01
TC101	5.52E-30	1.69E-42	3.91E-31	5.63E-31	1.01E-29	0.00E-01	2.88E-31	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = IRRIGATED FRESH FORAGE--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	9.19E-03	2.49E+00	2.13E-02	0.00E-01	8.15E-02	0.00E-01	0.00E-01	0.00E-01
RU105	7.01E-09	1.09E-05	1.78E-08	0.00E-01	2.30E-07	0.00E-01	0.00E-01	0.00E-01
RU106	4.93E-02	2.52E+01	3.90E-01	0.00E-01	7.53E-01	0.00E-01	0.00E-01	0.00E-01
AG110M	6.19E+02	4.25E+05	1.13E+03	1.04E+03	2.05E+03	0.00E-01	0.00E-01	0.00E-01
TE125M	4.55E+01	1.35E+03	3.39E+02	1.23E+02	1.38E+03	1.02E+02	0.00E-01	0.00E-01
TE127M	1.14E+02	3.14E+03	9.37E+02	3.35E+02	3.80E+03	2.39E+02	0.00E-01	0.00E-01
TE127	3.19E-03	1.16E+00	1.48E-02	5.30E-03	6.01E-02	1.09E-02	0.00E-01	0.00E-01
TE129M	2.05E+02	6.53E+03	1.30E+03	4.84E+02	5.41E+03	4.45E+02	0.00E-01	0.00E-01
TE129	9.47E-16	2.94E-15	3.89E-15	1.46E-15	1.63E-14	2.99E-15	0.00E-01	0.00E-01
TE131M	3.50E+00	4.16E+02	8.58E+00	4.20E+00	4.25E+01	6.64E+00	0.00E-01	0.00E-01
TE131	2.41E-30	1.08E-30	7.65E-30	3.20E-30	3.35E-29	6.29E-30	0.00E-01	0.00E-01
TE132	3.52E+01	1.77E+03	5.79E+01	3.75E+01	3.61E+02	4.14E+01	0.00E-01	0.00E-01
I 130	2.23E+00	4.87E+00	1.92E+00	5.66E+00	8.83E+00	4.79E+02	0.00E-01	0.00E-01
I 131	1.15E+03	5.30E+02	1.40E+03	2.01E+03	3.44E+03	6.58E+05	0.00E-01	0.00E-01
I 132	5.61E-07	3.01E-07	6.00E-07	1.60E-06	2.56E-06	5.61E-05	0.00E-01	0.00E-01
I 133	9.64E+00	2.84E+01	1.82E+01	3.16E+01	5.52E+01	4.65E+03	0.00E-01	0.00E-01
I 134	4.20E-18	1.02E-20	4.32E-18	1.17E-17	1.87E-17	2.04E-16	0.00E-01	0.00E-01
I 135	5.36E-02	1.64E-01	5.54E-02	1.45E-01	2.33E-01	9.57E+00	0.00E-01	0.00E-01
CS134	2.08E+05	4.45E+03	1.07E+05	2.54E+05	8.23E+04	0.00E-01	2.73E+04	0.00E-01
CS136	1.72E+04	2.71E+03	6.05E+03	2.39E+04	1.33E+04	0.00E-01	1.82E+03	0.00E-01
CS137	1.25E+05	3.69E+03	1.39E+05	1.91E+05	6.47E+04	0.00E-01	2.15E+04	0.00E-01
CS138	4.67E-28	4.02E-33	4.78E-28	9.43E-28	6.93E-28	0.00E-01	6.85E-29	0.00E-01
BA139	1.63E-14	9.87E-13	5.57E-13	3.97E-16	3.71E-16	0.00E-01	2.25E-16	0.00E-01
BA140	4.06E+01	1.28E+03	6.20E+02	7.79E-01	2.65E-01	0.00E-01	4.46E-01	0.00E-01
BA141	9.70E-32	1.35E-39	2.87E-30	2.17E-33	2.02E-33	0.00E-01	1.23E-33	0.00E-01
BA142	9.54E-33	0.00E-01	1.52E-31	1.56E-34	1.32E-34	0.00E-01	8.82E-35	0.00E-01
LA140	1.43E-05	3.98E+00	1.08E-04	5.43E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	1.64E-17	4.81E-13	1.45E-16	6.59E-17	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	7.91E-03	2.67E+02	1.03E-01	6.98E-02	3.24E-02	0.00E-01	0.00E-01	0.00E-01
CE143	8.13E-05	2.75E+01	9.94E-04	7.35E-01	3.23E-04	0.00E-01	0.00E-01	0.00E-01
CE144	3.67E-01	2.31E+03	6.84E+00	2.86E+00	1.70E+00	0.00E-01	0.00E-01	0.00E-01
PR143	1.80E-04	1.59E+01	3.63E-03	1.46E-03	8.41E-04	0.00E-01	0.00E-01	0.00E-01
PR144	9.64E-37	2.73E-42	1.90E-35	7.88E-36	4.44E-36	0.00E-01	0.00E-01	0.00E-01
ND147	1.53E-04	1.23E+01	2.21E-03	2.55E-03	1.49E-03	0.00E-01	0.00E-01	0.00E-01
W 187	4.52E-02	4.24E+01	1.55E-01	1.29E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	4.77E-06	1.78E+00	8.81E-05	8.66E-06	2.70E-05	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = IRRIGATED FRESH FORAGE--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.65E+00	1.65E+00	0.00E-01	1.65E+00	1.65E+00	1.65E+00	1.65E+00	0.00E-01
C 14	5.91E+03	5.91E+03	2.96E+04	5.91E+03	5.91E+03	5.91E+03	5.91E+03	0.00E-01
NA 24	3.43E-08	3.43E-08	3.43E-08	3.43E-08	3.43E-08	3.43E-08	3.43E-08	0.00E-01
P 32	4.15E+03	1.21E+04	1.07E+05	6.68E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.52E-01	3.82E+01	0.00E-01	0.00E-01	3.35E-02	9.09E-02	2.02E-01	0.00E-01
MN 54	3.35E+01	5.38E+02	0.00E-01	1.75E+02	5.22E+01	0.00E-01	0.00E-01	0.00E-01
MN 56	5.49E-29	9.88E-27	0.00E-01	3.09E-28	3.93E-28	0.00E-01	0.00E-01	0.00E-01
FE 55	8.90E+02	2.19E+03	5.52E+03	3.82E+03	0.00E-01	0.00E-01	2.13E+03	0.00E-01
FE 59	4.96E+03	4.31E+04	5.51E+03	1.29E+04	0.00E-01	0.00E-01	3.62E+03	0.00E-01
CO 58	8.23E+02	7.44E+03	0.00E-01	3.67E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	3.13E+03	2.66E+04	0.00E-01	1.42E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	1.21E+04	5.20E+03	3.60E+05	2.49E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	5.45E-27	3.03E-25	9.20E-26	1.20E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	2.80E-12	5.08E-10	0.00E-01	5.96E-12	1.50E-11	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.01E+04	1.40E+04	7.00E+03	2.23E+04	1.49E+04	0.00E-01	0.00E-01	0.00E-01
ZN 69	3.24E-29	7.00E-29	2.44E-28	4.66E-28	3.03E-28	0.00E-01	0.00E-01	0.00E-01
BR 83	3.22E-27	4.64E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	3.37E-28	2.64E-33	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	2.30E-36	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	5.10E+03	2.16E+03	0.00E-01	1.09E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	4.98E-29	1.30E-39	0.00E-01	9.39E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	2.52E-29	2.08E-42	0.00E-01	3.58E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	1.81E+02	1.01E+03	6.29E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	9.93E+03	1.24E+04	4.94E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	1.36E-15	1.60E-14	3.37E-15	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	2.02E-28	9.24E-26	4.66E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	7.00E-05	2.77E+01	2.61E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	9.98E-33	7.57E-31	2.58E-31	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	6.16E-01	1.27E+04	2.30E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	5.68E-31	3.41E-25	1.94E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	2.85E-18	3.27E-12	1.03E-16	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	8.23E+00	3.85E+04	3.79E+01	1.22E+01	1.91E+01	0.00E-01	0.00E-01	0.00E-01
ZR 97	4.47E-11	3.03E-05	4.85E-10	9.78E-11	1.48E-10	0.00E-01	0.00E-01	0.00E-01
NB 95	1.46E+01	1.64E+05	4.87E+01	2.71E+01	2.68E+01	0.00E-01	0.00E-01	0.00E-01
MO 99	4.55E-01	5.54E+00	0.00E-01	2.39E+00	5.42E+00	0.00E-01	0.00E-01	0.00E-01
TC 99M	3.58E-24	1.66E-22	9.94E-26	2.81E-25	4.27E-24	0.00E-01	1.38E-25	0.00E-01
TC101	3.13E-29	9.61E-42	2.22E-30	3.20E-30	5.76E-29	0.00E-01	1.63E-30	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = IRRIGATED FRESH FORAGE--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	9.50E+02	2.58E+05	2.21E+03	0.00E-01	8.42E+03	0.00E-01	0.00E-01	0.00E-01
RU105	1.57E-26	2.44E-23	3.99E-26	0.00E-01	5.16E-25	0.00E-01	0.00E-01	0.00E-01
RU106	6.77E+03	3.46E+06	5.35E+04	0.00E-01	1.03E+05	0.00E-01	0.00E-01	0.00E-01
AG110M	7.11E+01	4.88E+04	1.29E+02	1.20E+02	2.35E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	1.00E+03	2.99E+04	7.48E+03	2.71E+03	3.04E+04	2.25E+03	0.00E-01	0.00E-01
TE127M	2.78E+03	7.65E+04	2.28E+04	8.16E+03	9.27E+04	5.83E+03	0.00E-01	0.00E-01
TE127	1.07E-15	3.88E-13	4.92E-15	1.77E-15	2.01E-14	3.65E-15	0.00E-01	0.00E-01
TE129M	3.86E+03	1.23E+05	2.44E+04	9.11E+03	1.02E+05	8.39E+03	0.00E-01	0.00E-01
TE129	6.50E-28	2.01E-27	2.67E-27	1.00E-27	1.12E-26	2.05E-27	0.00E-01	0.00E-01
TE131M	4.40E-03	5.25E-01	1.08E-02	5.28E-03	5.35E-02	8.37E-03	0.00E-01	0.00E-01
TE131	6.60E-29	2.96E-29	2.09E-28	8.73E-29	9.15E-28	1.72E-28	0.00E-01	0.00E-01
TE132	2.10E+01	1.06E+03	3.45E+01	2.23E+01	2.15E+02	2.46E+01	0.00E-01	0.00E-01
I 130	1.11E-11	2.43E-11	9.56E-12	2.82E-11	4.40E-11	2.39E-09	0.00E-01	0.00E-01
I 131	4.18E+01	1.92E+01	5.10E+01	7.29E+01	1.25E+02	2.39E+04	0.00E-01	0.00E-01
I 132	1.61E-27	8.65E-28	1.72E-27	4.60E-27	7.33E-27	1.61E-25	0.00E-01	0.00E-01
I 133	9.35E-07	2.76E-06	1.76E-06	3.07E-06	5.35E-06	4.51E-04	0.00E-01	0.00E-01
I 134	2.04E-28	4.98E-31	2.10E-28	5.71E-28	9.08E-28	9.89E-27	0.00E-01	0.00E-01
I 135	1.74E-22	5.33E-22	1.80E-22	4.72E-22	7.57E-22	3.11E-20	0.00E-01	0.00E-01
CS134	2.42E+04	5.18E+02	1.24E+04	2.96E+04	9.57E+03	0.00E-01	3.18E+03	0.00E-01
CS136	7.85E+02	1.24E+02	2.76E+02	1.09E+03	6.07E+02	0.00E-01	8.32E+01	0.00E-01
CS137	1.48E+04	4.36E+02	1.65E+04	2.25E+04	7.65E+03	0.00E-01	2.54E+03	0.00E-01
CS138	5.53E-29	4.76E-34	5.65E-29	1.12E-28	8.20E-29	0.00E-01	8.10E-30	0.00E-01
BA139	1.30E-29	7.88E-28	4.44E-28	3.16E-31	2.96E-31	0.00E-01	1.79E-31	0.00E-01
BA140	4.35E+01	1.37E+03	6.64E+02	8.34E-01	2.84E-01	0.00E-01	4.78E-01	0.00E-01
BA141	2.75E-31	3.84E-39	8.15E-30	6.16E-33	5.73E-33	0.00E-01	3.50E-33	0.00E-01
BA142	2.71E-32	0.00E-01	4.30E-31	4.42E-34	3.74E-34	0.00E-01	2.51E-34	0.00E-01
LA140	1.20E-07	3.34E-02	9.03E-07	4.55E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	4.90E-33	1.44E-28	4.33E-32	1.97E-32	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	2.29E-02	7.73E+02	2.99E-01	2.02E-01	9.40E-02	0.00E-01	0.00E-01	0.00E-01
CE143	4.12E-08	1.39E-02	5.04E-07	3.73E-04	1.64E-07	0.00E-01	0.00E-01	0.00E-01
CE144	1.50E+00	9.42E+03	2.79E+01	1.16E+01	6.91E+00	0.00E-01	0.00E-01	0.00E-01
PR143	2.40E-02	2.12E+03	4.84E-01	1.94E-01	1.12E-01	0.00E-01	0.00E-01	0.00E-01
PR144	3.22E-34	9.11E-40	6.33E-33	2.63E-33	1.48E-33	0.00E-01	0.00E-01	0.00E-01
ND147	1.16E-02	9.33E+02	1.68E-01	1.94E-01	1.14E-01	0.00E-01	0.00E-01	0.00E-01
W 187	1.52E-07	1.43E-04	5.22E-07	4.36E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	3.42E-07	1.27E-01	6.32E-06	6.21E-07	1.94E-06	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = IRRIGATED STORED FEED--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	4.24E+00	4.24E+00	0.00E-01	4.24E+00	4.24E+00	4.24E+00	4.24E+00	0.00E-01
C 14	6.67E+03	6.67E+03	3.34E+04	6.67E+03	6.67E+03	6.67E+03	6.67E+03	0.00E-01
NA 24	5.70E+01	5.70E+01	5.70E+01	5.70E+01	5.70E+01	5.70E+01	5.70E+01	0.00E-01
P 32	1.60E+04	4.66E+04	4.14E+05	2.58E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	6.83E-01	1.72E+02	0.00E-01	0.00E-01	1.50E-01	4.08E-01	9.06E-01	0.00E-01
MN 54	3.72E+01	5.97E+02	0.00E-01	1.95E+02	5.80E+01	0.00E-01	0.00E-01	0.00E-01
MN 56	1.30E-08	2.34E-06	0.00E-01	7.32E-08	9.30E-08	0.00E-01	0.00E-01	0.00E-01
FE 55	9.31E+01	2.29E+02	5.78E+02	3.99E+02	0.00E-01	0.00E-01	2.23E+02	0.00E-01
FE 59	6.34E+02	5.51E+03	7.04E+02	1.65E+03	0.00E-01	0.00E-01	4.62E+02	0.00E-01
CO 58	2.48E+02	2.25E+03	0.00E-01	1.11E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	8.35E+02	7.11E+03	0.00E-01	3.78E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	5.26E+03	2.27E+03	1.57E+05	1.09E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	4.10E-07	2.28E-05	6.91E-06	8.98E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	2.55E-01	4.63E+01	0.00E-01	5.43E-01	1.37E+00	0.00E-01	0.00E-01	0.00E-01
ZN 65	4.67E+04	6.51E+04	3.25E+04	1.03E+05	6.91E+04	0.00E-01	0.00E-01	0.00E-01
ZN 69	7.91E-18	1.71E-17	5.94E-17	1.14E-16	7.39E-17	0.00E-01	0.00E-01	0.00E-01
BR 83	1.81E-06	2.61E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	1.82E-27	1.43E-32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	1.25E-35	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	2.91E+04	1.23E+04	0.00E-01	6.25E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	1.36E-28	3.54E-39	0.00E-01	2.56E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	6.87E-29	5.68E-42	0.00E-01	9.77E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	9.97E+02	5.57E+03	3.48E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	4.19E+04	5.25E+04	2.09E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	2.63E-02	3.10E+00	6.50E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	4.06E-07	1.86E-04	9.39E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	4.56E-05	1.80E+01	1.70E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	2.28E-26	1.73E-24	5.89E-25	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	5.42E-03	1.11E+02	2.03E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	3.40E-11	2.04E-05	1.16E-09	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	1.39E-07	1.59E-01	5.02E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	4.82E-03	2.26E+01	2.22E-02	7.13E-03	1.12E-02	0.00E-01	0.00E-01	0.00E-01
ZR 97	9.29E-07	6.29E-01	1.01E-05	2.03E-06	3.07E-06	0.00E-01	0.00E-01	0.00E-01
NB 95	5.88E-01	6.64E+03	1.97E+00	1.09E+00	1.08E+00	0.00E-01	0.00E-01	0.00E-01
MO 99	1.13E+02	1.37E+03	0.00E-01	5.93E+02	1.34E+03	0.00E-01	0.00E-01	0.00E-01
TC 99M	2.59E-03	1.20E-01	7.19E-05	2.03E-04	3.08E-03	0.00E-01	9.95E-05	0.00E-01
TC101	5.52E-30	1.69E-42	3.91E-31	5.63E-31	1.01E-29	0.00E-01	2.88E-31	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = IRRIGATED STORED FEED--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	1.04E-02	2.83E+00	2.42E-02	0.00E-01	9.23E-02	0.00E-01	0.00E-01	0.00E-01
RU105	7.01E-09	1.09E-05	1.78E-08	0.00E-01	2.30E-07	0.00E-01	0.00E-01	0.00E-01
RU106	5.98E-02	3.06E+01	4.73E-01	0.00E-01	9.13E-01	0.00E-01	0.00E-01	0.00E-01
AG110M	7.47E+02	5.13E+05	1.36E+03	1.26E+03	2.47E+03	0.00E-01	0.00E-01	0.00E-01
TE125M	5.25E+01	1.56E+03	3.92E+02	1.42E+02	1.59E+03	1.18E+02	0.00E-01	0.00E-01
TE127M	1.35E+02	3.71E+03	1.10E+03	3.95E+02	4.49E+03	2.82E+02	0.00E-01	0.00E-01
TE127	3.19E-03	1.16E+00	1.48E-02	5.30E-03	6.01E-02	1.09E-02	0.00E-01	0.00E-01
TE129M	2.30E+02	7.31E+03	1.45E+03	5.42E+02	6.06E+03	4.99E+02	0.00E-01	0.00E-01
TE129	9.47E-16	2.94E-15	3.89E-15	1.46E-15	1.63E-14	2.99E-15	0.00E-01	0.00E-01
TE131M	3.50E+00	4.16E+02	8.58E+00	4.20E+00	4.25E+01	6.64E+00	0.00E-01	0.00E-01
TE131	2.41E-30	1.08E-30	7.65E-30	3.20E-30	3.35E-29	6.29E-30	0.00E-01	0.00E-01
TE132	3.52E+01	1.77E+03	5.80E+01	3.75E+01	3.61E+02	4.14E+01	0.00E-01	0.00E-01
I 130	2.23E+00	4.87E+00	1.92E+00	5.66E+00	8.83E+00	4.79E+02	0.00E-01	0.00E-01
I 131	1.17E+03	5.39E+02	1.43E+03	2.04E+03	3.50E+03	6.69E+05	0.00E-01	0.00E-01
I 132	5.61E-07	3.01E-07	6.00E-07	1.60E-06	2.56E-06	5.61E-05	0.00E-01	0.00E-01
I 133	9.64E+00	2.84E+01	1.82E+01	3.16E+01	5.52E+01	4.65E+03	0.00E-01	0.00E-01
I 134	4.20E-18	1.02E-20	4.32E-18	1.17E-17	1.87E-17	2.04E-16	0.00E-01	0.00E-01
I 135	5.36E-02	1.64E-01	5.54E-02	1.45E-01	2.33E-01	9.57E+00	0.00E-01	0.00E-01
CS134	2.54E+05	5.43E+03	1.30E+05	3.10E+05	1.00E+05	0.00E-01	3.33E+04	0.00E-01
CS136	1.80E+04	2.84E+03	6.33E+03	2.50E+04	1.39E+04	0.00E-01	1.91E+03	0.00E-01
CS137	1.53E+05	4.52E+03	1.71E+05	2.33E+05	7.92E+04	0.00E-01	2.63E+04	0.00E-01
CS138	4.67E-28	4.02E-33	4.78E-28	9.43E-28	6.93E-28	0.00E-01	6.85E-29	0.00E-01
BA139	1.63E-14	9.87E-13	5.57E-13	3.97E-16	3.71E-16	0.00E-01	2.25E-16	0.00E-01
BA140	4.25E+01	1.33E+03	6.48E+02	8.14E-01	2.77E-01	0.00E-01	4.66E-01	0.00E-01
BA141	9.70E-32	1.35E-39	2.87E-30	2.17E-33	2.02E-33	0.00E-01	1.23E-33	0.00E-01
BA142	9.54E-33	0.00E-01	1.52E-31	1.56E-34	1.32E-34	0.00E-01	8.82E-35	0.00E-01
LA140	1.43E-05	3.98E+00	1.08E-04	5.43E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	1.64E-17	4.81E-13	1.45E-16	6.59E-17	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	8.86E-03	2.98E+02	1.16E-01	7.81E-02	3.63E-02	0.00E-01	0.00E-01	0.00E-01
CE143	8.13E-05	2.75E+01	9.94E-04	7.35E-01	3.23E-04	0.00E-01	0.00E-01	0.00E-01
CE144	4.44E-01	2.80E+03	8.27E+00	3.46E+00	2.05E+00	0.00E-01	0.00E-01	0.00E-01
PR143	1.89E-04	1.67E+01	3.81E-03	1.53E-03	8.82E-04	0.00E-01	0.00E-01	0.00E-01
PR144	9.64E-37	2.73E-42	1.90E-35	7.88E-36	4.44E-36	0.00E-01	0.00E-01	0.00E-01
ND147	1.58E-04	1.27E+01	2.29E-03	2.64E-03	1.55E-03	0.00E-01	0.00E-01	0.00E-01
W 187	4.52E-02	4.24E+01	1.55E-01	1.29E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	4.77E-06	1.78E+00	8.81E-05	8.66E-06	2.70E-05	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = IRRIGATED STORED FEED--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.65E+00	1.65E+00	0.00E-01	1.65E+00	1.65E+00	1.65E+00	1.65E+00	0.00E-01
C 14	6.12E+03	6.12E+03	3.06E+04	6.12E+03	6.12E+03	6.12E+03	6.12E+03	0.00E-01
NA 24	3.43E-08	3.43E-08	3.43E-08	3.43E-08	3.43E-08	3.43E-08	3.43E-08	0.00E-01
P 32	4.37E+03	1.27E+04	1.13E+05	7.03E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.68E-01	4.23E+01	0.00E-01	0.00E-01	3.71E-02	1.01E-01	2.23E-01	0.00E-01
MN 54	4.06E+01	6.51E+02	0.00E-01	2.13E+02	6.33E+01	0.00E-01	0.00E-01	0.00E-01
MN 56	5.49E-29	9.88E-27	0.00E-01	3.09E-28	3.93E-28	0.00E-01	0.00E-01	0.00E-01
FE 55	1.09E+03	2.67E+03	6.75E+03	4.66E+03	0.00E-01	0.00E-01	2.60E+03	0.00E-01
FE 59	5.67E+03	4.93E+04	6.29E+03	1.48E+04	0.00E-01	0.00E-01	4.13E+03	0.00E-01
CO 58	9.62E+02	8.69E+03	0.00E-01	4.29E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	3.82E+03	3.26E+04	0.00E-01	1.73E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	1.48E+04	6.36E+03	4.40E+05	3.05E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	5.45E-27	3.03E-25	9.20E-26	1.20E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	2.80E-12	5.08E-10	0.00E-01	5.96E-12	1.50E-11	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.21E+04	1.69E+04	8.42E+03	2.68E+04	1.79E+04	0.00E-01	0.00E-01	0.00E-01
ZN 69	3.24E-29	7.00E-29	2.44E-28	4.66E-28	3.03E-28	0.00E-01	0.00E-01	0.00E-01
BR 83	3.22E-27	4.64E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	3.37E-28	2.64E-33	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	2.30E-36	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	5.48E+03	2.32E+03	0.00E-01	1.18E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	4.98E-29	1.30E-39	0.00E-01	9.39E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	2.52E-29	2.08E-42	0.00E-01	3.58E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	2.07E+02	1.16E+03	7.22E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	1.11E+04	1.39E+04	5.55E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	1.36E-16	1.60E-14	3.37E-15	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	2.02E-28	9.24E-26	4.66E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	7.01E-05	2.77E+01	2.61E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	9.98E-33	7.57E-31	2.58E-31	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	7.14E-01	1.47E+04	2.67E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	5.68E-31	3.41E-25	1.94E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	2.85E-18	3.27E-12	1.03E-16	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	9.58E+00	4.49E+04	4.41E+01	1.42E+01	2.22E+01	0.00E-01	0.00E-01	0.00E-01
ZR 97	4.47E-11	3.03E-05	4.85E-10	9.78E-11	1.48E-10	0.00E-01	0.00E-01	0.00E-01
NB 95	1.64E+01	1.85E+05	5.48E+01	3.05E+01	3.02E+01	0.00E-01	0.00E-01	0.00E-01
MO 99	4.55E-01	5.54E+00	0.00E-01	2.39E+00	5.42E+00	0.00E-01	0.00E-01	0.00E-01
TC 99M	3.58E-24	1.66E-22	9.94E-26	2.81E-25	4.27E-24	0.00E-01	1.38E-25	0.00E-01
TC101	3.13E-29	9.61E-42	2.22E-30	3.20E-30	5.76E-29	0.00E-01	1.63E-30	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = IRRIGATED STORED FEED--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	1.08E+03	2.92E+05	2.50E+03	0.00E-01	9.54E+03	0.00E-01	0.00E-01	0.00E-01
RU105	1.57E-26	2.44E-23	3.99E-26	0.00E-01	5.16E-25	0.00E-01	0.00E-01	0.00E-01
RU106	8.21E+03	4.20E+06	6.49E+04	0.00E-01	1.25E+05	0.00E-01	0.00E-01	0.00E-01
AG110M	8.57E+01	5.89E+04	1.56E+02	1.44E+02	2.84E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	1.16E+03	3.45E+04	8.64E+03	3.13E+03	3.51E+04	2.60E+03	0.00E-01	0.00E-01
TE127M	3.28E+03	9.03E+04	2.69E+04	9.63E+03	1.09E+05	6.88E+03	0.00E-01	0.00E-01
TE127	1.07E-15	3.88E-13	4.92E-15	1.77E-15	2.01E-14	3.65E-15	0.00E-01	0.00E-01
TE129M	4.33E+03	1.38E+05	2.74E+04	1.02E+04	1.14E+05	9.40E+03	0.00E-01	0.00E-01
TE129	6.50E-28	2.01E-27	2.67E-27	1.00E-27	1.12E-26	2.05E-27	0.00E-01	0.00E-01
TE131M	4.40E-03	5.25E-01	1.08E-02	5.28E-03	5.35E-02	8.37E-03	0.00E-01	0.00E-01
TE131	6.60E-29	2.96E-29	2.09E-28	8.73E-29	9.15E-28	1.72E-28	0.00E-01	0.00E-01
TE132	2.10E+01	1.06E+03	3.45E+01	2.23E+01	2.15E+02	2.47E+01	0.00E-01	0.00E-01
I 130	1.11E-11	2.43E-11	9.56E-12	2.82E-11	4.40E-11	2.39E-09	0.00E-01	0.00E-01
I 131	4.25E+01	1.96E+01	5.19E+01	7.42E+01	1.27E+02	2.43E+04	0.00E-01	0.00E-01
I 132	1.61E-27	8.65E-28	1.72E-27	4.60E-27	7.33E-27	1.61E-25	0.00E-01	0.00E-01
I 133	9.35E-07	2.76E-06	1.76E-06	3.07E-06	5.35E-06	4.51E-04	0.00E-01	0.00E-01
I 134	2.04E-28	4.98E-31	2.10E-28	5.71E-28	9.08E-28	9.89E-27	0.00E-01	0.00E-01
I 135	1.74E-22	5.33E-22	1.80E-22	4.72E-22	7.57E-22	3.11E-20	0.00E-01	0.00E-01
CS134	2.95E+04	6.31E+02	1.52E+04	3.61E+04	1.17E+04	0.00E-01	3.88E+03	0.00E-01
CS136	8.21E+02	1.30E+02	2.89E+02	1.14E+03	6.35E+02	0.00E-01	8.70E+01	0.00E-01
CS137	1.81E+04	5.34E+02	2.02E+04	2.76E+04	9.36E+03	0.00E-01	3.11E+03	0.00E-01
CS138	5.53E-29	4.76E-34	5.65E-29	1.12E-28	8.20E-29	0.00E-01	8.10E-30	0.00E-01
BA139	1.30E-29	7.88E-28	4.44E-28	3.16E-31	2.96E-31	0.00E-01	1.79E-31	0.00E-01
BA140	4.55E+01	1.43E+03	6.94E+02	8.72E-01	2.96E-01	0.00E-01	4.99E-01	0.00E-01
BA141	2.75E-31	3.84E-39	8.15E-30	6.16E-33	5.73E-33	0.00E-01	3.50E-33	0.00E-01
BA142	2.71E-32	0.00E-01	4.30E-31	4.42E-34	3.74E-34	0.00E-01	2.51E-34	0.00E-01
LA140	1.20E-07	3.34E-02	9.03E-07	4.55E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	4.90E-33	1.44E-28	4.33E-32	1.97E-32	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	2.57E-02	8.66E+02	3.35E-01	2.26E-01	1.05E-01	0.00E-01	0.00E-01	0.00E-01
CE143	4.12E-08	1.39E-02	5.04E-07	3.73E-04	1.64E-07	0.00E-01	0.00E-01	0.00E-01
CE144	1.81E+00	1.14E+04	3.37E+01	1.41E+01	8.36E+00	0.00E-01	0.00E-01	0.00E-01
PR143	2.52E-02	2.22E+03	5.08E-01	2.04E-01	1.18E-01	0.00E-01	0.00E-01	0.00E-01
PR144	3.22E-34	9.11E-40	6.33E-33	2.63E-33	1.48E-33	0.00E-01	0.00E-01	0.00E-01
ND147	1.20E-02	9.65E+02	1.74E-01	2.01E-01	1.17E-01	0.00E-01	0.00E-01	0.00E-01
W 187	1.52E-07	1.43E-04	5.22E-07	4.36E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	3.42E-07	1.27E-01	6.32E-06	6.21E-07	1.94E-06	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = ANIMAL DRINKING WATER--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	5.08E+00	5.08E+00	0.00E-01	5.08E+00	5.08E+00	5.08E+00	5.08E+00	0.00E-01
C 14	6.36E+01	6.36E+01	3.18E+02	6.36E+01	6.36E+01	6.36E+01	6.36E+01	0.00E-01
NA 24	6.64E+01	6.64E+01	6.64E+01	6.64E+01	6.64E+01	6.64E+01	6.64E+01	0.00E-01
P 32	1.58E+03	4.59E+03	4.08E+04	2.54E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	5.19E-02	1.31E+01	0.00E-01	0.00E-01	1.14E-02	3.10E-02	6.89E-02	0.00E-01
MN 54	2.03E+00	3.25E+01	0.00E-01	1.06E+01	3.16E+00	0.00E-01	0.00E-01	0.00E-01
MN 56	8.55E-08	1.54E-05	0.00E-01	4.82E-07	6.12E-07	0.00E-01	0.00E-01	0.00E-01
FE 55	4.95E+00	1.22E+01	3.08E+01	2.12E+01	0.00E-01	0.00E-01	1.19E+01	0.00E-01
FE 59	4.24E+01	3.69E+02	4.71E+01	1.11E+02	0.00E-01	0.00E-01	3.09E+01	0.00E-01
CO 58	1.53E+01	1.38E+02	0.00E-01	6.82E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	4.40E+01	3.75E+02	0.00E-01	2.00E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	2.73E+02	1.18E+02	8.13E+03	5.63E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	2.75E-06	1.53E-04	4.63E-05	6.02E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	3.50E-01	6.35E+01	0.00E-01	7.45E-01	1.88E+00	0.00E-01	0.00E-01	0.00E-01
ZN 65	2.52E+03	3.51E+03	1.75E+03	5.57E+03	3.73E+03	0.00E-01	0.00E-01	0.00E-01
ZN 69	1.40E-16	3.03E-16	1.05E-15	2.01E-15	1.31E-15	0.00E-01	0.00E-01	0.00E-01
BR 83	1.28E-05	1.84E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	5.76E-26	4.52E-31	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	4.38E-33	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	2.55E+03	1.08E+03	0.00E-01	5.48E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	7.66E-27	2.00E-37	0.00E-01	1.44E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	4.53E-27	3.74E-40	0.00E-01	6.44E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	6.42E+01	3.59E+02	2.24E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	1.31E+03	1.63E+03	6.50E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	4.76E-02	5.61E+00	1.18E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	2.52E-06	1.16E-03	5.84E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	1.42E-05	5.61E+00	5.29E-04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	4.64E-25	1.52E-23	1.20E-23	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	3.43E-04	7.07E+00	1.28E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	1.62E-10	9.73E-05	5.56E-09	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	2.38E-07	2.73E-01	8.61E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	3.01E-04	1.41E+00	1.39E-03	4.45E-04	6.98E-04	0.00E-01	0.00E-01	0.00E-01
ZR 97	9.68E-07	6.56E-01	1.05E-05	2.12E-06	3.20E-06	0.00E-01	0.00E-01	0.00E-01
NB 95	4.17E-02	4.71E+02	1.39E-01	7.76E-02	7.67E-02	0.00E-01	0.00E-01	0.00E-01
MO 99	3.43E+01	4.18E+02	0.00E-01	1.80E+02	4.08E+02	0.00E-01	0.00E-01	0.00E-01
TC 99M	7.34E-03	3.41E-01	2.04E-04	5.76E-04	8.74E-03	0.00E-01	2.82E-04	0.00E-01
TC101	3.92E-28	1.20E-40	2.77E-29	3.99E-29	7.19E-28	0.00E-01	2.04E-29	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = ANIMAL DRINKING WATER--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	7.18E-04	1.94E-01	1.67E-03	0.00E-01	6.36E-03	0.00E-01	0.00E-01	0.00E-01
RU105	2.69E-08	4.16E-05	6.80E-08	0.00E-01	8.79E-07	0.00E-01	0.00E-01	0.00E-01
RU106	3.24E-03	1.65E+00	2.56E-02	0.00E-01	4.94E-02	0.00E-01	0.00E-01	0.00E-01
AG110M	4.08E+01	2.80E+04	7.42E+01	6.87E+01	1.35E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	3.27E+00	9.75E+01	2.44E+01	8.85E+00	9.93E+01	7.34E+00	0.00E-01	0.00E-01
TE127M	7.60E+00	2.09E+02	6.24E+01	2.23E+01	2.53E+02	1.59E+01	0.00E-01	0.00E-01
TE127	5.87E-03	2.14E+00	2.71E-02	9.74E-03	1.10E-01	2.01E-02	0.00E-01	0.00E-01
TE129M	1.63E+01	5.18E+02	1.03E+02	3.84E+01	4.29E+02	3.53E+01	0.00E-01	0.00E-01
TE129	1.37E-14	4.24E-14	5.62E-14	2.11E-14	2.36E-13	4.31E-14	0.00E-01	0.00E-01
TE131M	2.12E+00	2.53E+02	5.20E+00	2.54E+00	2.58E+01	4.03E+00	0.00E-01	0.00E-01
TE131	9.67E-29	4.34E-29	3.06E-28	1.28E-28	1.34E-27	2.52E-28	0.00E-01	0.00E-01
TE132	9.25E+00	4.66E+02	1.52E+01	9.86E+00	9.49E+01	1.09E+01	0.00E-01	0.00E-01
I 130	3.14E+00	6.86E+00	2.70E+00	7.97E+00	1.24E+01	6.75E+02	0.00E-01	0.00E-01
I 131	1.60E+02	7.37E+01	1.95E+02	2.79E+02	4.79E+02	9.16E+04	0.00E-01	0.00E-01
I 132	4.12E-06	2.21E-06	4.40E-06	1.18E-05	1.88E-05	4.12E-04	0.00E-01	0.00E-01
I 133	8.25E+00	2.43E+01	1.56E+01	2.71E+01	4.72E+01	3.98E+03	0.00E-01	0.00E-01
I 134	8.07E-17	1.97E-19	8.31E-17	2.26E-16	3.59E-16	3.91E-15	0.00E-01	0.00E-01
I 135	1.39E-01	4.25E-01	1.44E-01	3.76E-01	6.04E-01	2.48E+01	0.00E-01	0.00E-01
CS134	1.35E+04	2.89E+02	6.95E+03	1.65E+04	5.35E+03	0.00E-01	1.78E+03	0.00E-01
CS136	1.86E+03	2.94E+02	6.54E+02	2.58E+03	1.44E+03	0.00E-01	1.97E+02	0.00E-01
CS137	8.00E+03	2.36E+02	8.92E+03	1.22E+04	4.14E+03	0.00E-01	1.38E+03	0.00E-01
CS138	1.46E-26	1.26E-31	1.49E-26	2.95E-26	2.16E-26	0.00E-01	2.14E-27	0.00E-01
BA139	2.00E-13	1.21E-11	6.82E-12	4.86E-15	4.54E-15	0.00E-01	2.76E-15	0.00E-01
BA140	4.45E+00	1.40E+02	6.78E+01	8.52E-02	2.90E-02	0.00E-01	4.88E-02	0.00E-01
BA141	5.34E-30	7.46E-38	1.58E-28	1.20E-31	1.11E-31	0.00E-01	6.79E-32	0.00E-01
BA142	8.97E-31	0.00E-01	1.43E-29	1.47E-32	1.24E-32	0.00E-01	8.30E-33	0.00E-01
LA140	6.69E-06	1.86E+00	5.02E-05	2.53E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	1.80E-16	5.26E-12	1.59E-15	7.21E-16	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	6.42E-04	2.16E+01	8.36E-03	5.66E-03	2.63E-03	0.00E-01	0.00E-01	0.00E-01
CE143	4.52E-05	1.53E+01	5.53E-04	4.09E-01	1.80E-04	0.00E-01	0.00E-01	0.00E-01
CE144	2.43E-02	1.53E+02	4.53E-01	1.90E-01	1.12E-01	0.00E-01	0.00E-01	0.00E-01
PR143	1.92E-05	1.70E+00	3.87E-04	1.55E-04	8.96E-05	0.00E-01	0.00E-01	0.00E-01
PR144	5.62E-35	1.59E-40	1.11E-33	4.60E-34	2.59E-34	0.00E-01	0.00E-01	0.00E-01
ND147	1.79E-05	1.43E+00	2.58E-04	2.99E-04	1.75E-04	0.00E-01	0.00E-01	0.00E-01
W 187	3.40E-02	3.18E+01	1.16E-01	9.71E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	1.65E-06	6.15E-01	3.05E-05	3.00E-06	9.35E-06	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = ANIMAL DRINKING WATER--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.65E+00	1.65E+00	0.00E-01	1.65E+00	1.65E+00	1.65E+00	1.65E+00	0.00E-01
C 14	4.86E+01	4.86E+01	2.43E+02	4.86E+01	4.86E+01	4.86E+01	4.86E+01	0.00E-01
NA 24	3.33E-08	3.33E-08	3.33E-08	3.33E-08	3.33E-08	3.33E-08	3.33E-08	0.00E-01
P 32	3.58E+02	1.04E+03	9.27E+03	5.77E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.07E-02	2.68E+00	0.00E-01	0.00E-01	2.35E-03	6.37E-03	1.42E-02	0.00E-01
MN 54	1.84E+00	2.96E+01	0.00E-01	9.65E+00	2.87E+00	0.00E-01	0.00E-01	0.00E-01
MN 56	3.01E-28	5.42E-26	0.00E-01	1.70E-27	2.16E-27	0.00E-01	0.00E-01	0.00E-01
FE 55	4.82E+01	1.19E+02	2.99E+02	2.07E+02	0.00E-01	0.00E-01	1.15E+02	0.00E-01
FE 59	3.16E+02	2.75E+03	3.51E+02	8.24E+02	0.00E-01	0.00E-01	2.30E+02	0.00E-01
CO 58	4.93E+01	4.45E+02	0.00E-01	2.20E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	1.68E+02	1.43E+03	0.00E-01	7.62E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	6.37E+02	2.75E+02	1.90E+04	1.32E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	3.05E-26	1.69E-24	5.14E-25	6.67E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	3.20E-12	5.81E-10	0.00E-01	6.82E-12	1.72E-11	0.00E-01	0.00E-01	0.00E-01
ZN 65	5.44E+02	7.59E+02	3.78E+02	1.20E+03	8.06E+02	0.00E-01	0.00E-01	0.00E-01
ZN 69	4.78E-28	1.03E-27	3.60E-27	6.88E-27	4.47E-27	0.00E-01	0.00E-01	0.00E-01
BR 83	1.89E-26	2.72E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	8.86E-27	6.96E-32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	6.73E-34	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	4.00E+02	1.69E+02	0.00E-01	8.59E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	2.34E-27	6.10E-38	0.00E-01	4.41E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	1.38E-27	1.14E-40	0.00E-01	1.97E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	1.11E+01	6.21E+01	3.87E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	2.89E+02	3.62E+02	1.44E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	2.06E-16	2.42E-14	5.09E-15	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	1.04E-27	4.78E-25	2.41E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	1.82E-05	7.18E+00	6.77E-04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	1.69E-31	1.28E-29	4.37E-30	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	3.77E-02	7.77E+02	1.41E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	2.26E-30	1.35E-24	7.73E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	4.07E-18	4.67E-12	1.47E-16	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	4.99E-01	2.33E+03	2.30E+00	7.37E-01	1.16E+00	0.00E-01	0.00E-01	0.00E-01
ZR 97	3.89E-11	2.63E-05	4.21E-10	8.50E-11	1.28E-10	0.00E-01	0.00E-01	0.00E-01
NB 95	9.69E-01	1.09E+04	3.24E+00	1.80E+00	1.78E+00	0.00E-01	0.00E-01	0.00E-01
MO 99	1.15E-01	1.40E+00	0.00E-01	6.06E-01	1.37E+00	0.00E-01	0.00E-01	0.00E-01
TC 99M	8.45E-24	3.93E-22	2.35E-25	6.64E-25	1.01E-23	0.00E-01	3.25E-25	0.00E-01
TC101	1.85E-27	5.68E-40	1.31E-28	1.89E-28	3.40E-27	0.00E-01	9.65E-29	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = ANIMAL DRINKING WATER--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	6.18E+01	1.67E+04	1.43E+02	0.00E-01	5.47E+02	0.00E-01	0.00E-01	0.00E-01
RU105	5.03E-26	7.79E-23	1.27E-25	0.00E-01	1.65E-24	0.00E-01	0.00E-01	0.00E-01
RU106	3.70E+02	1.89E+05	2.92E+03	0.00E-01	5.64E+03	0.00E-01	0.00E-01	0.00E-01
AG110M	3.90E+00	2.68E+03	7.10E+00	6.57E+00	1.29E+01	0.00E-01	0.00E-01	0.00E-01
TE125M	6.01E+01	1.79E+03	4.48E+02	1.62E+02	1.82E+03	1.35E+02	0.00E-01	0.00E-01
TE127M	1.54E+02	4.25E+03	1.27E+03	4.53E+02	5.14E+03	3.24E+02	0.00E-01	0.00E-01
TE127	1.63E-15	5.95E-13	7.54E-15	2.71E-15	3.07E-14	5.58E-15	0.00E-01	0.00E-01
TE129M	2.56E+02	8.13E+03	1.62E+03	6.03E+02	6.74E+03	5.55E+02	0.00E-01	0.00E-01
TE129	7.83E-27	2.43E-26	3.21E-26	1.21E-26	1.35E-25	2.47E-26	0.00E-01	0.00E-01
TE131M	2.23E-03	2.65E-01	5.46E-03	2.67E-03	2.71E-02	4.23E-03	0.00E-01	0.00E-01
TE131	2.20E-27	9.87E-28	6.97E-27	2.91E-27	3.06E-26	5.73E-27	0.00E-01	0.00E-01
TE132	4.59E+00	2.31E+02	7.57E+00	4.89E+00	4.71E+01	5.40E+00	0.00E-01	0.00E-01
I 130	1.31E-11	2.85E-11	1.12E-11	3.31E-11	5.17E-11	2.81E-09	0.00E-01	0.00E-01
I 131	4.85E+00	2.23E+00	5.91E+00	8.46E+00	1.45E+01	2.77E+03	0.00E-01	0.00E-01
I 132	9.85E-27	5.29E-27	1.05E-26	2.81E-26	4.48E-26	9.85E-25	0.00E-01	0.00E-01
I 133	6.67E-07	1.96E-06	1.26E-06	2.19E-06	3.82E-06	3.21E-04	0.00E-01	0.00E-01
I 134	3.27E-27	7.97E-30	3.36E-27	9.14E-27	1.45E-26	1.58E-25	0.00E-01	0.00E-01
I 135	3.76E-22	1.15E-21	3.90E-22	1.02E-21	1.64E-21	6.73E-20	0.00E-01	0.00E-01
CS134	1.31E+03	2.81E+01	6.74E+02	1.60E+03	5.19E+02	0.00E-01	1.72E+02	0.00E-01
CS136	7.08E+01	1.12E+01	2.49E+01	9.83E+01	5.47E+01	0.00E-01	7.50E+00	0.00E-01
CS137	7.87E+02	2.33E+01	8.79E+02	1.20E+03	4.08E+02	0.00E-01	1.36E+02	0.00E-01
CS138	1.44E-27	1.24E-32	1.47E-27	2.90E-27	2.13E-27	0.00E-01	2.11E-28	0.00E-01
BA139	1.33E-28	8.04E-27	4.53E-27	3.23E-30	3.02E-30	0.00E-01	1.83E-30	0.00E-01
BA140	3.97E+00	1.25E+02	6.05E+01	7.60E-02	2.58E-02	0.00E-01	4.35E-02	0.00E-01
BA141	1.26E-29	1.76E-37	3.74E-28	2.83E-31	2.63E-31	0.00E-01	1.61E-31	0.00E-01
BA142	2.12E-30	0.00E-01	3.37E-29	3.47E-32	2.93E-32	0.00E-01	1.96E-32	0.00E-01
LA140	4.67E-08	1.30E-02	3.51E-07	1.77E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	4.47E-32	1.31E-27	3.94E-31	1.79E-31	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	1.55E-03	5.23E+01	2.02E-02	1.37E-02	6.35E-03	0.00E-01	0.00E-01	0.00E-01
CE143	1.91E-08	6.45E-03	2.34E-07	1.73E-04	7.60E-08	0.00E-01	0.00E-01	0.00E-01
CE144	8.26E-02	5.20E+02	1.54E+00	6.43E-01	3.82E-01	0.00E-01	0.00E-01	0.00E-01
PR143	2.13E-03	1.88E+02	4.30E-02	1.72E-02	9.95E-03	0.00E-01	0.00E-01	0.00E-01
PR144	1.56E-32	4.42E-38	3.08E-31	1.28E-31	7.20E-32	0.00E-01	0.00E-01	0.00E-01
ND147	1.13E-03	9.09E+01	1.64E-02	1.89E-02	1.11E-02	0.00E-01	0.00E-01	0.00E-01
W 187	9.54E-08	8.94E-05	3.26E-07	2.73E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	9.88E-08	3.67E-02	1.82E-06	1.79E-07	5.59E-07	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = RIVER SHORELINE DEPOSITS

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	1.88E+00	1.88E+00	1.88E+00	1.88E+00	1.88E+00	1.88E+00	1.88E+00	2.18E+00
P 32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	7.33E-01	7.33E-01	7.33E-01	7.33E-01	7.33E-01	7.33E-01	7.33E-01	8.66E-01
MN 54	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.56E+02
MN 56	1.38E-01	1.38E-01	1.38E-01	1.38E-01	1.38E-01	1.38E-01	1.38E-01	1.63E-01
FE 55	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	4.29E+01	4.29E+01	4.29E+01	4.29E+01	4.29E+01	4.29E+01	4.29E+01	5.04E+01
CO 58	5.98E+01	5.98E+01	5.98E+01	5.98E+01	5.98E+01	5.98E+01	5.98E+01	7.01E+01
CO 60	3.38E+03	3.38E+03	3.38E+03	3.38E+03	3.38E+03	3.38E+03	3.38E+03	3.98E+03
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	4.55E-02	4.55E-02	4.55E-02	4.55E-02	4.55E-02	4.55E-02	4.55E-02	5.29E-02
CU 64	9.48E-02	9.48E-02	9.48E-02	9.48E-02	9.48E-02	9.48E-02	9.48E-02	1.07E-01
ZN 65	1.17E+02	1.17E+02	1.17E+02	1.17E+02	1.17E+02	1.17E+02	1.17E+02	1.35E+02
ZN 69	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 83	7.46E-04	7.46E-04	7.46E-04	7.46E-04	7.46E-04	7.46E-04	7.46E-04	1.08E-03
BR 84	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	3.27E-02
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.62E+00
RB 88	4.14E-03	4.14E-03	4.14E-03	4.14E-03	4.14E-03	4.14E-03	4.14E-03	4.73E-03
RB 89	1.46E-02	1.46E-02	1.46E-02	1.46E-02	1.46E-02	1.46E-02	1.46E-02	1.75E-02
SR 89	3.40E-03	3.40E-03	3.40E-03	3.40E-03	3.40E-03	3.40E-03	3.40E-03	3.95E-03
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	3.35E-01	3.35E-01	3.35E-01	3.35E-01	3.35E-01	3.35E-01	3.35E-01	3.92E-01
SR 92	1.19E-01	1.19E-01	1.19E-01	1.19E-01	1.19E-01	1.19E-01	1.19E-01	1.33E-01
Y 90	7.08E-04	7.08E-04	7.08E-04	7.08E-04	7.08E-04	7.08E-04	7.08E-04	8.36E-04
Y 91M	1.45E-02	1.45E-02	1.45E-02	1.45E-02	1.45E-02	1.45E-02	1.45E-02	1.68E-02
Y 91	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.90E-01
Y 92	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	3.32E-02
Y 93	2.86E-02	2.86E-02	2.86E-02	2.86E-02	2.86E-02	2.86E-02	2.86E-02	3.92E-02
ZR 95	3.86E+01	3.86E+01	3.86E+01	3.86E+01	3.86E+01	3.86E+01	3.86E+01	4.48E+01
ZR 97	4.64E-01	4.64E-01	4.64E-01	4.64E-01	4.64E-01	4.64E-01	4.64E-01	5.40E-01
NB 95	2.16E+01	2.16E+01	2.16E+01	2.16E+01	2.16E+01	2.16E+01	2.16E+01	2.54E+01
MO 99	6.28E-01	6.28E-01	6,28E-01	6.28E-01	6.28E-01	6.28E-01	6.28E-01	7.27E-01
TC 99M	2.87E-02	2.87E-02	2.87E-02	2.87E-02	2.87E-02	2.87E-02	2.87E-02	3.28E-02
TC101	2.39E-03	2.39E-03	2.39E-03	2.39E-03	2.39E-03	2.39E-03	2.39E-03	2.66E-03

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = RIVER SHORELINE DEPOSITS

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	1.70E+01	1.70E+01	1.70E+01	1.70E+01	1.70E+01	1.70E+01	1.70E+01	1.99E+01
RU105	9.86E-02	9.86E-02	9.86E-02	9.86E-02	9.86E-02	9.86E-02	9.86E-02	1.12E-01
RU106	6.65E+01	6.65E+01	6.65E+01	6.65E+01	6.65E+01	6.65E+01	6.65E+01	7.97E+01
AG110M	5.43E+02	5.43E+02	5.43E+02	5.43E+02	5.43E+02	5.43E+02	5.43E+02	6.34E+02
TE125M	2.45E-01	2.45E-01	2.45E-01	2.45E-01	2.45E-01	2.45E-01	2.45E-01	3.36E-01
TE127M	1.44E-02	1.44E-02	1.44E-02	1.44E-02	1.44E-02	1.44E-02	1.44E-02	1.71E-02
TE127	4.65E-04	4.65E-04	4.65E-04	4.65E-04	4.65E-04	4.65E-04	4.65E-04	5.12E-04
TE129M	3.11E+00	3.11E+00	3.11E+00	3.11E+00	3.11E+00	3.11E+00	3.11E+00	3.64E+00
TE129	3.89E-03	3.89E-03	3.89E-03	3.89E-03	3.89E-03	3.89E-03	3.89E-03	4.60E-03
TE131M	1.26E+00	1.26E+00	1.26E+00	1.26E+00	1.26E+00	1.26E+00	1.26E+00	1.49E+00
TE131	3.90E-03	3.90E-03	3.90E-03	3.90E-03	3.90E-03	3.90E-03	3.90E-03	4.61E+00
TE132	6.67E-01	6.67E-01	6.67E-01	6.67E-01	6.67E-01	6.67E-01	6.67E-01	7.85E-01
I 130	8.62E-01	8.62E-01	8.62E-01	8.62E-01	8.62E-01	8.62E-01	8.62E-01	1.05E+00
I 131	2.71E+00	2.71E+00	2.71E+00	2.71E+00	2.71E+00	2.71E+00	2.71E+00	3.29E+00
I 132	1.90E-01	1.90E-01	1.90E-01	1.90E-01	1.90E-01	1.90E-01	1.90E-01	2.24E-01
I 133	3.85E-01	3.85E-01	3.85E-01	3.85E-01	3.85E-01	3.85E-01	3.85E-01	4.68E-01
I 134	6.49E-02	6.49E-02	6.49E-02	6.49E-02	6.49E-02	6.49E-02	6.49E-02	7.71E-02
I 135	3.93E-01	3.93E-01	3.93E-01	3.93E-01	3.93E-01	3.93E-01	3.93E-01	4.58E-01
CS134	1.08E+03	1.08E+03	1.08E+03	1.08E+03	1.08E+03	1.08E+03	1.08E+03	1.26E+03
CS136	2.37E+01	2.37E+01	2.37E+01	2.37E+01	2.37E+01	2.37E+01	2.37E+01	2.68E+01
CS137	1.62E+03	1.62E+03	1.62E+03	1.62E+03	1.62E+03	1.62E+03	1.62E+03	1.89E+03
CS138	4.98E-02	4.98E-02	4.98E-02	4.98E-02	4.98E-02	4.98E-02	4.98E-02	5.69E-02
BA139	1.58E-02	1.58E-02	1.58E-02	1.58E-02	1.58E-02	1.58E-02	1.58E-02	1.77E-02
BA140	3.23E+00	3.23E+00	3.23E+00	3.23E+00	3.23E+00	3.23E+00	3.23E+00	3.70E+00
BA141	5.24E-03	5.24E-03	5.24E-03	5.24E-03	5.24E-03	5.24E-03	5.24E-03	5.97E-03
BA142	4.79E-03	4.79E-03	4.79E-03	4.79E-03	4.79E-03	4.79E-03	4.79E-03	5.46E-03
LA140	3.03E+00	3.03E+00	3.03E+00	3.03E+00	3.03E+00	3.03E+00	3.03E+00	3.43E+00
LA142	1.11E-01	1.11E-01	1.11E-01	1.11E-01	1.11E-01	1.11E-01	1.11E-01	1.33E-01
CE141	2.15E+00	2.15E+00	2.15E+00	2.15E+00	2.15E+00	2.15E+00	2.15E+00	2.42E+00
CE143	3.65E-01	3.65E-01	3.65E-01	3.65E-01	3.65E-01	3.65E-01	3.65E-01	4.15E-01
CE144	1.10E+01	1.10E+01	1.10E+01	1.10E+01	1.10E+01	1.10E+01	1.10E+01	1.27E+01
PR143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR144	2.27E-04	2.27E-04	2.27E-04	2.27E-04	2.27E-04	2.27E-04	2.27E-04	2.61E-04
ND147	1.34E+00	1.34E+00	1.34E+00	1.34E+00	1.34E+00	1.34E+00	1.34E+00	1.60E+00
W 187	3.71E-01	3.71E-01	3.71E-01	3.71E-01	3.71E-01	3.71E-01	3.71E-01	4.31E-01
NP239	2.70E-01	2.70E-01	2.70E-01	2.70E-01	2.70E-01	2.70E-01	2.70E-01	3.12E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = SWIMMING

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	3.12E+01	3.12E+01	3.12E+01	3.12E+01	3.12E+01	3.12E+01	3.12E+01	0.00E-01
P 32	2.57E-02	2.57E-02	2.57E-02	2.57E-02	2.57E-02	2.57E-02	2.57E-02	0.00E-01
CR 51	2.09E-01	2.09E-01	2.09E-01	2.09E-01	2.09E-01	2.09E-01	2.09E-01	0.00E-01
MN 54	6.02E+00	6.02E+00	6.02E+00	6.02E+00	6.02E+00	6.02E+00	6.02E+00	0.00E-01
MN 56	1.25E+01	1.25E+01	1.25E+01	1.25E+01	1.25E+01	1.25E+01	1.25E+01	0.00E-01
FE 55	2.57E-04	2.57E-04	2.57E-04	2.57E-04	2.57E-04	2.57E-04	2.57E-04	0.00E-01
FE 59	8.83E+00	8.83E+00	8.83E+00	8.83E+00	8.83E+00	8.83E+00	8.83E+00	0.00E-01
CO 58	7.23E+00	7.23E+00	7.23E+00	7.23E+00	7.23E+00	7.23E+00	7.23E+00	0.00E-01
CO 60	1.85E+01	1.85E+01	1.85E+01	1.85E+01	1.85E+01	1.85E+01	1.85E+01	0.00E-01
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	3.90E+00	3.90E+00	3.90E+00	3.90E+00	3.90E+00	3.90E+00	3.90E+00	0.00E-01
CU 64	1.48E+00	1.48E+00	1.48E+00	1.48E+00	1.48E+00	1.48E+00	1.48E+00	0.00E-01
ZN 65	4.42E+00	4.42E+00	4.42E+00	4.42E+00	4.42E+00	4.42E+00	4.42E+00	0.00E-01
ZN 69	5.97E-03	5.97E-03	5.97E-03	5.97E-03	5.97E-03	5.97E-03	5.97E-03	0.00E-01
BR 83	6.63E-02	6.63E-02	6.63E-02	6.63E-02	6.63E-02	6.63E-02	6.63E-02	0.00E-01
BR 84	1.23E+01	1.23E+01	1.23E+01	1.23E+01	1.23E+01	1.23E+01	1.23E+01	0.00E-01
BR 85	1.32E-02	1.32E-02	1.32E-02	1.32E-02	1.32E-02	1.32E-02	1.32E-02	0.00E-01
RB 86	6.82E-01	6.82E-01	6.82E-01	6.82E-01	6.82E-01	6.82E-01	6.82E-01	0.00E-01
RB 88	3.82E+00	3.82E+00	3.82E+00	3.82E+00	3.82E+00	3.82E+00	3.82E+00	0.00E-01
RB 89	1.38E+01	1.38E+01	1.38E+01	1.38E+01	1.38E+01	1.38E+01	1.38E+01	0.00E-01
SR 89	1.85E-02	1.85E-02	1.85E-02	1.85E-02	1.85E-02	1.85E-02	1.85E-02	0.00E-01
SR 90	2.17E-03	2.17E-03	2.17E-03	2.17E-03	2.17E-03	2.17E-03	2.17E-03	0.00E-01
SR 91	7.57E+00	7.57E+00	7.57E+00	7.57E+00	7.57E+00	7.57E+00	7.57E+00	0.00E-01
SR 92	1.02E+01	1.02E+01	1.02E+01	1.02E+01	1.02E+01	1.02E+01	1.02E+01	0.00E-01
Y 90	5.21E-02	5.21E-02	5.21E-02	5.21E-02	5.21E-02	5.21E-02	5.21E-02	0.00E-01
Y 91M	3.69E+00	3.69E+00	3.69E+00	3.69E+00	3.69E+00	3.69E+00	3.69E+00	0.00E-01
Y 91	2.69E-02	2.69E-02	2.69E-02	2.69E-02	2.69E-02	2.69E-02	2.69E-02	0.00E-01
Y 92	1.81E+00	1.81E+00	1.81E+00	1.81E+00	1.81E+00	1.81E+00	1.81E+00	0.00E-01
Y 93	7.57E-01	7.57E-01	7.57E-01	7.57E-01	7.57E-01	7.57E-01	7.57E-01	0.00E-01
ZR 95	6.02E+00	6.02E+00	6.02E+00	6.02E+00	6.02E+00	6.02E+00	6.02E+00	0.00E-01
ZR 97	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	0.00E-01
NB 95	5.62E+00	5.62E+00	5.62E+00	5.62E+00	5.62E+00	5.62E+00	5.62E+00	0.00E-01
MO 99	1.88E+00	1.88E+00	1.88E+00	1.88E+00	1.88E+00	1.88E+00	1.88E+00	0.00E-01
TC 99M	9.52E-01	9.52E-01	9.52E-01	9.52E-01	9.52E-01	9.52E-01	9.52E-01	0.00E-01
TC101	2.04E+00	2.04E+00	2.04E+00	2.04E+00	2.04E+00	2.04E+00	2.04E+00	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = SWIMMING

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	3.57E+00	3.57E+00	3.57E+00	3.57E+00	3.57E+00	3.57E+00	3.57E+00	0.00E-01
RU105	4.74E+00	4.74E+00	4.74E+00	4.74E+00	4.74E+00	4.74E+00	4.74E+00	0.00E-01
RU106	1.52E+00	1.52E+00	1.52E+00	1.52E+00	1.52E+00	1.52E+00	1.52E+00	0.00E-01
AG110M	1.97E+01	1.97E+01	1.97E+01	1.97E+01	1.97E+01	1.97E+01	1.97E+01	0.00E-01
TE125M	1.48E-02	1.48E-02	1.48E-02	1.48E-02	1.48E-02	1.48E-02	1.48E-02	0.00E-01
TE127M	1.04E-03	1.04E-03	1.04E-03	1.04E-03	1.04E-03	1.04E-03	1.04E-03	0.00E-01
TE127	1.12E-02	1.12E-02	1.12E-02	1.12E-02	1.12E-02	1.12E-02	1.12E-02	0.00E-01
TE129M	8.43E-01	8.43E-01	8.43E-01	8.43E-01	8.43E-01	8.43E-01	8.43E-01	0.00E-01
TE129	7.19E-01	7.19E-01	7.19E-01	7.19E-01	7.19E-01	7.19E-01	7.19E-01	0.00E-01
TE131M	8.81E+00	8.81E+00	8.81E+00	8.81E+00	8.81E+00	8.81E+00	8.81E+00	0.00E-01
TE131	2.52E+00	2.52E+00	2.52E+00	2.52E+00	2.52E+00	2.52E+00	2.52E+00	0.00E-01
TE132	1.60E+00	1.60E+00	1.60E+00	1.60E+00	1.60E+00	1.60E+00	1.60E+00	0.00E-01
I 130	1.56E+01	1.56E+01	1.56E+01	1.56E+01	1.56E+01	1.56E+01	1.56E+01	0.00E-01
I 131	3.13E+00	3.13E+00	3.13E+00	3.13E+00	3.13E+00	3.13E+00	3.13E+00	0.00E-01
I 132	1.71E+01	1.71E+01	1.71E+01	1.71E+01	1.71E+01	1.71E+01	1.71E+01	0.00E-01
I 133	3.84E+00	3.84E+00	3.84E+00	3.84E+00	3.84E+00	3.84E+00	3.84E+00	0.00E-01
I 134	1.56E+01	1.56E+01	1.56E+01	1.56E+01	1.56E+01	1.56E+01	1.56E+01	0.00E-01
I 135	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	0.00E-01
CS134	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	0.00E-01
CS136	1.65E+01	1.65E+01	1.65E+01	1.65E+01	1.65E+01	1.65E+01	1.65E+01	0.00E-01
CS137	4.01E+00	4.01E+00	4.01E+00	4.01E+00	4.01E+00	4.01E+00	4.01E+00	0.00E-01
CS138	1.41E+01	1.41E+01	1.41E+01	1.41E+01	1.41E+01	1.41E+01	1.41E+01	0.00E-01
BA139	2.94E-01	2.94E-01	2.94E-01	2.94E-01	2.94E-01	2.94E-01	2.94E-01	0.00E-01
BA140	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	0.00E-01
BA141	3.52E+00	3.52E+00	3.52E+00	3.52E+00	3.52E+00	3.52E+00	3.52E+00	0.00E-01
BA142	5.99E+00	5.99E+00	5.99E+00	5.99E+00	5.99E+00	5.99E+00	5.99E+00	0.00E-01
LA140	1.64E+01	1.64E+01	1.64E+01	1.64E+01	1.64E+01	1.64E+01	1.64E+01	0.00E-01
LA142	1.73E+01	1.73E+01	1.73E+01	1.73E+01	1.73E+01	1.73E+01	1.73E+01	0.00E-01
CE141	5.22E-01	5.22E-01	5.22E-01	5.22E-01	5.22E-01	5.22E-01	5.22E-01	0.00E-01
CE143	2.28E+00	2.28E+00	2.28E+00	2.28E+00	2.28E+00	2.28E+00	2.28E+00	0.00E-01
CE144	3.45E-01	3.45E-01	3.45E-01	3.45E-01	3.45E-01	3.45E-01	3.45E-01	0.00E-01
PR143	6.42E-03	6.42E-03	6.42E-03	6.42E-03	6.42E-03	6.42E-03	6.42E-03	0.00E-01
PR144	1.77E-01	1.77E-01	1.77E-01	1.77E-01	1.77E-01	1.77E-01	1.77E-01	0.00E-01
ND147	1.12E+00	1.12E+00	1.12E+00	1.12E+00	1.12E+00	1.12E+00	1.12E+00	0.00E-01
W 187	3.32E+00	3.32E+00	3.32E+00	3.32E+00	3.32E+00	3.32E+00	3.32E+00	0.00E-01
NP239	9.62E-01	9.62E-01	9.62E-01	9.62E-01	9.62E-01	9.62E-01	9.62E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = BOATING

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	5.65E+01	5.65E+01	5.65E+01	5.65E+01	5.65E+01	5.65E+01	5.65E+01	0.00E-01
P 32	4.66E-02	4.66E-02	4.66E-02	4.66E-02	4.66E-02	4.66E-02	4.66E-02	0.00E-01
CR 51	3.78E-01	3.78E-01	3.78E-01	3.78E-01	3.78E-01	3.78E-01	3.78E-01	0.00E-01
MN 54	1.09E+01	1.09E+01	1.09E+01	1.09E+01	1.09E+01	1.09E+01	1.09E+01	0.00E-01
MN 56	2.27E+01	2.27E+01	2.27E+01	2.27E+01	2.27E+01	2.27E+01	2.27E+01	0.00E-01
FE 55	4.66E-04	4.66E-04	4.66E-04	4.66E-04	4.66E-04	4.66E-04	4.66E-04	0.00E-01
FE 59	1.60E+01	1.60E+01	1.60E+01	1.60E+01	1.60E+01	1.60E+01	1.60E+01	0.00E-01
CO 58	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	0.00E-01
CO 60	3.35E+01	3.35E+01	3.35E+01	3.35E+01	3.35E+01	3.35E+01	3.35E+01	0.00E-01
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	7.08E+00	7.08E+00	7.08E+00	7.08E+00	7.08E+00	7.08E+00	7.08E+00	0.00E-01
CU 64	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	0.00E-01
ZN 65	8.00E+00	8.00E+00	8.00E+00	8.00E+00	8.00E+00	8.00E+00	8.00E+00	0.00E-01
ZN 69	1.08E-02	1.08E-02	1.08E-02	1.08E-02	1.08E-02	1.08E-02	1.08E-02	0.00E-01
BR 83	1.20E-01	1.20E-01	1.20E-01	1.20E-01	1.20E-01	1.20E-01	1.20E-01	0.00E-01
BR 84	2.24E+01	2.24E+01	2.24E+01	2.24E+01	2.24E+01	2.24E+01	2.24E+01	0.00E-01
BR 85	2.39E-02	2.39E-02	2.39E-02	2.39E-02	2.39E-02	2.39E-02	2.39E-02	0.00E-01
RB 86	1.24E+00	1.24E+00	1.24E+00	1.24E+00	1.24E+00	1.24E+00	1.24E+00	0.00E-01
RB 88	6.92E+00	6.92E+00	6.92E+00	6.92E+00	6.92E+00	6.92E+00	6.92E+00	0.00E-01
RB 89	2.49E+01	2.49E+01	2.49E+01	2.49E+01	2.49E+01	2.49E+01	2.49E+01	0.00E-01
SR 89	3.35E-02	3.35E-02	3.35E-02	3.35E-02	3.35E-02	3.35E-02	3.35E-02	0.00E-01
SR 90	3.93E-03	3.93E-03	3.93E-03	3.93E-03	3.93E-03	3.93E-03	3.93E-03	0.00E-01
SR 91	1.37E+01	1.37E+01	1.37E+01	1.37E+01	1.37E+01	1.37E+01	1.37E+01	0.00E-01
SR 92	1.84E+01	1.84E+01	1.84E+01	1.84E+01	1.84E+01	1.84E+01	1.84E+01	0.00E-01
Y 90	9.45E-02	9.45E-02	9.45E-02	9.45E-02	9.45E-02	9.45E-02	9.45E-02	0.00E-01
Y 91M	6.69E+00	6.69E+00	6.69E+00	6.69E+00	6.69E+00	6.69E+00	6.69E+00	0.00E-01
Y 91	4.87E-02	4.87E-02	4.87E-02	4.87E-02	4.87E-02	4.87E-02	4.87E-02	0.00E-01
Y 92	3.28E+00	3.28E+00	3.28E+00	3.28E+00	3.28E+00	3.28E+00	3.28E+00	0.00E-01
Y 93	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00	0.00E-01
ZR 95	1.09E+01	1.09E+01	1.09E+01	1.09E+01	1.09E+01	1.09E+01	1.09E+01	0.00E-01
ZR 97	1.09E+01	1.09E+01	1.09E+01	1.09E+01	1.09E+01	1.09E+01	1.09E+01	0.00E-01
NB 95	1.02E+01	1.02E+01	1.02E+01	1.02E+01	1.02E+01	1.02E+01	1.02E+01	0.00E-01
MO 99	3.42E+00	3.42E+00	3.42E+00	3.42E+00	3.42E+00	3.42E+00	3.42E+00	0.00E-01
TC 99M	1.73E+00	1.73E+00	1.73E+00	1.73E+00	1.73E+00	1.73E+00	1.73E+00	0.00E-01
TC101	3.69E+00	3.69E+00	3.69E+00	3.69E+00	3.69E+00	3.69E+00	3.69E+00	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = ADULT
PATHWAY = BOATING

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	6.47E+00	6.47E+00	6.47E+00	6.47E+00	6.47E+00	6.47E+00	6.47E+00	0.00E-01
RU105	8.60E+00	8.60E+00	8.60E+00	8.60E+00	8.60E+00	8.60E+00	8.60E+00	0.00E-01
RU106	2.77E+00	2.77E+00	2.77E+00	2.77E+00	2.77E+00	2.77E+00	2.77E+00	0.00E-01
AG110M	3.57E+01	3.57E+01	3.57E+01	3.57E+01	3.57E+01	3.57E+01	3.57E+01	0.00E-01
TE125M	2.69E-02	2.69E-02	2.69E-02	2.69E-02	2.69E-02	2.69E-02	2.69E-02	0.00E-01
TE127M	1.89E-03	1.89E-03	1.89E-03	1.89E-03	1.89E-03	1.89E-03	1.89E-03	0.00E-01
TE127	2.02E-02	2.02E-02	2.02E-02	2.02E-02	2.02E-02	2.02E-02	2.02E-02	0.00E-01
TE129M	1.53E+00	1.53E+00	1.53E+00	1.53E+00	1.53E+00	1.53E+00	1.53E+00	0.00E-01
TE129	1.30E+00	1.30E+00	1.30E+00	1.30E+00	1.30E+00	1.30E+00	1.30E+00	0.00E-01
TE131M	1.60E+01	1.60E+01	1.60E+01	1.60E+01	1.60E+01	1.60E+01	1.60E+01	0.00E-01
TE131	4.56E+00	4.56E+00	4.56E+00	4.56E+00	4.56E+00	4.56E+00	4.56E+00	0.00E-01
TE132	2.91E+00	2.91E+00	2.91E+00	2.91E+00	2.91E+00	2.91E+00	2.91E+00	0.00E-01
I 130	2.82E+01	2.82E+01	2.82E+01	2.82E+01	2.82E+01	2.82E+01	2.82E+01	0.00E-01
I 131	5.67E+00	5.67E+00	5.67E+00	5.67E+00	5.67E+00	5.67E+00	5.67E+00	0.00E-01
I 132	3.11E+01	3.11E+01	3.11E+01	3.11E+01	3.11E+01	3.11E+01	3.11E+01	0.00E-01
I 133	6.96E+00	6.96E+00	6.96E+00	6.96E+00	6.96E+00	6.96E+00	6.96E+00	0.00E-01
I 134	2.82E+01	2.82E+01	2.82E+01	2.82E+01	2.82E+01	2.82E+01	2.82E+01	0.00E-01
I 135	2.38E+01	2.38E+01	2.38E+01	2.38E+01	2.38E+01	2.38E+01	2.38E+01	0.00E-01
CS134	2.11E+01	2.11E+01	2.11E+01	2.11E+01	2.11E+01	2.11E+01	2.11E+01	0.00E-01
CS136	2.98E+01	2.98E+01	2.98E+01	2.98E+01	2.98E+01	2.98E+01	2.98E+01	0.00E-01
CS137	7.28E+00	7.28E+00	7.28E+00	7.28E+00	7.28E+00	7.28E+00	7.28E+00	0.00E-01
CS138	2.56E+01	2.56E+01	2.56E+01	2.56E+01	2.56E+01	2.56E+01	2.56E+01	0.00E-01
BA139	5.33E-01	5.33E-01	5.33E-01	5.33E-01	5.33E-01	5.33E-01	5.33E-01	0.00E-01
BA140	3.56E+00	3.56E+00	3.56E+00	3.56E+00	3.56E+00	3.56E+00	3.56E+00	0.00E-01
BA141	6.37E+00	6.37E+00	6.37E+00	6.37E+00	6.37E+00	6.37E+00	6.37E+00	0.00E-01
BA142	1.09E+01	1.09E+01	1.09E+01	1.09E+01	1.09E+01	1.09E+01	1.09E+01	0.00E-01
LA140	2.98E+01	2.98E+01	2.98E+01	2.98E+01	2.98E+01	2.98E+01	2.98E+01	0.00E-01
LA142	3.13E+01	3.13E+01	3.13E+01	3.13E+01	3.13E+01	3.13E+01	3.13E+01	0.00E-01
CE141	9.46E-01	9.46E-01	9.46E-01	9.46E-01	9.46E-01	9.46E-01	9.46E-01	0.00E-01
CE143	4.14E+00	4.14E+00	4.14E+00	4.14E+00	4.14E+00	4.14E+00	4.14E+00	0.00E-01
CE144	6.26E-01	6.26E-01	6.26E-01	6.26E-01	6.26E-01	6.26E-01	6.26E-01	0.00E-01
PR143	1.16E-02	1.16E-02	1.16E-02	1.16E-02	1.16E-02	1.16E-02	1.16E-02	0.00E-01
PR144	3.20E-01	3.20E-01	3.20E-01	3.20E-01	3.20E-01	3.20E-01	3.20E-01	0.00E-01
ND147	2.04E+00	2.04E+00	2.04E+00	2.04E+00	2.04E+00	2.04E+00	2.04E+00	0.00E-01
W 187	6.02E+00	6.02E+00	6.02E+00	6.02E+00	6.02E+00	6.02E+00	6.02E+00	0.00E-01
NP239	1.74E+00	1.74E+00	1.74E+00	1.74E+00	1.74E+00	1.74E+00	1.74E+00	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = POTABLE WATER

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.54E+01	1.54E+01	0.00E-01	1.54E+01	1.54E+01	1.54E+01	1.54E+01	0.00E-01
C 14	2.08E+02	2.08E+02	1.04E+03	2.08E+02	2.08E+02	2.08E+02	2.08E+02	0.00E-01
NA 24	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	0.00E-01
P 32	2.61E+03	5.66E+03	6.73E+04	4.17E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	8.99E-01	1.51E+02	0.00E-01	0.00E-01	1.97E-01	4.99E-01	1.28E+00	0.00E-01
MN 54	2.99E+02	3.09E+03	0.00E-01	1.51E+03	4.49E+02	0.00E-01	0.00E-01	0.00E-01
MN 56	1.10E-02	4.08E+00	0.00E-01	6.20E-02	7.85E-02	0.00E-01	0.00E-01	0.00E-01
FE 55	1.60E+02	2.97E+02	9.67E+02	6.85E+02	0.00E-01	0.00E-01	4.35E+02	0.00E-01
FE 59	1.33E+03	8.16E+03	1.48E+03	3.45E+03	0.00E-01	0.00E-01	1.09E+03	0.00E-01
CO 58	5.68E+02	3.40E+03	0.00E-01	2.46E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	1.62E+03	9.36E+03	0.00E-01	7.19E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	1.53E+03	5.09E+02	4.53E+04	3.20E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	1.52E-02	1.80E+00	2.61E-01	3.33E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	3.72E+00	6.14E+02	0.00E-01	7.91E+00	2.00E+01	0.00E-01	0.00E-01	0.00E-01
ZN 65	2.38E+03	2.16E+03	1.47E+03	5.10E+03	3.27E+03	0.00E-01	0.00E-01	0.00E-01
ZN 69	1.21E-08	3.19E-07	9.08E-08	1.73E-07	1.13E-07	0.00E-01	0.00E-01	0.00E-01
BR 83	1.40E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	3.45E+03	1.09E+03	0.00E-01	7.35E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	3.18E+03	1.32E+04	1.11E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	5.22E+04	5.96E+04	2.61E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	1.42E+01	1.62E+03	3.57E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	7.21E-02	4.31E+01	1.69E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	7.29E-02	2.23E+04	2.70E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	1.36E+00	2.08E+04	5.08E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	8.29E-05	7.86E+01	2.86E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	5.16E-03	5.75E+03	1.88E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	2.26E+00	7.59E+03	1.04E+01	3.29E+00	4.84E+00	0.00E-01	0.00E-01	0.00E-01
ZR 97	2.06E-02	1.21E+04	2.27E-01	4.48E-02	6.80E-02	0.00E-01	0.00E-01	0.00E-01
NB 95	6.30E-01	4.89E+03	2.06E+00	1.14E+00	1.11E+00	0.00E-01	0.00E-01	0.00E-01
MO 99	2.29E+02	2.15E+03	0.00E-01	1.20E+03	2.74E+03	0.00E-01	0.00E-01	0.00E-01
TC 99M	1.93E-01	9.80E+00	5.35E-03	1.49E-02	2.22E-01	0.00E-01	8.29E-03	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = POTABLE WATER

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	2.74E+01	5.36E+03	6.41E+01	0.00E-01	2.26E+02	0.00E-01	0.00E-01	0.00E-01
RU105	5.09E-02	1.06E+02	1.31E-01	0.00E-01	1.65E+00	0.00E-01	0.00E-01	0.00E-01
RU106	1.26E+02	4.80E+04	1.00E+03	0.00E-01	1.93E+03	0.00E-01	0.00E-01	0.00E-01
AG110M	3.01E+01	1.39E+04	5.23E+01	4.95E+01	9.44E+01	0.00E-01	0.00E-01	0.00E-01
TE125M	1.29E+02	2.86E+03	9.68E+02	3.49E+02	0.00E-01	2.71E+02	0.00E-01	0.00E-01
TE127M	2.92E+02	6.13E+03	2.46E+03	8.72E+02	9.97E+03	5.85E+02	0.00E-01	0.00E-01
TE127	1.47E+00	5.27E+02	6.82E+00	2.42E+00	2.76E+01	4.70E+00	0.00E-01	0.00E-01
TE129M	6.47E+02	1.53E+04	4.09E+03	1.52E+03	1.71E+04	1.32E+03	0.00E-01	0.00E-01
TE129	1.65E-06	3.70E-05	6.77E-06	2.52E-06	2.84E-05	4.83E-06	0.00E-01	0.00E-01
TE131M	1.43E+02	1.38E+04	3.59E+02	1.72E+02	1.79E+03	2.59E+02	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	4.30E+02	1.45E+04	7.22E+02	4.57E+02	4.39E+03	4.82E+02	0.00E-01	0.00E-01
I 130	7.91E+01	1.52E+02	6.85E+01	1.98E+02	3.05E+02	1.62E+04	0.00E-01	0.00E-01
I 131	1.03E+03	3.80E+02	1.37E+03	1.92E+03	3.31E+03	5.61E+05	0.00E-01	0.00E-01
I 132	4.85E-02	5.89E-02	5.16E-02	1.35E-01	2.13E-01	4.55E+00	0.00E-01	0.00E-01
I 133	1.20E+02	2.97E+02	2.31E+02	3.92E+02	6.88E+02	5.48E+04	0.00E-01	0.00E-01
I 134	1.98E-07	7.25E-09	2.08E-07	5.50E-07	8.68E-07	9.17E-06	0.00E-01	0.00E-01
I 135	1.19E+01	3.57E+01	1.25E+01	3.22E+01	5.09E+01	2.07E+03	0.00E-01	0.00E-01
CS134	2.34E+04	6.26E+02	2.14E+04	5.04E+04	1.60E+04	0.00E-01	6.11E+03	0.00E-01
CS136	5.51E+03	6.60E+02	2.08E+03	8.20E+03	4.47E+03	0.00E-01	7.04E+02	0.00E-01
CS137	1.33E+04	5.42E+02	2.87E+04	3.81E+04	1.30E+04	0.00E-01	5.04E+03	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	5.79E-06	1.77E-03	1.99E-04	1.40E-07	1.32E-07	0.00E-01	9.63E-08	0.00E-01
BA140	4.44E+02	1.06E+04	6.88E+03	8.44E+00	2.86E+00	0.00E-01	5.67E+00	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	7.71E-02	1.66E+04	5.89E-01	2.90E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	1.03E-07	1.26E-02	9.35E-07	4.15E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	2.55E-01	6.36E+03	3.33E+00	2.22E+00	1.05E+00	0.00E-01	0.00E-01	0.00E-01
CE143	2.96E-02	7.96E+03	3.64E-01	2.65E+02	1.19E-01	0.00E-01	0.00E-01	0.00E-01
CE144	9.55E+00	4.47E+04	1.78E+02	7.35E+01	4.39E+01	0.00E-01	0.00E-01	0.00E-01
PR143	1.59E-01	1.05E+04	3.19E+00	1.27E+00	7.39E-01	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	1.47E-01	8.85E+03	2.26E+00	2.45E+00	1.44E+00	0.00E-01	0.00E-01	0.00E-01
W 187	5.32E+00	4.11E+03	1.86E+01	1.52E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	1.76E-02	5.09E+03	3.36E-01	3.17E-02	9.94E-02	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = FRESH WATER FISH

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	4.36E-01	4.36E-01	0.00E-01	4.36E-01	4.36E-01	4.36E-01	4.36E-01	0.00E-01
C 14	3.00E+04	3.00E+04	1.50E+05	3.00E+04	3.00E+04	3.00E+04	3.00E+04	0.00E-01
NA 24	6.08E+02	6.08E+02	6.08E+02	6.08E+02	6.08E+02	6.08E+02	6.08E+02	0.00E-01
P 32	8.18E+06	1.77E+07	2.11E+08	1.31E+07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	5.64E+00	9.47E+02	0.00E-01	0.00E-01	1.24E+00	3.13E+00	8.05E+00	0.00E-01
MN 54	3.75E+03	3.88E+04	0.00E-01	1.89E+04	5.64E+03	0.00E-01	0.00E-01	0.00E-01
MN 56	1.35E-01	4.99E+01	0.00E-01	7.57E-01	9.59E-01	0.00E-01	0.00E-01	0.00E-01
FE 55	5.01E+02	9.31E+02	3.03E+03	2.15E+03	0.00E-01	0.00E-01	1.36E+03	0.00E-01
FE 59	4.18E+03	2.56E+04	4.64E+03	1.08E+04	0.00E-01	0.00E-01	3.41E+03	0.00E-01
CO 58	8.90E+02	5.33E+03	0.00E-01	3.86E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	2.54E+03	1.47E+04	0.00E-01	1.13E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	4.82E+03	1.60E+03	1.42E+05	1.00E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	4.63E-02	5.51E+00	7.95E-01	1.02E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	5.81E+00	9.58E+02	0.00E-01	1.24E+01	3.12E+01	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.49E+05	1.36E+05	9.22E+04	3.20E+05	2.05E+05	0.00E-01	0.00E-01	0.00E-01
ZN 69	7.06E-07	1.86E-05	5.30E-06	1.01E-05	6.59E-06	0.00E-01	0.00E-01	0.00E-01
BR 83	1.79E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	2.17E+05	6.82E+04	0.00E-01	4.61E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	2.99E+03	1.24E+04	1.04E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	4.91E+04	5.61E+04	2.46E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	1.33E+01	1.51E+03	3.34E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	6.61E-02	3.95E+01	1.55E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	5.71E-02	1.75E+04	2.12E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	1.07E+00	1.63E+04	3.99E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	6.37E-05	6.05E+01	2.20E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	4.02E-03	4.48E+03	1.47E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	2.34E-01	7.86E+02	1.08E+00	3.41E-01	5.01E-01	0.00E-01	0.00E-01	0.00E-01
ZR 97	2.13E-03	1.25E+03	2.34E-02	4.62E-03	7.01E-03	0.00E-01	0.00E-01	0.00E-01
NB 95	5.93E+02	4.60E+06	1.94E+03	1.08E+03	1.04E+03	0.00E-01	0.00E-01	0.00E-01
MO 99	7.17E+01	6.73E+02	0.00E-01	3.76E+02	8.60E+02	0.00E-01	0.00E-01	0.00E-01
TC 99M	9.00E-02	4.56E+00	2.49E-03	6.94E-03	1.04E-01	0.00E-01	3.85E-03	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = FRESH WATER FISH

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	8.60E+00	1.68E+03	2.01E+01	0.00E-01	7.09E+01	0.00E-01	0.00E-01	0.00E-01
RU105	1.57E-02	3.27E+01	4.05E-02	0.00E-01	5.11E-01	0.00E-01	0.00E-01	0.00E-01
RU106	3.96E+01	1.51E+04	3.14E+02	0.00E-01	6.06E+02	0.00E-01	0.00E-01	0.00E-01
AG110M	2.17E+00	1.00E+03	3.78E+00	3.57E+00	6.81E+00	0.00E-01	0.00E-01	0.00E-01
TE125M	1.62E+03	3.59E+04	1.21E+04	4.38E+03	0.00E-01	3.39E+03	0.00E-01	0.00E-01
TE127M	3.67E+03	7.69E+04	3.09E+04	1.09E+04	1.25E+05	7.34E+03	0.00E-01	0.00E-01
TE127	1.83E+01	6.56E+03	8.49E+01	3.01E+01	3.44E+02	5.86E+01	0.00E-01	0.00E-01
TE129M	8.12E+03	1.92E+05	5.13E+04	1.90E+04	2.14E+05	1.65E+04	0.00E-01	0.00E-01
TE129	1.95E-05	4.38E-04	8.00E-05	2.98E-05	3.36E-04	5.72E-05	0.00E-01	0.00E-01
TE131M	1.80E+03	1.73E+05	4.49E+03	2.15E+03	2.24E+04	3.24E+03	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	5.40E+03	1.82E+05	9.05E+03	5.73E+03	5.50E+04	6.04E+03	0.00E-01	0.00E-01
I 130	3.70E+01	7.12E+01	3.20E+01	9.27E+01	1.43E+02	7.56E+03	0.00E-01	0.00E-01
I 131	4.86E+02	1.79E+02	6.46E+02	9.04E+02	1.56E+03	2.64E+05	0.00E-01	0.00E-01
I 132	2.21E-02	2.69E-02	2.36E-02	6.17E-02	9.72E-02	2.08E+00	0.00E-01	0.00E-01
I 133	5.61E+01	1.39E+02	1.08E+02	1.84E+02	3.23E+02	2.57E+04	0.00E-01	0.00E-01
I 134	8.60E-08	3.15E-09	9.03E-08	2.39E-07	3.77E-07	3.99E-06	0.00E-01	0.00E-01
I 135	5.56E+00	1.66E+01	5.83E+00	1.50E+01	2.37E+01	9.66E+02	0.00E-01	0.00E-01
CS134	1.47E+06	3.93E+04	1.34E+06	3.16E+06	1.00E+06	0.00E-01	3.83E+05	0.00E-01
CS136	3.46E+05	4.14E+04	1.31E+05	5.15E+05	2.80E+05	0.00E-01	4.42E+04	0.00E-01
CS137	8.33E+05	3.40E+04	1.80E+06	2.19E+06	8.14E+05	0.00E-01	3.16E+05	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	6.90E-07	2.11E-04	2.37E-05	1.67E-08	1.57E-08	0.00E-01	1.15E-08	0.00E-01
BA140	5.57E+01	1.33E+03	8.64E+02	1.06E+00	3.59E-01	0.00E-01	7.12E-01	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	6.03E-02	1.30E+04	4.61E-01	2.27E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	7.75E-08	9.47E-03	7.01E-07	3.11E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	8.02E-03	2.00E+02	1.05E-01	6.98E-02	3.29E-02	0.00E-01	0.00E-01	0.00E-01
CE143	9.26E-04	2.49E+02	1.14E-02	8.29E+00	3.72E-03	0.00E-01	0.00E-01	0.00E-01
CE144	2.99E-01	1.40E+03	5.57E+00	2.31E+00	1.38E+00	0.00E-01	0.00E-01	0.00E-01
PR143	1.24E-01	8.22E+03	2.50E+00	9.97E-01	5.80E-01	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	1.15E-01	6.94E+03	1.77E+00	1.92E+00	1.13E+00	0.00E-01	0.00E-01	0.00E-01
W 187	2.00E+02	1.54E+05	7.00E+02	5.70E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	5.51E-03	1.60E+03	1.05E-01	9.92E-03	3.11E-02	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = FRESH WATER INVERTEBRATES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.04E-01	1.04E-01	0.00E-01	1.04E-01	1.04E-01	1.04E-01	1.04E-01	0.00E-01
C 14	1.41E+04	1.41E+04	7.04E+04	1.41E+04	1.41E+04	1.41E+04	1.41E+04	0.00E-01
NA 24	2.89E+02	2.89E+02	2.89E+02	2.89E+02	2.89E+02	2.89E+02	2.89E+02	0.00E-01
P 32	3.89E+05	8.43E+05	1.00E+07	6.21E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.34E+01	2.25E+03	0.00E-01	0.00E-01	2.93E+00	7.44E+00	1.91E+01	0.00E-01
MN 54	2.00E+05	2.07E+06	0.00E-01	1.01E+06	3.01E+05	0.00E-01	0.00E-01	0.00E-01
MN 56	7.20E+00	2.66E+03	0.00E-01	4.05E+01	5.12E+01	0.00E-01	0.00E-01	0.00E-01
FE 55	3.81E+03	7.07E+03	2.30E+04	1.63E+04	0.00E-01	0.00E-01	1.04E+04	0.00E-01
FE 59	3.18E+04	1.95E+05	3.53E+04	8.23E+04	0.00E-01	0.00E-01	2.59E+04	0.00E-01
CO 58	8.46E+02	5.06E+03	0.00E-01	3.67E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	2.41E+03	1.39E+04	0.00E-01	1.07E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	1.14E+03	3.79E+02	3.37E+04	2.38E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	1.10E-02	1.31E+00	1.89E-01	2.41E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	1.10E+01	1.82E+03	0.00E-01	2.35E+01	5.94E+01	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.77E+05	1.61E+05	1.09E+05	3.80E+05	2.43E+05	0.00E-01	0.00E-01	0.00E-01
ZN 69	8.39E-07	2.21E-05	6.29E-06	1.20E-05	7.83E-06	0.00E-01	0.00E-01	0.00E-01
BR 83	3.35E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	2.57E+04	8.10E+03	0.00E-01	5.47E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	2.37E+03	9.85E+03	8.27E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	3.89E+04	4.44E+04	1.94E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	1.05E+01	1.20E+03	2.64E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	5.24E-02	3.13E+01	1.23E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	5.42E-01	1.66E+05	2.01E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	1.02E+01	1.55E+05	3.79E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	6.06E-04	5.74E+02	2.09E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	3.82E-02	4.25E+04	1.39E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	1.13E-01	3.79E+02	5.21E-01	1.64E-01	2.41E-01	0.00E-01	0.00E-01	0.00E-01
ZR 97	1.03E-03	6.03E+02	1.13E-02	2.23E-03	3.38E-03	0.00E-01	0.00E-01	0.00E-01
NB 95	4.69E-01	3.64E+03	1.54E+00	8.53E-01	8.26E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	1.70E+01	1.60E+02	0.00E-01	8.92E+01	2.04E+02	0.00E-01	0.00E-01	0.00E-01
TC 99M	7.12E-03	3.61E-01	1.97E-04	5.50E-04	8.19E-03	0.00E-01	3.05E-04	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = FRESH WATER INVERTEBRATES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	6.13E+01	1.20E+04	1.43E+02	0.00E-01	5.05E+02	0.00E-01	0.00E-01	0.00E-01
RU105	1.12E-01	2.33E+02	2.89E-01	0.00E-01	3.64E+00	0.00E-01	0.00E-01	0.00E-01
RU106	2.82E+02	1.07E+05	2.24E+03	0.00E-01	4.32E+03	0.00E-01	0.00E-01	0.00E-01
AG110M	1.73E+02	7.98E+04	3.00E+02	2.84E+02	5.42E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	5.88E+03	1.30E+05	4.40E+04	1.59E+04	0.00E-01	1.23E+04	0.00E-01	0.00E-01
TE127M	1.33E+04	2.78E+05	1.12E+05	3.96E+04	4.53E+05	2.66E+04	0.00E-01	0.00E-01
TE127	6.62E+01	2.38E+04	3.08E+02	1.09E+02	1.25E+03	2.12E+02	0.00E-01	0.00E-01
TE129M	2.94E+04	6.97E+05	1.86E+05	6.89E+04	7.77E+05	5.99E+04	0.00E-01	0.00E-01
TE129	7.05E-05	1.58E-03	2.90E-04	1.08E-04	1.22E-03	2.07E-04	0.00E-01	0.00E-01
TE131M	6.50E+03	6.26E+05	1.63E+04	7.80E+03	8.13E+04	1.17E+04	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	1.95E+04	6.58E+05	3.28E+04	2.08E+04	1.99E+05	2.19E+04	0.00E-01	0.00E-01
I 130	2.93E+00	5.64E+00	2.54E+00	7.34E+00	1.13E+01	5.98E+02	0.00E-01	0.00E-01
I 131	3.85E+01	1.42E+01	5.12E+01	7.16E+01	1.23E+02	2.09E+04	0.00E-01	0.00E-01
I 132	1.75E-03	2.13E-03	1.87E-03	4.89E-03	7.70E-03	1.65E-01	0.00E-01	0.00E-01
I 133	4.44E+00	1.10E+01	8.59E+00	1.46E+01	2.55E+01	2.03E+03	0.00E-01	0.00E-01
I 134	6.81E-09	2.50E-10	7.15E-09	1.90E-08	2.99E-08	3.16E-07	0.00E-01	0.00E-01
I 135	4.40E-01	1.32E+00	4.62E-01	1.19E+00	1.88E+00	7.64E+01	0.00E-01	0.00E-01
CS134	1.74E+05	4.67E+03	1.59E+05	3.75E+05	1.19E+05	0.00E-01	4.55E+04	0.00E-01
CS136	4.10E+04	4.92E+03	1.55E+04	6.11E+04	3.33E+04	0.00E-01	5.24E+03	0.00E-01
CS137	9.90E+04	4.04E+03	2.13E+05	2.84E+05	9.67E+04	0.00E-01	3.76E+04	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	8.20E-06	2.51E-03	2.81E-04	1.98E-07	1.87E-07	0.00E-01	1.36E-07	0.00E-01
BA140	5.61E+02	1.58E+04	1.03E+04	1.26E+01	4.26E+00	0.00E-01	8.45E+00	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	5.73E-01	1.24E+05	4.38E+00	2.15E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	7.36E-07	9.00E-02	6.66E-06	2.96E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	1.90E+00	4.74E+04	2.48E+01	1.66E+01	7.80E+00	0.00E-01	0.00E-01	0.00E-01
CE143	2.20E-01	5.92E+04	2.71E+00	1.97E+03	8.83E-01	0.00E-01	0.00E-01	0.00E-01
CE144	7.11E+01	3.33E+05	1.32E+03	5.48E+02	3.27E+02	0.00E-01	0.00E-01	0.00E-01
PR143	1.18E+00	7.81E+04	2.37E+01	9.48E+00	5.51E+00	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	1.09E+00	6.59E+04	1.68E+01	1.83E+01	1.07E+01	0.00E-01	0.00E-01	0.00E-01
W 187	3.96E-01	3.05E+02	1.38E+00	1.13E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	5.24E-02	1.52E+04	9.99E-01	9.43E-02	2.96E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = IRRIGATED FRESH LEAFY VEGETABLES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.27E+00	1.27E+00	0.00E-01	1.27E+00	1.27E+00	1.27E+00	1.27E+00	0.00E-01
C 14	1.90E+03	1.90E+03	9.50E+03	1.90E+03	1.90E+03	1.90E+03	1.90E+03	0.00E-01
NA 24	5.53E+00	5.53E+00	5.53E+00	5.53E+00	5.53E+00	5.53E+00	5.53E+00	0.00E-01
P 32	9.26E+02	2.01E+03	2.39E+04	1.48E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	4.08E-01	6.86E+01	0.00E-01	0.00E-01	8.95E-02	2.27E-01	5.83E-01	0.00E-01
MN 54	1.90E+02	1.97E+03	0.00E-01	9.60E+02	2.86E+02	0.00E-01	0.00E-01	0.00E-01
MN 56	4.43E-05	1.64E-02	0.00E-01	2.49E-04	3.15E-04	0.00E-01	0.00E-01	0.00E-01
FE 55	1.04E+02	1.93E+02	6.28E+02	4.46E+02	0.00E-01	0.00E-01	2.83E+02	0.00E-01
FE 59	6.88E+02	4.22E+03	7.64E+02	1.78E+03	0.00E-01	0.00E-01	5.62E+02	0.00E-01
CO 58	3.19E+02	1.91E+03	0.00E-01	1.39E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	1.07E+03	6.18E+03	0.00E-01	4.74E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	1.05E+03	3.49E+02	3.10E+04	2.19E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	5.94E-05	7.08E-03	1.02E-03	1.31E-04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	8.88E-02	1.46E+01	0.00E-01	1.89E-01	4.78E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.59E+03	1.44E+03	9.80E+02	3.40E+03	2.18E+03	0.00E-01	0.00E-01	0.00E-01
ZN 69	1.14E-11	3.01E-10	8.56E-11	1.63E-10	1.07E-10	0.00E-01	0.00E-01	0.00E-01
BR 83	5.17E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	1.32E-16	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	3.39E-37	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	1.36E+03	4.29E+02	0.00E-01	2.90E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	3.67E-28	5.90E-35	0.00E-01	6.88E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	3.00E-30	6.50E-39	0.00E-01	4.24E-30	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	1.70E+03	7.07E+03	5.93E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	4.78E+04	5.46E+04	2.39E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	2.52E-01	2.87E+01	6.33E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	3.10E-04	1.85E-01	7.28E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	8.01E-03	2.45E+03	2.98E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	1.68E-15	2.07E-12	4.39E-14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	7.43E-01	1.14E+04	2.77E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	4.94E-07	4.69E-01	1.71E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	9.72E-05	1.08E+02	3.55E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	1.25E+00	4.20E+03	5.77E+00	1.82E+00	2.68E+00	0.00E-01	0.00E-01	0.00E-01
ZR 97	6.57E-04	3.86E+02	7.21E-03	1.43E-03	2.16E-03	0.00E-01	0.00E-01	0.00E-01
NB 95	3.07E-01	2.39E+03	1.01E+00	5.58E-01	5.41E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	2.58E+01	2.42E+02	0.00E-01	1.35E+02	3.09E+02	0.00E-01	0.00E-01	0.00E-01
TC 99M	2.11E-03	1.07E-01	5.83E-05	1.63E-04	2.42E-03	0.00E-01	9.02E-05	0.00E-01
TC101	2.94E-31	5.11E-39	2.10E-32	2.99E-32	5.41E-31	0.00E-01	1.82E-32	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = IRRIGATED FRESH LEAFY VEGETABLES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	1.38E+01	2.69E+03	3.22E+01	0.00E-01	1.14E+02	0.00E-01	0.00E-01	0.00E-01
RU105	3.94E-04	8.19E-01	1.[illegible]E-03	0.00E-01	1.28E-02	0.00E-01	0.00E-01	0.00E-01
RU106	8.13E+01	3.10E+04	6 [illegible]5E+02	0.00E-01	1.24E+03	0.00E-01	0.00E-01	0.00E-01
AG110M	1.94E+01	8.95E+03	3.37E+01	3.19E+01	6.07E+01	0.00E-01	0.00E-01	0.00E-01
TE125M	7.45E+01	1.64E+03	5.57E+02	2.01E+02	0.00E-01	1.56E+02	0.00E-01	0.00E-01
TE127M	1.90E+02	3.98E+03	1.60E+03	5.67E+02	6.48E+03	3.80E+02	0.00E-01	0.00E-01
TE127	2.58E-02	9.27E+00	1.20E-01	4.26E-02	4.86E-01	8.28E-02	0.00E-01	0.00E-01
TE129M	3.23E+02	7.66E+03	2.04E+03	7.57E+02	8.53E+03	6.58E+02	0.00E-01	0.00E-01
TE129	2.18E-09	4.91E-08	8.97E-09	3.35E-09	3.77E-08	6.41E-09	0.00E-01	0.00E-01
TE131M	8.05E+00	7.75E+02	2.01E+01	9.65E+00	1.01E+02	1.45E+01	0.00E-01	0.00E-01
TE131	1.86E-21	4.88E-22	5.94E-21	2.45E-21	2.60E-20	4.58E-21	0.00E-01	0.00E-01
TE132	5.66E+01	1.90E+03	9.50E+01	6.01E+01	5.77E+02	6.34E+01	0.00E-01	0.00E-01
I 130	1.84E+00	3.54E+00	1.59E+00	4.60E+00	7.09E+00	3.75E+02	0.00E-01	0.00E-01
I 131	2.60E+02	9.58E+01	3.46E+02	4.84E+02	8.34E+02	1.41E+05	0.00E-01	0.00E-01
I 132	1.69E-04	2.05E-04	1.80E-04	4.71E-04	7.42E-04	1.59E-02	0.00E-01	0.00E-01
I 133	4.68E+00	1.16E+01	9.05E+00	1.54E+01	2.69E+01	2.14E+03	0.00E-01	0.00E-01
I 134	1.61E-10	5.92E-12	1.69E-10	4.49E-10	7.08E-10	7.48E-09	0.00E-01	0.00E-01
I 135	1.44E-01	4.29E-01	1.50E-01	3.87E-01	6.12E-01	2.49E+01	0.00E-01	0.00E-01
CS134	1.52E+04	4.07E+02	1.39E+04	3.28E+04	1.04E+04	0.00E-01	3.97E+03	0.00E-01
CS136	1.84E+03	2.20E+02	6.96E+02	2.74E+03	1.49E+03	0.00E-01	2.35E+02	0.00E-01
CS137	8.90E+03	3.63E+02	1.92E+04	2.55E+04	8.69E+03	0.00E-01	3.38E+03	0.00E-01
CS138	2.15E-16	1.95E-19	2.24E-16	4.29E-16	3.17E-16	0.00E-01	3.69E-17	0.00E-01
BA139	9.87E-09	3.02E-06	3.39E-07	2.38E-10	2.25E-10	0.00E-01	1.64E-10	0.00E-01
BA140	1.46E+02	3.50E+03	2.27E+03	2.78E+00	9.43E-01	0.00E-01	1.87E+00	0.00E-01
BA141	7.14E-29	4.56E-33	2.14E-27	1.60E-30	1.48E-30	0.00E-01	1.09E-30	0.00E-01
BA142	3.10E-32	1.55E-42	5.04E-31	5.04E-34	4.27E-34	0.00E-01	3.36E-34	0.00E-01
LA140	5.62E-03	1.21E+03	4.30E-02	2.11E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	2.08E-10	2.55E-05	1.88E-09	8.37E-10	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	1.22E-01	3.04E+03	1.59E+00	1.06E+00	5.00E-01	0.00E-01	0.00E-01	0.00E-01
CE143	1.80E-03	4.85E+02	2.22E-02	1.61E+01	7.24E-03	0.00E-01	0.00E-01	0.00E-01
CE144	6.03E+00	2.82E+04	1.12E+02	4.64E+01	2.77E+01	0.00E-01	0.00E-01	0.00E-01
PR143	5.39E-02	3.56E+03	1.08E+00	4.32E-01	2.51E-01	0.00E-01	0.00E-01	0.00E-01
PR144	2.35E-33	5.11E-35	4.63E-32	1.90E-32	1.09E-32	0.00E-01	0.00E-01	0.00E-01
ND147	4.48E-02	2.70E+03	6.88E-01	7.49E-01	4.40E-01	0.00E-01	0.00E-01	0.00E-01
W 187	2.38E-01	1.84E+02	8.34E-01	6.80E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	1.74E-03	5.03E+02	3.32E-02	3.13E-03	9.81E-03	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = IRRIGATED STORED FRUIT, VEGETABLES, GRAIN

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.89E+01	1.89E+01	0.00E-01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	0.00E-01
C 14	2.85E+04	2.85E+04	1.43E+05	2.85E+04	2.85E+04	2.85E+04	2.85E+04	0.00E-01
NA 24	2.19E-24	2.19E-24	2.19E-24	2.19E-24	2.19E-24	2.19E-24	2.19E-24	0.00E-01
P 32	7.96E+02	1.72E+03	2.05E+04	1.27E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.40E+00	2.35E+02	0.00E-01	0.00E-01	3.06E-01	7.76E-01	1.99E+00	0.00E-01
MN 54	2.50E+03	2.59E+04	0.00E-01	1.26E+04	3.77E+03	0.00E-01	0.00E-01	0.00E-01
MN 56	3.79E-27	1.40E-24	0.00E-01	2.13E-26	2.70E-26	0.00E-01	0.00E-01	0.00E-01
FE 55	1.49E+03	2.77E+03	9.04E+03	6.41E+03	0.00E-01	0.00E-01	4.07E+03	0.00E-01
FE 59	4.12E+03	2.53E+04	4.58E+03	1.07E+04	0.00E-01	0.00E-01	3.37E+03	0.00E-01
CO 58	2.69E+03	1.61E+04	0.00E-01	1.17E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	1.57E+04	9.07E+04	0.00E-01	6.97E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	1.58E+04	5.23E+03	4.65E+05	3.28E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	5.74E-27	6.84E-25	9.87E-26	1.26E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	4.34E-26	7.15E-24	0.00E-01	9.22E-26	2.33E-25	0.00E-01	0.00E-01	0.00E-01
ZN 65	2.01E+04	1.83E+04	1.24E+04	4.32E+04	2.76E+04	0.00E-01	0.00E-01	0.00E-01
ZN 69	6.21E-29	1.63E-27	4.66E-28	8.87E-28	5.80E-28	0.00E-01	0.00E-01	0.00E-01
BR 83	7.12E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	7.22E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	5.09E-36	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	2.29E+03	7.23E+02	0.00E-01	4.88E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	9.12E-29	1.47E-35	0.00E-01	1.71E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	4.50E-29	9.74E-38	0.00E-01	6.36E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	1.13E+04	4.71E+04	3.96E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	7.14E+05	8.16E+05	3.57E+07	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	1.91E-25	2.18E-23	4.81E-24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	1.88E-26	1.12E-2[illegible]	4.41E-25	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	2.74E-08	8.40E-03	1.02E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	1.22E-31	1.50E-28	3.19E-30	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	5.54E+00	8.47E+04	2.07E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	7.02E-30	6.66E-24	2.43E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	6.65E-29	7.41E-23	2.43E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	9.94E+00	3.33E+04	4.58E+01	1.44E+01	2.12E+01	0.00E-01	0.00E-01	0.00E-01
ZR 97	5.70E-28	3.35E-22	6.25E-27	1.24E-27	1.88E-27	0.00E-01	0.00E-01	0.00E-01
NB 95	1.44E+00	1.12E+04	4.72E+00	2.62E+00	2.54E+00	0.00E-01	0.00E-01	0.00E-01
MO 99	1.33E-04	1.25E-03	0.00E-01	6.95E-04	1.59E-03	0.00E-01	0.00E-01	0.00E-01
TC 99M	4.39E-27	2.22E-25	1.21E-28	3.39E-28	5.05E-27	0.00E-01	1.88E-28	0.00E-01
TC101	4.41E-30	7.67E-28	3.16E-31	4.49E-31	8.12E-30	0.00E-01	2.73E-31	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = IRRIGATED STORED FRUIT, VEGETABLES, GRAIN

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	7.30E+01	1.43E+04	1.71E+02	0.00E-01	6.02E+02	0.00E-01	0.00E-01	0.00E-01
RU105	2.20E-27	4.57E-24	5.66E-27	0.00E-01	7.14E-26	0.00E-01	0.00E-01	0.00E-01
RU106	1.09E+03	4.15E+05	8.66E+03	0.00E-01	1.67E+04	0.00E-01	0.00E-01	0.00E-01
AG110M	2.47E+02	1.14E+05	4.29E+02	4.06E+02	7.74E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	5.53E+02	1.22E+04	4.13E+03	1.49E+03	0.00E-01	1.15E+03	0.00E-01	0.00E-01
TE127M	1.96E+03	4.11E+04	1.65E+04	5.85E+03	6.68E+04	3.92E+03	0.00E-01	0.00E-01
TE127	2.01E-26	7.22E-24	9.35E-26	3.31E-26	3.79E-25	6.45E-26	0.00E-01	0.00E-01
TE129M	1.43E+03	3.40E+04	9.05E+03	3.36E+03	3.79E+04	7.92E+03	0.00E-01	0.00E-01
TE129	4.86E-28	1.09E-26	2.00E-27	7.44E-28	8.38E-27	1.43E-27	0.00E-01	0.00E-01
TE131M	7.40E-13	7.12E-11	1.85E-12	8.87E-13	9.25E-12	1.33E-12	0.00E-01	0.00E-01
TE131	4.85E-29	1.27E-29	1.55E-28	6.39E-29	6.78E-28	1.20E-28	0.00E-01	0.00E-01
TE132	3.04E-03	1.02E-01	5.10E-03	3.23E-03	3.10E-02	3.41E-03	0.00E-01	0.00E-01
I 130	9.29E-25	1.79E-24	8.04E-25	2.33E-24	3.58E-24	1.90E-22	0.00E-01	0.00E-01
I 131	2.41E+01	8.87E+00	3.20E+01	4.49E+01	7.72E+01	1.31E+04	0.00E-01	0.00E-01
I 132	3.07E-26	3.73E-26	3.27E-26	8.56E-26	1.35E-25	2.88E-24	0.00E-01	0.00E-01
I 133	2.34E-19	5.79E-19	4.51E-19	7.66E-19	1.34E-18	1.07E-16	0.00E-01	0.00E-01
I 134	3.81E-27	1.40E-28	4.00E-27	1.06E-26	1.67E-26	1.77E-25	0.00E-01	0.00E-01
I 135	2.35E-25	7.03E-25	2.46E-25	6.34E-25	1.00E-24	4.08E-23	0.00E-01	0.00E-01
CS134	2.16E+05	5.79E+03	1.98E+05	4.65E+05	1.48E+05	0.00E-01	5.65E+04	0.00E-01
CS136	1.22E+03	1.46E+02	4.61E+02	1.81E+03	9.88E+02	0.00E-01	1.56E+02	0.00E-01
CS137	1.33E+05	5.43E+03	2.87E+05	3.82E+05	1.30E+05	0.00E-01	5.05E+04	0.00E-01
CS138	7.65E-28	6.94E-31	7.96E-28	1.53E-27	1.13E-27	0.00E-01	1.31E-28	0.00E-01
BA139	2.32E-28	7.11E-26	7.98E-27	5.61E-30	5.29E-30	0.00E-01	3.87E-30	0.00E-01
BA140	8.97E+01	2.15E+03	1.39E+03	1.71E+00	5.79E-01	0.00E-01	1.15E+00	0.00E-01
BA141	4.86E-30	3.10E-34	1.45E-28	1.09E-31	1.01E-31	0.00E-01	7.44E-32	0.00E-01
BA142	4.66E-31	2.32E-41	7.57E-30	7.57E-33	6.40E-33	0.00E-01	5.04E-33	0.00E-01
LA140	2.21E-12	4.76E-07	1.69E-11	8.29E-12	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	1.34E-30	1.64E-25	1.21E-29	5.39E-30	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	5.19E-01	1.29E+04	6.77E+00	4.52E+00	2.13E+00	0.00E-01	0.00E-01	0.00E-01
CE143	3.71E-15	9.99E-10	4.57E-14	3.32E-11	1.49E-14	0.00E-01	0.00E-01	0.00E-01
CE144	7.83E+01	3.67E+05	1.46E+03	6.03E+02	3.60E+02	0.00E-01	0.00E-01	0.00E-01
PR143	4.00E-02	2.64E+03	8.03E-01	3.20E-01	1.86E-01	0.00E-01	0.00E-01	0.00E-01
PR144	3.91E-33	8.50E-35	7.71E-32	3.16E-32	1.81E-32	0.00E-01	0.00E-01	0.00E-01
ND147	1.69E-02	1.02E+03	2.59E-01	2.82E-01	1.65E-01	0.00E-01	0.00E-01	0.00E-01
W 187	5.39E-18	4.16E-15	1.89E-17	1.54E-17	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	7.74E-10	2.24E-04	1.48E-08	1.39E-09	4.37E-09	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = IRRIGATED FRESH FORAGE--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	5.51E+00	5.51E+00	0.00E-01	5.51E+00	5.51E+00	5.51E+00	5.51E+00	0.00E-01
C 14	1.19E+04	1.19E+04	5.95E+04	1.19E+04	1.19E+04	1.19E+04	1.19E+04	0.00E-01
NA 24	9.95E+01	9.95E+01	9.95E+01	9.95E+01	9.95E+01	9.95E+01	9.95E+01	0.00E-01
P 32	2.82E+04	6.11E+04	7.27E+05	4.50E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.08E+00	1.81E+02	0.00E-01	0.00E-01	2.36E-01	5.98E-01	1.54E+00	0.00E-01
MN 54	5.31E+01	5.50E+02	0.00E-01	2.68E+02	7.99E+01	0.00E-01	0.00E-01	0.00E-01
MN 56	2.31E-08	8.55E-06	0.00E-01	1.30E-07	1.64E-07	0.00E-01	0.00E-01	0.00E-01
FE 55	1.39E+02	2.57E+02	8.39E+02	5.95E+02	0.00E-01	0.00E-01	3.77E+02	0.00E-01
FE 59	9.69E+02	5.93E+03	1.07E+03	2.51E+03	0.00E-01	0.00E-01	7.91E+02	0.00E-01
CO 58	3.68E+02	2.20E+03	0.00E-01	1.60E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	1.18E+03	6.83E+03	0.00E-01	5.24E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	7.64E+03	2.53E+03	2.25E+05	1.59E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	7.36E-07	8.76E-05	1.26E-05	1.62E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	4.55E-01	7.50E+01	0.00E-01	9.67E-01	2.45E+00	0.00E-01	0.00E-01	0.00E-01
ZN 65	6.71E+04	6.10E+04	4.15E+04	1.44E+05	9.21E+04	0.00E-01	0.00E-01	0.00E-01
ZN 69	1.46E-17	3.84E-16	1.09E-16	2.09E-16	1.36E-16	0.00E-01	0.00E-01	0.00E-01
BR 83	3.34E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	3.26E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	2.30E-35	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	4.98E+04	1.57E+04	0.00E-01	1.06E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	2.48E-28	3.99E-35	0.00E-01	4.66E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	1.22E-28	2.65E-37	0.00E-01	1.73E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	1.60E+03	6.65E+03	5.58E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	5.62E+04	6.42E+04	2.81E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	4.75E-02	5.42E+00	1.20E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	7.33E-07	4.38E-04	1.72E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	8.41E-05	2.58E+01	3.12E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	4.12E-26	5.09E-23	1.08E-24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	8.62E-03	1.32E+02	3.22E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	6.22E-11	5.90E-05	2.15E-09	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	2.54E-07	2.83E-01	9.26E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	7.24E-03	2.43E+01	3.34E-02	1.05E-02	1.55E-02	0.00E-01	0.00E-01	0.00E-01
ZR 97	1.67E-06	9.82E-01	1.83E-05	3.63E-06	5.50E-06	0.00E-01	0.00E-01	0.00E-01
NB 95	9.10E-01	7.07E+03	2.98E+00	1.65E+00	1.60E+00	0.00E-01	0.00E-01	0.00E-01
MO 99	2.04E+02	1.92E+03	0.00E-01	1.07E+03	2.45E+03	0.00E-01	0.00E-01	0.00E-01
TC 99M	4.51E-03	2.28E-01	1.25E-04	3.48E-04	5.18E-03	0.00E-01	1.93E-04	0.00E-01
TC101	9.99E-30	1.74E-37	7.15E-31	1.02E-30	1.84E-29	0.00E-01	6.19E-31	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = IRRIGATED FRESH FORAGE--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	1.62E-02	3.17E+00	3.80E-02	0.00E-01	1.34E-01	0.00E-01	0.00E-01	0.00E-01
RU105	1.26E-08	2.62E-05	3.25E-08	0.00E-01	4.09E-07	0.00E-01	0.00E-01	0.00E-01
RU106	9.04E-02	3.44E+01	7.17E-01	0.00E-01	1.38E+00	0.00E-01	0.00E-01	0.00E-01
AG110M	1.07E+03	4.95E+05	1.86E+03	1.76E+03	3.36E+03	0.00E-01	0.00E-01	0.00E-01
TE125M	8.37E+01	1.85E+03	6.26E+02	2.25E+02	0.00E-01	1.75E+02	0.00E-01	0.00E-01
TE127M	2.05E+02	4.30E+03	1.73E+03	6.12E+02	7.00E+03	4.11E+02	0.00E-01	0.00E-01
TE127	5.89E-03	2.11E+00	2.74E-02	9.70E-03	1.11E-01	1.89E-02	0.00E-01	0.00E-01
TE129M	3.75E+02	8.90E+03	2.37E+03	8.80E+02	9.92E+03	7.65E+02	0.00E-01	0.00E-01
TE129	1.74E-15	3.91E-14	7.16E-15	2.67E-15	3.00E-14	5.11E-15	0.00E-01	0.00E-01
TE131M	6.24E+00	6.01E+02	1.56E+01	7.49E+00	7.81E+01	1.13E+01	0.00E-01	0.00E-01
TE131	4.37E-30	1.15E-30	1.40E-29	5.76E-30	6.11E-29	1.08E-29	0.00E-01	0.00E-01
TE132	6.17E+01	2.08E+03	1.03E+02	6.56E+01	6.29E+02	6.91E+01	0.00E-01	0.00E-01
I 130	3.90E+00	7.50E+00	3.37E+00	9.76E+00	1.50E+01	7.95E+02	0.00E-01	[illegible]0E-01
I 131	1.92E+03	7.05E+02	2.55E+03	3.57E+03	6.14E+03	1.04E+06	0.00E-01	[illegible]0E-01
I 132	9.99E-07	1.21E-06	1.06E-06	2.78E-06	4.38E-06	9.38E-05	0.00E-01	[illegible].00E-01
I 133	1.72E+01	4.26E+01	3.32E+01	5.63E+01	9.88E+01	7.86E+03	0.00E-01	0.00E-01
I 134	7.32E-18	2.68E-19	7.69E-18	2.04E-17	3.21E-17	3.39E-16	0.00E-01	0.00E-01
I 135	9.40E-02	2.81E-01	9.85E-02	2.54E-01	4.00E-01	1.63E+01	0.00E-01	0.00E-01
CS134	2.03E+05	5.43E+03	1.86E+05	4.37E+05	1.39E+05	0.00E-01	5.30E+04	0.00E-01
CS136	2.72E+04	3.26E+03	1.03E+04	4.05E+04	2.21E+04	0.00E-01	3.48E+03	0.00E-01
CS137	1.17E+05	4.79E+03	2.53E+05	3.36E+05	1.14E+05	0.00E-01	4.45E+04	0.00E-01
CS138	8.32E-28	7.55E-31	8.67E-28	1.66E-27	1.23E-27	0.00E-01	1.43E-28	0.00E-01
BA139	3.00E-14	9.18E-12	1.03E-12	7.24E-16	6.83E-16	0.00E-01	4.99E-16	0.00E-01
BA140	7.22E+01	1.73E+03	1.12E+03	1.37E+00	4.65E-01	0.00E-01	9.23E-01	0.00E-01
BA141	1.76E-31	1.12E-35	5.28E-30	3.94E-33	3.66E-33	0.00E-01	2.70E-33	0.00E-01
BA142	1.69E-32	8.44E-43	2.75E-31	2.75E-34	2.32E-34	0.00E-01	1.83E-34	0.00E-01
LA140	2.53E-05	5.46E+00	1.93E-04	9.51E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	2.89E-17	3.54E-12	2.62E-16	1.16E-16	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	1.45E-02	3.61E+02	1.89E-01	1.26E-01	5.94E-02	0.00E-01	0.00E-01	0.00E-01
CE143	1.48E-04	4.00E+01	1.83E-03	1.33E+00	5.96E-04	0.00E-01	0.00E-01	0.00E-01
CE144	6.76E-01	3.16E+03	1.26E+01	5.20E+00	3.11E+00	0.00E-01	0.00E-01	0.00E-01
PR143	3.32E-04	2.20E+01	6.67E-03	2.67E-03	1.55E-03	0.00E-01	0.00E-01	0.00E-01
PR144	1.77E-36	3.86E-38	3.50E-35	1.43E-35	8.22E-36	0.00E-01	0.00E-01	0.00E-01
ND147	2.77E-04	1.67E+01	4.25E-03	4.62E-03	2.71E-03	0.00E-01	0.00E-01	0.00E-01
W 187	8.08E-02	6.24E+01	2.83E-01	2.31E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	8.81E-06	2.55E+00	1.68E-04	1.59E-05	4.98E-05	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = IRRIGATED FRESH FORAGE--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	9.85E-01	9.85E-01	0.00E-01	9.85E-01	9.85E-01	9.85E-01	9.85E-01	0.00E-01
C 14	5.00E+03	5.00E+03	2.50E+04	5.00E+03	5.00E+03	5.00E+03	5.00E+03	0.00E-01
NA 24	2.74E-08	2.74E-08	2.74E-08	2.74E-08	2.74E-08	2.74E-08	2.74E-08	0.00E-01
P 32	3.52E+03	7.63E+03	9.08E+04	5.63E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.22E-01	2.04E+01	0.00E-01	0.00E-01	2.67E-02	6.76E-02	1.74E-01	0.00E-01
MN 54	2.65E+01	2.75E+02	0.00E-01	1.34E+02	3.99E+02	0.00E-01	0.00E-01	0.00E-01
MN 56	4.47E-29	1.65E-26	0.00E-01	2.51E-28	3.18E-28	0.00E-01	0.00E-01	0.00E-01
FE 55	7.42E+02	1.38E+03	4.49E+03	3.18E+03	0.00E-01	0.00E-01	2.02E+03	0.00E-01
FE 59	3.97E+03	2.43E+04	4.40E+03	1.03E+04	0.00E-01	0.00E-01	3.24E+03	0.00E-01
CO 58	6.52E+02	3.90E+03	0.00E-01	2.83E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	2.48E+03	1.43E+04	0.00E-01	1.10E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	9.82E+03	3.26E+03	2.90E+05	2.04E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	4.49E-27	5.34E-25	7.71E-26	9.85E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	2.29E-12	3.77E-10	0.00E-01	4.86E-12	1.23E-11	0.00E-01	0.00E-01	0.00E-01
ZN 65	7.97E+03	7.24E+03	4.92E+03	1.71E+04	1.09E+04	0.00E-01	0.00E-01	0.00E-01
ZN 69	2.74E-29	7.21E-28	2.05E-28	3.91E-28	2.56E-28	0.00E-01	0.00E-01	0.00E-01
BR 83	2.72E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	2.76E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	1.94E-36	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	4.29E+03	1.35E+03	0.00E-01	9.13E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	4.17E-29	6.70E-36	0.00E-01	7.82E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	2.05E-29	4.45E-38	0.00E-01	2.90E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	1.52E+02	6.33E+02	5.31E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	6.84E+03	7.81E+03	3.42E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	1.13E-16	1.28E-14	2.83E-15	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	1.67E-28	9.95E-26	3.91E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	5.92E-05	1.81E+01	2.20E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	8.26E-33	1.02E-29	2.16E-31	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	5.21E-01	7.96E+03	1.94E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	4.76E-31	4.51E-25	1.[illegible]E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	2.39E-18	2.66E-12	8.[illegible]E-17	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	6.59E+00	2.21E+04	3.04E+01	9.58E+00	1.41E+01	0.00E-01	0.00E-01	0.00E-01
ZR 97	3.68E-11	2.17E-05	4.04E-10	8.00E-11	1.21E-10	0.00E-01	0.00E-01	0.00E-01
NB 95	1.16E+01	9.03E+04	3.81E+01	2.11E+01	2.05E+01	0.00E-01	0.00E-01	0.00E-01
MO 99	3.77E-01	3.54E+00	0.00E-01	1.98E+00	4.53E+00	0.00E-01	0.00E-01	0.00E-01
TC 99M	2.86E-24	1.45E-22	7.90E-26	2.20E-25	3.28E-24	0.00E-01	1.22E-25	0.00E-01
TC101	2.60E-29	4.52E-37	1.86E-30	2.64E-30	4.78E-29	0.00E-01	1.61E-30	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = IRRIGATED FRESH FORAGE--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	7.68E+02	1.50E+05	1.80E+03	0.00E-01	6.33E+03	0.00E-01	0.00E-01	0.00E-01
RU105	1.30E-26	2.70E-23	3.34E-26	0.00E-01	4.21E-25	0.00E-01	0.00E-01	0.00E-01
RU106	5.68E+03	2.16E+06	4.51E+04	0.00E-01	8.69E+04	0.00E-01	0.00E-01	0.00E-01
AG110M	5.64E+01	2.60E+04	9.79E+01	9.27E+01	1.77E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	8.45E+02	1.86E+04	6.32E+03	2.28E+03	0.00E-01	1.76E+03	0.00E-01	0.00E-01
TE127M	2.29E+03	4.80E+04	1.93E+04	6.83E+03	7.81E+04	4.58E+03	0.00E-01	0.00E-01
TE127	8.99E-16	3.23E-13	4.18E-15	1.48E-15	1.69E-14	2.88E-15	0.00E-01	0.00E-01
TE129M	3.24E+03	7.68E+04	2.05E+04	7.59E+03	8.56E+04	6.60E+03	0.00E-01	0.00E-01
TE129	5.47E-28	1.23E-26	2.25E-27	8.39E-28	9.44E-27	1.61E-27	0.00E-01	0.00E-01
TE131M	3.60E-03	3.47E-01	9.01E-03	4.32E-03	4.50E-02	6.50E-03	0.00E-01	0.00E-01
TE131	5.47E-29	1.44E-29	1.75E-28	7.21E-29	7.65E-28	1.35E-28	0.00E-01	0.00E-01
TE132	1.68E+01	5.66E+02	2.82E+01	1.79E+01	1.72E+02	1.89E+01	0.00E-01	0.00E-01
I 130	8.90E-12	1.71E-11	7.70E-12	2.23E-11	3.43E-11	1.82E-09	0.00E-01	0.00E-01
I 131	3.19E+01	1.17E+01	4.24E+01	5.93E+01	1.02E+02	1.73E+04	0.00E-01	0.00E-01
I 132	1.31E-27	1.59E-27	1.40E-27	3.66E-27	5.76E-27	1.23E-25	0.00E-01	0.00E-01
I 133	7.63E-07	1.89E-06	1.47E-06	2.50E-06	4.39E-06	3.49E-04	0.00E-01	0.00E-01
I 134	1.63E-28	5.98E-30	1.71E-28	4.54E-28	7.15E-28	7.56E-27	0.00E-01	0.00E-01
I 135	1.40E-22	4.18E-22	1.47E-22	3.78E-22	5.96E-22	2.43E-20	0.00E-01	0.00E-01
CS134	1.08E+04	2.89E+02	9.89E+03	2.33E+04	7.39E+03	0.00E-01	2.82E+03	0.00E-01
CS136	5.69E+02	6.82E+01	2.15E+02	8.47E+02	4.61E+02	0.00E-01	7.27E+01	0.00E-01
CS137	6.34E+03	2.59E+02	1.37E+04	1.82E+04	6.19E+03	0.00E-01	2.41E+03	0.00E-01
CS138	4.51E-29	4.09E-32	4.69E-29	9.01E-29	6.65E-29	0.00E-01	7.74E-30	0.00E-01
BA139	1.10E-29	3.36E-27	3.76E-28	2.65E-31	2.49E-31	0.00E-01	1.82E-31	0.00E-01
BA140	3.54E+01	8.47E+02	5.49E+02	6.73E-01	2.28E-01	0.00E-01	4.52E-01	0.00E-01
BA141	2.29E-31	1.46E-35	6.86E-30	5.12E-33	4.76E-33	0.00E-01	3.51E-33	0.00E-01
BA142	2.20E-32	1.10E-42	3.57E-31	3.57E-34	3.02E-34	0.00E-01	2.38E-34	0.00E-01
LA140	9.71E-08	2.10E-02	7.43E-07	3.65E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	3.96E-33	4.84E-28	3.58E-32	1.59E-32	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	1.93E-02	4.80E+02	2.51E-01	1.68E-01	7.89E-02	0.00E-01	0.00E-01	0.00E-01
CE143	3.45E-08	9.28E-03	4.24E-07	3.09E-04	1.38E-07	0.00E-01	0.00E-01	0.00E-01
CE144	1.26E+00	5.90E+03	2.35E+01	9.72E+00	5.80E+00	0.00E-01	0.00E-01	0.00E-01
PR143	2.03E-02	1.34E+03	4.07E-01	1.63E-01	9.45E-02	0.00E-01	0.00E-01	0.00E-01
PR144	2.71E-34	5.89E-36	5.34E-33	2.19E-33	1.26E-33	0.00E-01	0.00E-01	0.00E-01
ND147	9.65E-03	5.81E+02	1.48E-01	1.61E-01	9.46E-02	0.00E-01	0.00E-01	0.00E-01
W 187	1.25E-07	9.64E-05	4.37E-07	3.56E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	2.89E-07	8.38E-02	5.52E-06	5.21E-07	1.63E-06	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = IRRIGATED STORED FEED--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	5.51E+00	5.51E+00	0.00E-01	5.51E+00	5.51E+00	5.51E+00	5.51E+00	0.00E-01
C 14	1.23E+04	1.23E+04	6.16E+04	1.23E+04	1.23E+04	1.23E+04	1.23E+04	0.00E-01
NA 24	9.95E+01	9.95E+01	9.95E+01	9.95E+01	9.95E+01	9.95E+01	9.95E+01	0.00E-01
P 32	2.96E+04	6.43E+04	7.65E+05	4.74E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.19E+00	2.00E+02	0.00E-01	0.00E-01	2.61E-01	6.62E-01	1.70E+00	0.00E-01
MN 54	6.44E+01	6.66E+02	0.00E-01	3.25E+02	9.68E+01	0.00E-01	0.00E-01	0.00E-01
MN 56	2.31E-08	8.55E-06	0.00E-01	1.30E-07	1.64E-07	0.00E-01	0.00E-01	0.00E-01
FE 55	1.69E+02	3.15E+02	1.02E+03	7.27E+02	0.00E-01	0.00E-01	4.61E+02	0.00E-01
FE 59	1.11E+03	6.78E+03	1.23E+03	2.87E+03	0.00E-01	0.00E-01	9.04E+02	0.00E-01
CO 58	4.30E+02	2.57E+03	0.00E-01	1.87E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	1.44E+03	8.35E+03	0.00E-01	6.41E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	9.34E+03	3.10E+03	2.75E+05	1.94E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	7.36E-07	8.76E-05	1.26E-05	1.62E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	4.55E-01	7.50E+01	0.00E-01	9.67E-01	2.45E+00	0.00E-01	0.00E-01	0.00E-01
ZN 65	8.07E+04	7.33E+04	4.98E+04	1.73E+05	1.11E+05	0.00E-01	0.00E-01	0.00E-01
ZN 69	1.46E-17	3.84E-16	1.09E-16	2.09E-16	1.36E-16	0.00E-01	0.00E-01	0.00E-01
BR 83	3.34E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	3.26E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	2.30E-35	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	5.35E+04	1.68E+04	0.00E-01	1.14E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	2.48E-28	3.99E-35	0.00E-01	4.66E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	1.22E-28	2.65E-37	0.00E-01	1.73E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	1.83E+03	7.63E+03	6.41E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	6.31E+04	7.20E+04	3.15E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	4.75E-02	5.42E+00	1.20E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	7.33E-07	4.38E-04	1.72E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	8.41E-05	2.58E+01	3.12E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	4.12E-26	5.09E-23	1.08E-24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	9.99E-03	1.53E+02	3.73E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	6.22E-11	5.90E-05	2.15E-09	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	2.54E-07	2.83E-01	9.26E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	8.43E-03	2.83E+01	3.88E-02	1.23E-02	1.80E-02	0.00E-01	0.00E-01	0.00E-01
ZR 97	1.67E-06	9.82E-01	1.83E-05	3.63E-06	5.50E-06	0.00E-01	0.00E-01	0.00E-01
NB 95	1.02E+00	7.96E+03	3.36E+00	1.86E+00	1.80E+00	0.00E-01	0.00E-01	0.00E-01
MO 99	2.04E+02	1.92E+03	0.00E-01	1.07E+03	2.45E+03	0.00E-01	0.00E-01	0.00E-01
TC 99M	4.51E-03	2.28E-01	1.25E-04	3.48E-04	5.18E-03	0.00E-01	1.93E-04	0.00E-01
TC101	9.99E-30	1.74E-37	7.15E-31	1.02E-30	1.84E-29	0.00E-01	6.19E-31	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = IRRIGATED STORED FEED--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	1.84E-02	3.59E+00	4.30E-02	0.00E-01	1.52E-01	0.00E-01	0.00E-01	0.00E-01
RU105	1.26E-08	2.62E-05	3.25E-08	0.00E-01	4.09E-07	0.00E-01	0.00E-01	0.00E-01
RU106	1.10E-01	4.17E+01	8.70E-01	0.00E-01	1.68E+00	0.00E-01	0.00E-01	0.00E-01
AG110M	1.29E+03	5.97E+05	2.25E+03	2.13E+03	4.06E+03	0.00E-01	0.00E-01	0.00E-01
TE125M	9.66E+01	2.13E+03	7.23E+02	2.60E+02	0.00E-01	2.02E+02	0.00E-01	0.00E-01
TE127M	2.42E+02	5.08E+03	2.04E+03	7.23E+02	8.26E+03	4.84E+02	0.00E-01	0.00E-01
TE127	5.89E-03	2.11E+00	2.74E-02	9.70E-03	1.11E-01	1.89E-02	0.00E-01	0.00E-01
TE129M	4.20E+02	9.97E+03	2.66E+03	9.86E+02	1.11E+04	8.57E+02	0.00E-01	0.00E-01
TE129	1.74E-15	3.91E-14	7.16E-15	2.67E-15	3.00E-14	5.11E-15	0.00E-01	0.00E-01
TE131M	6.24E+00	6.01E+02	1.56E+01	7.49E+00	7.81E+01	1.13E+01	0.00E-01	0.00E-01
TE131	4.37E-30	1.15E-30	1.40E-29	5.76E-30	6.11E-29	1.08E-29	0.00E-01	0.00E-01
TE132	6.17E+01	2.08E+03	1.04E+02	6.56E+01	6.29E+02	6.92E+01	0.00E-01	0.00E-01
I 130	3.90E+00	7.50E+00	3.37E+00	9.76E+00	1.50E+01	7.95E+02	0.00E-01	0.00E-01
I 131	1.95E+03	7.17E+02	2.59E+03	3.63E+03	6.24E+03	1.06E+06	0.00E-01	0.00E-01
I 132	9.99E-07	1.21E-06	1.06E-06	2.78E-06	4.38E-06	9.38E-05	0.00E-01	0.00E-01
I 133	1.72E+01	4.26E+01	3.32E+01	5.63E+01	9.88E+01	7.86E+03	0.00E-01	0.00E-01
I 134	7.32E-18	2.68E-19	7.69E-18	2.04E-17	3.21E-17	3.39E-16	0.00E-01	0.00E-01
I 135	9.40E-02	2.81E-01	9.85E-02	2.54E-01	4.00E-01	1.63E+01	0.00E-01	0.00E-01
CS134	2.47E+05	6.63E+03	2.26E+05	5.33E+05	1.69E+05	0.00E-01	6.46E+04	0.00E-01
CS136	2.85E+04	3.41E+03	1.08E+04	4.24E+04	2.31E+04	0.00E-01	3.64E+03	0.00E-01
CS137	1.43E+05	5.86E+03	3.09E+05	4.12E+05	1.40E+05	0.00E-01	5.44E+04	0.00E-01
CS138	8.32E-28	7.55E-31	8.67E-28	1.66E-27	1.23E-27	0.00E-01	1.43E-28	0.00E-01
BA139	3.00E-14	9.18E-12	1.03E-12	7.24E-16	6.83E-16	0.00E-01	4.99E-16	0.00E-01
BA140	7.54E+01	1.80E+03	1.17E+03	1.43E+00	4.86E-01	0.00E-01	9.64E-01	0.00E-01
BA141	1.76E-31	1.12E-35	5.28E-30	3.94E-33	3.66E-33	0.00E-01	2.70E-33	0.00E-01
BA142	1.69E-32	8.44E-43	2.75E-31	2.75E-34	2.32E-34	0.00E-01	1.83E-34	0.00E-01
LA140	2.53E-05	5.46E+00	1.93E-04	9.51E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	2.89E-17	3.54E-12	2.62E-16	1.16E-16	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	1.62E-02	4.04E+02	2.12E-01	1.41E-01	6.65E-02	0.00E-01	0.00E-01	0.00E-01
CE143	1.48E-04	4.00E+01	1.83E-03	1.33E+00	5.96E-04	0.00E-01	0.00E-01	0.00E-01
CE144	8.18E-01	3.83E+03	1.52E+01	6.30E+00	3.76E+00	0.00E-01	0.00E-01	0.00E-01
PR143	3.49E-04	2.30E+01	7.00E-03	2.80E-03	1.63E-03	0.00E-01	0.00E-01	0.00E-01
PR144	1.77E-36	3.86E-38	3.50E-35	1.43E-35	8.22E-36	0.00E-01	0.00E-01	0.00E-01
ND147	2.87E-04	1.73E+01	4.40E-03	4.78E-03	2.81E-03	0.00E-01	0.00E-01	0.00E-01
W 187	8.08E-02	6.24E+01	2.83E-01	2.31E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	8.81E-06	2.55E+00	1.68E-04	1.59E-05	4.98E-05	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = IRRIGATED STORED FEED--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	9.85E-01	9.85E-01	0.00E-01	9.85E-01	9.85E-01	9.85E-01	9.85E-01	0.00E-01
C 14	5.17E+03	5.17E+03	2.58E+04	5.17E+03	5.17E+03	5.17E+03	5.17E+03	0.00E-01
NA 24	2.74E-08	2.74E-08	2.74E-08	2.74E-08	2.74E-08	2.74E-08	2.74E-08	0.00E-01
P 32	3.71E+03	8.03E+03	9.56E+04	5.92E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.35E-01	2.26E+01	0.00E-01	0.00E-01	2.95E-02	7.48E-02	1.92E-01	0.00E-01
MN 54	3.22E+01	3.33E+02	0.00E-01	1.62E+02	4.84E+01	0.00E-01	0.00E-01	0.00E-01
MN 56	4.47E-29	1.65E-26	0.00E-01	2.51E-28	3.18E-28	0.00E-01	0.00E-01	0.00E-01
FE 55	9.06E+02	1.68E+03	5.48E+03	3.89E+03	0.00E-01	0.00E-01	2.47E+03	0.00E-01
FE 59	4.53E+03	2.77E+04	5.03E+03	1.17E+04	0.00E-01	0.00E-01	3.70E+03	0.00E-01
CO 58	7.62E+02	4.56E+03	0.00E-01	3.31E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	3.03E+03	1.75E+04	0.00E-01	1.35E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	1.20E+04	3.98E+03	3.54E+05	2.50E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	4.49E-27	5.34E-25	7.71E-26	9.85E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	2.29E-12	3.77E-10	0.00E-01	4.86E-12	1.23E-11	0.00E-01	0.00E-01	0.00E-01
ZN 65	9.59E+03	8.71E+03	5.92E+03	2.06E+04	1.32E+04	0.00E-01	0.00E-01	0.00E-01
ZN 69	2.74E-29	7.21E-28	2.05E-28	3.91E-28	2.56E-28	0.00E-01	0.00E-01	0.00E-01
BR 83	2.72E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	2.76E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	1.94E-36	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	4.61E+03	1.45E+03	0.00E-01	9.81E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	4.17E-29	6.70E-36	0.00E-01	7.82E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	2.05E-29	4.45E-38	0.00E-01	2.90E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	1.75E+02	7.26E+02	6.10E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	7.68E+03	8.77E+03	3.84E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	1.13E-16	1.28E-14	2.83E-15	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	1.67E-28	9.95E-26	3.91E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	5.92E-05	1.81E+01	2.20E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	8.26E-33	1.02E-29	2.16E-31	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	6.04E-01	9.23E+03	2.25E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	4.76E-31	4.51E-25	1.64E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	2.39E-18	2.66E-12	8.71E-17	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	7.67E+00	2.57E+04	3.53E+01	1.11E+01	1.64E+01	0.00E-01	0.00E-01	0.00E-01
ZR 97	3.68E-11	2.17E-05	4.04E-10	8.00E-11	1.21E-10	0.00E-01	0.00E-01	0.00E-01
NB 95	1.31E+01	1.02E+05	4.28E+01	2.38E+01	2.30E+01	0.00E-01	0.00E-01	0.00E-01
MO 99	3.77E-01	3.54E+00	0.00E-01	1.98E+00	4.53E+00	0.00E-01	0.00E-01	0.00E-01
TC 99M	2.86E-24	1.45E-22	7.90E-26	2.20E-25	3.28E-24	0.00E-01	1.22E-25	0.00E-01
TC101	2.60E-29	4.52E-37	1.86E-30	2.64E-30	4.78E-29	0.00E-01	1.61E-30	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = IRRIGATED STORED FEED--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	8.70E+02	1.70E+05	2.04E+03	0.00E-01	7.18E+03	0.00E-01	0.00E-01	0.00E-01
RU105	1.30E-26	2.70E-23	3.34E-26	0.00E-01	4.21E-25	0.00E-01	0.00E-01	0.00E-01
RU106	6.89E+03	2.62E+06	5.47E+04	0.00E-01	1.05E+05	0.00E-01	0.00E-01	0.00E-01
AG110M	6.80E+01	3.14E+04	1.18E+02	1.12E+02	2.13E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	9.75E+02	2.15E+04	7.30E+03	2.63E+03	0.00E-01	2.04E+03	0.00E-01	0.00E-01
TE127M	2.70E+03	5.67E+04	2.27E+04	8.06E+03	9.21E+04	5.41E+03	0.00E-01	0.00E-01
TE127	8.99E-16	3.23E-13	4.18E-15	1.48E-15	1.69E-14	2.88E-15	0.00E-01	0.00E-01
TE129M	3.63E+03	8.60E+04	2.29E+04	8.50E+03	9.59E+04	7.39E+03	0.00E-01	0.00E-01
TE129	5.47E-28	1.23E-26	2.25E-27	8.39E-28	9.44E-27	1.61E-27	0.00E-01	0.00E-01
TE131M	3.60E-03	3.47E-01	9.01E-03	4.32E-03	4.50E-02	6.50E-03	0.00E-01	0.00E-01
TE131	5.47E-29	1.44E-29	1.75E-28	7.21E-29	7.65E-28	1.35E-28	0.00E-01	0.00E-01
TE132	1.68E+01	5.67E+02	2.82E+01	1.79E+01	1.72E+02	1.89E+01	0.00E-01	0.00E-01
I 130	8.90E-12	1.71E-11	7.70E-12	2.23E-11	3.43E-11	1.82E-09	0.00E-01	0.00E-01
I 131	3.24E+01	1.19E+01	4.31E+01	6.03E+01	1.04E+02	1.76E+04	0.00E-01	0.00E-01
I 132	1.31E-27	1.59E-27	1.40E-27	3.66E-27	5.76E-27	1.23E-25	0.00E-01	0.00E-01
I 133	7.63E-07	1.89E-06	1.47E-06	2.50E-06	4.39E-06	3.49E-04	0.00E-01	0.00E-01
I 134	1.63E-28	5.98E-30	1.71E-28	4.54E-28	7.15E-28	7.56E-27	0.00E-01	0.00E-01
I 135	1.40E-22	4.18E-22	1.47E-22	3.78E-22	5.96E-22	2.43E-20	0.00E-01	0.00E-01
CS134	1.32E+04	3.53E+02	1.21E+04	2.84E+04	9.02E+03	0.00E-01	3.44E+03	0.00E-01
CS136	5.95E+02	7.13E+01	2.25E+02	8.87E+02	4.83E+02	0.00E-01	7.61E+01	0.00E-01
CS137	7.76E+03	3.17E+02	1.67E+04	2.23E+04	7.58E+03	0.00E-01	2.95E+03	0.00E-01
CS138	4.51E-29	4.09E-32	4.69E-29	9.01E-29	6.65E-29	0.00E-01	7.74E-30	0.00E-01
BA139	1.10E-29	3.36E-27	3.76E-28	2.65E-31	2.49E-31	0.00E-01	1.82E-31	0.00E-01
BA140	3.70E+01	8.84E+02	5.73E+02	7.03E-01	2.38E-01	0.00E-01	4.73E-01	0.00E-01
BA141	2.29E-31	1.46E-35	6.86E-30	5.12E-33	4.76E-33	0.00E-01	3.51E-33	0.00E-01
BA142	2.20E-32	1.10E-42	3.57E-31	3.57E-34	3.02E-34	0.00E-01	2.38E-34	0.00E-01
LA140	9.71E-08	2.10E-02	7.43E-07	3.65E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	3.96E-33	4.84E-28	3.58E-32	1.59E-32	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	2.16E-02	5.37E+02	2.81E-01	1.88E-01	8.83E-02	0.00E-01	0.00E-01	0.00E-01
CE143	3.45E-08	9.28E-03	4.24E-07	3.09E-04	1.38E-07	0.00E-01	0.00E-01	0.00E-01
CE144	1.53E+00	7.15E+03	2.84E+01	1.18E+01	7.02E+00	0.00E-01	0.00E-01	0.00E-01
PR143	2.13E-02	1.41E+03	4.27E-01	1.71E-01	9.92E-02	0.00E-01	0.00E-01	0.00E-01
PR144	2.71E-34	5.89E-36	5.34E-33	2.19E-33	1.26E-33	0.00E-01	0.00E-01	0.00E-01
ND147	9.98E-03	6.01E+02	1.53E-01	1.67E-01	9.79E-02	0.00E-01	0.00E-01	0.00E-01
W 187	1.25E-07	9.64E-05	4.37E-07	3.56E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	2.89E-07	8.38E-02	5.52E-06	5.21E-07	1.63E-06	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = ANIMAL DRINKING WATER--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	6.61E+00	6.61E+00	0.00E-01	6.61E+00	6.61E+00	6.61E+00	6.61E+00	0.00E-01
C 14	1.17E+02	1.17E+02	5.87E+02	1.17E+02	1.17E+02	1.17E+02	1.17E+02	0.00E-01
NA 24	1.16E+02	1.16E+02	1.16E+02	1.16E+02	1.16E+02	1.16E+02	1.16E+02	0.00E-01
P 32	2.92E+03	6.33E+03	7.53E+04	4.66E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	9.06E-02	1.52E+01	0.00E-01	0.00E-01	1.99E-02	5.03E-02	1.29E-01	0.00E-01
MN 54	3.51E+00	3.63E+01	0.00E-01	1.77E+01	5.28E+00	0.00E-01	0.00E-01	0.00E-01
MN 56	1.52E-07	5.62E-05	0.00E-01	8.54E-07	1.08E-06	0.00E-01	0.00E-01	0.00E-01
FE 55	9.02E+00	1.67E+01	5.45E+01	3.87E+01	0.00E-01	0.00E-01	2.45E+01	0.00E-01
FE 59	7.41E+01	4.54E+02	8.22E+01	1.92E+02	0.00E-01	0.00E-01	6.05E+01	0.00E-01
CO 58	2.64E+01	1.58E+02	0.00E-01	1.15E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	7.62E+01	4.40E+02	0.00E-01	3.38E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	4.84E+02	1.61E+02	1.43E+04	1.01E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	4.94E-06	5.87E-04	8.48E-05	1.08E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	6.25E-01	1.03E+02	0.00E-01	1.33E+00	3.36E+00	0.00E-01	0.00E-01	0.00E-01
ZN 65	4.36E+03	3.95E+03	2.69E+03	9.34E+03	5.98E+03	0.00E-01	0.00E-01	0.00E-01
ZN 69	2.58E-16	6.80E-15	1.94E-15	3.69E-15	2.41E-15	0.00E-01	0.00E-01	0.00E-01
BR 83	2.35E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	1.03E-25	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	8.05E-33	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	4.69E+03	1.48E+03	0.00E-01	9.98E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	1.40E-26	2.25E-33	0.00E-01	2.62E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	8.07E-27	1.75E-35	0.00E-01	1.14E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	1.18E+02	4.91E+02	4.12E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	1.96E+03	2.24E+03	9.83E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	8.61E-02	9.82E+00	2.16E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	4.56E-06	2.72E-03	1.07E-04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	2.62E-05	8.02E+00	9.72E-04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	8.39E-25	1.04E-21	2.19E-23	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	6.34E-04	9.69E+00	2.36E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	2.97E-10	2.82E-04	1.03E-08	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	4.35E-07	4.85E-01	1.59E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	5.27E-04	1.77E+00	2.43E-03	7.66E-04	1.12E-03	0.00E-01	0.00E-01	0.00E-01
ZR 97	1.74E-06	1.02E+00	1.91E-05	3.78E-06	5.73E-06	0.00E-01	0.00E-01	0.00E-01
NB 95	7.26E-02	5.64E+02	2.38E-01	1.32E-01	1.28E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	6.21E+01	5.83E+02	0.00E-01	3.25E+02	7.45E+02	0.00E-01	0.00E-01	0.00E-01
TC 99M	1.28E-02	6.47E-01	3.53E-04	9.86E-04	1.47E-02	0.00E-01	5.47E-04	0.00E-01
TC101	7.08E-28	1.23E-35	5.07E-29	7.21E-29	1.30E-27	0.00E-01	4.39E-29	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = ANIMAL DRINKING WATER--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	1.27E-03	2.48E-01	2.96E-03	0.00E-01	1.04E-02	0.00E-01	0.00E-01	0.00E-01
RU105	4.82E-08	1.00E-04	1.24E-07	0.00E-01	1.57E-06	0.00E-01	0.00E-01	0.00E-01
RU106	5.93E-03	2.26E+00	4.70E-02	0.00E-01	9.07E-02	0.00E-01	0.00E-01	0.00E-01
AG110M	7.07E+01	3.26E+04	1.23E+02	1.16E+02	2.21E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	6.02E+00	1.33E+02	4.50E+01	1.62E+01	0.00E-01	1.26E+01	0.00E-01	0.00E-01
TE127M	1.37E+01	2.86E+02	1.15E+02	4.08E+01	4.66E+02	2.73E+01	0.00E-01	0.00E-01
TE127	1.08E-02	3.88E+00	5.03E-02	1.78E-02	2.04E-01	3.47E-02	0.00E-01	0.00E-01
TE129M	2.98E+01	7.07E+02	1.88E+02	6.98E+01	7.87E+02	6.07E+01	0.00E-01	0.00E-01
TE129	2.52E-14	5.66E-13	1.03E-13	3.86E-14	4.34E-13	7.39E-14	0.00E-01	0.00E-01
TE131M	3.79E+00	3.64E+02	9.47E+00	4.54E+00	4.73E+01	6.83E+00	0.00E-01	0.00E-01
TE131	1.75E-28	4.59E-29	5.60E-28	2.31E-28	2.45E-27	4.31E-28	0.00E-01	0.00E-01
TE132	1.62E+01	5.46E+02	2.72E+01	1.72E+01	1.65E+02	1.82E+01	0.00E-01	0.00E-01
I 130	5.49E+00	1.06E+01	4.75E+00	1.37E+01	2.12E+01	1.12E+03	0.00E-01	0.00E-01
I 131	2.67E+02	9.82E+01	3.54E+02	4.96E+02	8.54E+02	1.45E+05	0.00E-01	0.00E-01
I 132	7.33E-06	8.89E-06	7.80E-06	2.04E-05	3.22E-05	6.88E-04	0.00E-01	0.00E-01
I 133	1.47E+01	3.65E+01	2.84E+01	4.82E+01	8.45E+01	6.73E+03	0.00E-01	0.00E-01
I 134	1.41E-16	5.16E-18	1.48E-16	3.91E-16	6.17E-16	6.52E-15	0.00E-01	0.00E-01
I 135	2.44E-01	7.29E-01	2.55E-01	6.57E-01	1.04E+00	4.23E+01	0.00E-01	0.00E-01
CS134	1.32E+04	3.53E+02	1.21E+04	2.84E+04	9.03E+03	0.00E-01	3.45E+03	0.00E-01
CS136	2.94E+03	3.53E+02	1.11E+03	4.38E+03	2.39E+03	0.00E-01	3.76E+02	0.00E-01
CS137	7.50E+03	3.06E+02	1.62E+04	2.15E+04	7.33E+03	0.00E-01	2.85E+03	0.00E-01
CS138	2.60E-26	2.36E-29	2.71E-26	5.20E-26	3.84E-26	0.00E-01	4.46E-27	0.00E-01
BA139	3.67E-13	1.12E-10	1.26E-11	8.87E-15	8.36E-15	0.00E-01	6.11E-15	0.00E-01
BA140	7.89E+00	1.89E+02	1.22E+02	1.50E-01	5.09E-02	0.00E-01	1.01E-01	0.00E-01
BA141	9.71E-30	6.20E-34	2.91E-28	2.17E-31	2.02E-31	0.00E-01	1.49E-31	0.00E-01
BA142	1.59E-30	7.93E-41	2.58E-29	2.58E-32	2.19E-32	0.00E-01	1.72E-32	0.00E-01
LA140	1.18E-05	2.55E+00	9.02E-05	4.43E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	3.16E-16	3.87E-11	2.86E-15	1.27E-15	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	1.18E-03	2.93E+01	1.53E-02	1.02E-02	4.82E-03	0.00E-01	0.00E-01	0.00E-01
CE143	8.25E-05	2.22E+01	1.02E-03	7.39E-01	3.31E-04	0.00E-01	0.00E-01	0.00E-01
CE144	4.48E-02	2.10E+02	8.34E-01	3.45E-01	2.06E-01	0.00E-01	0.00E-01	0.00E-01
PR143	3.54E-05	2.34E+00	7.11E-04	2.84E-04	1.65E-04	0.00E-01	0.00E-01	0.00E-01
PR144	1.03E-34	2.25E-36	2.04E-33	8.35E-34	4.79E-34	0.00E-01	0.00E-01	0.00E-01
ND147	3.24E-05	1.95E+00	4.97E-04	5.41E-04	3.18E-04	0.00E-01	0.00E-01	0.00E-01
W 187	6.07E-02	4.69E+01	2.13E-01	1.73E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	3.05E-06	8.83E-01	5.82E-05	5.49E-06	1.72E-05	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = ANIMAL DRINKING WATER--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	9.85E-01	9.85E-01	0.00E-01	9.85E-01	9.85E-01	9.85E-01	9.85E-01	0.00E-01
C 14	4.10E+01	4.10E+01	2.05E+02	4.10E+01	4.10E+01	4.10E+01	4.10E+01	0.00E-01
NA 24	2.66E-08	2.66E-08	2.66E-08	2.66E-08	2.66E-08	2.66E-08	2.66E-08	0.00E-01
P 32	3.04E+02	6.59E+02	7.84E+03	4.86E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	8.53E-03	1.43E+00	0.00E-01	0.00E-01	1.87E-03	4.74E-03	1.22E-02	0.00E-01
MN 54	1.46E+00	1.51E+01	0.00E-01	7.36E+00	2.20E+00	0.00E-01	0.00E-01	0.00E-01
MN 56	2.45E-28	9.07E-26	0.00E-01	1.38E-27	1.74E-27	0.00E-01	0.00E-01	0.00E-01
FE 55	4.02E+01	7.46E+01	2.43E+02	1.72E+02	0.00E-01	0.00E-01	1.09E+02	0.00E-01
FE 59	2.53E+02	1.55E+03	2.80E+02	6.54E+02	0.00E-01	0.00E-01	2.06E+02	0.00E-01
CO 58	3.90E+01	2.34E+02	0.00E-01	1.69E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	1.33E+02	7.70E+02	0.00E-01	5.91E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	5.18E+02	1.72E+02	1.53E+04	1.08E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	2.51E-26	2.98E-24	4.31E-25	5.50E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	2.62E-12	4.32E-10	0.00E-01	5.56E-12	1.41E-11	0.00E-01	0.00E-01	0.00E-01
ZN 65	4.31E+02	3.91E+02	2.66E+02	9.24E+02	5.92E+02	0.00E-01	0.00E-01	0.00E-01
ZN 69	4.04E-28	1.06E-26	3.03E-27	5.78E-27	3.77E-27	0.00E-01	0.00E-01	0.00E-01
BR 83	1.60E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	7.26E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	5.67E-34	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	3.37E+02	1.06E+02	0.00E-01	7.17E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	1.96E-27	3.15E-34	0.00E-01	3.67E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	1.13E-27	2.45E-36	0.00E-01	1.60E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	9.36E+00	3.89E+01	3.27E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	1.99E+02	2.28E+02	9.97E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	1.70E-16	1.94E-14	4.28E-15	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	8.63E-28	5.16E-25	2.02E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	1.54E-05	4.70E+00	5.70E-04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	1.40E-31	1.73E-28	3.66E-30	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	3.19E-02	4.88E+02	1.19E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	1.89E-30	1.79E-24	6.54E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	3.41E-18	3.80E-12	1.24E-16	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	3.99E-01	1.34E+03	1.84E+00	5.81E-01	8.53E-01	0.00E-01	0.00E-01	0.00E-01
ZR 97	3.20E-11	1.88E-05	3.51E-10	6.95E-11	1.05E-10	0.00E-01	0.00E-01	0.00E-01
NB 95	7.72E-01	6.00E+03	2.53E+00	1.40E+00	1.36E+00	0.00E-01	0.00E-01	0.00E-01
MO 99	9.56E-02	8.97E-01	0.00E-01	5.01E-01	1.15E+00	0.00E-01	0.00E-01	0.00E-01
TC 99M	6.74E-24	3.42E-22	1.87E-25	5.20E-25	7.75E-24	0.00E-01	2.89E-25	0.00E-01
TC101	1.53E-27	2.67E-35	1.10E-28	1.56E-28	2.82E-27	0.00E-01	9.51E-29	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = ANIMAL DRINKING WATER--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	4.99E+01	9.76E+03	1.17E+02	0.00E-01	4.12E+02	0.00E-01	0.00E-01	0.00E-01
RU105	4.13E-26	8.60E-23	1.06E-25	0.00E-01	1.34E-24	0.00E-01	0.00E-01	0.00E-01
RU106	3.10E+02	1.18E+05	2.46E+03	0.00E-01	4.75E+03	0.00E-01	0.00E-01	0.00E-01
AG110M	3.10E+00	1.43E+03	5.38E+00	5.09E+00	9.70E+00	0.00E-01	0.00E-01	0.00E-01
TE125M	5.06E+01	1.12E+03	3.79E+02	1.36E+02	0.00E-01	1.06E+02	0.00E-01	0.00E-01
TE127M	1.27E+02	2.66E+03	1.07E+03	3.79E+02	4.33E+03	2.54E+02	0.00E-01	0.00E-01
TE127	1.38E-15	4.94E-13	6.40E-15	2.27E-15	2.59E-14	4.41E-15	0.00E-01	0.00E-01
TE129M	2.14E+02	5.08E+03	1.35E+03	5.02E+02	5.66E+03	4.37E+02	0.00E-01	0.00E-01
TE129	6.59E-27	1.48E-25	2.71E-26	1.01E-26	1.14E-25	1.94E-26	0.00E-01	0.00E-01
TE131M	1.82E-03	1.75E-01	4.55E-03	2.18E-03	2.28E-02	3.28E-03	0.00E-01	0.00E-01
TE131	1.82E-27	4.79E-28	5.84E-27	2.41E-27	2.55E-26	4.50E-27	0.00E-01	0.00E-01
TE132	3.69E+00	1.24E+02	6.19E+00	3.92E+00	3.76E+01	4.13E+00	0.00E-01	0.00E-01
I 130	1.04E-11	2.01E-11	9.04E-12	2.62E-11	4.03E-11	2.13E-09	0.00E-01	0.00E-01
I 131	3.70E+00	1.36E+00	4.91E+00	6.88E+00	1.18E+01	2.01E+03	0.00E-01	0.00E-01
I 132	8.03E-27	9.74E-27	8.55E-27	2.24E-26	3.52E-26	7.54E-25	0.00E-01	0.00E-01
I 133	5.44E-07	1.35E-06	1.05E-06	1.78E-06	3.13E-06	2.49E-04	0.00E-01	0.00E-01
I 134	2.61E-27	9.57E-29	2.74E-27	7.26E-27	1.14E-26	1.21E-25	0.00E-01	0.00E-01
I 135	3.02E-22	9.04E-22	3.17E-22	8.16E-22	1.29E-21	5.25E-20	0.00E-01	0.00E-01
CS134	5.85E+02	1.57E+01	5.36E+02	1.26E+03	4.01E+02	0.00E-01	1.53E+02	0.00E-01
CS136	5.13E+01	6.15E+00	1.94E+01	7.64E+01	4.16E+01	0.00E-01	6.56E+00	0.00E-01
CS137	3.38E+02	1.38E+01	7.30E+02	9.71E+02	3.30E+02	0.00E-01	1.28E+02	0.00E-01
CS138	1.17E-27	1.06E-30	1.22E-27	2.35E-27	1.73E-27	0.00E-01	2.01E-28	0.00E-01
BA139	1.12E-28	3.42E-26	3.84E-27	2.70E-30	2.55E-30	0.00E-01	1.86E-30	0.00E-01
BA140	3.22E+00	7.72E+01	5.00E+01	6.13E-02	2.08E-02	0.00E-01	4.12E-02	0.00E-01
BA141	1.05E-29	6.72E-34	3.15E-28	2.35E-31	2.18E-31	0.00E-01	1.61E-31	0.00E-01
BA142	1.72E-30	8.59E-41	2.80E-29	2.80E-32	2.37E-32	0.00E-01	1.86E-32	0.00E-01
LA140	3.77E-08	8.14E-03	2.89E-07	1.42E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	3.61E-32	4.41E-27	3.26E-31	1.45E-31	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	1.30E-03	3.24E+01	1.70E-02	1.13E-02	5.33E-03	0.00E-01	0.00E-01	0.00E-01
CE143	1.60E-08	4.30E-03	1.96E-07	1.43E-04	6.41E-08	0.00E-01	0.00E-01	0.00E-01
CE144	6.97E-02	3.26E+02	1.30E+00	5.37E-01	3.21E-01	0.00E-01	0.00E-01	0.00E-01
PR143	1.80E-03	1.19E+02	3.62E-02	1.44E-02	8.39E-03	0.00E-01	0.00E-01	0.00E-01
PR144	1.32E-32	2.86E-34	2.60E-31	1.06E-31	6.10E-32	0.00E-01	0.00E-01	0.00E-01
ND147	9.40E-04	5.66E+01	1.44E-02	1.57E-02	9.22E-03	0.00E-01	0.00E-01	0.00E-01
W 187	7.81E-08	6.03E-05	2.74E-07	2.23E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	8.34E-08	2.42E-02	1.59E-06	1.50E-07	4.71E-07	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = RIVER SHORELINE DEPOSITS

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	1.05E+01	1.05E+01	1.05E+01	1.05E+01	1.05E+01	1.05E+01	1.05E+01	1.22E+01
P 32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	4.09E+00	4.09E+00	4.09E+00	4.09E+00	4.09E+00	4.09E+00	4.09E+00	4.84E+00
MN 54	1.22E+03	1.22E+03	1.22E+03	1.22E+03	1.22E+03	1.22E+03	1.22E+03	1.43E+03
MN 56	7.70E-01	7.70E-01	7.70E-01	7.70E-01	7.70E-01	7.70E-01	7.70E-01	9.10E-01
FE 55	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	2.40E+02	2.40E+02	2.40E+02	2.40E+02	2.40E+02	2.40E+02	2.40E+02	2.82E+02
CO 58	3.34E+02	3.34E+02	3.34E+02	3.34E+02	3.34E+02	3.34E+02	3.34E+02	3.91E+02
CO 60	1.89E+04	1.89E+04	1.89E+04	1.89E+04	1.89E+04	1.89E+04	1.89E+04	2.22E+04
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	2.54E-01	2.54E-01	2.54E-01	2.54E-01	2.54E-01	2.54E-01	2.54E-01	2.95E-01
CU 64	5.29E-01	5.29E-01	5.29E-01	5.29E-01	5.29E-01	5.29E-01	5.29E-01	6.00E-01
ZN 65	6.56E+02	6.56E+02	6.56E+02	6.56E+02	6.56E+02	6.56E+02	6.56E+02	7.54E+02
ZN 69	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 83	4.16E-03	4.16E-03	4.16E-03	4.16E-03	4.16E-03	4.16E-03	4.16E-03	6.05E-03
BR 84	1.56E-01	1.56E-01	1.56E-01	1.56E-01	1.56E-01	1.56E-01	1.56E-01	1.83E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	7.92E+00	7.92E+00	7.92E+00	7.92E+00	7.92E+00	7.92E+00	7.92E+00	9.05E+00
RB 88	2.31E-02	2.31E-02	2.31E-02	2.31E-02	2.31E-02	2.31E-02	2.31E-02	2.64E-02
RB 89	8.14E-02	8.14E-02	8.14E-02	8.14E-02	8.14E-02	8.14E-02	8.14E-02	9.76E-02
SR 89	1.90E-02	1.90E-02	1.90E-02	1.90E-02	1.90E-02	1.90E-02	1.90E-02	2.21E-02
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	1.87E+00	1.87E+00	1.87E+00	1.87E+00	1.87E+00	1.87E+00	1.87E+00	2.19E+00
SR 92	6.66E-01	6.66E-01	6.66E-01	6.66E-01	6.66E-01	6.66E-01	6.66E-01	7.40E-01
Y 90	3.95E-03	3.95E-03	3.95E-03	3.95E-03	3.95E-03	3.95E-03	3.95E-03	4.67E-03
Y 91M	8.09E-02	8.09E-02	8.09E-02	8.09E-02	8.09E-02	8.09E-02	8.09E-02	9.36E-02
Y 91	9.45E-01	9.45E-01	9.45E-01	9.45E-01	9.45E-01	9.45E-01	9.45E-01	1.06E+00
Y 92	1.56E-01	1.56E-01	1.56E-01	1.56E-01	1.56E-01	1.56E-01	1.56E-01	1.85E-01
Y 93	1.60E-01	1.60E-01	1.60E-01	1.60E-01	1.60E-01	1.60E-01	1.60E-01	2.19E-01
ZR 95	2.16E+02	2.16E+02	2.16E+02	2.16E+02	2.16E+02	2.16E+02	2.16E+02	2.50E+02
ZR 97	2.59E+00	2.59E+00	2.59E+00	2.59E+00	2.59E+00	2.59E+00	2.59E+00	3.02E+00
NB 95	1.21E+02	1.21E+02	1.21E+02	1.21E+02	1.21E+02	1.21E+02	1.21E+02	1.42E+02
MO 99	3.51E+00	3.51E+00	3.51E+00	3.51E+00	3.51E+00	3.51E+00	3.51E+00	4.06E+00
TC 99M	1.60E-01	1.60E-01	1.60E-01	1.60E-01	1.60E-01	1.60E-01	1.60E-01	1.83E-01
TC101	1.33E-02	1.33E-02	1.33E-02	1.33E-02	1.33E-02	1.33E-02	1.33E-02	1.48E-02

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = RIVER SHORELINE DEPOSITS

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	9.52E+01	9.52E+01	9.52E+01	9.52E+01	9.52E+01	9.52E+01	9.52E+01	1.11E+02
RU105	5.50E-01	5.50E-01	5.50E-01	5.50E-01	5.50E-01	5.50E-01	5.50E-01	6.24E-01
RU106	3.71E+02	3.71E+02	3.71E+02	3.71E+02	3.71E+02	3.71E+02	3.71E+02	4.45E+02
AG110M	3.03E+03	3.03E+03	3.03E+03	3.03E+03	3.03E+03	3.03E+03	3.03E+03	3.54E+03
TE125M	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.88E+00
TE127M	8.06E-02	8.06E-02	8.06E-02	8.06E-02	8.06E-02	8.06E-02	8.06E-02	9.53E-02
TE127	2.60E-03	2.60E-03	2.60E-03	2.60E-03	2.60E-03	2.60E-03	2.60E-03	2.86E-03
TE129M	1.74E+01	1.74E+01	1.74E+01	1.74E+01	1.74E+01	1.74E+01	1.74E+01	2.03E+01
TE129	2.17E-02	2.17E-02	2.17E-02	2.17E-02	2.17E-02	2.17E-02	2.17E-02	2.57E-02
TE131M	7.04E+00	7.04E+00	7.04E+00	7.04E+00	7.04E+00	7.04E+00	7.04E+00	8.30E+00
TE131	2.18E-02	2.18E-02	2.18E-02	2.18E-02	2.18E-02	2.18E-02	2.18E-02	2.58E+01
TE132	3.72E+00	3.72E+00	3.72E+00	3.72E+00	3.72E+00	3.72E+00	3.72E+00	4.38E+00
I 130	4.81E+00	4.81E+00	4.81E+00	4.81E+00	4.81E+00	4.81E+00	4.81E+00	5.84E+00
I 131	1.51E+01	1.51E+01	1.51E+01	1.51E+01	1.51E+01	1.51E+01	1.51E+01	1.84E+01
I 132	1.06E+00	1.06E+00	1.06E+00	1.06E+00	1.06E+00	1.06E+00	1.06E+00	1.25E+00
I 133	2.15E+00	2.15E+00	2.15E+00	2.15E+00	2.15E+00	2.15E+00	2.15E+00	2.62E+00
I 134	3.62E-01	3.62E-01	3.62E-01	3.62E-01	3.62E-01	3.62E-01	3.62E-01	4.30E-01
I 135	2.19E+00	2.19E+00	2.19E+00	2.19E+00	2.19E+00	2.19E+00	2.19E+00	2.56E+00
CS134	6.01E+03	6.01E+03	6.01E+03	6.01E+03	6.01E+03	6.01E+03	6.01E+03	7.01E+03
CS136	1.32E+02	1.32E+02	1.32E+02	1.32E+02	1.32E+02	1.32E+02	1.32E+02	1.50E+02
CS137	9.06E+03	9.06E+03	9.06E+03	9.06E+03	9.06E+03	9.06E+03	9.06E+03	1.06E+04
CS138	2.78E-01	2.78E-01	2.78E-01	2.78E-01	2.78E-01	2.78E-01	2.78E-01	3.18E-01
BA139	8.79E-02	8.79E-02	8.79E-02	8.79E-02	8.79E-02	8.79E-02	8.79E-02	9.89E-02
BA140	1.81E+01	1.81E+01	1.81E+01	1.81E+01	1.81E+01	1.81E+01	1.81E+01	2.06E+01
BA141	2.92E-02	2.92E-02	2.92E-02	2.92E-02	2.92E-02	2.92E-02	2.92E-02	3.33E-02
BA142	2.67E-02	2.67E-02	2.67E-02	2.67E-02	2.67E-02	2.67E-02	2.67E-02	3.05E-02
LA140	1.69E+01	1.69E+01	1.69E+01	1.69E+01	1.69E+01	1.69E+01	1.69E+01	1.91E+01
LA142	6.19E-01	6.19E-01	6.19E-01	6.19E-01	6.19E-01	6.19E-01	6.19E-01	7.43E-01
CE141	1.20E+01	1.20E+01	1.20E+01	1.20E+01	1.20E+01	1.20E+01	1.20E+01	1.35E+01
CE143	2.04E+00	2.04E+00	2.04E+00	2.04E+00	2.04E+00	2.04E+00	2.04E+00	2.32E+00
CE144	6.12E+01	6.12E+01	6.12E+01	6.12E+01	6.12E+01	6.12E+01	6.12E+01	7.08E+01
PR143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR144	1.27E-03	1.27E-03	1.27E-03	1.27E-03	1.27E-03	1.27E-03	1.27E-03	1.46E-03
ND147	7.46E+00	7.46E+00	7.46E+00	7.46E+00	7.46E+00	7.46E+00	7.46E+00	8.95E+00
W 187	2.07E+00	2.07E+00	2.07E+00	2.07E+00	2.07E+00	2.07E+00	2.07E+00	2.40E+00
NP239	1.50E+00	1.50E+00	1.50E+00	1.50E+00	1.50E+00	1.50E+00	1.50E+00	1.74E+00

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = SWIMMING

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	1.75E+02	1.75E+02	1.75E+02	1.75E+02	1.75E+02	1.75E+02	1.75E+02	0.00E-01
P 32	1.45E-01	1.45E-01	1.45E-01	1.45E-01	1.45E-01	1.45E-01	1.45E-01	0.00E-01
CR 51	1.17E+00	1.17E+00	1.17E+00	1.17E+00	1.17E+00	1.17E+00	1.17E+00	0.00E-01
MN 54	3.39E+01	3.39E+01	3.39E+01	3.39E+01	3.39E+01	3.39E+01	3.39E+01	0.00E-01
MN 56	7.03E+01	7.03E+01	7.03E+01	7.03E+01	7.03E+01	7.03E+01	7.03E+01	0.00E-01
FE 55	1.44E-03	1.44E-03	1.44E-03	1.44E-03	1.44E-03	1.44E-03	1.44E-03	0.00E-01
FE 59	4.97E+01	4.97E+01	4.97E+01	4.97E+01	4.97E+01	4.97E+01	4.97E+01	0.00E-01
CO 58	4.06E+01	4.06E+01	4.06E+01	4.06E+01	4.06E+01	4.06E+01	4.06E+01	0.00E-01
CO 60	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	0.00E-01
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	2.20E+01	2.20E+01	2.20E+01	2.20E+01	2.20E+01	2.20E+01	2.20E+01	0.00E-01
CU 64	8.31E+00	8.31E+00	8.31E+00	8.31E+00	8.31E+00	8.31E+00	8.31E+00	0.00E-01
ZN 65	2.48E+01	2.48E+01	2.48E+01	2.48E+01	2.48E+01	2.48E+01	2.48E+01	0.00E-01
ZN 69	3.36E-02	3.36E-02	3.36E-02	3.36E-02	3.36E-02	3.36E-02	3.36E-02	0.00E-01
BR 83	3.73E-01	3.73E-01	3.73E-01	3.73E-01	3.73E-01	3.73E-01	3.73E-01	0.00E-01
BR 84	6.93E+01	6.93E+01	6.93E+01	6.93E+01	6.93E+01	6.93E+01	6.93E+01	0.00E-01
BR 85	7.41E-02	7.41E-02	7.41E-02	7.41E-02	7.41E-02	7.41E-02	7.41E-02	0.00E-01
RB 86	3.84E+00	3.84E+00	3.84E+00	3.84E+00	3.84E+00	3.84E+00	3.84E+00	0.00E-01
RB 88	2.15E+01	2.15E+01	2.15E+01	2.15E+01	2.15E+01	2.15E+01	2.15E+01	0.00E-01
RB 89	7.74E+01	7.74E+01	7.74E+01	7.74E+01	7.74E+01	7.74E+01	7.74E+01	0.00E-01
SR 89	1.04E-01	1.04E-01	1.04E-01	1.04E-01	1.04E-01	1.04E-01	1.04E-01	0.00E-01
SR 90	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02	0.00E-01
SR 91	4.26E+01	4.26E+01	4.26E+01	4.26E+01	4.26E+01	4.26E+01	4.26E+01	0.00E-01
SR 92	5.72E+01	5.72E+01	5.72E+01	5.72E+01	5.72E+01	5.72E+01	5.72E+01	0.00E-01
Y 90	2.93E-01	2.93E-01	2.93E-01	2.93E-01	2.93E-01	2.93E-01	2.93E-01	0.00E-01
Y 91M	2.08E+01	2.08E+01	2.08E+01	2.08E+01	2.08E+01	2.08E+01	2.08E+01	0.00E-01
Y 91	1.51E-01	1.51E-01	1.51E-01	1.51E-01	1.51E-01	1.51E-01	1.51E-01	0.00E-01
Y 92	1.02E+01	1.02E+01	1.02E+01	1.02E+01	1.02E+01	1.02E+01	1.02E+01	0.00E-01
Y 93	4.26E+00	4.26E+00	4.26E+00	4.26E+00	4.26E+00	4.26E+00	4.26E+00	0.00E-01
ZR 95	3.39E+01	3.39E+01	3.39E+01	3.39E+01	3.39E+01	3.39E+01	3.39E+01	0.00E-01
ZR 97	3.37E+01	3.37E+01	3.37E+01	3.37E+01	3.37E+01	3.37E+01	3.37E+01	0.00E-01
NB 95	3.16E+01	3.16E+01	3.16E+01	3.16E+01	3.16E+01	3.16E+01	3.16E+01	0.00E-01
MO 99	1.06E+01	1.06E+01	1.06E+01	1.06E+01	1.06E+01	1.06E+01	1.06E+01	0.00E-01
TC 99M	5.36E+00	5.36E+00	5.36E+00	5.36E+00	5.36E+00	5.36E+00	5.36E+00	0.00E-01
TC101	1.14E+01	1.14E+01	1.14E+01	1.14E+01	1.14E+01	1.14E+01	1.14E+01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = SWIMMING

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	2.01E+01	2.01E+01	2.01E+01	2.01E+01	2.01E+01	2.01E+01	2.01E+01	0.00E-01
RU105	2.67E+01	2.67E+01	2.67E+01	2.67E+01	2.67E+01	2.67E+01	2.67E+01	0.00E-01
RU106	8.58E+00	8.58E+00	8.58E+00	8.58E+00	8.58E+00	8.58E+00	8.58E+00	0.00E-01
AG110M	1.11E+02	1.11E+02	1.11E+02	1.11E+02	1.11E+02	1.11E+02	1.11E+02	0.00E-01
TE125M	8.33E-02	8.33E-02	8.33E-02	8.33E-02	8.33E-02	8.33E-02	8.33E-02	0.00E-01
TE127M	5.87E-03	5.87E-03	5.87E-03	5.87E-03	5.87E-03	5.87E-03	5.87E-03	0.00E-01
TE127	6.28E-02	6.28E-02	6.28E-02	6.28E-02	6.28E-02	6.28E-02	6.28E-02	0.00E-01
TE129M	4.74E+00	4.74E+00	4.74E+00	4.74E+00	4.74E+00	4.74E+00	4.74E+00	0.00E-01
TE129	4.04E+00	4.04E+00	4.04E+00	4.04E+00	4.04E+00	4.04E+00	4.04E+00	0.00E-01
TE131M	4.96E+01	4.96E+01	4.96E+01	4.96E+01	4.96E+01	4.96E+01	4.96E+01	0.00E-01
TE131	1.41E+01	1.41E+01	1.41E+01	1.41E+01	1.41E+01	1.41E+01	1.41E+01	0.00E-01
TE132	9.02E+00	9.02E+00	9.02E+00	9.02E+00	9.02E+00	9.02E+00	9.02E+00	0.00E-01
I 130	8.76E+01	8.76E+01	8.76E+01	8.76E+01	8.76E+01	8.76E+01	8.76E+01	0.00E-01
I 131	1.76E+01	1.76E+01	1.76E+01	1.76E+01	1.76E+01	1.76E+01	1.76E+01	0.00E-01
I 132	9.64E+01	9.64E+01	9.64E+01	9.64E+01	9.64E+01	9.64E+01	9.64E+01	0.00E-01
I 133	2.16E+01	2.16E+01	2.16E+01	2.16E+01	2.16E+01	2.16E+01	2.16E+01	0.00E-01
I 134	8.76E+01	8.76E+01	8.76E+01	8.76E+01	8.76E+01	8.76E+01	8.76E+01	0.00E-01
I 135	7.37E+01	7.37E+01	7.37E+01	7.37E+01	7.37E+01	7.37E+01	7.37E+01	0.00E-01
CS134	6.55E+01	6.55E+01	6.55E+01	6.55E+01	6.55E+01	6.55E+01	6.55E+01	0.00E-01
CS136	9.26E+01	9.26E+01	9.26E+01	9.26E+01	9.26E+01	9.26E+01	9.26E+01	0.00E-01
CS137	2.26E+01	2.26E+01	2.26E+01	2.26E+01	2.26E+01	2.26E+01	2.26E+01	0.00E-01
CS138	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	0.00E-01
BA139	1.65E+00	1.65E+00	1.65E+00	1.65E+00	1.65E+00	1.65E+00	1.65E+00	0.00E-01
BA140	1.11E+01	1.11E+01	1.11E+01	1.11E+01	1.11E+01	1.11E+01	1.11E+01	0.00E-01
BA141	1.98E+01	1.98E+01	1.98E+01	1.98E+01	1.98E+01	1.98E+01	1.98E+01	0.00E-01
BA142	3.37E+01	3.37E+01	3.37E+01	3.37E+01	3.37E+01	3.37E+01	3.37E+01	0.00E-01
LA140	9.24E+01	9.24E+01	9.24E+01	9.24E+01	9.24E+01	9.24E+01	9.24E+01	0.00E-01
LA142	9.71E+01	9.71E+01	9.71E+01	9.71E+01	9.71E+01	9.71E+01	9.71E+01	0.00E-01
CE141	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	0.00E-01
CE143	1.28E+01	1.28E+01	1.28E+01	1.28E+01	1.28E+01	1.28E+01	1.28E+01	0.00E-01
CE144	1.94E+00	1.94E+00	1.94E+00	1.94E+00	1.94E+00	1.94E+00	1.94E+00	0.00E-01
PR143	3.61E-02	3.61E-02	3.61E-02	3.61E-02	3.61E-02	3.61E-02	3.61E-02	0.00E-01
PR144	9.94E-01	9.94E-01	9.94E-01	9.94E-01	9.94E-01	9.94E-01	9.94E-01	0.00E-01
ND147	6.32E+00	6.32E+00	6.32E+00	6.32E+00	6.32E+00	6.32E+00	6.32E+00	0.00E-01
W 187	1.87E+01	1.87E+01	1.87E+01	1.87E+01	1.87E+01	1.87E+01	1.87E+01	0.00E-01
NP239	5.41E+00	5.41E+00	5.41E+00	5.41E+00	5.41E+00	5.41E+00	5.41E+00	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = BOATING

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	0.00E-01
P 32	8.35E-02	8.35E-02	8.35E-02	8.35E-02	8.35E-02	8.35E-02	8.35E-02	0.00E-01
CR 51	6.78E-01	6.78E-01	6.78E-01	6.78E-01	6.78E-01	6.78E-01	6.78E-01	0.00E-01
MN 54	1.96E+01	1.96E+01	1.96E+01	1.96E+01	1.96E+01	1.96E+01	1.96E+01	0.00E-01
MN 56	4.06E+01	4.06E+01	4.06E+01	4.06E+01	4.06E+01	4.06E+01	4.06E+01	0.00E-01
FE 55	8.35E-04	8.35E-04	8.35E-04	8.35E-04	8.35E-04	8.35E-04	8.35E-04	0.00E-01
FE 59	2.87E+01	2.87E+01	2.87E+01	2.87E+01	2.87E+01	2.87E+01	2.87E+01	0.00E-01
CO 58	2.35E+01	2.35E+01	2.35E+01	2.35E+01	2.35E+01	2.35E+01	2.35E+01	0.00E-01
CO 60	6.00E+01	6.00E+01	6.00E+01	6.00E+01	6.00E+01	6.00E+01	6.00E+01	0.00E-01
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	1.27E+01	1.27E+01	1.27E+01	1.27E+01	1.27E+01	1.27E+01	1.27E+01	0.00E-01
CU 64	4.80E+00	4.80E+00	4.80E+00	4.80E+00	4.80E+00	4.80E+00	4.80E+00	0.00E-01
ZN 65	1.44E+01	1.44E+01	1.44E+01	1.44E+01	1.44E+01	1.44E+01	1.44E+01	0.00E-01
ZN 69	1.94E-02	1.94E-02	1.94E-02	1.94E-02	1.94E-02	1.94E-02	1.94E-02	0.00E-01
BR 83	2.15E-01	2.15E-01	2.15E-01	2.15E-01	2.15E-01	2.15E-01	2.15E-01	0.00E-01
BR 84	4.01E+01	4.01E+01	4.01E+01	4.01E+01	4.01E+01	4.01E+01	4.01E+01	0.00E-01
BR 85	4.28E-02	4.28E-02	4.28E-02	4.28E-02	4.28E-02	4.28E-02	4.28E-02	0.00E-01
RB 86	2.22E+00	2.22E+00	2.22E+00	2.22E+00	2.22E+00	2.22E+00	2.22E+00	0.00E-01
RB 88	1.24E+01	1.24E+01	1.24E+01	1.24E+01	1.24E+01	1.24E+01	1.24E+01	0.00E-01
RB 89	4.47E+01	4.47E+01	4.47E+01	4.47E+01	4.47E+01	4.47E+01	4.47E+01	0.00E-01
SR 89	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	0.00E-01
SR 90	7.04E-03	7.04E-03	7.04E-03	7.04E-03	7.04E-03	7.04E-03	7.04E-03	0.00E-01
SR 91	2.46E+01	2.46E+01	2.46E+01	2.46E+01	2.46E+01	2.46E+01	2.46E+01	0.00E-01
SR 92	3.31E+01	3.31E+01	3.31E+01	3.31E+01	3.31E+01	3.31E+01	3.31E+01	0.00E-01
Y 90	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	0.00E-01
Y 91M	1.20E+01	1.20E+01	1.20E+01	1.20E+01	1.20E+01	1.20E+01	1.20E+01	0.00E-01
Y 91	8.74E-02	8.74E-02	8.74E-02	8.74E-02	8.74E-02	8.74E-02	8.74E-02	0.00E-01
Y 92	5.89E+00	5.89E+00	5.89E+00	5.89E+00	5.89E+00	5.89E+00	5.89E+00	0.00E-01
Y 93	2.46E+00	2.46E+00	2.46E+00	2.46E+00	2.46E+00	2.46E+00	2.46E+00	0.00E-01
ZR 95	1.96E+01	1.96E+01	1.96E+01	1.96E+01	1.96E+01	1.96E+01	1.96E+01	0.00E-01
ZR 97	1.95E+01	1.95E+01	1.95E+01	1.95E+01	1.95E+01	1.95E+01	1.95E+01	0.00E-01
NB 95	1.83E+01	1.83E+01	1.83E+01	1.83E+01	1.83E+01	1.83E+01	1.83E+01	0.00E-01
MO 99	6.12E+00	6.12E+00	6.12E+00	6.12E+00	6.12E+00	6.12E+00	6.12E+00	0.00E-01
TC 99M	3.10E+00	3.10E+00	3.10E+00	3.10E+00	3.10E+00	3.10E+00	3.10E+00	0.00E-01
TC101	6.62E+00	6.62E+00	6.62E+00	6.62E+00	6.62E+00	6.62E+00	6.62E+00	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = TEENAGER
PATHWAY = BOATING

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	0.00E-01
RU105	1.54E+01	1.54E+01	1.54E+01	1.54E+01	1.54E+01	1.54E+01	1.54E+01	0.00E-01
RU106	4.96E+00	4.96E+00	4.96E+00	4.96E+00	4.96E+00	4.96E+00	4.96E+00	0.00E-01
AG110M	6.39E+01	6.39E+01	6.39E+01	6.39E+01	6.39E+01	6.39E+01	6.39E+01	0.00E-01
TE125M	4.81E-02	4.81E-02	4.81E-02	4.81E-02	4.81E-02	4.81E-02	4.81E-02	0.00E-01
TE127M	3.39E-03	3.39E-03	3.39E-03	3.39E-03	3.39E-03	3.39E-03	3.39E-03	0.00E-01
TE127	3.63E-02	3.63E-02	3.63E-02	3.63E-02	3.63E-02	3.63E-02	3.63E-02	0.00E-01
TE129M	2.74E+00	2.74E+00	2.74E+00	2.74E+00	2.74E+00	2.74E+00	2.74E+00	0.00E-01
TE129	2.34E+00	2.34E+00	2.34E+00	2.34E+00	2.34E+00	2.34E+00	2.34E+00	0.00E-01
TE131M	2.86E+01	2.86E+01	2.86E+01	2.86E+01	2.86E+01	2.86E+01	2.86E+01	0.00E-01
TE131	8.18E+00	8.18E+00	8.18E+00	8.18E+00	8.18E+00	8.18E+00	8.18E+00	0.00E-01
TE132	5.21E+00	5.21E+00	5.21E+00	5.21E+00	5.21E+00	5.21E+00	5.21E+00	0.00E-01
I 130	5.06E+01	5.06E+01	5.06E+01	5.06E+01	5.06E+01	5.06E+01	5.06E+01	0.00E-01
I 131	1.02E+01	1.02E+01	1.02E+01	1.02E+01	1.02E+01	1.02E+01	1.02E+01	0.00E-01
I 132	5.57E+01	5.57E+01	5.57E+01	5.57E+01	5.57E+01	5.57E+01	5.57E+01	0.00E-01
I 133	1.25E+01	1.25E+01	1.25E+01	1.25E+01	1.25E+01	1.25E+01	1.25E+01	0.00E-01
I 134	5.06E+01	5.06E+01	5.06E+01	5.06E+01	5.06E+01	5.06E+01	5.06E+01	0.00E-01
I 135	4.26E+01	4.26E+01	4.26E+01	4.26E+01	4.26E+01	4.26E+01	4.26E+01	0.00E-01
CS134	3.78E+01	3.78E+01	3.78E+01	3.78E+01	3.78E+01	3.78E+01	3.78E+01	0.00E-01
CS136	5.35E+01	5.35E+01	5.35E+01	5.35E+01	5.35E+01	5.35E+01	5.35E+01	0.00E-01
CS137	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	0.00E-01
CS138	4.59E+01	4.59E+01	4.59E+01	4.59E+01	4.59E+01	4.59E+01	4.59E+01	0.00E-01
BA139	9.55E-01	9.55E-01	9.55E-01	9.55E-01	9.55E-01	9.55E-01	9.55E-01	0.00E-01
BA140	6.39E+00	6.39E+00	6.39E+00	6.39E+00	6.39E+00	6.39E+00	6.39E+00	0.00E-01
BA141	1.14E+01	1.14E+01	1.14E+01	1.14E+01	1.14E+01	1.14E+01	1.14E+01	0.00E-01
BA142	1.95E+01	1.95E+01	1.95E+01	1.95E+01	1.95E+01	1.95E+01	1.95E+01	0.00E-01
LA140	5.34E+01	5.34E+01	5.34E+01	5.34E+01	5.34E+01	5.34E+01	5.34E+01	0.00E-01
LA142	5.61E+01	5.61E+01	5.61E+01	5.61E+01	5.61E+01	5.61E+01	5.61E+01	0.00E-01
CE141	1.70E+00	1.70E+00	1.70E+00	1.70E+00	1.70E+00	1.70E+00	1.70E+00	0.00E-01
CE143	7.42E+00	7.42E+00	7.42E+00	7.42E+00	7.42E+00	7.42E+00	7.42E+00	0.00E-01
CE144	1.12E+00	1.12E+00	1.12E+00	1.12E+00	1.12E+00	1.12E+00	1.12E+00	0.00E-01
PR143	2.09E-02	2.09E-02	2.09E-02	2.09E-02	2.09E-02	2.09E-02	2.09E-02	0.00E-01
PR144	5.74E-01	5.74E-01	5.74E-01	5.74E-01	5.74E-01	5.74E-01	5.74E-01	0.00E-01
ND147	3.65E+00	3.65E+00	3.65E+00	3.65E+00	3.65E+00	3.65E+00	3.65E+00	0.00E-01
W 187	1.08E+01	1.08E+01	1.08E+01	1.08E+01	1.08E+01	1.08E+01	1.08E+01	0.00E-01
NP239	3.13E+00	3.13E+00	3.13E+00	3.13E+00	3.13E+00	3.13E+00	3.13E+00	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = POTABLE WATER

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	2.97E+01	2.97E+01	0.00E-01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	0.00E-01
C 14	6.19E+02	6.19E+02	3.10E+03	6.19E+02	6.19E+02	6.19E+02	6.19E+02	0.00E-01
NA 24	4.91E+02	4.91E+02	4.91E+02	4.91E+02	4.91E+02	4.91E+02	4.91E+02	0.00E-01
P 32	7.75E+03	5.56E+03	2.01E+05	9.41E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	2.22E+00	1.18E+02	0.00E-01	0.00E-01	3.37E-01	1.23E+00	2.25E+00	0.00E-01
MN 54	7.28E+02	2.29E+03	0.00E-01	2.73E+03	7.66E+02	0.00E-01	0.00E-01	0.00E-01
MN 56	2.96E-02	1.90E+01	0.00E-01	1.31E-01	1.59E-01	0.00E-01	0.00E-01	0.00E-01
FE 55	4.83E+02	2.89E+02	2.94E+03	1.56E+03	0.00E-01	0.00E-01	8.82E+02	0.00E-01
FE 59	3.35E+03	7.00E+03	4.16E+03	6.73E+03	0.00E-01	0.00E-01	1.95E+03	0.00E-01
CO 58	1.40E+03	2.66E+03	0.00E-01	4.56E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	3.99E+03	7.50E+03	0.00E-01	1.35E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	4.68E+03	4.96E+02	1.38E+05	7.37E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	4.24E-02	8.90E+00	7.72E-01	7.27E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	1.02E+01	7.91E+02	0.00E-01	1.69E+01	4.07E+01	0.00E-01	0.00E-01	0.00E-01
ZN 65	5.79E+03	1.64E+03	3.50E+03	9.31E+03	5.87E+03	0.00E-01	0.00E-01	0.00E-01
ZN 69	3.61E-08	2.47E-05	2.71E-07	3.91E-07	2.37E-07	0.00E-01	0.00E-01	0.00E-01
BR 83	4.17E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	1.02E+04	1.06E+03	0.00E-01	1.65E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	9.52E+03	1.29E+04	3.33E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	1.32E+05	5.86E+04	6.55E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	4.01E+01	2.35E+03	1.06E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	2.01E-01	9.48E+01	5.01E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	2.17E-01	2.31E+04	8.12E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	4.07E+00	2.03E+04	1.52E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	2.44E-04	2.46E+02	8.52E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	1.54E-02	8.35E+03	5.60E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	5.75E+00	6.73E+03	2.94E+01	6.46E+00	9.24E+00	0.00E-01	0.00E-01	0.00E-01
ZR 97	5.70E-02	1.46E+04	6.68E-01	9.65E-02	1.39E-01	0.00E-01	0.00E-01	0.00E-01
NB 95	1.57E+00	4.06E+03	5.65E+00	2.20E+00	2.07E+00	0.00E-01	0.00E-01	0.00E-01
MO 99	6.54E+02	2.19E+03	0.00E-01	2.64E+03	5.65E+03	0.00E-01	0.00E-01	0.00E-01
TC 99M	4.84E-01	1.66E+01	1.49E-02	2.92E-02	4.24E-01	0.00E-01	1.48E-02	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = POTABLE WATER

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	7.07E+01	4.75E+03	1.84E+02	0.00E-01	4.63E+02	0.00E-01	0.00E-01	0.00E-01
RU105	1.41E-01	2.53E+02	3.88E-01	0.00E-01	3.41E+00	0.00E-01	0.00E-01	0.00E-01
RU106	2.73E+02	4.65E+04	2.99E+03	0.00E-01	4.04E+03	0.00E-01	0.00E-01	0.00E-01
AG110M	7.43E+01	1.10E+04	1.38E+02	9.29E+01	1.73E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	3.84E+02	2.78E+03	2.88E+03	7.81E+02	0.00E-01	8.09E+02	0.00E-01	0.00E-01
TE127M	8.72E+02	5.95E+03	7.35E+03	1.98E+03	2.09E+04	1.76E+03	0.00E-01	0.00E-01
TE127	4.36E+00	7.94E+02	2.03E+01	5.48E+00	5.78E+01	1.41E+01	0.00E-01	0.00E-01
TE129M	1.89E+03	1.49E+04	1.22E+04	3.41E+03	3.58E+04	3.94E+03	0.00E-01	0.00E-01
TE129	4.81E-06	1.26E-03	2.02E-05	5.65E-06	5.92E-05	1.44E-05	0.00E-01	0.00E-01
TE131M	3.89E+02	1.48E+04	1.06E+03	3.66E+02	3.54E+03	7.52E+02	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	1.12E+03	9.31E+03	2.09E+03	9.25E+02	8.59E+03	1.35E+03	0.00E-01	0.00E-01
I 130	2.02E+02	1.83E+02	1.94E+02	3.92E+02	5.86E+02	4.32E+04	0.00E-01	0.00E-01
I 131	2.31E+03	3.61E+02	4.04E+03	4.06E+03	6.67E+03	1.34E+06	0.00E-01	0.00E-01
I 132	1.25E-01	3.20E-01	1.48E-01	2.72E-01	4.17E-01	1.26E+01	0.00E-01	0.00E-01
I 133	3.19E+02	3.39E+02	6.81E+02	8.42E+02	1.40E+03	1.56E+05	0.00E-01	0.00E-01
I 134	5.09E-07	7.34E-07	5.96E-07	1.11E-06	1.69E-06	2.55E-05	0.00E-01	0.00E-01
I 135	3.06E+01	4.93E+01	3.59E+01	6.47E+01	9.92E+01	5.73E+03	0.00E-01	0.00E-01
CS134	2.07E+04	5.29E+02	5.98E+04	9.82E+04	3.04E+04	0.00E-01	1.09E+04	0.00E-01
CS136	1.01E+04	5.51E+02	5.70E+03	1.57E+04	5.35E+03	0.00E-01	1.24E+03	0.00E-01
CS137	1.18E+04	5.02E+02	8.37E+04	8.01E+04	2.61E+04	0.00E-01	9.39E+03	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	1.71E-05	3.41E-02	5.91E-04	3.16E-07	2.76E-07	0.00E-01	1.86E-07	0.00E-01
BA140	1.18E+03	1.02E+04	2.01E+04	1.76E+01	5.74E+00	0.00E-01	1.05E+01	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	2.01E-01	1.67E+04	1.71E+00	5.98E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	2.73E-07	1.73E-01	2.74E-06	8.72E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	7.37E-01	6.19E+03	9.94E+00	4.96E+00	2.17E+00	0.00E-01	0.00E-01	0.00E-01
CE143	8.51E-02	8.60E+03	1.08E+00	5.87E+02	2.46E-01	0.00E-01	0.00E-01	0.00E-01
CE144	2.83E+01	4.34E+04	5.31E+02	1.66E+02	9.22E+01	0.00E-01	0.00E-01	0.00E-01
PR143	4.74E-01	1.03E+04	9.56E+00	2.87E+00	1.55E+00	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	4.21E-01	8.61E+03	6.71E+00	5.43E+00	2.98E+00	0.00E-01	0.00E-01	0.00E-01
W 187	1.46E+01	4.56E+03	5.48E+01	3.24E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	5.05E-02	5.32E+03	1.00E+00	7.19E-02	2.08E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = FRESH WATER FISH

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	3.61E-01	3.61E-01	0.00E-01	3.61E-01	3.61E-01	3.61E-01	3.61E-01	0.00E-01
C 14	3.85E+04	3.85E+04	1.93E+05	3.85E+04	3.85E+04	3.85E+04	3.85E+04	0.00E-01
NA 24	6.61E+02	6.61E+02	6.61E+02	6.61E+02	6.61E+02	6.61E+02	6.61E+02	0.00E-01
P 32	1.05E+07	7.52E+06	2.72E+08	1.27E+07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	6.01E+00	3.19E+02	0.00E-01	0.00E-01	9.12E-01	3.34E+00	6.09E+00	0.00E-01
MN 54	3.94E+03	1.24E+04	0.00E-01	1.48E+04	4.15E+03	0.00E-01	0.00E-01	0.00E-01
MN 56	1.56E-01	1.00E+02	0.00E-01	6.91E-01	8.35E-01	0.00E-01	0.00E-01	0.00E-01
FE 55	6.54E+02	3.91E+02	3.98E+03	2.11E+03	0.00E-01	0.00E-01	1.19E+03	0.00E-01
FE 59	4.53E+03	9.48E+03	5.62E+03	9.10E+03	0.00E-01	0.00E-01	2.64E+03	0.00E-01
CO 58	9.45E+02	1.80E+03	0.00E-01	3.09E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	2.70E+03	5.07E+03	0.00E-01	9.15E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	6.34E+03	6.72E+02	1.86E+05	9.97E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	5.58E-02	1.17E+01	1.02E+00	9.57E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	6.85E+00	5.32E+02	0.00E-01	1.13E+01	2.74E+01	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.57E+05	4.43E+04	9.46E+04	2.52E+05	1.59E+05	0.00E-01	0.00E-01	0.00E-01
ZN 69	9.09E-07	6.20E-04	6.81E-06	9.84E-06	5.97E-06	0.00E-01	0.00E-01	0.00E-01
BR 83	2.30E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	2.75E+05	2.88E+04	0.00E-01	4.47E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	3.86E+03	5.23E+03	1.35E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	5.35E+04	2.38E+04	2.66E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	1.62E+01	9.46E+02	4.28E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	7.94E-02	3.75E+01	1.98E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	7.34E-02	7.81E+03	2.74E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	1.38E+00	6.86E+03	5.15E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	8.09E-05	8.17E+01	2.83E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	5.17E-03	2.81E+03	1.88E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	2.57E-01	3.01E+02	1.31E+00	2.88E-01	4.12E-01	0.00E-01	0.00E-01	0.00E-01
ZR 97	2.53E-03	6.50E+02	2.97E-02	4.29E-03	6.16E-03	0.00E-01	0.00E-01	0.00E-01
NB 95	6.37E+02	1.65E+06	2.29E+03	8.92E+02	8.38E+02	0.00E-01	0.00E-01	0.00E-01
MO 99	8.84E+01	2.96E+02	0.00E-01	3.57E+02	7.63E+02	0.00E-01	0.00E-01	0.00E-01
TC 99M	9.70E-02	3.33E+00	2.98E-03	5.85E-03	8.51E-02	0.00E-01	2.97E-03	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = FRESH WATER FISH

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	9.56E+00	6.43E+02	2.49E+01	0.00E-01	6.26E+01	0.00E-01	0.00E-01	0.00E-01
RU105	1.88E-02	3.38E+01	5.17E-02	0.00E-01	4.55E-01	0.00E-01	0.00E-01	0.00E-01
RU106	5.05E+01	6.29E+03	4.04E+02	0.00E-01	5.46E+02	0.00E-01	0.00E-01	0.00E-01
AG110M	2.31E+00	3.44E+02	4.28E+00	2.89E+00	5.38E+00	0.00E-01	0.00E-01	0.00E-01
TE125M	2.08E+03	1.50E+04	1.56E+04	4.23E+03	0.00E-01	4.38E+03	0.00E-01	0.00E-01
TE127M	4.72E+03	3.22E+04	3.98E+04	1.07E+04	1.13E+05	9.51E+03	0.00E-01	0.00E-01
TE127	2.34E+01	4.27E+03	1.09E+02	2.95E+01	3.11E+02	7.56E+01	0.00E-01	0.00E-01
TE129M	1.03E+04	8.06E+04	6.61E+04	1.84E+04	1.94E+05	2.13E+04	0.00E-01	0.00E-01
TE129	2.45E-05	6.42E-03	1.03E-04	2.88E-05	3.02E-04	7.36E-05	0.00E-01	0.00E-01
TE131M	2.10E+03	8.01E+04	5.71E+03	1.98E+03	1.91E+04	4.06E+03	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	6.04E+03	5.03E+04	1.13E+04	5.00E+03	4.64E+04	7.28E+03	0.00E-01	0.00E-01
I 130	4.08E+01	3.70E+01	3.92E+01	7.92E+01	1.18E+02	8.72E+03	0.00E-01	0.00E-01
I 131	4.68E+02	7.33E+01	8.19E+02	8.24E+02	1.35E+03	2.72E+05	0.00E-01	0.00E-01
I 132	2.46E-02	6.31E-02	2.92E-02	5.36E-02	8.20E-02	2.49E+00	0.00E-01	0.00E-01
I 133	6.45E+01	6.87E+01	1.38E+02	1.70E+02	2.84E+02	3.17E+04	0.00E-01	0.00E-01
I 134	9.55E-08	1.38E-07	1.12E-07	2.07E-07	3.17E-07	4.77E-06	0.00E-01	0.00E-01
I 135	6.14E+00	9.90E+00	7.22E+00	1.30E+01	1.99E+01	1.15E+03	0.00E-01	0.00E-01
CS134	5.60E+05	1.43E+04	1.62E+06	2.66E+06	8.23E+05	0.00E-01	2.95E+05	0.00E-01
CS136	2.74E+05	1.49E+04	1.54E+05	4.24E+05	2.26E+05	0.00E-01	3.37E+04	0.00E-01
CS137	3.20E+05	1.36E+04	2.26E+06	2.17E+06	7.06E+05	0.00E-01	2.54E+05	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	8.82E-07	1.76E-03	3.04E-05	1.62E-08	1.42E-08	0.00E-01	9.56E-09	0.00E-01
BA140	6.36E+01	5.52E+02	1.09E+03	9.55E-01	3.11E-01	0.00E-01	5.69E-01	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	6.80E-02	5.63E+03	5.77E-01	2.02E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	8.83E-08	5.59E-02	8.85E-07	2.82E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	9.96E-03	8.37E+01	1.34E-01	6.71E-02	2.94E-02	0.00E-01	0.00E-01	0.00E-01
CE143	1.15E-03	1.16E+02	1.46E-02	7.93E+00	3.32E-03	0.00E-01	0.00E-01	0.00E-01
CE144	3.83E-01	5.87E+02	7.18E+00	2.25E+00	1.25E+00	0.00E-01	0.00E-01	0.00E-01
PR143	1.60E-01	3.49E+03	3.23E+00	9.70E-01	5.25E-01	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	1.42E-01	2.91E+03	2.27E+00	1.84E+00	1.01E+00	0.00E-01	0.00E-01	0.00E-01
W 187	2.36E+02	7.38E+04	8.86E+02	5.25E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	6.83E-03	7.19E+02	1.35E-01	9.72E-03	2.81E-02	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = FRESH WATER INVERTEBRATES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	8.90E-02	8.90E-02	0.00E-01	8.90E-02	8.90E-02	8.90E-02	8.90E-02	0.00E-01
C 14	1.88E+04	1.88E+04	9.39E+04	1.88E+04	1.88E+04	1.88E+04	1.88E+04	0.00E-01
NA 24	3.26E+02	3.26E+02	3.26E+02	3.26E+02	3.26E+02	3.26E+02	3.26E+02	0.00E-01
P 32	5.17E+05	3.70E+05	1.34E+07	6.27E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.48E+01	7.85E+02	0.00E-01	0.00E-01	2.25E+00	8.22E+00	1.50E+01	0.00E-01
MN 54	2.18E+05	6.88E+05	0.00E-01	8.20E+05	2.30E+05	0.00E 01	0.00E-01	0.00E-01
MN 56	8.64E+00	5.55E+03	0.00E-01	3.83E+01	4.63E+01	0.00E-01	0.00E-01	0.00E-01
FE 55	5.16E+03	3.08E+03	3.14E+04	1.66E+04	0.00E-01	0.00E-01	9.41E+03	0.00E-01
FE 59	3.57E+04	7.47E+04	4.43E+04	7.18E+04	0.00E-01	0.00E-01	2.08E+04	0.00E-01
CO 58	9.31E+02	1.77E+03	0.00E-01	3.04E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	2.66E+03	5.00E+03	0.00E-01	9.02E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	1.56E+03	1.65E+02	4.59E+04	2.46E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	1.38E-02	2.89E+00	2.50E-01	2.36E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	1.35E+01	1.05E+03	0.00E-01	2.24E+01	5.40E+01	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.93E+05	5.45E+04	1.16E+05	3.10E+05	1.96E+05	0.00E-01	0.00E-01	0.00E-01
ZN 69	1.12E-06	7.64E-04	8.39E-06	1.21E-05	7.35E-06	0.00E-01	0.00E-01	0.00E-01
BR 83	4.46E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	3.39E+04	3.54E+03	0.00E-01	5.51E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	3.17E+03	4.30E+03	1.11E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	4.39E+04	1.95E+04	2.18E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	1.33E+01	7.77E+02	3.52E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	6.52E-02	3.08E+01	1.63E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	7.23E-01	7.69E+04	2.70E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	1.36E+01	6.76E+04	5.07E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	7.97E-04	8.05E+02	2.79E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	5.09E-02	2.76E+04	1.85E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	1.28E-01	1.50E+02	6.56E-01	1.44E-01	2.06E-01	0.00E-01	0.00E-01	0.00E-01
ZR 97	1.27E-03	3.25E+02	1.49E-02	2.15E-03	3.08E-03	0.00E-01	0.00E-01	0.00E-01
NB 95	5.24E-01	1.35E+03	1.88E+00	7.33E-01	6.88E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	2.18E+01	7.28E+01	0.00E-01	8.81E+01	1.88E+02	0.00E-01	0.00E-01	0.00E-01
TC 99M	7.97E-03	2.74E-01	2.45E-04	4.81E-04	6.98E-03	0.00E-01	2.44E-04	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = FRESH WATER INVERTEBRATES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	7.07E+01	4.75E+03	1.84E+02	0.00E-01	4.63E+02	0.00E-01	0.00E-01	0.00E-01
RU105	1.39E-01	2.49E+02	3.82E-01	0.00E-01	3.36E+00	0.00E-01	0.00E-01	0.00E-01
RU106	3.73E+02	4.65E+04	2.99E+03	0.00E-01	4.04E+03	0.00E-01	0.00E-01	0.00E-01
AG110M	1.91E+02	2.84E+04	3.53E+02	2.38E+02	4.44E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	7.81E+03	5.66E+04	5.86E+04	1.59E+04	0.00E-01	1.64E+04	0.00E-01	0.00E-01
TE127M	1.77E+04	1.21E+05	1.49E+05	4.02E+04	4.26E+05	3.57E+04	0.00E-01	0.00E-01
TE127	8.80E+01	1.60E+04	4.10E+02	1.11E+02	1.17E+03	2.84E+02	0.00E-01	0.00E-01
TE129M	3.85E+04	3.03E+05	2.48E+05	6.93E+04	7.29E+05	8.00E+04	0.00E-01	0.00E-01
TE129	9.20E-05	2.41E-02	3.88E-04	1.08E-04	1.14E-03	2.77E-04	0.00E-01	0.00E-01
TE131M	7.90E+03	3.01E+05	2.15E+04	7.42E+03	7.18E+04	1.53E+04	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	2.27E+04	1.89E+05	4.25E+04	1.88E+04	1.74E+05	2.74E+04	0.00E-01	0.00E-01
I 130	3.35E+00	3.04E+00	3.22E+00	6.50E+00	9.72E+00	7.16E+02	0.00E-01	0.00E-01
I 131	3.85E+01	6.02E+00	6.73E+01	6.77E+01	1.11E+02	2.24E+04	0.00E-01	0.00E-01
I 132	2.02E-03	5.18E-03	2.40E-03	4.40E-03	6.73E-03	2.04E-01	0.00E-01	0.00E-01
I 133	5.30E+00	5.64E+00	1.13E+01	1.40E+01	2.33E+01	2.60E+03	0.00E-01	0.00E-01
I 134	7.84E-09	1.13E-08	9.18E-09	1.70E-08	2.61E-08	3.92E-07	0.00E-01	0.00E-01
I 135	5.04E-01	8.13E-01	5.93E-01	1.07E+00	1.64E+00	9.45E+01	0.00E-01	0.00E-01
CS134	6.90E+04	1.76E+03	1.99E+05	3.27E+05	1.01E+05	0.00E-01	3.64E+04	0.00E-01
CS136	3.38E+04	1.84E+03	1.90E+04	5.23E+04	2.78E+04	0.00E-01	4.15E+03	0.00E-01
CS137	3.94E+04	1.67E+03	2.79E+05	2.67E+05	8.70E+04	0.00E-01	3.13E+04	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	1.09E-05	2.16E-02	3.75E-04	2.00E-07	1.75E-07	0.00E-01	1.18E-07	0.00E-01
BA140	7.84E+02	6.80E+03	1.34E+04	1.18E+01	3.83E+00	0.00E-01	7.01E+00	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	6.70E-01	5.54E+04	5.69E+00	1.99E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	8.70E-07	5.51E-01	8.72E-06	2.78E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	2.45E+00	2.06E+04	3.32E+01	1.65E+01	7.25E+00	0.00E-01	0.00E-01	0.00E-01
CE143	2.83E-01	2.86E+04	3.60E+00	1.95E+03	8.19E-01	0.00E-01	0.00E-01	0.00E-01
CE144	9.45E+01	1.45E+05	1.77E+03	5.55E+02	3.07E+02	0.00E-01	0.00E-01	0.00E-01
PR143	1.58E+00	3.44E+04	3.19E+01	9.56E+00	5.18E+00	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	1.40E+00	2.87E+04	2.24E+01	1.81E+01	9.94E+00	0.00E-01	0.00E-01	0.00E-01
W 187	4.84E-01	1.51E+02	1.82E+00	1.08E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	6.73E-02	7.09E+03	1.33E+00	9.58E-02	2.77E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = IRRIGATED FRESH LEAFY VEGETABLES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.51E+00	1.51E+00	0.00E-01	1.51E+00	1.51E+00	1.51E+00	1.51E+00	0.00E-01
C 14	3.51E+03	3.51E+03	1.75E+04	3.51E+03	3.51E+03	3.51E+03	3.51E+03	0.00E-01
NA 24	8.63E+00	8.63E+00	8.63E+00	8.63E+00	8.63E+00	8.63E+00	8.63E+00	0.00E-01
P 32	1.70E+03	1.22E+03	4.42E+04	2.07E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	6.25E-01	3.32E+01	0.00E-01	0.00E-01	9.48E-02	3.47E-01	6.33E-01	0.00E-01
MN 54	2.87E+02	9.05E+02	0.00E-01	1.08E+03	3.02E+02	0.00E-01	0.00E-01	0.00E-01
MN 56	7.35E-05	4.72E-02	0.00E-01	3.26E-04	3.94E-04	0.00E-01	0.00E-01	0.00E-01
FE 55	1.94E+02	1.16E+02	1.18E+03	6.28E+02	0.00E-01	0.00E-01	3.55E+02	0.00E-01
FE 59	1.07E+03	2.24E+03	1.33E+03	2.15E+03	0.00E-01	0.00E-01	6.24E+02	0.00E-01
CO 58	4.86E+02	9.27E+02	0.00E-01	1.59E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	1.63E+03	3.06E+03	0.00E-01	5.53E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	1.99E+03	2.11E+02	5.84E+04	3.13E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	1.03E-04	2.16E-02	1.87E-03	1.76E-04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	1.50E-01	1.17E+01	0.00E-01	2.49E-01	6.02E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	2.39E+03	6.75E+02	1.44E+03	3.84E+03	2.42E+03	0.00E-01	0.00E-01	0.00E-01
ZN 69	2.11E-11	1.44E-08	1.58E-10	2.28E-10	1.38E-10	0.00E-01	0.00E-01	0.00E-01
BR 83	9.53E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	2.23E-16	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	6.28E-37	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	2.48E+03	2.60E+02	0.00E-01	4.04E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	6.60E-28	4.66E-29	0.00E-01	9.50E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	4.96E-30	4.87E-32	0.00E-01	5.58E-30	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	3.15E+03	4.27E+03	1.10E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	7.47E+04	3.32E+04	3.71E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	4.40E-01	2.57E+01	1.17E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	5.35E-04	2.53E-01	1.33E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	1.48E-02	1.57E+03	5.53E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	2.93E-15	1.57E-10	8.04E-14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	1.37E+00	6.84E+03	5.14E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	9.01E-07	9.09E-01	3.15E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	1.79E-04	9.75E+01	6.54E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	1.97E+00	2.31E+03	1.01E+01	2.21E+00	3.17E+00	0.00E-01	0.00E-01	0.00E-01
ZR 97	1.12E-03	2.88E+02	1.32E-02	1.90E-03	2.73E-03	0.00E-01	0.00E-01	0.00E-01
NB 95	4.74E-01	1.23E+03	1.71E+00	6.64E-01	6.24E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	4.56E+01	1.52E+02	0.00E-01	1.84E+02	3.94E+02	0.00E-01	0.00E-01	0.00E-01
TC 99M	3.26E-03	1.12E-01	1.00E-04	1.97E-04	2.86E-03	0.00E-01	9.99E-05	0.00E-01
TC101	5.14E-31	1.29E-31	3.87E-32	4.05E-32	6.91E-31	0.00E-01	2.14E-32	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = IRRIGATED FRESH LEAFY VEGETABLES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	2.20E+01	1.48E+03	5.72E+01	0.00E-01	1.44E+02	0.00E-01	0.00E-01	0.00E-01
RU105	6.74E-04	1.21E+00	1.86E-03	0.00E-01	1.63E-02	0.00E-01	0.00E-01	0.00E-01
RU106	1.49E+02	1.85E+04	1.19E+03	0.00E-01	1.61E+03	0.00E-01	0.00E-01	0.00E-01
AG110M	2.96E+01	4.40E+03	5.48E+01	3.70E+01	6.89E+01	0.00E-01	0.00E-01	0.00E-01
TE125M	1.37E+02	9.90E+02	1.03E+03	2.78E+02	0.00E-01	2.88E+02	0.00E-01	0.00E-01
TE127M	3.51E+02	2.39E+03	2.96E+03	7.96E+02	8.43E+03	7.07E+02	0.00E-01	0.00E-01
TE127	4.75E-02	8.66E+00	2.22E-01	5.97E-02	6.31E-01	1.53E-01	0.00E-01	0.00E-01
TE129M	5.86E+02	4.60E+03	3.77E+03	1.05E+03	1.11E+04	1.22E+03	0.00E-01	0.00E-01
TE129	3.94E-09	1.03E-06	1.66E-08	4.64E-09	4.86E-08	1.19E-08	0.00E-01	0.00E-01
TE131M	1.35E+01	5.16E+02	3.68E+01	1.27E+01	1.23E+02	2.61E+01	0.00E-01	0.00E-01
TE131	3.26E-21	5.75E-20	1.09E-20	3.34E-21	3.31E-20	8.38E-21	0.00E-01	0.00E-01
TE132	9.10E+01	7.58E+02	1.70E+02	7.53E+01	6.99E+02	1.10E+02	0.00E-01	0.00E-01
I 130	2.90E+00	2.64E+00	2.79E+00	5.64E+00	8.43E+00	6.21E+02	0.00E-01	0.00E-01
I 131	3.60E+02	5.64E+01	6.30E+02	6.33E+02	1.04E+03	2.09E+05	0.00E-01	0.00E-01
I 132	2.70E-04	6.91E-04	3.20E-04	5.87E-04	8.99E-04	2.72E-02	0.00E-01	0.00E-01
I 133	7.72E+00	8.22E+00	1.65E+01	2.04E+01	3.40E+01	3.79E+03	0.00E-01	0.00E-01
I 134	2.57E-10	3.71E-10	3.01E-10	5.59E-10	8.55E-10	1.29E-08	0.00E-01	0.00E-01
I 135	2.27E-01	3.66E-01	2.67E-01	4.81E-01	7.37E-01	4.26E+01	0.00E-01	0.00E-01
CS134	8.34E+03	2.13E+02	2.41E+04	3.95E+04	1.22E+04	0.00E-01	4.40E+03	0.00E-01
CS136	2.10E+03	1.14E+02	1.18E+03	3.24E+03	1.72E+03	0.00E-01	2.57E+02	0.00E-01
CS137	4.90E+03	2.08E+02	3.47E+04	3.32E+04	1.08E+04	0.00E-01	3.89E+03	0.00E-01
CS138	3.58E-16	2.60E-16	4.07E-16	5.65E-16	3.98E-16	0.00E-01	4.28E-17	0.00E-01
BA139	1.81E-08	3.61E-05	6.25E-07	3.34E-10	2.91E-10	0.00E-01	1.96E-10	0.00E-01
BA140	2.40E+02	2.08E+03	4.11E+03	3.60E+00	1.17E+00	0.00E-01	2.15E+00	0.00E-01
BA141	1.28E-28	2.25E-27	3.95E-27	2.21E-30	1.91E-30	0.00E-01	1.30E-29	0.00E-01
BA142	5.10E-32	1.19E-32	9.13E-31	6.57E-34	5.32E-34	0.00E-01	3.87E-34	0.00E-01
LA140	9.10E-03	7.52E+02	7.72E-02	2.70E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	3.41E-10	2.16E-04	3.42E-09	1.09E-09	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	2.18E-01	1.83E+03	2.94E+00	1.47E+00	6.42E-01	0.00E-01	0.00E-01	0.00E-01
CE143	3.21E-03	3.24E+02	4.08E-02	2.21E+01	9.29E-03	0.00E-01	0.00E-01	0.00E-01
CE144	1.11E+01	1.70E+04	2.08E+02	6.51E+01	3.60E+01	0.00E-01	0.00E-01	0.00E-01
PR143	9.98E-02	2.17E+03	2.01E+00	6.04E-01	3.27E-01	0.00E-01	0.00E-01	0.00E-01
PR144	4.33E-33	5.73E-29	8.60E-32	2.66E-32	1.41E-32	0.00E-01	0.00E-01	0.00E-01
ND147	7.95E-02	1.63E+03	1.27E+00	1.03E+00	5.63E-01	0.00E-01	0.00E-01	0.00E-01
W 187	4.03E-01	1.26E+02	1,52E+00	8.98E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	3.09E-03	3.25E+02	6.12E-02	4.40E-03	1.27E-02	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = IRRIGATED STORED FRUIT, VEGETABLES, GRAIN

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	3.00E+01	3.00E+01	0.00E-01	3.00E+01	3.00E+01	3.00E+01	3.00E+01	0.00E-01
C 14	7.01E+04	7.01E+04	3.51E+05	7.01E+04	7.01E+04	7.01E+04	7.01E+04	0.00E-01
NA 24	4.57E-24	4.57E-24	4.57E-24	4.57E-24	4.57E-24	4.57E-24	4.57E-24	0.00E-01
P 32	1.95E+03	1.40E+03	5.06E+04	2.37E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	2.85E+00	1.51E+02	0.00E-01	0.00E-01	4.32E-01	1.58E+00	2.89E+00	0.00E-01
MN 54	5.04E+03	1.59E+04	0.00E-01	1.89E+04	5.30E+03	0.00E-01	0.00E-01	0.00E-01
MN 56	8.39E-27	5.39E-24	0.00E-01	3.72E-26	4.50E-26	0.00E-01	0.00E-01	0.00E-01
FE 55	3.73E+03	2.23E+03	2.27E+04	1.20E+04	0.00E-01	0.00E-01	6.81E+03	0.00E-01
FE 59	8.56E+03	1.79E+04	1.06E+04	1.72E+04	0.00E-01	0.00E-01	4.98E+03	0.00E-01
CO 58	5.47E+03	1.04E+04	0.00E-01	1.79E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	3.19E+04	5.99E+04	0.00E-01	1.08E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	3.97E+04	4.21E+03	1.17E+06	6.25E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	1.33E-26	2.78E-24	2.41E-25	2.27E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	9.80E-26	7.61E-24	0.00E-01	1.62E-25	3.92E-25	0.00E-01	0.00E-01	0.00E-01
ZN 65	4.04E+04	1.14E+04	2.44E+04	6.50E+04	4.10E+04	0.00E-01	0.00E-01	0.00E-01
ZN 69	1.53E-28	1.04E-25	1.15E-27	1.65E-27	1.00E-27	0.00E-01	0.00E-01	0.00E-01
BR 83	1.75E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	1.63E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	1.26E-35	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	5.57E+03	5.83E+02	0.00E-01	9.06E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	2.19E-28	1.55E-29	0.00E-01	3.15E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	9.92E-29	9.73E-31	0.00E-01	1.12E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	2.80E+04	3.79E+04	9.80E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	1.49E+06	6.62E+05	7.40E+07	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	4.45E-25	2.60E-23	1.18E-23	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	4.32E-26	2.04E-23	1.08E-24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	6.75E-08	7.18E-03	2.52E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	2.83E-31	1.53E-26	7.79E-30	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	1.37E+01	6.81E+04	5.11E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	1.71E-29	1.72E-23	5.96E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	1.64E-28	8.89E-23	5.96E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	2.08E+01	2.44E+04	1.06E+02	2.34E+01	3.35E+01	0.00E-01	0.00E-01	0.00E-01
ZR 97	1.30E-27	3.33E-22	1.52E-26	2.20E-27	3.16E-27	0.00E-01	0.00E-01	0.00E-01
NB 95	2.97E+00	7.68E+03	1.07E+01	4.15E+00	3.90E+00	0.00E-01	0.00E-01	0.00E-01
MO 99	3.13E-04	1.05E-03	0.00E-01	1.27E-03	2.70E-03	0.00E-01	0.00E-01	0.00E-01
TC 99M	9.06E-27	3.11E-25	2.79E-28	5.47E-28	7.95E-27	0.00E-01	2.78E-28	0.00E-01
TC101	1.03E-29	2.58E-30	7.74E-31	8.10E-31	1.38E-29	0.00E-01	4.28E-31	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = IRRIGATED STORED FRUIT, VEGETABLES, GRAIN

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	1.55E+02	1.04E+04	4.04E+02	0.00E-01	1.02E+03	0.00E-01	0.00E-01	0.00E-01
RU105	5.02E-27	9.03E-24	1.38E-26	0.00E-01	1.22E-25	0.00E-01	0.00E-01	0.00E-01
RU106	2.66E+03	3.32E+05	2.13E+04	0.00E-01	2.88E+04	0.00E-01	0.00E-01	0.00E-01
AG110M	5.02E+02	7.48E+04	9.31E+02	6.28E+02	1.17E+03	0.00E-01	0.00E-01	0.00E-01
TE125M	1.35E+03	9.80E+03	1.02E+04	2.75E+03	0.00E-01	2.85E+03	0.00E-01	0.00E-01
TE127M	4.82E+03	3.29E+04	4.07E+04	1.09E+04	1.16E+05	9.72E+03	0.00E-01	0.00E-01
TE127	4.93E-26	8.99E-24	2.30E-25	6.20E-26	6.55E-25	1.59E-25	0.00E-01	0.00E-01
TE129M	3.46E+03	2.72E+04	2.23E+04	6.23E+03	6.55E+04	7.19E+03	0.00E-01	0.00E-01
TE129	1.17E-27	3.07E-25	4.93E-27	1.38E-27	1.44E-26	3.52E-27	0.00E-01	0.00E-01
TE131M	1.66E-12	6.32E-11	4.50E-12	1.56E-12	1.51E-11	3.20E-12	0.00E-01	0.00E-01
TE131	1.13E-28	2.00E-27	3.81E-28	1.16E-28	1.15E-27	2.91E-28	0.00E-01	0.00E-01
TE132	6.51E-03	5.43E-02	1.22E-02	5.39E-03	5.01E-02	7.85E-03	0.00E-01	0.00E-01
I 130	1.96E-24	1.78E-24	1.88E-24	3.80E-24	5.68E-24	4.19E-22	0.00E-01	0.00E-01
I 131	4.44E+01	6.96E+00	7.77E+01	7.82E+01	1.28E+02	2.59E+04	0.00E-01	0.00E-01
I 132	6.54E-26	1.67E-25	7.74E-26	1.42E-25	2.18E-25	6.60E-24	0.00E-01	0.00E-01
I 133	5.13E-19	5.47E-19	1.10E-18	1.36E-18	2.26E-18	2.52E-16	0.00E-01	0.00E-01
I 134	8.10E-27	1.17E-26	9.48E-27	1.76E-26	2.69E-26	4.05E-25	0.00E-01	0.00E-01
I 135	4.96E-25	8.00E-25	5.83E-25	1.05E-24	1.61E-24	9.30E-23	0.00E-01	0.00E-01
CS134	1.58E+05	4.04E+03	4.56E+05	7.49E+05	2.32E+05	0.00E-01	8.33E+04	0.00E-01
CS136	1.85E+03	1.01E+02	1.04E+03	2.86E+03	1.52E+03	0.00E-01	2.27E+02	0.00E-01
CS137	9.77E+04	4.14E+03	6.92E+05	6.62E+05	2.16E+05	0.00E-01	7.76E+04	0.00E-01
CS138	1.70E-27	1.24E-27	1.93E-27	2.68E-27	1.89E-27	0.00E-01	2.03E-28	0.00E-01
BA139	5.68E-28	1.13E-24	1.96E-26	1.05E-29	9.14E-30	0.00E-01	6.16E-30	0.00E-01
BA140	1.96E+02	1.70E+03	3.36E+03	2.95E+00	9.59E-01	0.00E-01	1.76E+00	0.00E-01
BA141	1.17E-29	2.04E-28	3.58E-28	2.01E-31	1.74E-31	0.00E-01	1.18E-30	0.00E-01
BA142	1.02E-30	2.38E-31	1.83E-29	1.31E-32	1.06E-32	0.00E-01	7.73E-33	0.00E-01
LA140	4.76E-12	3.94E-07	4.04E-11	1.41E-11	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	2.93E-30	1.85E-24	2.93E-29	9.34E-30	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	1.24E+00	1.04E+04	1.67E+01	8.32E+00	3.65E+00	0.00E-01	0.00E-01	0.00E-01
CE143	8.80E-15	8.90E-10	1.12E-13	6.08E-11	2.55E-14	0.00E-01	0.00E-01	0.00E-01
CE144	1.92E+02	2.94E+05	3.60E+03	1.13E+03	6.24E+02	0.00E-01	0.00E-01	0.00E-01
PR143	9.86E-02	2.14E+03	1.99E+00	5.97E-01	3.23E-01	0.00E-01	0.00E-01	0.00E-01
PR144	9.61E-33	1.27E-28	1.91E-31	5.91E-32	3.12E-32	0.00E-01	0.00E-01	0.00E-01
ND147	3.99E-02	8.16E+02	6.36E-01	5.15E-01	2.83E-01	0.00E-01	0.00E-01	0.00E-01
W 187	1.22E-17	3.81E-15	4.58E-17	2.71E-17	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	1.84E-09	1.93E-04	3.64E-08	2.61E-09	7.55E-09	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = IRRIGATED FRESH FORAGE--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	8.73E+00	8.73E+00	0.00E-01	8.73E+00	8.73E+00	8.73E+00	8.73E+00	0.00E-01
C 14	2.93E+04	2.93E+04	1.46E+05	2.93E+04	2.93E+04	2.93E+04	2.93E+04	0.00E-01
NA 24	2.07E+02	2.07E+02	2.07E+02	2.07E+02	2.07E+02	2.07E+02	2.07E+02	0.00E-01
P 32	6.91E+04	4.95E+04	1.79E+06	8.38E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	2.20E+00	1.16E+02	0.00E-01	0.00E-01	3.33E-01	1.22E+00	2.23E+00	0.00E-01
MN 54	1.07E+02	3.36E+02	0.00E-01	4.01E+02	1.12E+02	0.00E-01	0.00E-01	0.00E-01
MN 56	5.11E-08	3.28E-05	0.00E-01	2.26E-07	2.74E-07	0.00E-01	0.00E-01	0.00E-01
FE 55	3.46E+02	2.07E+02	2.11E+03	1.12E+03	0.00E-01	0.00E-01	6.32E+02	0.00E-01
FE 59	2.01E+03	4.20E+03	2.49E+03	4.03E+03	0.00E-01	0.00E-01	1.17E+03	0.00E-01
CO 58	7.47E+02	1.42E+03	0.00E-01	2.44E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	2.40E+03	4.51E+03	0.00E-01	8.14E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	1.92E+04	2.04E+03	5.65E+05	5.02E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	1.70E-06	3.57E-04	3.09E-05	2.91E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	1.03E+00	7.98E+01	0.00E-01	1.70E+00	4.11E+00	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.35E+05	3.81E+04	8.13E+04	2.17E+05	1.37E+05	0.00E-01	0.00E-01	0.00E-01
ZN 69	3.59E-17	2.45E-14	2.69E-16	3.89E-16	2.36E-16	0.00E-01	0.00E-01	0.00E-01
BR 83	8.21E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	7.38E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	5.67E-35	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	1.21E+05	1.26E+04	0.00E-01	1.97E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	5.95E-28	4.20E-29	0.00E-01	8.57E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	2.70E-28	2.64E-30	0.00E-01	3.03E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	3.95E+03	5.35E+03	1.38E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	1.17E+05	5.20E+04	5.82E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	1.11E-01	6.47E+00	2.93E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	1.68E-06	7.95E-04	4.20E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	2.07E-04	2.20E+01	7.73E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	9.59E-26	5.16E-21	2.63E-24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	2.13E-02	1.06E+02	7.94E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	1.51E-10	1.53E-04	5.28E-09	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	6.25E-07	3.39E-01	2.28E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	1.52E-02	1.78E+01	7.76E-02	1.70E-02	2.44E-02	0.00E-01	0.00E-01	0.00E-01
ZR 97	3.80E-06	9.76E-01	4.46E-05	6.44E-06	9.25E-06	0.00E-01	0.00E-01	0.00E-01
NB 95	1.87E+00	4.85E+03	6.73E+00	2.62E+00	2.46E+00	0.00E-01	0.00E-01	0.00E-01
MO 99	4.82E+02	1.61E+03	0.00E-01	1.95E+03	4.16E+03	0.00E-01	0.00E-01	0.00E-01
TC 99M	9.29E-03	3.19E-01	2.86E-04	5.61E-04	8.15E-03	0.00E-01	2.85E-04	0.00E-01
TC101	2.32E-29	5.83E-30	1.75E-30	1.83E-30	3.13E-29	0.00E-01	9.69E-31	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = IRRIGATED FRESH FORAGE--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	3.45E-02	2.32E+00	8.98E-02	0.00E-01	2.26E-01	0.00E-01	0.00E-01	0.00E-01
RU105	2.87E-08	5.17E-05	7.92E-08	0.00E-01	6.96E-07	0.00E-01	0.00E-01	0.00E-01
RU106	2.20E-01	2.75E+01	1.77E+00	0.00E-01	2.38E+00	0.00E-01	0.00E-01	0.00E-01
AG110M	2.18E+03	3.25E+05	4.04E+03	2.73E+03	5.08E+03	0.00E-01	0.00E-01	0.00E-01
TE125M	2.05E+02	1.48E+03	1.54E+03	4.17E+02	0.00E-01	4.31E+02	0.00E-01	0.00E-01
TE127M	5.05E+02	3.45E+03	4.26E+03	1.15E+03	1.21E+04	1.02E+03	0.00E-01	0.00E-01
TE127	1.44E-02	2.63E+00	6.73E-02	1.81E-02	1.91E-01	4.66E-02	0.00E-01	0.00E-01
TE129M	9.07E+02	7.13E+03	5.84E+03	1.63E+03	1.72E+04	1.88E+03	0.00E-01	0.00E-01
TE129	4.19E-15	1.10E-12	1.77E-14	4.93E-15	5.17E-14	1.26E-14	0.00E-01	0.00E-01
TE131M	1.40E+01	5.33E+02	3.80E+01	1.31E+01	1.27E+02	2.70E+01	0.00E-01	0.00E-01
TE131	1.02E-29	1.80E-28	3.43E-29	1.05E-29	1.04E-28	2.62E-29	0.00E-01	0.00E-01
TE132	1.32E+02	1.10E+03	2.47E+02	1.09E+02	1.02E+03	1.59E+02	0.00E-01	0.00E-01
I 130	8.21E+00	7.45E+00	7.89E+00	1.39E+01	2.38E+01	1.76E+03	0.00E-01	0.00E-01
I 131	3.53E+03	5.53E+02	6.18E+03	6.21E+03	1.02E+04	2.05E+06	0.00E-01	0.00E-01
I 132	2.13E-06	5.44E-06	2.52E-06	4.62E-06	7.07E-06	2.14E-04	0.00E-01	0.00E-01
I 133	3.78E+01	4.02E+01	8.07E+01	9.98E+01	1.66E+02	1.85E+04	0.00E-01	0.00E-01
I 134	1.55E-17	2.24E-17	1.82E-17	3.38E-17	5.17E-17	7.77E-16	0.00E-01	0.00E-01
I 135	1.99E-01	3.20E-01	2.33E-01	4.20E-01	6.43E-01	3.72E+01	0.00E-01	0.00E-01
CS134	1.48E+05	3.79E+03	4.28E+05	7.02E+05	2.18E+05	0.00E-01	7.81E+04	0.00E-01
CS136	4.13E+04	2.24E+03	2.32E+04	6.39E+04	3.40E+04	0.00E-01	5.07E+03	0.00E-01
CS137	8.60E+04	3.65E+03	6.09E+05	5.83E+05	1.90E+05	0.00E-01	6.83E+04	0.00E-01
CS138	1.85E-27	1.35E-27	2.10E-27	2.92E-27	2.05E-27	0.00E-01	2.21E-28	0.00E-01
BA139	7.33E-14	1.46E-10	2.53E-12	1.35E-15	1.18E-15	0.00E-01	7.94E-16	0.00E-01
BA140	1.58E+02	1.37E+03	2.70E+03	2.37E+00	7.71E-01	0.00E-01	1.41E+00	0.00E-01
BA141	4.23E-31	7.40E-30	1.30E-29	7.27E-33	6.29E-33	0.00E-01	4.27E-32	0.00E-01
BA142	3.70E-32	8.64E-33	6.62E-31	4.76E-34	3.86E-34	0.00E-01	2.80E-34	0.00E-01
LA140	5.46E-05	4.51E+00	4.63E-04	1.62E-04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	6.30E-17	3.99E-11	6.32E-16	2.01E-16	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	3.45E-02	2.90E+02	4.66E-01	2.32E-01	1.02E-01	0.00E-01	0.00E-01	0.00E-01
CE143	3.52E-04	3.56E+01	4.48E-03	2.43E+00	1.02E-03	0.00E-01	0.00E-01	0.00E-01
CE144	1.65E+00	2.53E+03	3.10E+01	9.72E+00	5.38E+00	0.00E-01	0.00E-01	0.00E-01
PR143	8.20E-04	1.78E+01	1.65E-02	4.96E-03	2.69E-03	0.00E-01	0.00E-01	0.00E-01
PR144	4.35E-36	5.76E-32	8.66E-35	2.68E-35	1.42E-35	0.00E-01	0.00E-01	0.00E-01
ND147	6.54E-04	1.34E+01	1.04E-02	8.45E-03	4.64E-03	0.00E-01	0.00E-01	0.00E-01
W 187	1.82E-01	5.71E+01	6.86E-01	4.06E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	2.09E-05	2.20E+00	4.14E-04	2.97E-05	8.59E-05	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = IRRIGATED FRESH FORAGE--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.19E+00	1.19E+00	0.00E-01	1.19E+00	1.19E+00	1.19E+00	1.19E+00	0.00E-01
C 14	9.39E+03	9.39E+03	4.70E+04	9.39E+03	9.39E+03	9.39E+03	9.39E+03	0.00E-01
NA 24	4.37E-08	4.37E-08	4.37E-08	4.37E-08	4.37E-08	4.37E-08	4.37E-08	0.00E-01
P 32	6.60E+03	4.73E+03	1.71E+05	8.01E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.90E-01	1.01E+01	0.00E-01	0.00E-01	2.88E-02	1.05E-01	1.92E-01	0.00E-01
MN 54	4.08E+01	1.28E+02	0.00E-01	1.53E+02	4.29E+01	0.00E-01	0.00E-01	0.00E-01
MN 56	7.56E-29	4.86E-26	0.00E-01	3.35E-28	4.05E-28	0.00E-01	0.00E-01	0.00E-01
FE 55	1.41E+03	8.46E+02	8.61E+03	4.57E+03	0.00E-01	0.00E-01	2.58E+03	0.00E-01
FE 59	6.29E+03	1.31E+04	7.80E+03	1.26E+04	0.00E-01	0.00E-01	3.66E+03	0.00E-01
CO 58	1.01E+03	1.93E+03	0.00E-01	3.30E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	3.85E+03	7.24E+03	0.00E-01	1.31E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	1.89E+04	2.00E+03	5.55E+05	2.97E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	7.92E-27	1.66E-24	1.44E-25	1.36E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	3.95E-12	3.07E-10	0.00E-01	6.53E-12	1.58E-11	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.22E+04	3.46E+03	7.39E+03	1.97E+04	1.24E+04	0.00E-01	0.00E-01	0.00E-01
ZN 69	5.16E-29	3.52E-26	3.86E-28	5.58E-28	3.39E-28	0.00E-01	0.00E-01	0.00E-01
BR 83	5.11E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	4.77E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	3.66E-36	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	7.96E+03	8.33E+02	0.00E-01	1.29E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	7.64E-29	5.39E-30	0.00E-01	1.10E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	3.46E-29	3.40E-31	0.00E-01	3.90E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	2.87E+02	3.89E+02	1.00E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	1.09E+04	4.84E+03	5.41E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	2.01E-16	1.17E-14	5.31E-15	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	2.93E-28	1.38E-25	7.30E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	1.11E-04	1.18E+01	4.16E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	1.47E-32	7.90E-28	4.04E-31	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	9.81E-01	4.89E+03	3.67E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	8.83E-31	8.92E-25	3.09E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	4.49E-18	2.44E-12	1.64E-16	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	1.06E+01	1.24E+04	5.39E+01	1.19E+01	1.70E+01	0.00E-01	0.00E-01	0.00E-01
ZR 97	6.41E-11	1.65E-05	7.52E-10	1.09E-10	1.56E-10	0.00E-01	0.00E-01	0.00E-01
NB 95	1.83E+01	4.73E+04	6.57E+01	2.56E+01	2.40E+01	0.00E-01	0.00E-01	0.00E-01
MO 99	6.80E-01	2.28E+00	0.00E-01	2.75E+00	5.87E+00	0.00E-01	0.00E-01	0.00E-01
TC 99M	4.50E-24	1.54E-22	1.39E-25	2.72E-25	3.95E-24	0.00E-01	1.38E-25	0.00E-01
TC101	4.62E-29	1.16E-29	3.48E-30	3.65E-30	6.22E-29	0.00E-01	1.93E-30	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = IRRIGATED FRESH FORAGE--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	1.25E+03	8.40E+04	3.25E+03	0.00E-01	8.18E+03	0.00E-01	0.00E-01	0.00E-01
RU105	2.26E-26	4.07E-23	6.23E-26	0.00E-01	5.48E-25	0.00E-01	0.00E-01	0.00E-01
RU106	1.06E+04	1.32E+06	8.48E+04	0.00E-01	1.15E+05	0.00E-01	0.00E-01	0.00E-01
AG110M	8.77E+01	1.30E+04	1.62E+02	1.10E+02	2.04E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	1.58E+03	1.14E+04	1.19E+04	3.22E+03	0.00E-01	3.33E+03	0.00E-01	0.00E-01
TE127M	4.31E+03	2.94E+04	3.63E+04	9.78E+03	1.04E+05	8.68E+03	0.00E-01	0.00E-01
TE127	1.68E-15	3.07E-13	7.86E-15	2.12E-15	2.23E-14	5.44E-15	0.00E-01	0.00E-01
TE129M	5.98E+03	4.70E+04	3.85E+04	1.08E+04	1.13E+05	1.24E+04	0.00E-01	0.00E-01
TE129	1.01E-27	2.64E-25	4.24E-27	1.19E-27	1.24E-26	3.03E-27	0.00E-01	0.00E-01
TE131M	6.17E-03	2.35E-01	1.68E-02	5.80E-03	5.61E-02	1.19E-02	0.00E-01	0.00E-01
TE131	9.76E-29	1.72E-27	3.28E-28	1.00E-28	9.92E-28	2.51E-28	0.00E-01	0.00E-01
TE132	2.76E+01	2.30E+02	5.16E+01	2.28E+01	2.12E+02	3.32E+01	0.00E-01	0.00E-01
I 130	1.43E-11	1.30E-11	1.38E-11	2.78E-11	4.16E-11	3.07E-09	0.00E-01	0.00E-01
I 131	4.49E+01	7.04E+00	7.86E+01	7.90E+01	1.30E+02	2.61E+04	0.00E-01	0.00E-01
I 132	2.14E-27	5.47E-27	2.53E-27	4.64E-27	7.11E-27	2.16E-25	0.00E-01	0.00E-01
I 133	1.28E-06	1.37E-06	2.74E-06	3.39E-06	5.65E-06	6.30E-04	0.00E-01	0.00E-01
I 134	2.65E-28	3.81E-28	3.10E-28	5.75E-28	8.80E-28	1.32E-26	0.00E-01	0.00E-01
I 135	2.26E-22	3.64E-22	2.66E-22	4.78E-22	7.33E-22	4.23E-20	0.00E-01	0.00E-01
CS134	6.03E+03	1.54E+02	1.74E+04	2.86E+04	8.87E+03	0.00E-01	3.18E+03	0.00E-01
CS136	6.61E+02	3.59E+01	3.72E+02	1.02E+03	5.44E+02	0.00E-01	8.11E+01	0.00E-01
CS137	3.56E+03	1.51E+02	2.52E+04	2.41E+04	7.86E+03	0.00E-01	2.83E+03	0.00E-01
CS138	7.67E-29	5.57E-29	8.70E-29	1.21E-28	8.51E-29	0.00E-01	9.16E-30	0.00E-01
BA139	2.05E-29	4.08E-26	7.07E-28	3.77E-31	3.29E-31	0.00E-01	2.22E-31	0.00E-01
BA140	5.91E+01	5.13E+02	1.01E+03	8.88E-01	2.89E-01	0.00E-01	5.29E-01	0.00E-01
BA141	4.20E-31	7.36E-30	1.29E-29	7.23E-33	6.25E-33	0.00E-01	4.25E-32	0.00E-01
BA142	3.68E-32	8.58E-33	6.58E-31	4.74E-34	3.83E-34	0.00E-01	2.79E-34	0.00E-01
LA140	1.60E-07	1.32E-02	1.36E-06	4.75E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	6.59E-33	4.17E-27	6.60E-32	2.11E-32	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	3.50E-02	2.94E+02	4.73E-01	2.36E-01	1.03E-01	0.00E-01	0.00E-01	0.00E-01
CE143	6.25E-08	6.32E-03	7.96E-07	4.31E-04	1.81E-07	0.00E-01	0.00E-01	0.00E-01
CE144	2.36E+00	3.62E+03	4.43E+01	1.39E+01	7.68E+00	0.00E-01	0.00E-01	0.00E-01
PR143	3.82E-02	8.31E+02	7.71E-01	2.31E-01	1.25E-01	0.00E-01	0.00E-01	0.00E-01
PR144	5.09E-34	6.73E-30	1.01E-32	3.13E-33	1.65E-33	0.00E-01	0.00E-01	0.00E-01
ND147	1.74E-02	3.57E+02	2.78E-01	2.25E-01	1.23E-01	0.00E-01	0.00E-01	0.00E-01
W 187	2.15E-07	6.74E-05	8.10E-07	4.80E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	5.25E-07	5.52E-02	1.04E-05	7.46E-07	2.16E-06	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = IRRIGATED STORED FEED--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	8.73E+00	8.73E+00	0.00E-01	8.73E+00	8.73E+00	8.73E+00	8.73E+00	0.00E-01
C 14	3.03E+04	3.03E+04	1.51E+05	3.03E+04	3.03E+04	3.03E+04	3.03E+04	0.00E-01
NA 24	2.07E+02	2.07E+02	2.07E+02	2.07E+02	2.07E+02	2.07E+02	2.07E+02	0.00E-01
P 32	7.27E+04	5.21E+04	1.89E+06	8.83E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	2.43E+00	1.29E+02	0.00E-01	0.00E-01	3.69E-01	1.35E+00	2.46E+00	0.00E-01
MN 54	1.29E+02	4.08E+02	0.00E-01	4.86E+02	1.36E+02	0.00E-01	0.00E-01	0.00E-01
MN 56	5.11E-08	3.28E-05	0.00E-01	2.26E-07	2.74E-07	0.00E-01	0.00E-01	0.00E-01
FE 55	4.23E+02	2.53E+02	2.57E+03	1.36E+03	0.00E-01	0.00E-01	7.72E+02	0.00E-01
FE 59	2.29E+03	4.80E+03	2.85E+03	4.61E+03	0.00E-01	0.00E-01	1.34E+03	0.00E-01
CO 58	8.73E+02	1.66E+03	0.00E-01	2.85E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	2.94E+03	5.52E+03	0.00E-01	9.96E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	2.35E+04	2.49E+03	6.91E+05	3.70E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	1.70E-06	3.57E-04	3.09E-05	2.91E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	1.03E+00	7.98E+01	0.00E-01	1.70E+00	4.11E+00	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.62E+05	4.58E+04	9.78E+04	2.61E+05	1.64E+05	0.00E-01	0.00E-01	0.00E-01
ZN 69	3.59E-17	2.45E-14	2.69E-16	3.89E-16	2.36E-16	0.00E-01	0.00E-01	0.00E-01
BR 83	8.21E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	7.38E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	5.67E-35	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	1.30E+05	1.36E+04	0.00E-01	2.11E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	5.95E-28	4.20E-29	0.00E-01	8.57E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	2.70E-28	2.64E-30	0.00E-01	3.03E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	4.53E+03	6.14E+03	1.59E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	1.31E+05	5.84E+04	6.53E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	1.11E-01	6.47E+00	2.93E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	1.66E-06	7.95E-04	4.20E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	2.07E-04	2.20E+01	7.73E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	9.59E-26	5.16E-21	2.63E-24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	2.46E-02	1.23E+02	9.20E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	1.51E-10	1.53E-04	5.28E-09	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	6.25E-07	3.39E-01	2.28E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	1.77E-02	2.07E+01	9.03E-02	1.98E-02	2.84E-02	0.00E-01	0.00E-01	0.00E-01
ZR 97	3.80E-06	9.76E-01	4.46E-05	6.44E-06	9.25E-06	0.00E-01	0.00E-01	0.00E-01
NB 95	2.11E+00	5.45E+03	7.58E+00	2.95E+00	2.77E+00	0.00E-01	0.00E-01	0.00E-01
MO 99	4.82E+02	1.61E+03	0.00E-01	1.95E+03	4.16E+03	0.00E-01	0.00E-01	0.00E-01
TC 99M	9.29E-03	3.19E-01	2.86E-04	5.61E-04	8.15E-03	0.00E-01	2.85E-04	0.00E-01
TC101	2.32E-29	5.83E-30	1.75E-30	1.83E-30	3.13E-29	0.00E-01	9.69E-31	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = IRRIGATED STORED FEED--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	3.91E-02	2.63E+00	1.02E-01	0.00E-01	2.56E-01	0.00E-01	0.00E-01	0.00E-01
RU105	2.87E-08	5.17E-05	7.92E-08	0.00E-01	6.96E-07	0.00E-01	0.00E-01	0.00E-01
RU106	2.67E-01	3.33E+01	2.14E+00	0.00E-01	2.89E+00	0.00E-01	0.00E-01	0.00E-01
AG110M	2.63E+03	3.92E+05	4.87E+03	3.29E+03	6.13E+03	0.00E-01	0.00E-01	0.00E-01
TE125M	2.37E+02	1.71E+03	1.77E+03	4.81E+02	0.00E-01	4.98E+02	0.00E-01	0.00E-01
TE127M	5.96E+02	4.07E+03	5.02E+03	1.35E+03	1.43E+04	1.20E+03	0.00E-01	0.00E-01
TE127	1.44E-02	2.63E+00	6.73E-02	1.81E-02	1.91E-01	4.66E-02	0.00E-01	0.00E-01
TE129M	1.02E+03	7.98E+03	6.55E+03	1.83E+03	1.92E+04	2.11E+03	0.00E-01	0.00E-01
TE129	4.19E-15	1.10E-12	1.77E-14	4.93E-15	5.17E-14	1.26E-14	0.00E-01	0.00E-01
TE131M	1.40E+01	5.33E+02	3.80E+01	1.31E+01	1.27E+02	2.70E+01	0.00E-01	0.00E-01
TE131	1.02E-29	1.80E-28	3.43E-29	1.05E-29	1.04E-28	2.62E-29	0.00E-01	0.00E-01
TE132	1.32E+02	1.10E+03	2.47E+02	1.09E+02	1.02E+03	1.59E+02	0.00E-01	0.00E-01
I 130	8.21E+00	7.45E+00	7.89E+00	1.59E+01	2.38E+01	1.76E+03	0.00E-01	0.00E-01
I 131	3.59E+03	5.63E+02	6.28E+03	6.32E+03	1.04E+04	2.09E+06	0.00E-01	0.00E-01
I 132	2.13E-06	5.44E-06	2.52E-06	4.62E-06	7.07E-06	2.14E-04	0.00E-01	0.00E-01
I 133	3.78E+01	4.02E+01	8.07E+01	9.98E+01	1.66E+02	1.85E+04	0.00E-01	0.00E-01
I 134	1.55E-17	2.24E-17	1.82E-17	3.38E-17	5.17E-17	7.77E-16	0.00E-01	0.00E-01
I 135	1.99E-01	3.20E-01	2.33E-01	4.20E-01	6.43E-01	3.72E+01	0.00E-01	0.00E-01
CS134	1.81E+05	4.62E+03	5.22E+05	8.57E+05	2.65E+05	0.00E-01	9.53E+04	0.00E-01
CS136	4.33E+04	2.35E+03	2.43E+04	6.69E+04	3.56E+04	0.00E-01	5.31E+03	0.00E-01
CS137	1.05E+05	4.47E+03	7.45E+05	7.14E+05	2.33E+05	0.00E-01	8.37E+04	0.00E-01
CS138	1.85E-27	1.35E-27	2.10E-27	2.92E-27	2.05E-27	0.00E-01	2.21E-28	0.00E-01
BA139	7.33E-14	1.46E-10	2.53E-12	1.35E-15	1.18E-15	0.00E-01	7.94E-16	0.00E-01
BA140	1.65E+02	1.43E+03	2.82E+03	2.47E+00	8.05E-01	0.00E-01	1.48E+00	0.00E-01
BA141	4.23E-31	7.40E-30	1.30E-29	7.27E-33	6.29E-33	0.00E-01	4.27E-32	0.00E-01
BA142	3.70E-32	8.64E-33	6.62E-31	4.76E-34	3.86E-34	0.00E-01	2.80E-34	0.00E-01
LA140	5.46E-05	4.51E+00	4.63E-04	1.62E-04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	6.30E-17	3.99E-11	6.32E-16	2.01E-16	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	3.86E-02	3.24E+02	5.21E-01	2.60E-01	1.14E-01	0.00E-01	0.00E-01	0.00E-01
CE143	3.52E-04	3.56E+01	4.48E-03	2.43E+00	1.02E-03	0.00E-01	0.00E-01	0.00E-01
CE144	2.00E+00	3.07E+03	3.75E+01	1.18E+01	6.52E+00	0.00E-01	0.00E-01	0.00E-01
PR143	8.60E-04	1.87E+01	1.73E-02	5.20E-03	2.82E-03	0.00E-01	0.00E-01	0.00E-01
PR144	4.35E-36	5.76E-32	8.66E-35	2.68E-35	1.42E-35	0.00E-01	0.00E-01	0.00E-01
ND147	6.77E-04	1.39E+01	1.08E-02	8.75E-03	4.80E-03	0.00E-01	0.00E-01	0.00E-01
W 187	1.82E-01	5.71E+01	6.86E-01	4.06E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	2.09E-05	2.20E+00	4.14E-04	2.97E-05	8.59E-05	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = IRRIGATED STORED FEED--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.19E+00	1.19E+00	0.00E-01	1.19E+00	1.19E+00	1.19E+00	1.19E+00	0.00E-01
C 14	9.72E+03	9.72E+03	4.86E+04	9.72E+03	9.72E+03	9.72E+03	9.72E+03	0.00E-01
NA 24	4.37E-08	4.37E-08	4.37E-08	4.37E-08	4.37E-08	4.37E-08	4.37E-08	0.00E-01
P 32	6.95E+03	4.98E+03	1.80E+05	8.43E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	2.10E-01	1.11E+01	0.00E-01	0.00E-01	3.18E-02	1.16E-01	2.13E-01	0.00E-01
MN 54	4.94E+01	1.56E+02	0.00E-01	1.85E+02	5.20E+01	0.00E-01	0.00E-01	0.00E-01
MN 56	7.56E-29	4.86E-26	0.00E-01	3.35E-28	4.05E-28	0.00E-01	0.00E-01	0.00E-01
FE 55	1.73E+03	1.03E+03	1.05E+04	5.58E+03	0.00E-01	0.00E-01	3.16E+03	0.00E-01
FE 59	7.18E+03	1.50E+04	8.91E+03	1.44E+04	0.00E-01	0.00E-01	4.18E+03	0.00E-01
CO 58	1.18E+03	2.25E+03	0.00E-01	3.86E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	4.71E+03	8.85E+03	0.00E-01	1.60E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	2.31E+04	2.45E+03	6.79E+05	3.63E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	7.92E-27	1.66E-24	1.44E-25	1.36E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	3.95E-12	3.07E-10	0.00E-01	6.53E-12	1.58E-11	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.47E+04	4.16E+03	8.88E+03	2.37E+04	1.49E+04	0.00E-01	0.00E-01	0.00E-01
ZN 69	5.16E-29	3.52E-26	3.86E-28	5.58E-28	3.39E-28	0.00E-01	0.00E-01	0.00E-01
BR 83	5.11E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	4.77E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	3.66E-36	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	8.56E+03	8.95E+02	0.00E-01	1.39E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	7.64E-29	5.39E-30	0.00E-01	1.10E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	3.46E-29	3.40E-31	0.00E-01	3.90E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	3.29E+02	4.47E+02	1.15E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	1.22E+04	5.44E+03	6.08E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	2.01E-16	1.17E-14	5.31E-15	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	2.93E-28	1.38E-25	7.30E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	1.11E-04	1.18E+01	4.16E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	1.47E-32	7.90E-28	4.04E-31	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	1.14E+00	5.66E+03	4.25E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-0[illegible]	0.00E-01
Y 92	8.83E-31	8.92E-25	3.09E-29	0.00E-01	0.00E-01	0.00E-01	0.00E-[illegible]	0.00E-01
Y 93	4.49E-18	2.44E-12	1.64E-16	0.00E-01	0.00E-01	0.00E-01	0.00E-0[illegible]	0.00E-01
ZR 95	1.23E+01	1.44E+04	6.28E+01	1.38E+01	1.97E+01	0.00E-01	0.00E-01	0.00E-01
ZR 97	6.41E-11	1.65E-05	7.52E-10	1.09E-10	1.56E-10	0.00E-01	0.00E-01	0.00E-01
NB 95	2.06E+01	5.32E+04	7.39E+01	2.88E+01	2.70E+01	0.00E-01	0.00E-01	0.00E-01
MO 99	6.80E-01	2.28E+00	0.00E-01	2.75E+00	5.87E+00	0.00E-01	0.00E-01	0.00E-01
TC 99M	4.50E-24	1.54E-22	1.39E-25	2.72E-25	3.95E-24	0.00E-01	1.38E-25	0.00E-01
TC101	4.62E-29	1.16E-29	3.48E-30	3.65E-30	6.22E-29	0.00E-01	1.93E-30	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = IRRIGATED STORED FEED--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	1.41E+03	9.52E+04	3.68E+03	0.00E-01	9.27E+03	0.00E-01	0.00E-01	0.00E-01
RU105	2.26E-26	4.07E-23	6.23E-26	0.00E-01	5.48E-25	0.00E-01	0.00E-01	0.00E-01
RU106	1.28E+04	1.60E+06	1.03E+05	0.00E-01	1.39E+05	0.00E-01	0.00E-01	0.00E-01
AG110M	1.06E+02	1.57E+04	1.96E+02	1.32E+02	2.46E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	1.83E+03	1.32E+04	1.37E+04	3.71E+03	0.00E-01	3.85E+03	0.00E-01	0.00E-01
TE127M	5.09E+03	3.47E+04	4.28E+04	1.15E+04	1.22E+05	1.02E+04	0.00E-01	0.00E-01
TE127	1.68E-15	3.07E-13	7.86E-15	2.12E-15	2.23E-14	5.44E-15	0.00E-01	0.00E-01
TE129M	6.70E+03	5.27E+04	4.32E+04	1.21E+04	1.27E+05	1.39E+04	0.00E-01	0.00E-01
TE129	1.01E-27	2.64E-25	4.24E-27	1.19E-27	1.24E-26	3.03E-27	0.00E-01	0.00E-01
TE131M	6.17E-03	2.35E-01	1.68E-02	5.80E-03	5.61E-02	1.19E-02	0.00E-01	0.00E-01
TE131	9.76E-29	1.72E-27	3.28E-28	1.00E-28	9.92E-28	2.51E-28	0.00E-01	0.00E-01
TE132	2.76E+01	2.30E+02	5.16E+01	2.28E+01	2.12E+02	3.32E+01	0.00E-01	0.00E-01
I 130	1.43E-11	1.30E-11	1.38E-11	2.78E-11	4.16E-11	3.07E-09	0.00E-01	0.00E-01
I 131	4.57E+01	7.16E+00	7.93E+01	8.04E+01	1.32E+02	2.66E+04	0.00E-01	0.00E-01
I 132	2.14E-27	5.47E-27	2.53E-27	4.64E-27	7.11E-27	2.16E-25	0.00E-01	0.00E-01
I 133	1.28E-06	1.37E-06	2.74E-06	3.39E-06	5.65E-06	6.30E-04	0.00E-01	0.00E-01
I 134	2.65E-28	3.81E-28	3.10E-28	5.75E-28	8.80E-28	1.32E-26	0.00E-01	0.00E-01
I 135	2.26E-22	3.64E-22	2.66E-22	4.78E-22	7.33E-22	4.23E-20	0.00E-01	0.00E-01
CS134	7.36E+03	1.88E+02	2.13E+04	3.49E+04	1.08E+04	0.00E-01	3.88E+03	0.00E-01
CS136	6.92E+02	3.76E+01	3.89E+02	1.07E+03	5.69E+02	0.00E-01	8.49E+01	0.00E-01
CS137	4.36E+03	1.85E+02	3.08E+04	2.95E+04	9.62E+03	0.00E-01	3.46E+03	0.00E-01
CS138	7.67E-29	5.57E-29	8.70E-29	1.21E-28	8.51E-29	0.00E-01	9.16E-30	0.00E-01
BA139	2.05E-29	4.08E-26	7.07E-28	3.77E-31	3.29E-31	0.00E-01	2.22E-31	0.00E-01
BA140	6.18E+01	5.36E+02	1.06E+03	9.27E-01	3.02E-01	0.00E-01	5.53E-01	0.00E-01
BA141	4.20E-31	7.36E-30	1.29E-29	7.23E-33	6.25E-33	0.00E-01	4.25E-32	0.00E-01
BA142	3.68E-32	8.58E-33	6.58E-31	4.74E-34	3.83E-34	0.00E-01	2.79E-34	0.00E-01
LA140	1.60E-07	1.32E-02	1.36E-06	4.75E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	6.59E-33	4.17E-27	6.60E-32	2.11E-32	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	3.92E-02	3.29E+02	5.29E-01	2.64E-01	1.16E-01	0.00E-01	0.00E-01	0.00E-01
CE143	6.25E-08	6.32E-03	7.96E-07	4.31E-04	1.81E-07	0.00E-01	0.00E-01	0.00E-01
CE144	2.86E+00	4.38E+03	5.36E+01	1.68E+01	9.30E+00	0.00E-01	0.00E-01	0.00E-01
PR143	4.01E-02	8.72E+02	8.08E-01	2.43E-01	1.32E-01	0.00E-01	0.00E-01	0.00E-01
PR144	5.09E-34	6.73E-30	1.01E-32	3.13E-33	1.65E-33	0.00E-01	0.00E-01	0.00E-01
ND147	1.80E-02	3.69E+02	2.88E-01	2.33E-01	1.28E-01	0.00E-01	0.00E-01	0.00E-01
W 187	2.15E-07	6.74E-05	8.10E-07	4.80E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	5.25E-07	5.52E-02	1.04E-05	7.46E-07	2.16E-06	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = ANIMAL DRINKING WATER--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.05E+01	1.05E+01	0.00E-01	1.05E+01	1.05E+01	1.05E+01	1.05E+01	0.00E-01
C 14	2.88E+02	2.88E+02	1.44E+03	2.88E+02	2.88E+02	2.88E+02	2.88E+02	0.00E-01
NA 24	2.41E+02	2.41E+02	2.41E+02	2.41E+02	2.41E+02	2.41E+02	2.41E+02	0.00E-01
P 32	7.15E+03	5.13E+03	1.86E+05	8.68E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.85E-01	9.80E+00	0.00E-01	0.00E-01	2.80E-02	1.03E-01	1.87E-01	0.00E-01
MN 54	7.05E+00	2.22E+01	0.00E-01	2.65E+01	7.42E+00	0.00E-01	0.00E-01	0.00E-01
MN 56	3.36E-07	2.16E-04	0.00E-01	1.49E-06	1.80E-06	0.00E-01	0.00E-01	0.00E-01
FE 55	2.25E+01	1.34E+01	1.37E+02	7.26E+01	0.00E-01	0.00E-01	4.11E+01	0.00E-01
FE 59	1.54E+02	3.21E+02	1.91E+02	3.08E+02	0.00E-01	0.00E-01	8.94E+01	0.00E-01
CO 58	5.37E+01	1.02E+02	0.00E-01	1.75E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	1.55E+02	2.91E+02	0.00E-01	5.25E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	1.22E+03	1.29E+02	3.58E+04	1.92E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	1.14E-05	2.39E-03	2.07E-04	1.95E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	1.41E+00	1.09E+02	0.00E-01	2.33E+00	5.64E+00	0.00E-01	0.00E-01	0.00E-01
ZN 65	8.74E+03	2.47E+03	5.28E+03	1.41E+04	8.86E+03	0.00E-01	0.00E-01	0.00E-01
ZN 69	6.36E-16	4.34E-13	4.76E-15	6.89E-15	4.18E-15	0.00E-01	0.00E-01	0.00E-01
BR 83	5.78E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	2.33E-25	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	1.99E-32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	1.14E+04	1.19E+03	0.00E-01	1.85E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	3.35E-26	2.37E-27	0.00E-01	4.83E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	1.78E-26	1.75E-28	0.00E-01	2.00E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	2.91E+02	3.95E+02	1.02E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	4.09E+03	1.82E+03	2.03E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	2.01E-01	1.17E+01	5.31E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	1.05E-05	4.94E-03	2.61E-04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	6.44E-05	6.85E+00	2.40E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	1.95E-24	1.05E-19	5.36E-23	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	1.56E-03	7.78E+00	5.84E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	7.21E-10	7.28E-04	2.52E-08	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	1.07E-06	5.81E-01	3.90E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	1.10E-03	1.29E+00	5.64E-03	1.24E-03	1.77E-03	0.00E-01	0.00E-01	0.00E-01
ZR 97	3.96E-06	1.02E+00	4.65E-05	6.72E-06	9.64E-06	0.00E-01	0.00E-01	0.00E-01
NB 95	1.49E-01	3.86E+02	5.37E-01	2.09E-01	1.96E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	1.46E+02	4.90E+02	0.00E-01	5.92E+02	1.26E+03	0.00E-01	0.00E-01	0.00E-01
TC 99M	2.64E-02	9.05E-01	8.11E-04	1.59E-03	2.31E-02	0.00E-01	8.07E-04	0.00E-01
TC101	1.65E-27	4.13E-28	1.24E-28	1.30E-28	2.22E-27	0.00E-01	6.87E-29	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = ANIMAL DRINKING WATER--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	2.69E-03	1.81E-01	7.01E-03	0.00E-01	1.76E-02	0.00E-01	0.00E-01	0.00E-01
RU105	1.10E-07	1.98E-04	3.03E-07	0.00E-01	2.67E-06	0.00E-01	0.00E-01	0.00E-01
RU106	1.44E-02	1.80E+00	1.16E-01	0.00E-01	1.56E-01	0.00E-01	0.00E-01	0.00E-01
AG110M	1.44E+02	2.14E+04	2.66E+02	1.80E+02	3.35E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	1.47E+01	1.07E+02	1.10E+02	3.00E+01	0.00E-01	3.10E+01	0.00E-01	0.00E-01
TE127M	3.36E+01	2.29E+02	2.83E+02	7.63E+01	8.08E+02	6.78E+01	0.00E-01	0.00E-01
TE127	2.65E-02	4.83E+00	1.24E-01	3.33E-02	3.52E-01	8.56E-02	0.00E-01	0.00E-01
TE129M	7.20E+01	5.66E+02	4.64E+02	1.29E+02	1.36E+03	1.49E+02	0.00E-01	0.00E-01
TE129	6.06E-14	1.59E-11	2.55E-13	7.13E-14	7.47E-13	1.82E-13	0.00E-01	0.00E-01
TE131M	8.48E+00	3.23E+02	2.30E+01	7.97E+00	7.72E+01	1.64E+01	0.00E-01	0.00E-01
TE131	4.09E-28	7.21E-27	1.37E-27	4.19E-28	4.15E-27	1.05E-27	0.00E-01	0.00E-01
TE132	3.48E+01	2.90E+02	6.50E+01	2.88E+01	2.67E+02	4.19E+01	0.00E-01	0.00E-01
I 130	1.16E+01	1.05E+01	1.11E+01	2.24E+01	3.35E+01	2.47E+03	0.00E-01	0.00E-01
I 131	4.91E+02	7.70E+01	8.60E+02	8.65E+02	1.42E+03	2.86E+05	0.00E-01	0.00E-01
I 132	1.56E-05	3.99E-05	1.85E-05	3.39E-05	5.19E-05	1.57E-03	0.00E-01	0.00E-01
I 133	3.23E+01	3.44E+01	6.90E+01	8.53E+01	1.42E+02	1.59E+04	0.00E-01	0.00E-01
I 134	2.99E-16	4.30E-16	3.50E-16	6.49E-16	9.93E-16	1.49E-14	0.00E-01	0.00E-01
I 135	5.15E-01	8.29E-01	6.04E-01	1.09E+00	1.67E+00	9.61E+01	0.00E-01	0.00E-01
CS134	9.64E+03	2.46E+02	2.78E+04	4.57E+04	1.42E+04	0.00E-01	5.08E+03	0.00E-01
CS136	4.47E+03	2.43E+02	2.51E+03	6.91E+03	3.68E+03	0.00E-01	5.49E+02	0.00E-01
CS137	5.51E+03	2.34E+02	3.90E+04	3.73E+04	1.22E+04	0.00E-01	4.37E+03	0.00E-01
CS138	5.78E-26	4.20E-26	6.56E-26	9.12E-26	6.42E-26	0.00E-01	6.91E-27	0.00E-01
BA139	8.98E-13	1.79E-09	3.10E-11	1.65E-14	1.44E-14	0.00E-01	9.72E-15	0.00E-01
BA140	1.73E+01	1.50E+02	2.96E+02	2.59E-01	8.43E-02	0.00E-01	1.54E-01	0.00E-01
BA141	2.33E-29	4.08E-28	7.15E-28	4.01E-31	3.47E-31	0.00E-01	2.35E-30	0.00E-01
BA142	3.48E-30	8.13E-31	6.23E-29	4.48E-32	3.63E-32	0.00E-01	2.64E-32	0.00E-01
LA140	2.54E-05	2.10E+00	2.16E-04	7.55E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	6.89E-16	4.36E-10	6.91E-15	2.20E-15	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	2.80E-03	2.35E+01	3.78E-02	1.88E-02	8.26E-03	0.00E-01	0.00E-01	0.00E-01
CE143	1.96E-04	1.98E+01	2.49E-03	1.35E+00	5.67E-04	0.00E-01	0.00E-01	0.00E-01
CE144	1.10E-01	1.68E+02	2.06E+00	6.45E-01	3.57E-01	0.00E-01	0.00E-01	0.00E-01
PR143	8.73E-05	1.90E+00	1.76E-03	5.28E-04	2.86E-04	0.00E-01	0.00E-01	0.00E-01
PR144	2.54E-34	3.36E-30	5.05E-33	1.56E-33	8.26E-34	0.00E-01	0.00E-01	0.00E-01
ND147	7.65E-05	1.57E+00	1.22E-03	9.88E-04	5.42E-04	0.00E-01	0.00E-01	0.00E-01
W 187	1.37E-01	4.29E+01	5.15E-01	3.05E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	7.23E-06	7.61E-01	1.43E-04	1.03E-05	2.97E-05	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = ANIMAL DRINKING WATER--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.19E+00	1.19E+00	0.00E-01	1.19E+00	1.19E+00	1.19E+00	1.19E+00	0.00E-01
C 14	7.72E+01	7.72E+01	3.86E+02	7.72E+01	7.72E+01	7.72E+01	7.72E+01	0.00E-01
NA 24	4.24E-03	4.24E-08	4.24E-08	4.24E-08	4.24E-08	4.24E-08	4.24E-08	0.00E-01
P 32	5.70E+02	4.08E+02	1.48E+04	6.91E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	1.33E-02	7.05E-01	0.00E-01	0.00E-01	2.02E-03	7.38E-03	1.35E-02	0.00E-01
MN 54	2.24E+00	7.07E+00	0.00E-01	8.42E+00	2.36E+00	0.00E-01	0.00E-01	0.00E-01
MN 56	4.15E-28	2.66E-25	0.00E-01	1.84E-27	2.22E-27	0.00E-01	0.00E-01	0.00E-01
FE 55	7.67E+01	4.58E+01	4.67E+02	2.47E+02	0.00E-01	0.00E-01	1.40E+02	0.00E-01
FE 59	4.01E+02	8.38E+02	4.97E+02	8.04E+02	0.00E-01	0.00E-01	2.33E+02	0.00E-01
CO 58	6.06E+01	1.15E+02	0.00E-01	1.98E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	2.07E+02	3.89E+02	0.00E-01	7.02E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	9.97E+02	1.06E+02	2.93E+04	1.57E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	4.42E-26	9.28E-24	8.05E-25	7.58E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	4.52E-12	3.51E-10	0.00E-01	7.48E-12	1.81E-11	0.00E-01	0.00E-01	0.00E-01
ZN 65	6.62E+02	1.87E+02	3.99E+02	1.06E+03	6.70E+02	0.00E-01	0.00E-01	0.00E-01
ZN 69	7.61E-26	5.19E-25	5.70E-27	8.24E-27	5.00E-27	0.00E-01	0.00E-01	0.00E-01
BR 83	3.00E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	1.25E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	1.07E-33	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	6.25E+02	6.54E+01	0.00E-01	1.02E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	3.59E-27	2.53E-28	0.00E-01	5.17E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	1.90E-27	1.87E-29	0.00E-01	2.14E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	1.77E+01	2.40E+01	6.19E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	3.17E+02	1.41E+02	1.58E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	3.03E-16	1.77E-14	8.03E-15	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	1.51E-27	7.16E-25	3.78E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	2.89E-05	3.07E+00	1.08E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	2.49E-31	1.34E-26	6.84E-30	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	6.01E-02	2.99E+02	2.25E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	3.51E-30	3.55E-24	1.23E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	6.41E-18	3.48E-12	2.34E-16	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	6.39E-01	7.49E+02	3.27E+00	7.18E-01	1.03E+00	0.00E-01	0.00E-01	0.00E-01
ZR 97	5.57E-11	1.43E-05	6.53E-10	9.44E-11	1.36E-10	0.00E-01	0.00E-01	0.00E-01
NB 95	1.22E+00	3.14E+03	4.37E+00	1.70E+00	1.60E+00	0.00E-01	0.00E-01	0.00E-01
MO 99	1.72E-01	5.77E-01	0.00E-01	6.97E-01	1.49E+00	0.00E-01	0.00E-01	0.00E-01
TC 99M	1.06E-23	3.65E-22	3.27E-25	6.42E-25	9.32E-24	0.00E-01	3.26E-25	0.00E-01
TC101	2.73E-27	6.85E-28	2.06E-28	2.15E-28	3.67E-27	0.00E-01	1.14E-28	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = ANIMAL DRINKING WATER--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	8.12E+01	5.46E+03	2.11E+02	0.00E-01	5.32E+02	0.00E-01	0.00E-01	0.00E-01
RU105	7.21E-26	1.30E-22	1.99E-25	0.00E-01	1.75E-24	0.00E-01	0.00E-01	0.00E-01
RU106	5.78E+02	7.21E+04	4.64E+03	0.00E-01	6.26E+03	0.00E-01	0.00E-01	0.00E-01
AG110M	4.82E+00	7.16E+02	8.92E+00	6.02E+00	1.12E+01	0.00E-01	0.00E-01	0.00E-01
TE125M	9.48E+01	6.86E+02	7.11E+02	1.93E+02	0.00E-01	2.00E+02	0.00E-01	0.00E-01
TE127M	2.39E+02	1.63E+03	2.01E+03	5.42E+02	5.75E+03	4.82E+02	0.00E-01	0.00E-01
TE127	2.58E-15	4.70E-13	1.20E-14	3.24E-15	3.42E-14	8.32E-15	0.00E-01	0.00E-01
TE129M	3.96E+02	3.11E+03	2.55E+03	7.12E+02	7.49E+03	8.22E+02	0.00E-01	0.00E-01
TE129	1.21E-26	3.18E-24	5.11E-26	1.43E-26	1.50E-25	3.65E-26	0.00E-01	0.00E-01
TE131M	3.12E-03	1.19E-01	8.47E-03	2.93E-03	2.84E-02	6.03E-03	0.00E-01	0.00E-01
TE131	3.26E-27	5.75E-26	1.10E-26	3.34E-27	3.31E-26	8.38E-27	0.00E-01	0.00E-01
TE132	6.04E+00	5.03E+01	1.13E+01	5.00E+00	4.64E+01	7.28E+00	0.00E-01	0.00E-01
I 130	1.68E-11	1.53E-11	1.62E-11	3.27E-11	4.88E-11	3.60E-09	0.00E-01	0.00E-01
I 131	5.21E+00	8.16E-01	9.11E+00	9.17E+00	1.51E+01	3.03E+03	0.00E-01	0.00E-01
I 132	1.31E-26	3.34E-26	1.55E-26	2.84E-26	4.35E-26	1.32E-24	0.00E-01	0.00E-01
I 133	9.14E-07	9.73E-07	1.95E-06	2.41E-06	4.03E-06	4.49E-04	0.00E-01	0.00E-01
I 134	4.24E-27	6.10E-27	4.96E-27	9.20E-27	1.41E-26	2.12E-25	0.00E-01	0.00E-01
I 135	4.88E-22	7.87E-22	5.74E-22	1.03E-21	1.58E-21	9.14E-20	0.00E-01	0.00E-01
CS134	3.27E+02	8.36E+00	9.45E+02	1.55E+03	4.81E+02	0.00E-01	1.72E+02	0.00E-01
CS136	5.96E+01	3.24E+00	3.35E+01	9.21E+01	4.90E+01	0.00E-01	7.32E+00	0.00E-01
CS137	1.90E+02	8.06E+00	1.34E+03	1.29E+03	4.19E+02	0.00E-01	1.51E+02	0.00E-01
CS138	2.00E-27	1.45E-27	2.26E-27	3.15E-27	2.21E-27	0.00E-01	2.38E-28	0.00E-01
BA139	2.09E-28	4.16E-25	7.21E-27	3.85E-30	3.36E-30	0.00E-01	2.26E-30	0.00E-01
BA140	5.39E+00	4.68E+01	9.24E+01	8.09E-02	2.63E-02	0.00E-01	4.82E-02	0.00E-01
BA141	1.93E-29	3.38E-28	5.93E-28	3.32E-31	2.87E-31	0.00E-01	1.95E-30	0.00E-01
BA142	2.88E-30	6.73E-31	5.16E-29	3.71E-32	3.01E-32	0.00E-01	2.18E-32	0.00E-01
LA140	6.23E-08	5.15E-03	5.28E-07	1.85E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	6.01E-32	3.80E-26	6.02E-31	1.92E-31	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	2.37E-03	1.99E+01	3.20E-02	1.59E-02	6.99E-03	0.00E-01	0.00E-01	0.00E-01
CE143	2.90E-08	2.93E-03	3.69E-07	2.00E-04	8.39E-08	0.00E-01	0.00E-01	0.00E-01
CE144	1.31E-01	2.00E+02	2.44E+00	7.66E-01	4.24E-01	0.00E-01	0.00E-01	0.00E-01
PR143	3.39E-03	7.38E+01	6.84E-02	2.05E-02	1.11E-02	0.00E-01	0.00E-01	0.00E-01
PR144	2.47E-32	3.27E-28	4.91E-31	1.52E-31	8.04E-32	0.00E-01	0.00E-01	0.00E-01
ND147	1.70E-03	3.47E+01	2.71E-02	2.19E-02	1.20E-02	0.00E-01	0.00E-01	0.00E-01
W 187	1.35E-07	4.22E-05	5.07E-07	3.00E-07	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	1.51E-07	1.59E-02	3.00E-06	2.15E-07	6.22E-07	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = RIVER SHORELINE DEPOSITS

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	2.19E+00	2.19E+00	2.19E+00	2.19E+00	2.19E+00	2.19E+00	2.19E+00	2.54E+00
P 32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	8.55E-01	8.55E-01	8.55E-01	8.55E-01	8.55E-01	8.55E-01	8.55E-01	1.01E+00
MN 54	2.54E+02	2.54E+02	2.54E+02	2.54E+02	2.54E+02	2.54E+02	2.54E+02	2.98E+02
MN 56	1.61E-01	1.61E-01	1.61E-01	1.61E-01	1.61E-01	1.61E-01	1.61E-01	1.90E-01
FE 55	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	5.01E+01	5.01E+01	5.01E+01	5.01E+01	5.01E+01	5.01E+01	5.01E+01	5.88E+01
CO 58	6.98E+01	6.98E+01	6.98E+01	6.98E+01	6.98E+01	6.98E+01	6.98E+01	8.18E+01
CO 60	3.95E+03	3.95E+03	3.95E+03	3.95E+03	3.95E+03	3.95E+03	3.95E+03	4.65E+03
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	5.31E-02	5.31E-02	5.31E-02	5.31E-02	5.31E-02	5.31E-02	5.31E-02	6.17E-02
CU 64	1.11E-01	1.11E-01	1.11E-01	1.11E-01	1.11E-01	1.11E-01	1.11E-01	1.25E-01
ZN 65	1.37E+02	1.37E+02	1.37E+02	1.37E+02	1.37E+02	1.37E+02	1.37E+02	1.58E+02
ZN 69	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 83	8.70E-04	8.70E-04	8.70E-04	8.70E-04	8.70E-04	8.70E-04	8.70E-04	1.26E-03
BR 84	3.27E-02	3.27E-02	3.27E-02	3.27E-02	3.27E-02	3.27E-02	3.27E-02	3.81E-02
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	1.65E+00	1.65E+00	1.65E+00	1.65E+00	1.65E+00	1.65E+00	1.65E+00	1.89E+00
RB 88	4.83E-03	4.83E-03	4.83E-03	4.83E-03	4.83E-03	4.83E-03	4.83E-03	5.52E-03
RB 89	1.70E-02	1.70E-02	1.70E-02	1.70E-02	1.70E-02	1.70E-02	1.70E-02	2.04E-02
SR 89	3.97E-03	3.97E-03	3.97E-03	3.97E-03	3.97E-03	3.97E-03	3.97E-03	4.61E-03
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	3.91E-01	3.91E-01	3.91E-01	3.91E-01	3.91E-01	3.91E-01	3.91E-01	4.57E-01
SR 92	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.55E-01
Y 90	8.25E-04	8.25E-04	8.25E-04	8.25E-04	8.25E-04	8.25E-04	8.25E-04	9.76E-04
Y 91M	1.69E-02	1.69E-02	1.69E-02	1.69E-02	1.69E-02	1.69E-02	1.69E-02	1.96E-02
Y 91	1.97E-01	1.97E-01	1.97E-01	1.97E-01	1.97E-01	1.97E-01	1.97E-01	2.22E-01
Y 92	3.26E-02	3.26E-02	3.26E-02	3.26E-02	3.26E-02	3.26E-02	3.26E-02	3.87E-02
Y 93	3.34E-02	3.34E-02	3.34E-02	3.34E-02	3.34E-02	3.34E-02	3.34E-02	4.57E-02
ZR 95	4.51E+01	4.51E+01	4.51E+01	4.51E+01	4.51E+01	4.51E+01	4.51E+01	5.23E+01
ZR 97	5.41E-01	5.41E-01	5.41E-01	5.41E-01	5.41E-01	5.41E-01	5.41E-01	6.30E-01
NB 95	2.52E+01	2.52E+01	2.52E+01	2.52E+01	2.52E+01	2.52E+01	2.52E+01	2.96E+01
MO 99	7.33E-01	7.33E-01	7.33E-01	7.33E-01	7.33E-01	7.33E-01	7.33E-01	8.48E-01
TC 99M	3.34E-02	3.34E-02	3.34E-02	3.34E-02	3.34E-02	3.34E-02	3.34E-02	3.83E-02
TC101	2.79E-03	2.79E-03	2.79E-03	2.79E-03	2.79E-03	2.79E-03	2.79E-03	3.10E-03

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = RIVER SHORELINE DEPOSITS

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	1.99E+01	1.99E+01	1.99E+01	1.99E+01	1.99E+01	1.99E+01	1.99E+01	2.32E+01
RU105	1.15E-01	1.15E-01	1.15E-01	1.15E-01	1.15E-01	1.15E-01	1.15E-01	1.30E-01
RU106	7.75E+01	7.75E+01	7.75E+01	7.75E+01	7.75E+01	7.75E+01	7.75E+01	9.31E+01
AG110M	6.34E+02	6.34E+02	6.34E+02	6.34E+02	6.34E+02	6.34E+02	6.34E+02	7.39E+02
TE125M	2.86E-01	2.86E-01	2.86E-01	2.86E-01	2.86E-01	2.86E-01	2.86E-01	3.92E-01
TE127M	1.68E-02	1.68E-02	1.68E-02	1.68E-02	1.68E-02	1.68E-02	1.68E-02	1.99E-02
TE127	5.43E-04	5.43E-04	5.43E-04	5.43E-04	5.43E-04	5.43E-04	5.43E-04	5.97E-04
TE129M	3.63E+00	3.63E+00	3.63E+00	3.63E+00	3.63E+00	3.63E+00	3.63E+00	4.24E+00
TE129	4.54E-03	4.54E-03	4.54E-03	4.54E-03	4.54E-03	4.54E-03	4.54E-03	5.37E-03
TE131M	1.47E+00	1.47E+00	1.47E+00	1.47E+00	1.47E+00	1.47E+00	1.47E+00	1.73E+00
TE131	4.56E-03	4.56E-03	4.56E-03	4.56E-03	4.56E-03	4.56E-03	4.56E-03	5.38E+00
TE132	7.78E-01	7.78E-01	7.78E-01	7.78E-01	7.78E-01	7.78E-01	7.78E-01	9.15E-01
I 130	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.22E+00
I 131	3.16E+00	3.16E+00	3.16E+00	3.16E+00	3.16E+00	3.16E+00	3.16E+00	3.84E+00
I 132	2.22E-01	2.22E-01	2.22E-01	2.22E-01	2.22E-01	2.22E-01	2.22E-01	2.61E-01
I 133	4.49E-01	4.49E-01	4.49E-01	4.49E-01	4.49E-01	4.49E-01	4.49E-01	5.46E-01
I 134	7.57E-02	7.57E-02	7.57E-02	7.57E-02	7.57E-02	7.57E-02	7.57E-02	8.99E-02
I 135	4.58E-01	4.58E-01	4.58E-01	4.58E-01	4.58E-01	4.58E-01	4.58E-01	5.35E-01
CS134	1.26E+03	1.26E+03	1.26E+03	1.26E+03	1.26E+03	1.26E+03	1.26E+03	1.46E+03
CS136	2.76E+01	2.76E+01	2.76E+01	2.76E+01	2.76E+01	2.76E+01	2.76E+01	3.13E+01
CS137	1.89E+03	1.89E+03	1.89E+03	1.89E+03	1.89E+03	1.89E+03	1.89E+03	2.21E+03
CS138	5.81E-02	5.81E-02	5.81E-02	5.81E-02	5.81E-02	5.81E-02	5.81E-02	6.64E-02
BA139	1.84E-02	1.84E-02	1.84E-02	1.84E-02	1.84E-02	1.84E-02	1.84E-02	2.07E-02
BA140	3.77E+00	3.77E+00	3.77E+00	3.77E+00	3.77E+00	3.77E+00	3.77E+00	4.31E+00
BA141	6.11E-03	6.11E-03	6.11E-03	6.11E-03	6.11E-03	6.11E-03	6.11E-03	6.96E-03
BA142	5.59E-03	5.59E-03	5.59E-03	5.59E-03	5.59E-03	5.59E-03	5.59E-03	6.37E-03
LA140	3.53E+00	3.53E+00	3.53E+00	3.53E+00	3.53E+00	3.53E+00	3.53E+00	4.00E+00
LA142	1.29E-01	1.29E-01	1.29E-01	1.29E-01	1.29E-01	1.29E-01	1.29E-01	1.55E-01
CE141	2.51E+00	2.51E+00	2.51E+00	2.51E+00	2.51E+00	2.51E+00	2.51E+00	2.83E+00
CE143	4.26E-01	4.26E-01	4.26E-01	4.26E-01	4.26E-01	4.26E-01	4.26E-01	4.84E-01
CE144	1.28E+01	1.28E+01	1.28E+01	1.28E+01	1.28E+01	1.28E+01	1.28E+01	1.48E+01
PR143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR144	2.65E-04	2.65E-04	2.65E-04	2.65E-04	2.65E-04	2.65E-04	2.65E-04	3.04E-04
ND147	1.56E+00	1.56E+00	1.56E+00	1.56E+00	1.56E+00	1.56E+00	1.56E+00	1.87E+00
W 187	4.33E-01	4.33E-01	4.33E-01	4.33E-01	4.33E-01	4.33E-01	4.33E-01	5.02E-01
NP239	3.15E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01	3.64E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = SWIMMING

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	0.00E-01
P 32	8.99E-02	8.99E-02	8.99E-02	8.99E-02	8.99E-02	8.99E-02	8.99E-02	0.00E-01
CR 51	7.30E-01	7.30E-01	7.30E-01	7.30E-01	7.30E-01	7.30E-01	7.30E-01	0.00E-01
MN 54	2.11E+01	2.11E+01	2.11E+01	2.11E+01	2.11E+01	2.11E+01	2.11E+01	0.00E-01
MN 56	4.38E+01	4.38E+01	4.38E+01	4.38E+01	4.38E+01	4.38E+01	4.38E+01	0.00E-01
FE 55	8.99E-04	8.99E-04	8.99E-04	8.99E-04	8.99E-04	8.99E-04	8.99E-04	0.00E-01
FE 59	3.09E+01	3.09E+01	3.09E+01	3.09E+01	3.09E+01	3.09E+01	3.09E+01	0.00E-01
CO 58	2.53E+01	2.53E+01	2.53E+01	2.53E+01	2.53E+01	2.53E+01	2.53E+01	0.00E-01
CO 60	6.46E+01	6.46E+01	6.46E+01	6.46E+01	6.46E+01	6.46E+01	6.46E+01	0.00E-01
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	1.37E+01	1.37E+01	1.37E+01	1.37E+01	1.37E+01	1.37E+01	1.37E+01	0.00E-01
CU 64	5.17E+00	5.17E+00	5.17E+00	5.17E+00	5.17E+00	5.17E+00	5.17E+00	0.00E-01
ZN 65	1.55E+01	1.55E+01	1.55E+01	1.55E+01	1.55E+01	1.55E+01	1.55E+01	0.00E-01
ZN 69	2.09E-02	2.09E-02	2.09E-02	2.09E-02	2.09E-02	2.09E-02	2.09E-02	0.00E-01
BR 83	2.32E-01	2.32E-01	2.32E-01	2.32E-01	2.32E-01	2.32E-01	2.32E-01	0.00E-01
BR 84	4.32E+01	4.32E+01	4.32E+01	4.32E+01	4.32E+01	4.32E+01	4.32E+01	0.00E-01
BR 85	4.61E-02	4.61E-02	4.61E-02	4.61E-02	4.61E-02	4.61E-02	4.61E-02	0.00E-01
RB 86	2.39E+00	2.39E+00	2.39E+00	2.39E+00	2.39E+00	2.39E+00	2.39E+00	0.00E-01
RB 88	1.34E+01	1.34E+01	1.34E+01	1.34E+01	1.34E+01	1.34E+01	1.34E+01	0.00E-01
RB 89	4.81E+01	4.81E+01	4.81E+01	4.81E+01	4.81E+01	4.81E+01	4.81E+01	0.00E-01
SR 89	6.46E-02	6.46E-02	6.46E-02	6.46E-02	6.46E-02	6.46E-02	6.46E-02	0.00E-01
SR 90	7.59E-03	7.59E-03	7.59E-03	7.59E-03	7.59E-03	7.59E-03	7.59E-03	0.00E-01
SR 91	2.65E+01	2.65E+01	2.65E+01	2.65E+01	2.65E+01	2.65E+01	2.65E+01	0.00E-01
SR 92	3.56E+01	3.56E+01	3.56E+01	3.56E+01	3.56E+01	3.56E+01	3.56E+01	0.00E-01
Y 90	1.83E-01	1.83E-01	1.83E-01	1.83E-01	1.83E-01	1.83E-01	1.83E-01	0.00E-01
Y 91M	1.29E+01	1.29E+01	1.29E+01	1.29E+01	1.29E+01	1.29E+01	1.29E+01	0.00E-01
Y 91	9.41E-02	9.41E-02	9.41E-02	9.41E-02	9.41E-02	9.41E-02	9.41E-02	0.00E-01
Y 92	6.34E+00	6.34E+00	6.34E+00	6.34E+00	6.34E+00	6.34E+00	6.34E+00	0.00E-01
Y 93	2.65E+00	2.65E+00	2.65E+00	2.65E+00	2.65E+00	2.65E+00	2.65E+00	0.00E-01
ZR 95	2.11E+01	2.11E+01	2.11E+01	2.11E+01	2.11E+01	2.11E+01	2.11E+01	0.00E-01
ZR 97	2.10E+01	2.10E+01	2.10E+01	2.10E+01	2.10E+01	2.10E+01	2.10E+01	0.00E-01
NB 95	1.97E+01	1.97E+01	1.97E+01	1.97E+01	1.97E+01	1.97E+01	1.97E+01	0.00E-01
MO 99	6.60E+00	6.60E+00	6.60E+00	6.60E+00	6.60E+00	6.60E+00	6.60E+00	0.00E-01
TC 99M	3.33E+00	3.33E+00	3.33E+00	3.33E+00	3.33E+00	3.33E+00	3.33E+00	0.00E-01
TC101	7.13E+00	7.13E+00	7.13E+00	7.13E+00	7.13E+00	7.13E+00	7.13E+00	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = SWIMMING

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal//(Ci min)				
RU103	1.25E+01	1.25E+01	1.25E+01	1.25E+01	1.25E+01	1.25E+01	1.25E+01	0.00E-01
RU105	1.66E+01	1.66E+01	1.66E+01	1.66E+01	1.66E+01	1.66E+01	1.66E+01	0.00E-01
RU106	5.34E+00	5.34E+00	5.34E+00	5.34E+00	5.34E+00	5.34E+00	5.34E+00	0.00E-01
AG110M	6.88E+01	6.88E+01	6.88E+01	6.88E+01	6.88E+01	6.88E+01	6.88E+01	0.00E-01
TE125M	5.18E-02	5.18E-02	5.18E-02	5.18E-02	5.18E-02	5.18E-02	5.18E-02	0.00E-01
TE127M	3.65E-03	3.65E-03	3.65E-03	3.65E-03	3.65E-03	3.65E-03	3.65E-03	0.00E-01
TE127	3.91E-02	3.91E-02	3.91E-02	3.91E-02	3.91E-02	3.91E-02	3.91E-02	0.00E-01
TE129M	2.95E+00	2.95E+00	2.95E+00	2.95E+00	2.95E+00	2.95E+00	2.95E+00	0.00E-01
TE129	2.52E+00	2.52E+00	2.52E+00	2.52E+00	2.52E+00	2.52E+00	2.52E+00	0.00E-01
TE131M	3.08E+01	3.08E+01	3.08E+01	3.08E+01	3.08E+01	3.08E+01	3.08E+01	0.00E-01
TE131	8.81E+00	8.81E+00	8.81E+00	8.81E+00	8.81E+00	8.81E+00	8.81E+00	0.00E-01
TE132	5.61E+00	5.61E+00	5.61E+00	5.61E+00	5.61E+00	5.61E+00	5.61E+00	0.00E-01
I 130	5.45E+01	5.45E+01	5.45E+01	5.45E+01	5.45E+01	5.45E+01	5.45E+01	0.00E-01
I 131	1.10E+01	1.10E+01	1.10E+01	1.10E+01	1.10E+01	1.10E+01	1.10E+01	0.00E-01
I 132	6.00E+01	6.00E+01	6.00E+01	6.00E+01	6.00E+01	6.00E+01	6.00E+01	0.00E-01
I 133	1.34E+01	1.34E+01	1.34E+01	1.34E+01	1.34E+01	1.34E+01	1.34E+01	0.00E-01
I 134	5.45E+01	5.45E+01	5.45E+01	5.45E+01	5.45E+01	5.45E+01	5.45E+01	0.00E-01
I 135	4.59E+01	4.59E+01	4.59E+01	4.59E+01	4.59E+01	4.59E+01	4.59E+01	0.00E-01
CS134	4.07E+01	4.07E+01	4.07E+01	4.07E+01	4.07E+01	4.07E+01	4.07E+01	0.00E-01
CS136	5.76E+01	5.76E+01	5.76E+01	5.76E+01	5.76E+01	5.76E+01	5.76E+01	0.00E-01
CS137	1.41E+01	1.41E+01	1.41E+01	1.41E+01	1.41E+01	1.41E+01	1.41E+01	0.00E-01
CS138	4.94E+01	4.94E+01	4.94E+01	4.94E+01	4.94E+01	4.94E+01	4.94E+01	0.00E-01
BA139	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	0.00E-01
BA140	6.88E+00	6.88E+00	6.88E+00	6.88E+00	6.88E+00	6.88E+00	6.88E+00	0.00E-01
BA141	1.23E+01	1.23E+01	1.23E+01	1.23E+01	1.23E+01	1.23E+01	1.23E+01	0.00E-01
BA142	2.10E+01	2.10E+01	2.10E+01	2.10E+01	2.10E+01	2.10E+01	2.10E+01	0.00E-01
LA140	5.75E+01	5.75E+01	5.75E+01	5.75E+01	5.75E+01	5.75E+01	5.75E+01	0.00E-01
LA142	6.04E+01	6.04E+01	6.04E+01	6.04E+01	6.04E+01	6.04E+01	6.04E+01	0.00E-01
CE141	1.83E+00	1.83E+00	1.83E+00	1.83E+00	1.83E+00	1.83E+00	1.83E+00	0.00E-01
CE143	7.99E+00	7.99E+00	7.99E+00	7.99E+00	7.99E+00	7.99E+00	7.99E+00	0.00E-01
CE144	1.21E+00	1.21E+00	1.21E+00	1.21E+00	1.21E+00	1.21E+00	1.21E+00	0.00E-01
PR143	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.25E-02	0.00E-01
PR144	6.18E-01	6.18E-01	6.18E-01	6.18E-01	6.18E-01	6.18E-01	6.18E-01	0.00E-01
ND147	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	0.00E-01
W 187	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	0.00E-01
NP239	3.37E+00	3.37E+00	3.37E+00	3.37E+00	3.37E+00	3.37E+00	3.37E+00	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = BOATING

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	0.00E-01
P 32	8.35E-02	8.35E-02	8.35E-02	8.35E-02	8.35E-02	8.35E-02	8.35E-02	0.00E-01
CR 51	6.78E-01	6.78E-01	6.78E-01	6.78E-01	6.78E-01	6.78E-01	6.78E-01	0.00E-01
MN 54	1.96E+01	1.96E+01	1.96E+01	1.96E+01	1.96E+01	1.96E+01	1.96E+01	0.00E-01
MN 56	4.06E+01	4.06E+01	4.06E+01	4.06E+01	4.06E+01	4.06E+01	4.06E+01	0.00E-01
FE 55	8.35E-04	8.35E-04	8.35E-04	8.35E-04	8.35E-04	8.35E-04	8.35E-04	0.00E-01
FE 59	2.87E+01	2.87E+01	2.87E+01	2.87E+01	2.87E+01	2.87E+01	2.87E+01	0.00E-01
CO 58	2.35E+01	2.35E+01	2.35E+01	2.35E+01	2.35E+01	2.35E+01	2.35E+01	0.00E-01
CO 60	6.00E+01	6.00E+01	6.00E+01	6.00E+01	6.00E+01	6.00E+01	6.00E+01	0.00E-01
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	1.27E+01	1.27E+01	1.27E+01	1.27E+01	1.27E+01	1.27E+01	1.27E+01	0.00E-01
CU 64	4.80E+00	4.80E+00	4.80E+00	4.80E+00	4.80E+00	4.80E+00	4.80E+00	0.00E-01
ZN 65	1.44E+01	1.44E+01	1.44E+01	1.44E+01	1.44E+01	1.44E+01	1.44E+01	0.00E-01
ZN 69	1.94E-02	1.94E-02	1.94E-02	1.94E-02	1.94E-02	1.94E-02	1.94E-02	0.00E-01
BR 83	2.15E-01	2.15E-01	2.15E-01	2.15E-01	2.15E-01	2.15E-01	2.15E-01	0.00E-01
BR 84	4.01E+01	4.01E+01	4.01E+01	4.01E+01	4.01E+01	4.01E+01	4.01E+01	0.00E-01
BR 85	4.28E-02	4.28E-02	4.28E-02	4.28E-02	4.28E-02	4.28E-02	4.28E-02	0.00E-01
RB 86	2.22E+00	2.22E+00	2.22E+00	2.22E+00	2.22E+00	2.22E+00	2.22E+00	0.00E-01
RB 88	1.24E+01	1.24E+01	1.24E+01	1.24E+01	1.24E+01	1.24E+01	1.24E+01	0.00E-01
RB 89	4.47E+01	4.47E+01	4.47E+01	4.47E+01	4.47E+01	4.47E+01	4.47E+01	0.00E-01
SR 89	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	0.00E-01
SR 90	7.04E-03	7.04E-03	7.04E-03	7.04E-03	7.04E-03	7.04E-03	7.04E-03	0.00E-01
SR 91	2.46E+01	2.46E+01	2.46E+01	2.46E+01	2.46E+01	2.46E+01	2.46E+01	0.00E-01
SR 92	3.31E+01	3.31E+01	3.31E+01	3.31E+01	3.31E+01	3.31E+01	3.31E+01	0.00E-01
Y 90	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	0.00E-01
Y 91M	1.20E+01	1.20E+01	1.20E+01	1.20E+01	1.20E+01	1.20E+01	1.20E+01	0.00E-01
Y 91	8.74E-02	8.74E-02	8.74E-02	8.74E-02	8.74E-02	8.74E-02	8.74E-02	0.00E-01
Y 92	5.89E+00	5.89E+00	5.89E+00	5.89E+00	5.89E+00	5.89E+00	5.89E+00	0.00E-01
Y 93	2.46E+00	2.46E+00	2.46E+00	2.46E+00	2.46E+00	2.46E+00	2.46E+00	0.00E-01
ZR 95	1.96E+01	1.96E+01	1.96E+01	1.96E+01	1.96E+01	1.96E+01	1.96E+01	0.00E-01
ZR 97	1.95E+01	1.95E+01	1.95E+01	1.95E+01	1.95E+01	1.95E+01	1.95E+01	0.00E-01
NB 95	1.83E+01	1.83E+01	1.83E+01	1.83E+01	1.83E+01	1.83E+01	1.83E+01	0.00E-01
MO 99	6.12E+00	6.12E+00	6.12E+00	6.12E+00	6.12E+00	6.12E+00	6.12E+00	0.00E-01
TC 99M	3.10E+00	3.10E+00	3.10E+00	3.10E+00	3.10E+00	3.10E+00	3.10E+00	0.00E-01
TC101	6.62E+00	6.62E+00	6.62E+00	6.62E+00	6.62E+00	6.62E+00	6.62E+00	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = CHILD
PATHWAY = BOATING

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	0.00E-01
RU105	1.54E+01	1.54E+01	1.54E+01	1.54E+01	1.54E+01	1.54E+01	1.54E+01	0.00E-01
RU106	4.96E+00	4.96E+00	4.96E+00	4.96E+00	4.96E+00	4.96E+00	4.96E+00	0.00E-01
AG110M	6.39E+01	6.39E+01	6.39E+01	6.39E+01	6.39E+01	6.39E+01	6.39E+01	0.00E-01
TE125M	4.81E-02	4.81E-02	4.81E-02	4.81E-02	4.81E-02	4.81E-02	4.81E-02	0.00E-01
TE127M	3.39E-03	3.39E-03	3.39E-03	3.39E-03	3.39E-03	3.39E-03	3.39E-03	0.00E-01
TE127	3.63E-02	3.63E-02	3.63E-02	3.63E-02	3.63E-02	3.63E-02	3.63E-02	0.00E-01
TE129M	2.74E+00	2.74E+00	2.74E+00	2.74E+00	2.74E+00	2.74E+00	2.74E+00	0.00E-01
TE129	2.34E+00	2.34E+00	2.34E+00	2.34E+00	2.34E+00	2.34E+00	2.34E+00	0.00E-01
TE131M	2.86E+01	2.86E+01	2.86E+01	2.86E+01	2.86E+01	2.86E+01	2.86E+01	0.00E-01
TE131	8.18E+00	8.18E+00	8.18E+00	8.18E+00	8.18E+00	8.18E+00	8.18E+00	0.00E-01
TE132	5.21E+00	5.21E+00	5.21E+00	5.21E+00	5.21E+00	5.21E+00	5.21E+00	0.00E-01
I 130	5.06E+01	5.06E+01	5.06E+01	5.06E+01	5.06E+01	5.06E+01	5.06E+01	0.00E-01
I 131	1.02E+01	1.02E+01	1.02E+01	1.02E+01	1.02E+01	1.02E+01	1.02E+01	0.00E-01
I 132	5.57E+01	5.57E+01	5.57E+01	5.57E+01	5.57E+01	5.57E+01	5.57E+01	0.00E-01
I 133	1.25E+01	1.25E+01	1.25E+01	1.25E+01	1.25E+01	1.25E+01	1.25E+01	0.00E-01
I 134	5.06E+01	5.06E+01	5.06E+01	5.06E+01	5.06E+01	5.06E+01	5.06E+01	0.00E-01
I 135	4.26E+01	4.26E+01	4.26E+01	4.26E+01	4.26E+01	4.26E+01	4.26E+01	0.00E-01
CS134	3.78E+01	3.78E+01	3.78E+01	3.78E+01	3.78E+01	3.78E+01	3.78E+01	0.00E-01
CS136	5.35E+01	5.35E+01	5.35E+01	5.35E+01	5.35E+01	5.35E+01	5.35E+01	0.00E-01
CS137	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	0.00E-01
CS138	4.59E+01	4.59E+01	4.59E+01	4.59E+01	4.59E+01	4.59E+01	4.59E+01	0.00E-01
BA139	9.55E-01	9.55E-01	9.55E-01	9.55E-01	9.55E-01	9.55E-01	9.55E-01	0.00E-01
BA140	6.39E+00	6.39E+00	6.39E+00	6.39E+00	6.39E+00	6.39E+00	6.39E+00	0.00E-01
BA141	1.14E+01	1.14E+01	1.14E+01	1.14E+01	1.14E+01	1.14E+01	1.14E+01	0.00E-01
BA142	1.95E+01	1.95E+01	1.95E+01	1.95E+01	1.95E+01	1.95E+01	1.95E+01	0.00E-01
LA140	5.34E+01	5.34E+01	5.34E+01	5.34E+01	5.34E+01	5.34E+01	5.34E+01	0.00E-01
LA142	5.61E+01	5.61E+01	5.61E+01	5.61E+01	5.61E+01	5.61E+01	5.61E+01	0.00E-01
CE141	1.70E+00	1.70E+00	1.70E+00	1.70E+00	1.70E+00	1.70E+00	1.70E+00	0.00E-01
CE143	7.42E+00	7.42E+00	7.42E+00	7.42E+00	7.42E+00	7.42E+00	7.42E+00	0.00E-01
CE144	1.12E+00	1.12E+00	1.12E+00	1.12E+00	1.12E+00	1.12E+00	1.12E+00	0.00E-01
PR143	2.09E-02	2.09E-02	2.09E-02	2.09E-02	2.09E-02	2.09E-02	2.09E-02	0.00E-01
PR144	5.74E-01	5.74E-01	5.74E-01	5.74E-01	5.74E-01	5.74E-01	5.74E-01	0.00E-01
ND147	3.65E+00	3.65E+00	3.65E+00	3.65E+00	3.65E+00	3.65E+00	3.65E+00	0.00E-01
W 187	1.08E+01	1.08E+01	1.08E+01	1.08E+01	1.08E+01	1.08E+01	1.08E+01	0.00E-01
NP239	3.13E+00	3.13E+00	3.13E+00	3.13E+00	3.13E+00	3.13E+00	3.13E+00	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = POTABLE WATER

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	2.91E+01	2.91E+01	0.00E-01	2.91E+01	2.91E+01	2.91E+01	2.91E+01	0.00E-01
C 14	8.38E+02	8.38E+02	3.92E+03	8.38E+02	8.38E+02	8.38E+02	8.38E+02	0.00E-01
NA 24	5.53E+02	5.53E+02	5.53E+02	5.53E+02	5.53E+02	5.53E+02	5.53E+02	0.00E-01
P 32	1.04E+04	3.63E+03	2.68E+05	1.58E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	2.28E+00	6.64E+01	0.00E-01	0.00E-01	3.25E-01	1.49E+00	2.89E+00	0.00E-01
MN 54	7.45E+02	1.21E+03	0.00E-01	3.29E+03	7.29E+02	0.00E-01	0.00E-01	0.00E-01
MN 56	3.58E-02	1.89E+01	0.00E-01	2.08E-01	1.79E-01	0.00E-01	0.00E-01	0.00E-01
FE 55	3.97E+02	1.89E+02	2.30E+03	1.49E+03	0.00E-01	0.00E-01	7.26E+02	0.00E-01
FE 59	3.46E+03	4.19E+03	5.02E+03	8.77E+03	0.00E-01	0.00E-01	2.59E+03	0.00E-01
CO 58	1.47E+03	1.47E+03	0.00E-01	5.90E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	4.22E+03	4.25E+03	0.00E-01	1.79E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	3.64E+03	3.23E+02	1.05E+05	6.49E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	5.45E-02	9.11E+00	1.06E+00	1.20E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	1.26E+01	5.57E+02	0.00E-01	2.71E+01	4.59E+01	0.00E-01	0.00E-01	0.00E-01
ZN 65	4.80E+03	8.80E+03	3.04E+03	1.04E+04	5.05E+03	0.00E-01	0.00E-01	0.00E-01
ZN 69	5.00E-08	5.48E-05	3.73E-07	6.72E-07	2.79E-07	0.00E-01	0.00E-01	0.00E-01
BR 83	5.73E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	1.34E+04	6.94E+02	0.00E-01	2.71E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	1.18E+04	8.43E+03	4.10E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	9.50E+04	3.82E+04	4.69E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	5.19E+01	1.70E+03	1.43E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	2.56E-01	7.43E+01	6.89E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	2.98E-01	1.53E+04	1.11E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	4.93E+00	1.33E+04	1.85E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	3.29E-04	2.24E+02	1.17E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	2.11E-02	6.10E+03	7.73E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	5.83E+00	4.09E+03	3.37E+01	8.22E+00	8.86E+00	0.00E-01	0.00E-01	0.00E-01
ZR 97	7.17E-02	1.00E+04	9.15E-01	1.57E-01	1.58E-01	0.00E-01	0.00E-01	0.00E-01
NB 95	1.62E+00	2.37E+03	6.82E+00	2.81E+00	2.01E+00	0.00E-01	0.00E-01	0.00E-01
MO 99	8.53E+02	1.44E+03	0.00E-01	4.37E+03	6.54E+03	0.00E-01	0.00E-01	0.00E-01
TC 99M	5.32E-01	1.20E+01	2.00E-02	4.13E-02	4.44E-01	0.00E-01	2.16E-02	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = POTABLE WATER

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	8.05E+01	2.93E+03	2.41E+02	0.00E-01	5.01E+02	0.00E-01	0.00E-01	0.00E-01
RU105	1.78E-01	2.11E+02	5.30E-01	0.00E-01	3.89E+00	0.00E-01	0.00E-01	0.00E-01
RU106	4.97E+02	3.02E+04	3.98E+03	0.00E-01	4.71E+03	0.00E-01	0.00E-01	0.00E-01
AG110M	7.94E+01	6.23E+03	1.64E+02	1.20E+02	1.72E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	5.15E+02	1.82E+03	3.81E+03	1.27E+03	0.00E-01	1.28E+03	0.00E-01	0.00E-01
TE127M	1.16E+03	3.88E+03	9.63E+03	3.19E+03	2.37E+04	2.78E+03	0.00E-01	0.00E-01
TE127	6.01E+00	5.86E+02	2.79E+01	9.36E+00	6.82E+01	2.27E+01	0.00E-01	0.00E-01
TE129M	2.50E+03	9.68E+03	1.62E+04	5.56E+03	4.05E+04	6.23E+03	0.00E-01	0.00E-01
TE129	6.48E-06	2.22E-03	2.78E-05	9.57E-06	6.91E-05	2.33E-05	0.00E-01	0.00E-01
TE131M	4.80E+02	9.79E+03	1.44E+03	5.82E+02	4.00E+03	1.18E+03	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	1.29E+03	5.10E+03	2.78E+03	1.38E+03	8.62E+03	2.03E+03	0.00E-01	0.00E-01
I 130	2.28E+02	1.22E+02	2.58E+02	5.68E+02	6.24E+02	6.37E+04	0.00E-01	0.00E-01
I 131	2.83E+03	2.29E+02	5.45E+03	6.43E+03	7.50E+03	2.11E+06	0.00E-01	0.00E-01
I 132	1.44E-01	3.27E-01	1.99E-01	4.04E-01	4.50E-01	1.89E+01	0.00E-01	0.00E-01
I 133	3.97E+02	2.29E+02	9.31E+02	1.35E+03	1.59E+03	2.46E+05	0.00E-01	0.00E-01
I 134	5.83E-07	1.69E-06	8.00E-07	1.64E-06	1.83E-06	3.82E-05	0.00E-01	0.00E-01
I 135	3.51E+01	3.48E+01	4.84E+01	9.62E+01	1.07E+02	8.62E+03	0.00E-01	0.00E-01
CS134	1.17E+04	3.16E+02	6.24E+04	1.16E+05	2.99E+04	0.00E-01	1.23E+04	0.00E-01
CS136	7.92E+03	3.22E+02	7.21E+03	2.12E+04	8.45E+03	0.00E-01	1.73E+03	0.00E-01
CS137	7.17E+03	3.16E+02	8.64E+04	1.01E+05	2.72E+04	0.00E-01	1.10E+04	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	2.36E-05	5.16E-02	8.14E-04	5.40E-07	3.24E-07	0.00E-01	3.27E-07	0.00E-01
BA140	1.38E+03	6.59E+03	2.68E+04	2.68E+01	6.37E+00	0.00E-01	1.65E+01	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	2.35E-01	1.07E+04	2.31E+00	9.12E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	3.27E-07	2.32E-01	3.72E-06	1.37E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	9.16E-01	4.02E+03	1.28E+01	7.78E+00	2.40E+00	0.00E-01	0.00E-01	0.00E-01
CE143	1.12E-01	5.74E+03	1.48E+00	9.84E+02	2.87E-01	0.00E-01	0.00E-01	0.00E-01
CE144	2.76E+01	2.82E+04	4.92E+02	2.01E+02	8.14E+01	0.00E-01	0.00E-01	0.00E-01
PR143	6.34E-01	6.75E+03	1.28E+01	4.78E+00	1.78E+00	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	5.41E-01	5.60E+03	8.60E+00	8.84E+00	3.41E+00	0.00E-01	0.00E-01	0.00E-01
W 187	1.79E+01	3.05E+03	7.46E+01	5.19E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	6.93E-02	3.54E+03	1.37E+00	1.23E-01	2.44E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = FRESH WATER FISH

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
P 32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 54	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 56	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 55	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 58	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 69	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 83	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 97	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NB 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC 99M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = FRESH WATER FISH

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU105	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU106	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AG110M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE125M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 130	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS136	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
W 187	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = FRESH WATER INVERTEBRATES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
P 32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 54	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 56	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 55	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 58	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 69	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 83	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 97	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NB 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC 99M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = FRESH WATER INVERTEBRATES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU105	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU106	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AG110M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE125M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 130	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS136	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
W 187	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = IRRIGATED FRESH LEAFY VEGETABLES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
P 32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 54	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 56	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 55	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 58	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 69	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 83	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 97	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NB 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC 99M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = IRRIGATED FRESH LEAFY VEGETABLES

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU105	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU106	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AG110M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE125M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 130	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS136	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
W 187	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = IRRIGATED STORED FRUIT, VEGETABLES, GRAIN

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
P 32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 54	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 56	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 55	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 58	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 69	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 83	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 97	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NB 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC 99M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = IRRIGATED STORED FRUIT, VEGETABLES, GRAIN

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU105	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU106	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AG110M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE125M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 130	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS136	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
W 187	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = IRRIGATED FRESH FORAGE--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.32E+01	1.32E+01	0.00E-01	1.32E+01	1.32E+01	1.32E+01	1.32E+01	0.00E-01
C 14	6.12E+04	6.12E+04	2.87E+05	6.12E+04	6.12E+04	6.12E+04	6.12E+04	0.00E-01
NA 24	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	0.00E-01
P 32	1.43E+05	5.00E+04	3.69E+06	2.17E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	3.48E+00	1.01E+02	0.00E-01	0.00E-01	4.96E-01	2.27E+00	4.42E+00	0.00E-01
MN 54	1.69E+02	2.74E+02	0.00E-01	7.46E+02	1.65E+02	0.00E-01	0.00E-01	0.00E-01
MN 56	9.56E-08	5.04E-05	0.00E-01	5.54E-07	4.76E-07	0.00E-01	0.00E-01	0.00E-01
FE 55	4.39E+02	2.09E+02	2.54E+03	1.64E+03	0.00E-01	0.00E-01	8.04E+02	0.00E-01
FE 59	3.20E+03	3.88E+03	4.65E+03	8.13E+03	0.00E-01	0.00E-01	2.40E+03	0.00E-01
CO 58	1.22E+03	1.22E+03	0.00E-01	4.88E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	3.92E+03	3.96E+03	0.00E-01	1.66E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	2.31E+04	2.05E+03	6.66E+05	4.12E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	3.37E-06	5.64E-04	6.55E-05	7.41E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	1.96E+00	8.67E+01	0.00E-01	4.22E+00	7.14E+00	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.73E+05	3.16E+05	1.09E+05	3.75E+05	1.82E+05	0.00E-01	0.00E-01	0.00E-01
ZN 69	7.68E-17	8.41E-14	5.73E-16	1.03E-15	4.29E-16	0.00E-01	0.00E-01	0.00E-01
BR 83	1.74E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	1.42E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	1.20E-34	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	2.46E+05	1.28E+04	0.00E-01	4.99E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	1.23E-27	2.19E-27	0.00E-01	2.24E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	5.11E-28	2.53E-28	0.00E-01	7.42E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	7.54E+03	5.40E+03	2.63E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	1.30E+05	5.25E+04	6.43E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	2.21E-01	7.23E+00	6.11E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	3.32E-06	9.63E-04	8.93E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	4.38E-04	2.26E+01	1.63E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	1.90E-25	1.86E-20	5.59E-24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	3.97E-02	1.07E+02	1.49E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	3.15E-10	2.14E-04	1.12E-08	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	1.32E-06	3.83E-01	4.85E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	2.38E-02	1.67E+01	1.38E-01	3.36E-02	3.62E-02	0.00E-01	0.00E-01	0.00E-01
ZR 97	7.40E-06	1.03E+00	9.44E-05	1.62E-05	1.63E-05	0.00E-01	0.00E-01	0.00E-01
NB 95	2.99E+00	4.37E+03	1.26E+01	5.18E+00	3.71E+00	0.00E-01	0.00E-01	0.00E-01
MO 99	9.71E+02	1.64E+03	0.00E-01	4.98E+03	7.44E+03	0.00E-01	0.00E-01	0.00E-01
TC 99M	1.58E-02	3.56E-01	5.95E-04	1.23E-03	1.32E-02	0.00E-01	6.41E-04	0.00E-01
TC101	4.63E-29	7.96E-28	3.72E-30	4.68E-30	5.57E-29	0.00E-01	2.55E-30	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = IRRIGATED FRESH FORAGE--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	6.08E-02	2.21E+00	1.82E-01	0.00E-01	3.78E-01	0.00E-01	0.00E-01	0.00E-01
RU105	5.62E-08	6.64E-05	1.67E-07	0.00E-01	1.23E-06	0.00E-01	0.00E-01	0.00E-01
RU106	4.54E-01	2.76E+01	3.64E+00	0.00E-01	4.30E+00	0.00E-01	0.00E-01	0.00E-01
AG110M	3.61E+03	2.83E+05	7.47E+03	5.45E+03	7.80E+03	0.00E-01	0.00E-01	0.00E-01
TE125M	4.25E+02	1.50E+03	3.14E+03	1.05E+03	0.00E-01	1.06E+03	0.00E-01	0.00E-01
TE127M	1.04E+03	3.48E+03	8.62E+03	2.86E+03	2.12E+04	2.49E+03	0.00E-01	0.00E-01
TE127	3.07E-02	3.00E+00	1.43E-01	4.79E-02	3.49E-01	1.16E-01	0.00E-01	0.00E-01
TE129M	1.85E+03	7.16E+03	1.20E+04	4.12E+03	3.00E+04	4.61E+03	0.00E-01	0.00E-01
TE129	8.74E-15	2.99E-12	3.74E-14	1.29E-14	9.32E-14	3.14E-14	0.00E-01	0.00E-01
TE131M	2.67E+01	5.44E+02	8.02E+01	3.23E+01	2.22E+02	6.54E+01	0.00E-01	0.00E-01
TE131	2.04E-29	2.94E-27	7.27E-29	2.69E-29	1.86E-28	6.49E-29	0.00E-01	0.00E-01
TE132	2.35E+02	9.32E+02	5.09E+02	2.52E+02	1.58E+03	3.72E+02	0.00E-01	0.00E-01
I 130	1.43E+01	7.64E+00	1.62E+01	3.57E+01	3.92E+01	4.00E+03	0.00E-01	0.00E-01
I 131	6.68E+03	5.42E+02	1.29E+04	1.52E+04	1.77E+04	4.99E+06	0.00E-01	0.00E-01
I 132	3.77E-06	8.58E-06	5.22E-06	1.06E-05	1.18E-05	4.97E-04	0.00E-01	0.00E-01
I 133	7.27E+01	4.20E+01	1.70E+02	2.48E+02	2.92E+02	4.51E+04	0.00E-01	0.00E-01
I 134	2.75E-17	7.99E-17	3.77E-17	7.73E-17	8.64E-17	1.80E-15	0.00E-01	0.00E-01
I 135	3.52E-01	3.49E-01	4.85E-01	9.65E-01	1.08E+00	8.65E+01	0.00E-01	0.00E-01
CS134	1.30E+05	3.49E+03	6.90E+05	1.29E+06	3.31E+05	0.00E-01	1.36E+05	0.00E-01
CS136	4.98E+04	2.03E+03	4.54E+04	1.33E+05	5.32E+04	0.00E-01	1.09E+04	0.00E-01
CS137	8.06E+04	3.56E+03	9.72E+05	1.14E+06	3.05E+05	0.00E-01	1.24E+05	0.00E-01
CS138	3.49E-27	1.15E-26	4.43E-27	7.21E-27	3.59E-27	0.00E-01	5.61E-28	0.00E-01
BA139	1.56E-13	3.41E-10	5.38E-12	3.57E-15	2.14E-15	0.00E-01	2.16E-15	0.00E-01
BA140	2.87E+02	1.37E+03	5.56E+03	5.56E+00	1.32E+00	0.00E-01	3.42E+00	0.00E-01
BA141	8.70E-31	3.37E-28	2.76E-29	1.89E-32	1.14E-32	0.00E-01	1.15E-32	0.00E-01
BA142	6.86E-32	5.75E-30	1.39E-30	1.16E-33	6.67E-34	0.00E-01	7.01E-34	0.00E-01
LA140	9.81E-05	4.48E+00	9.68E-04	3.81E-04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	1.17E-16	8.27E-11	1.33E-15	4.87E-16	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	6.63E-02	2.91E+02	9.23E-01	5.63E-01	1.74E-01	0.00E-01	0.00E-01	0.00E-01
CE143	7.18E-04	3.67E+01	9.49E-03	6.30E+00	1.83E-03	0.00E-01	0.00E-01	0.00E-01
CE144	2.49E+00	2.55E+03	4.44E+01	1.82E+01	7.35E+00	0.00E-01	0.00E-01	0.00E-01
PR143	1.69E-03	1.80E+01	3.42E-02	1.28E-02	4.75E-03	0.00E-01	0.00E-01	0.00E-01
PR144	9.26E-36	3.31E-30	1.84E-34	7.11E-35	2.58E-35	0.00E-01	0.00E-01	0.00E-01
ND147	1.30E-03	1.35E+01	2.07E-02	2.12E-02	8.19E-03	0.00E-01	0.00E-01	0.00E-01
W 187	3.47E-01	5.90E+01	1.44E+00	1.00E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	4.42E-05	2.26E+00	8.75E-04	7.83E-05	1.56E-04	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = IRRIGATED FRESH FORAGE--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
P 32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 54	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 56	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 55	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 58	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 69	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 83	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 97	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NB 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC 99M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = IRRIGATED FRESH FORAGE--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU105	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU106	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AG110M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE125M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 130	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS136	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
W 187	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = IRRIGATED STORED FEED--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.32E+01	1.32E+01	0.00E-01	1.32E+01	1.32E+01	1.32E+01	1.32E+01	0.00E-01
C 14	6.33E+04	6.33E+04	2.96E+05	6.33E+04	6.33E+04	6.33E+04	6.33E+04	0.00E-01
NA 24	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	0.00E-01
P 32	1.51E+05	5.26E+04	3.89E+06	2.29E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	3.85E+00	1.12E+02	0.00E-01	0.00E-01	5.49E-01	2.51E+00	4.89E+00	0.00E-01
MN 54	2.05E+02	3.32E+02	0.00E-01	9.03E+02	2.00E+02	0.00E-01	0.00E-01	0.00E-01
MN 56	9.56E-08	5.04E-05	0.00E-01	5.54E-07	4.76E-07	0.00E-01	0.00E-01	0.00E-01
FE 55	5.37E+02	2.55E+02	3.11E+03	2.01E+03	0.00E-01	0.00E-01	9.82E+02	0.00E-01
FE 59	3.66E+03	4.44E+03	5.32E+03	9.28E+03	0.00E-01	0.00E-01	2.74E+03	0.00E-01
CO 58	1.42E+03	1.42E+03	0.00E-01	5.70E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	4.80E+03	4.84E+03	0.00E-01	2.03E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	2.82E+04	2.50E+03	8.14E+05	5.03E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	3.37E-06	5.64E-04	6.55E-05	7.41E-06	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	1.96E+00	8.67E+01	0.00E-01	4.22E+00	7.14E+00	0.00E-01	0.00E-01	0.00E-01
ZN 65	2.08E+05	3.81E+05	1.31E+05	4.51E+05	2.18E+05	0.00E-01	0.00E-01	0.00E-01
ZN 69	7.68E-17	8.41E-14	5.73E-16	1.03E-15	4.29E-16	0.00E-01	0.00E-01	0.00E-01
BR 83	1.74E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	1.42E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	1.20E-34	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	2.65E+05	1.37E+04	0.00E-01	5.36E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	1.23E-27	2.19E-27	0.00E-01	2.24E-27	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	5.11E-28	2.53E-28	0.00E-01	7.42E-28	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	8.65E+03	6.20E+03	3.01E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	1.46E+05	5.89E+04	7.22E+06	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	2.21E-01	7.23E+00	6.11E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	3.32E-06	9.63E-04	8.93E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	4.38E-04	2.26E+01	1.63E-02	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	1.90E-25	1.86E-20	5.59E-24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	4.60E-02	1.24E+02	1.73E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	3.15E-10	2.14E-04	1.12E-08	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	1.32E-06	3.83E-01	4.85E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	2.77E-02	1.95E+01	1.60E-01	3.91E-02	4.21E-02	0.00E-01	0.00E-01	0.00E-01
ZR 97	7.40E-06	1.03E+00	9.44E-05	1.62E-05	1.63E-05	0.00E-01	0.00E-01	0.00E-01
NB 95	3.37E+00	4.92E+03	1.41E+01	5.82E+00	4.18E+00	0.00E-01	0.00E-01	0.00E-01
MO 99	9.71E+02	1.64E+03	0.00E-01	4.98E+03	7.44E+03	0.00E-01	0.00E-01	0.00E-01
TC 99M	1.58E-02	3.56E-01	5.95E-04	1.23E-03	1.32E-02	0.00E-01	6.41E-04	0.00E-01
TC101	4.63E-29	7.96E-28	3.72E-30	4.68E-30	5.57E-29	0.00E-01	2.55E-30	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = IRRIGATED STORED FEED--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	6.89E-02	2.51E+00	2.06E-01	0.00E-01	4.29E-01	0.00E-01	0.00E-01	0.00E-01
RU105	5.62E-08	6.64E-05	1.67E-07	0.00E-01	1.23E-06	0.00E-01	0.00E-01	0.00E-01
RU106	5.51E-01	3.35E+01	4.41E+00	0.00E-01	5.22E+00	0.00E-01	0.00E-01	0.00E-01
AG110M	4.35E+03	3.41E+05	9.01E+03	6.58E+03	9.41E+03	0.00E-01	0.00E-01	0.00E-01
TE125M	4.90E+02	1.73E+03	3.63E+03	1.21E+03	0.00E-01	1.22E+03	0.00E-01	0.00E-01
TE127M	1.23E+03	4.10E+03	1.02E+04	3.37E+03	2.50E+04	2.94E+03	0.00E-01	0.00E-01
TE127	3.07E-02	3.00E+00	1.43E-01	4.79E-02	3.49E-01	1.16E-01	0.00E-01	0.00E-01
TE129M	2.07E+03	8.02E+03	1.34E+04	4.61E+03	3.36E+04	5.16E+03	0.00E-01	0.00E-01
TE129	8.74E-15	2.99E-12	3.74E-14	1.29E-14	9.32E-14	3.14E-14	0.00E-01	0.00E-01
TE131M	2.67E+01	5.44E+02	8.02E+01	3.23E+01	2.22E+02	6.54E+01	0.00E-01	0.00E-01
TE131	2.04E-29	2.94E-27	7.27E-29	2.69E-29	1.86E-28	6.49E-29	0.00E-01	0.00E-01
TE132	2.35E+02	9.33E+02	5.09E+02	2.52E+02	1.58E+03	3.72E+02	0.00E-01	0.00E-01
I 130	1.43E+01	7.64E+00	1.62E+01	3.57E+01	3.92E+01	4.00E+03	0.00E-01	0.00E-01
I 131	6.79E+03	5.52E+02	1.31E+04	1.54E+04	1.80E+04	5.08E+06	0.00E-01	0.00E-01
I 132	3.77E-06	8.58E-06	5.22E-06	1.06E-05	1.18E-05	4.97E-04	0.00E-01	0.00E-01
I 133	7.27E+01	4.20E+01	1.70E+02	2.48E+02	2.92E+02	4.51E+04	0.00E-01	0.00E-01
I 134	2.75E-17	7.99E-17	3.77E-17	7.73E-17	8.64E-17	1.80E-15	0.00E-01	0.00E-01
I 135	3.52E-01	3.49E-01	4.85E-01	9.65E-01	1.08E+00	8.65E+01	0.00E-01	0.00E-01
CS134	1.58E+05	4.26E+03	8.41E+05	1.57E+06	4.04E+05	0.00E-01	1.66E+05	0.00E-01
CS136	5.22E+04	2.12E+03	4.75E+04	1.40E+05	5.57E+04	0.00E-01	1.14E+04	0.00E-01
CS137	9.87E+04	4.35E+03	1.19E+06	1.39E+06	3.74E+05	0.00E-01	1.51E+05	0.00E-01
CS138	3.49E-27	1.15E-26	4.43E-27	7.21E-27	3.59E-27	0.00E-01	5.61E-28	0.00E-01
BA139	1.56E-13	3.41E-10	5.38E-12	3.57E-15	2.14E-15	0.00E-01	2.16E-15	0.00E-01
BA140	2.99E+02	1.43E+03	5.81E+03	5.81E+00	1.38E+00	0.00E-01	3.57E+00	0.00E-01
BA141	8.70E-31	3.37E-28	2.76E-29	1.89E-32	1.14E-32	0.00E-01	1.15E-32	0.00E-01
BA142	6.86E-32	5.75E-30	1.39E-30	1.16E-33	6.67E-34	0.00E-01	7.01E-34	0.00E-01
LA140	9.81E-05	4.48E+00	9.68E-04	3.81E-04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	1.17E-16	8.27E-11	1.33E-15	4.87E-16	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	7.42E-02	3.26E+02	1.03E+00	6.30E-01	1.94E-01	0.00E-01	0.00E-01	0.00E-01
CE143	7.18E-04	3.67E+01	9.49E-03	6.30E+00	1.83E-03	0.00E-01	0.00E-01	0.00E-01
CE144	3.01E+00	3.09E+03	5.38E+01	2.20E+01	8.90E+00	0.00E-01	0.00E-01	0.00E-01
PR143	1.78E-03	1.89E+01	3.58E-02	1.34E-02	4.98E-03	0.00E-01	0.00E-01	0.00E-01
PR144	9.26E-36	3.31E-30	1.84E-34	7.11E-35	2.58E-35	0.00E-01	0.00E-01	0.00E-01
ND147	1.35E-03	1.39E+01	2.14E-02	2.20E-02	8.48E-03	0.00E-01	0.00E-01	0.00E-01
W 187	3.47E-01	5.90E+01	1.44E+00	1.00E+00	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	4.42E-05	2.26E+00	8.75E-04	7.83E-05	1.56E-04	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = IRRIGATED STORED FEED--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
P 32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 54	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 56	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 55	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 58	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 69	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 83	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 97	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NB 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC 99M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = IRRIGATED STORED FEED--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU105	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU106	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AG110M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE125M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 130	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS136	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
W 187	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = ANIMAL DRINKING WATER--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	1.59E+01	1.59E+01	0.00E-01	1.59E+01	1.59E+01	1.59E+01	1.59E+01	0.00E-01
C 14	6.03E+02	6.03E+02	2.83E+03	6.03E+02	6.03E+02	6.03E+02	6.03E+02	0.00E-01
NA 24	4.20E+02	4.20E+02	4.20E+02	4.20E+02	4.20E+02	4.20E+02	4.20E+02	0.00E-01
P 32	1.48E+04	5.17E+03	3.82E+05	2.25E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	2.93E-01	8.54E+00	0.00E-01	0.00E-01	4.17E-02	1.91E-01	3.72E-01	0.00E-01
MN 54	1.11E+01	1.81E+01	0.00E-01	4.92E+01	1.09E+01	0.00E-01	0.00E-01	0.00E-01
MN 56	6.29E-07	3.31E-04	0.00E-01	3.65E-06	3.14E-06	0.00E-01	0.00E-01	0.00E-01
FE 55	2.86E+01	1.36E+01	1.65E+02	1.07E+02	0.00E-01	0.00E-01	5.23E+01	0.00E-01
FE 59	2.45E+02	2.97E+02	3.56E+02	6.21E+02	0.00E-01	0.00E-01	1.84E+02	0.00E-01
CO 58	8.75E+01	8.74E+01	0.00E-01	3.51E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	2.53E+02	2.55E+02	0.00E-01	1.07E+02	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	1.46E+03	1.30E+02	4.22E+04	2.61E+03	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	2.26E-05	3.78E-03	4.39E-04	4.97E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	2.69E+00	1.19E+02	0.00E-01	5.80E+00	9.81E+00	0.00E-01	0.00E-01	0.00E-01
ZN 65	1.12E+04	2.05E+04	7.09E+03	2.43E+04	1.18E+04	0.00E-01	0.00E-01	0.00E-01
ZN 69	1.36E-15	1.49E-12	1.02E-14	1.83E-14	7.59E-15	0.00E-01	0.00E-01	0.00E-01
BR 83	1.23E-04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	4.50E-25	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	4.22E-32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	2.32E+04	1.20E+03	0.00E-01	4.70E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	6.94E-26	1.23E-25	0.00E-01	1.27E-25	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	3.37E-26	1.67E-26	0.00E-01	4.89E-26	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	5.56E+02	3.99E+02	1.94E+04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	4.56E+03	1.84E+03	2.25E+05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	4.01E-01	1.31E+01	1.11E+01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	2.06E-05	5.98E-03	5.55E-04	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	1.36E-04	7.02E+00	5.09E-03	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	3.87E-24	3.79E-19	1.14E-22	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	2.92E-03	7.86E+00	1.10E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	1.50E-09	1.02E-03	5.35E-08	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	2.26E-06	6.56E-01	8.31E-05	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	1.73E-03	1.22E+00	1.00E-02	2.44E-03	2.63E-03	0.00E-01	0.00E-01	0.00E-01
ZR 97	7.71E-06	1.08E+00	9.84E-05	1.69E-05	1.70E-05	0.00E-01	0.00E-01	0.00E-01
NB 95	2.39E-01	3.48E+02	1.00E+00	4.13E-01	2.96E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	2.95E+02	4.99E+02	0.00E-01	1.51E+03	2.26E+03	0.00E-01	0.00E-01	0.00E-01
TC 99M	4.48E-02	1.01E+00	1.69E-03	3.48E-03	3.74E-02	0.00E-01	1.82E-03	0.00E-01
TC101	3.29E-27	5.64E-26	2.64E-28	3.32E-28	3.95E-27	0.00E-01	1.81E-28	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = ANIMAL DRINKING WATER--MILK

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	4.74E-03	1.72E-01	1.42E-02	0.00E-01	2.95E-02	0.00E-01	0.00E-01	0.00E-01
RU105	2.15E-07	2.54E-04	6.40E-07	0.00E-01	4.70E-06	0.00E-01	0.00E-01	0.00E-01
RU106	2.98E-02	1.81E+00	2.38E-01	0.00E-01	2.82E-01	0.00E-01	0.00E-01	0.00E-01
AG110M	2.38E+02	1.86E+04	4.92E+02	3.59E+02	5.14E+02	0.00E-01	0.00E-01	0.00E-01
TE125M	3.05E+01	1.08E+02	2.26E+02	7.55E+01	0.00E-01	7.60E+01	0.00E-01	0.00E-01
TE127M	6.94E+01	2.31E+02	5.74E+02	1.90E+02	1.41E+03	1.66E+02	0.00E-01	0.00E-01
TE127	5.64E-02	5.51E+00	2.62E-01	8.79E-02	6.40E-01	2.14E-01	0.00E-01	0.00E-01
TE129M	1.47E+02	5.69E+02	9.52E+02	3.27E+02	2.38E+03	3.66E+02	0.00E-01	0.00E-01
TE129	1.26E-13	4.33E-11	5.41E-13	1.86E-13	1.35E-12	4.54E-13	0.00E-01	0.00E-01
TE131M	1.62E+01	3.30E+02	4.87E+01	1.96E+01	1.35E+02	3.97E+01	0.00E-01	0.00E-01
TE131	8.17E-28	1.18E-25	2.91E-27	1.08E-27	7.45E-27	2.60E-27	0.00E-01	0.00E-01
TE132	6.19E+01	2.45E+02	1.34E+02	6.63E+01	4.15E+02	9.78E+01	0.00E-01	0.00E-01
I 130	2.02E+01	1.08E+01	2.28E+01	5.02E+01	5.52E+01	5.63E+03	0.00E-01	0.00E-01
I 131	9.30E+02	7.55E+01	1.79E+03	2.11E+03	2.47E+03	6.95E+05	0.00E-01	0.00E-01
I 132	2.77E-05	6.30E-05	3.83E-05	7.78E-05	8.68E-05	3.65E-03	0.00E-01	0.00E-01
I 133	6.22E+01	3.59E+01	1.46E+02	2.12E+02	2.49E+02	3.86E+04	0.00E-01	0.00E-01
I 134	5.28E-16	1.53E-15	7.25E-16	1.48E-15	1.66E-15	3.46E-14	0.00E-01	0.00E-01
I 135	9.12E-01	9.05E-01	1.26E+00	2.50E+00	2.79E+00	2.24E+02	0.00E-01	0.00E-01
CS134	8.45E+03	2.27E+02	4.49E+04	8.37E+04	2.15E+04	0.00E-01	8.83E+03	0.00E-01
CS136	5.39E+03	2.19E+02	4.91E+03	1.44E+04	5.76E+03	0.00E-01	1.18E+03	0.00E-01
CS137	5.16E+03	2.28E+02	6.22E+04	7.28E+04	1.95E+04	0.00E-01	7.92E+03	0.00E-01
CS138	1.09E-25	3.60E-25	1.38E-25	2.25E-25	1.12E-25	0.00E-01	1.75E-26	0.00E-01
BA139	1.91E-12	4.17E-09	6.59E-11	4.37E-14	2.63E-14	0.00E-01	2.65E-14	0.00E-01
BA140	3.14E+01	1.49E+02	6.08E+02	6.08E-01	1.45E-01	0.00E-01	3.74E-01	0.00E-01
BA141	4.79E-29	1.86E-26	1.52E-27	1.04E-30	6.26E-31	0.00E-01	6.33E-31	0.00E-01
BA142	6.46E-30	5.41E-28	1.31E-28	1.09E-31	6.28E-32	0.00E-01	6.60E-32	0.00E-01
LA140	4.57E-05	2.09E+00	4.51E-04	1.78E-04	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	1.28E-15	9.04E-10	1.45E-14	5.33E-15	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	5.37E-03	2.36E+01	7.49E-02	4.57E-02	1.41E-02	0.00E-01	0.00E-01	0.00E-01
CE143	3.99E-04	2.04E+01	5.28E-03	3.50E+00	1.02E-03	0.00E-01	0.00E-01	0.00E-01
CE144	1.65E-01	1.69E+02	2.95E+00	1.21E+00	4.87E-01	0.00E-01	0.00E-01	0.00E-01
PR143	1.80E-04	1.92E+00	3.64E-03	1.36E-03	5.06E-04	0.00E-01	0.00E-01	0.00E-01
PR144	5.40E-34	1.93E-28	1.07E-32	4.15E-33	1.50E-33	0.00E-01	0.00E-01	0.00E-01
ND147	1.52E-04	1.57E+00	2.42E-03	2.48E-03	9.58E-04	0.00E-01	0.00E-01	0.00E-01
W 187	2.61E-01	4.43E+01	1.08E+00	7.54E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	1.53E-05	7.83E-01	3.03E-04	2.71E-05	5.40E-05	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = ANIMAL DRINKING WATER--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
P 32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 54	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 56	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 55	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 58	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 69	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 83	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 97	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NB 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC 99M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = ANIMAL DRINKING WATER--MEAT

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU105	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU106	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AG110M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE125M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 130	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS136	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
W 187	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = RIVER SHORELINE DEPOSITS

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
P 32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 54	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 56	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 55	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 58	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 69	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 83	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 97	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NB 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC 99M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = RIVER SHORELINE DEPOSITS

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU105	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU106	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AG110M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE125M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 130	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS136	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
W 187	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = SWIMMING

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
P 32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 54	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 56	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 55	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 58	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 69	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 83	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 97	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NB 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC 99M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = SWIMMING

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU105	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU106	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AG110M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE125M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 130	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS136	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
W 187	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = BOATING

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
H 3	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
C 14	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA 24	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
P 32	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CR 51	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 54	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN 56	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 55	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
FE 59	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 58	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO 60	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 63	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NI 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CU 64	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 65	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZN 69	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 83	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 84	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BR 85	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 86	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 88	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 89	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 90	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 91	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 92	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
Y 93	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ZR 97	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NB 95	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MO 99	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC 99M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TC101	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01

DOSE TRANSFER FACTORS FOR RADIONUCLIDES IN EFFLUENT WATER

AGE = INFANT
PATHWAY = BOATING

	TOTAL BODY	GI-LLI	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
				(mrem gal)/(Ci min)				
RU103	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU105	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RU106	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AG110M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE125M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE127	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE129	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131M	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 130	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 131	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 132	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 133	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I 135	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS134	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS136	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS137	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS138	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA139	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
BA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA140	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA142	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE141	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CE144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR143	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
PR144	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND147	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
W 187	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NP239	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01